

**Resource Management Guides  
Martin State Forest  
30-day Public Comment Period (December 17, 2024 – January 15, 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 Martin State Forest.

Prescribed Fire RMG – Martin State Forest Compartment 5, Tract 9  
Prescribed Fire RMG – Martin State Forest Compartment 7, Tracts 2, 3, & 5

**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.

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

Martin State Forest  
Forester: Alex Gust

Compartment: 5  
Date: 10/30/2024

Tract: 9  
Acres: 58

## **Overview**

Fire has been present on the landscape since the arrival of the first peoples in North America. Native Americans commonly used fire to influence their landscape to help with agriculture, hunting, and ease of travel. Throughout early settlement and into the 1900s, fire was viewed as an enemy of nature and was extinguished wherever it was found. It is now realized that many of the natural systems in Indiana evolved with fire and require it to thrive, especially oak-hickory forests. The landscape of southern Indiana has been oak-hickory dominated for approximately 4,000 years.

Without fire or other appropriate interventions, many of the oak-hickory dominated areas in our state forests are under threat to convert to other forest types due to an aging overstory combined with a mid-story and understory that are filled with other, usually shade tolerant species. These trees consist primarily of American beech, sugar maple, and red maple with lesser amounts of ironwood, musclewood, blackgum, and sassafras. The ecological benefits of oak-hickory forests are immense, and the conversion of these forests to other types would be catastrophic. One of the major factors associated with successful oak regeneration is light intensity. The shaded conditions described above are too extreme for oak establishment.

Conversely, too much light from the canopy is also detrimental, as it will allow faster growing species like yellow-poplar to quickly overtop newly established oak seedlings. When using prescribed fire as a tool for oak regeneration one of the primary objectives is to increase diffuse (scattered) light levels while minimizing canopy gaps. It is believed that oak will become established under the moderate light conditions this would create, while more shade intolerant species will not receive sufficient light for competitive growth.

Controlling fire intensity is critical to accomplishing these goals. The fire needs to be hot enough to kill the shade tolerant species dominant in the midstory and understory, but not so intense as to kill overstory trees. Experienced professionals with the Division of Forestry will develop a complex burn plan tailored to meet these objectives. There are a multitude of components and considerations that must be addressed when developing a burn plan, including but not limited to weather conditions, smoke dispersal, fuel models, terrain, personnel assignments, ignition and holding plans, communications, contingency plans, and safety.

In addition to creating optimal light conditions, prescribed fire reduces leaf litter to provide conditions more favorable for the establishment of not only oak and hickory, but the herbaceous and shrub layers that were traditionally associated with them. Fire also releases nutrients being

held in dead plant matter and can lower fuel loads to help minimize the risk of uncontrolled wildfires.

**Location**

Proposed prescribed fire location for 6360509 is in Martin County, Indiana, Halbert Township, Section 15, T3N – R3W. Proposed area is about 4 miles east of Shoals, Indiana.

**General Description**

This burn area (i.e., tract) is west of the main forest road that loops by the office, campground, and fire tower off U.S. 50. Much of the area is primarily west facing slope with some north facing slopes within the area as well. This tract is predominantly oak-hickory cover type with some mixed hardwood primarily located in the lower areas and along some of the ephemerals. There are two areas on the ridgetop that are old pine plantings comprising 12 acres of the tract. One area is in the southern end of the tract by U.S. 50 and the other in the northwest section of the tract by the ridgetop. There are no known planting records for the pine stands, however, a management guide from 1991 indicates that the pine is approximately 42 years old making it about 75 years old currently. Much of the tract showed a good number of oak-hickory seedlings/saplings during post-harvest timber stand improvement (TSI) in 2022 and the inventory prior to the most recent harvest indicated advanced oak regeneration was present in areas. With this, the mid-story and understory are dominated by shade tolerant species such as American beech, sugar maple, and red maple. With the location, slopes and soils present on the site, it is well suited for oak-hickory cover type to be promoted using prescribed burning.

One factor effecting the persistence of oak-hickory seedling density is the size of the shade tolerant species. Decades of fire suppression have allowed many of the understory and midstory competitors to reach sizes where they are resistant to low intensity fires. As previously mentioned, one of the main goals when using fire as an oak regeneration tool is to create the proper light conditions. Like much of the forestland in southern Indiana, Martin State Forest is oak-hickory dominated in the overstory but lacks the oak-hickory regeneration necessary to maintain this forest type. Continuous Forest Inventory (CFI) data collected by the Division of Forestry supports these observations.

**Table 1**  
**Martin State Forest – Percent Basal Area for Product Class by Species Group**

<b>Species Group</b>	<b>Sapling</b>	<b>Pole</b>	<b>Small Saw</b>	<b>Large Saw</b>
<b>Oak - Hickory</b>	5.9%	17.0%	33.2%	54.5%
<b>Beech – Maple</b>	55.3%	35.3%	29.4%	8.3%
<b>Yellow Poplar</b>	10.1%	15.9%	12.3%	20.4%
<b>Mixed Hardwoods</b>	18.6%	24.6%	15.5%	12.0%
<b>Conifers</b>	0.8%	7.0%	9.5%	4.8%
<b>Non-Commercial</b>	9.3%	0.3%	0.0%	0.0%

**Table 2**

**Martin State Forest – Percent Live Trees for Product class by Species Group**

<b>Species Group</b>	<b>Sapling</b>	<b>Pole</b>	<b>Small Saw</b>	<b>Large Saw</b>
<b>Oak - Hickory</b>	2.9%	17.1%	32.0%	56.8%
<b>Beech – Maple</b>	52.3%	40.5%	32.6%	10.1%
<b>Yellow Poplar</b>	11.7%	15.2%	11.8%	18.2%
<b>Mixed Hardwoods</b>	26.1%	20.5%	13.5%	8.8%
<b>Conifers</b>	0.1%	6.7%	10.1%	6.1%
<b>Non-Commercial</b>	6.8%	0.0%	0.0%	0.0%

An effective solution to remove the shade tolerant species too large for a low intensity fire to kill is to carry out a TSI operation which targets this particular cohort. Below is a list of effective mechanical and chemical methods that can be used. All trees should be treated with an appropriate herbicide to prevent resprouting.

1. Cut with brush cutter – best for sapling size
2. Cut with chainsaw – best for pole size and larger
3. Girdle – ideal for medium pole size and larger
4. Basal Bark Application – ideal for sapling size and small poles

A combination of the silvicultural treatments described above, and repeated burns are prescribed for the area. A 3 to 7 year burn frequency is recommended. Oak and hickory regeneration assessments will be made periodically and burn frequency recommendations will be adjusted accordingly. The TSI operation may occur pre or post burn and intensity will vary depending on specific site and stand conditions.

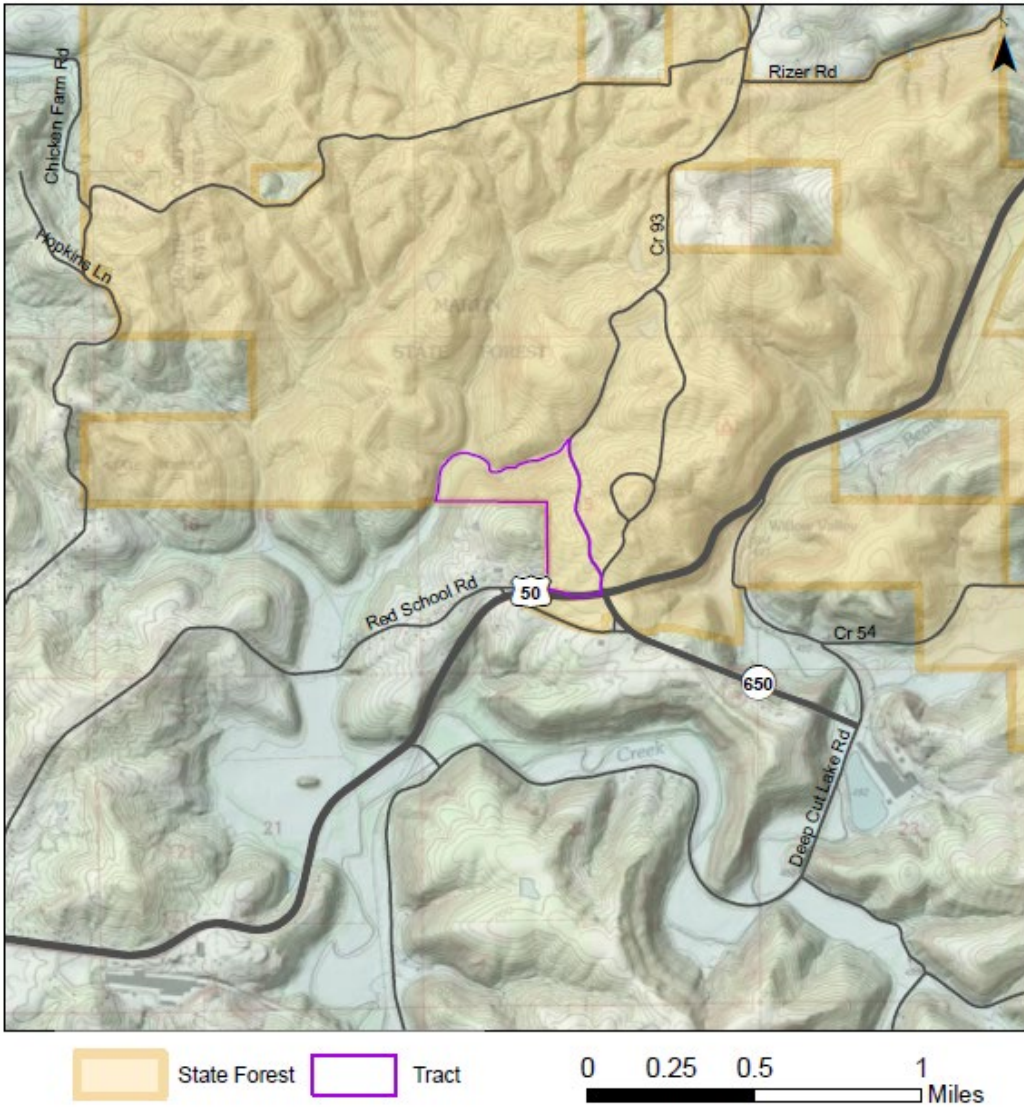
**Other Considerations**

This area of Martin State Forest has limited recreational usage, but the existing access roads are occasionally used by hikers and hunters. The area will be closed to public access for the duration of the burn and mop-up period, which is likely to be 1-2 days.

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

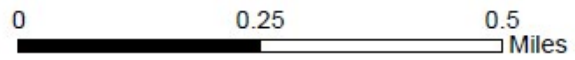
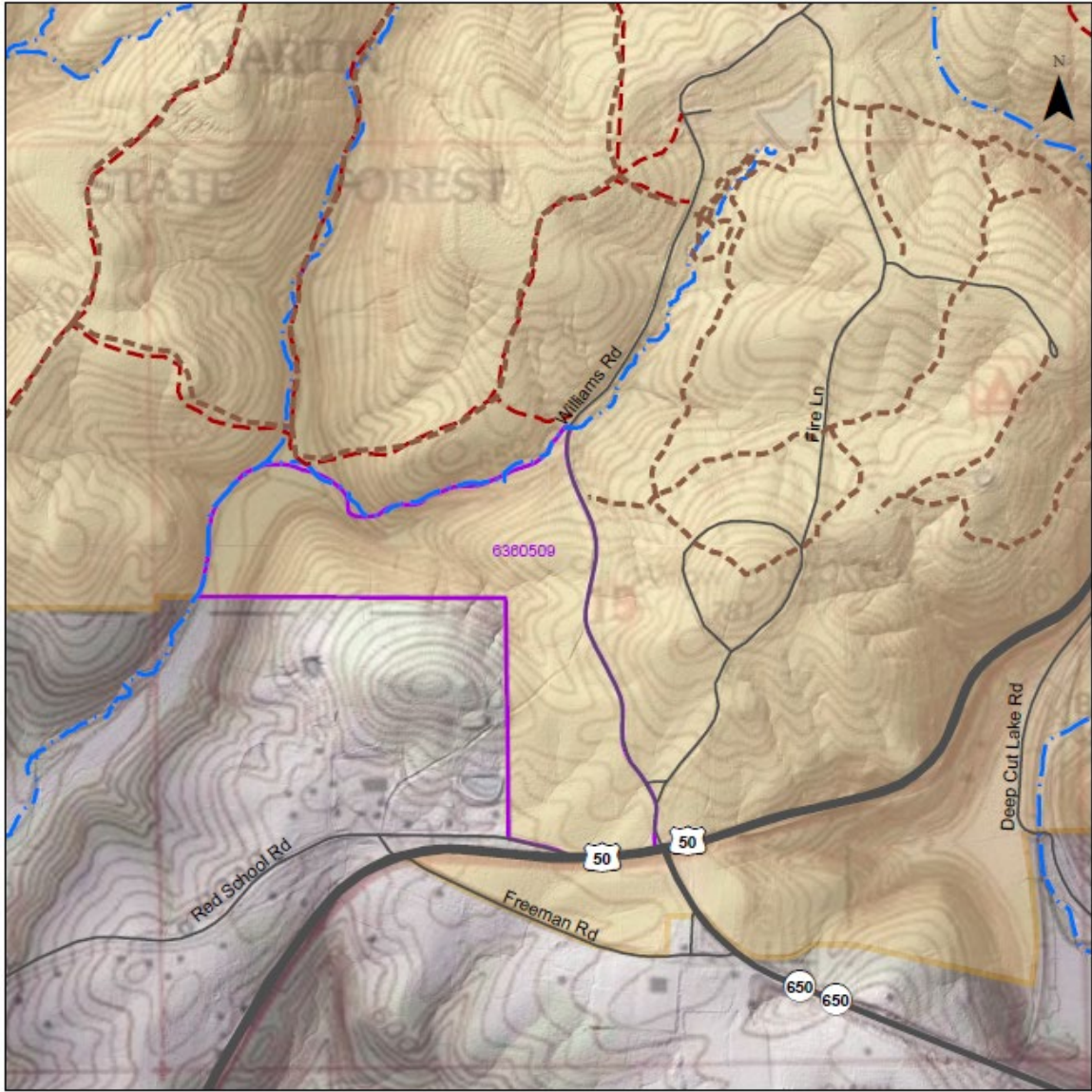
A formal Ecological Review process, which includes a search of Indiana’s Natural Heritage Database, is part of the management planning process. If Rare, Threatened, or Endangered species were found to be associated with this area, the activities prescribed in this guide will be conducted in a manner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

Martin State Forest  
Location Map  
Compartment 5 Tract 9





# Martin State Forest Proposed Burn Area Compartment 5 Tract 9



## Legend

- Proposed Tracts
- Mapped Streams
- Recreational Trails
- State Forest

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

Martin State Forest  
Forester: Alex Gust

Compartment: 7  
Date: 10/30/2024

Tracts: 2,3, & 5  
Acres: 304.8

**Overview**

Fire has been present on the landscape since the arrival of the first peoples in North America. Native Americans commonly used fire to influence their landscape to help with agriculture, hunting, and ease of travel. Throughout early settlement and into the 1900s, fire was viewed as an enemy of nature and was extinguished wherever it was found. It is now realized that many of the natural systems in Indiana evolved with fire and require it to thrive, especially oak-hickory forests. The landscape of southern Indiana has been oak-hickory dominated for approximately 4,000 years.

Without fire or other appropriate interventions, many of the oak-hickory dominated areas in our state forests are under threat to convert to other forest types due to an aging overstory combined with a mid-story and understory that are filled with other, usually shade tolerant species. These trees consist primarily of American beech, sugar maple, and red maple with lesser amounts of ironwood, musclewood, blackgum, and sassafras. The ecological benefits of oak-hickory forests are immense, and the conversion of these forests to other types would be catastrophic. One of the major factors associated with successful oak regeneration is light intensity. The shaded conditions described above are too extreme for oak establishment.

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Controlling fire intensity is critical to accomplishing these goals. The fire needs to be hot enough to kill the shade tolerant species dominant in the midstory and understory, but not so intense as to kill overstory trees. Experienced professionals at Fire Headquarters (FHQ) will develop a complex burn plan tailored to meet these objectives. There are a multitude of components and considerations that must be addressed when developing a burn plan, including but not limited to weather conditions, smoke dispersal, fuel models, terrain, personnel assignments, ignition and holding plans, communications, contingency plans, and safety.

In addition to creating optimal light conditions, prescribed fire reduces leaf litter to provide conditions more favorable for the establishment of not only oak and hickory, but the herbaceous and shrub layers that were traditionally associated with them. Fire also releases nutrients being held in dead plant matter and can lower fuel loads to help minimize the risk of uncontrolled

wildfires.

**Location**

Proposed prescribed fire location for compartment 7 is in Martin County, Indiana, Halbert Township, Section 24, T3N – R3W. Proposed area is about 4 miles east of Shoals, Indiana.

**General Description**

This burn area is approximately three quarters of the entire compartment north of Elliot Cemetery Road. The majority of the area is primarily south and west facing slopes with some north and east facing slopes within the area as well. The tracts within the burn area of compartment 7 are predominantly oak-hickory cover type with some mixed hardwood primarily located in the lower areas and along some of the ephemeral drains. There are four areas on the ridgetops that were pine plantings. There are no planting records, however, a management guide from 1969 indicates that the pine is sapling size on each tract indicating it was likely planted in the late 50’s to early 60’s. these were converted to native hardwoods in the 2017-19 harvests totaling 17.2 acres. Much of the tract showed a good number of oak-hickory seedlings/saplings during post-harvest timber stand improvement and the inventory prior to the most recent harvest indicated advanced oak regeneration was present in areas. With this, the mid-story and understory are dominated by shade tolerant species such as American beech, sugar maple, and red maple.

One factor effecting the persistence of oak-hickory seedling density is the size of the shade tolerant species. Decades of fire suppression have allowed many of the understory and midstory competitors to reach sizes where they are resistant to low intensity fires. As previously mentioned, one of the main goals when using fire as an oak regeneration tool is to create the proper light conditions. Like much of the forestland in southern Indiana, Martin State Forest is oak-hickory dominated in the overstory but lacks the oak-hickory regeneration necessary to maintain this forest type. Continuous Forest Inventory (CFI) data collected by the Division of Forestry supports these observations.

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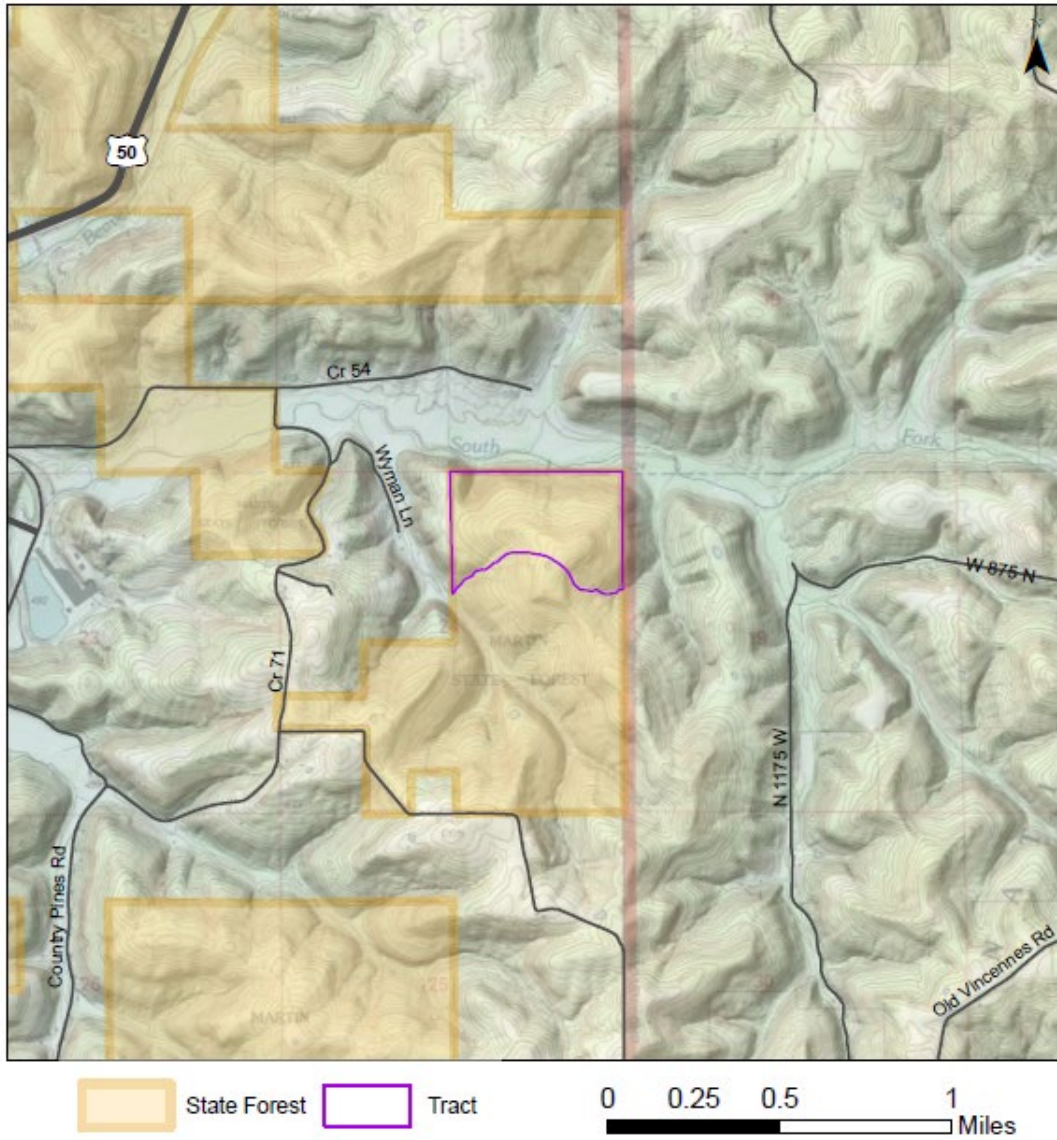
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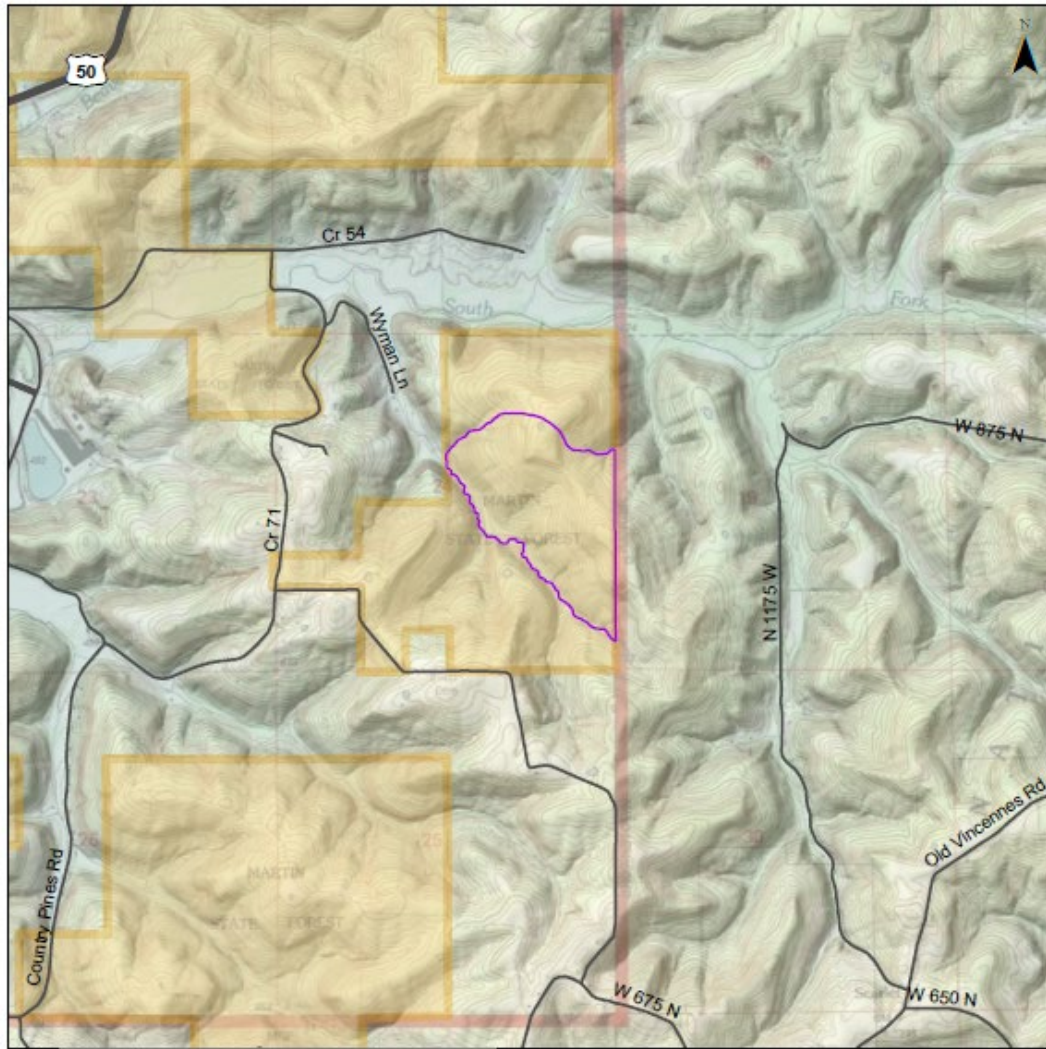
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# Martin State Forest Location Map Compartment 7 Tract 2

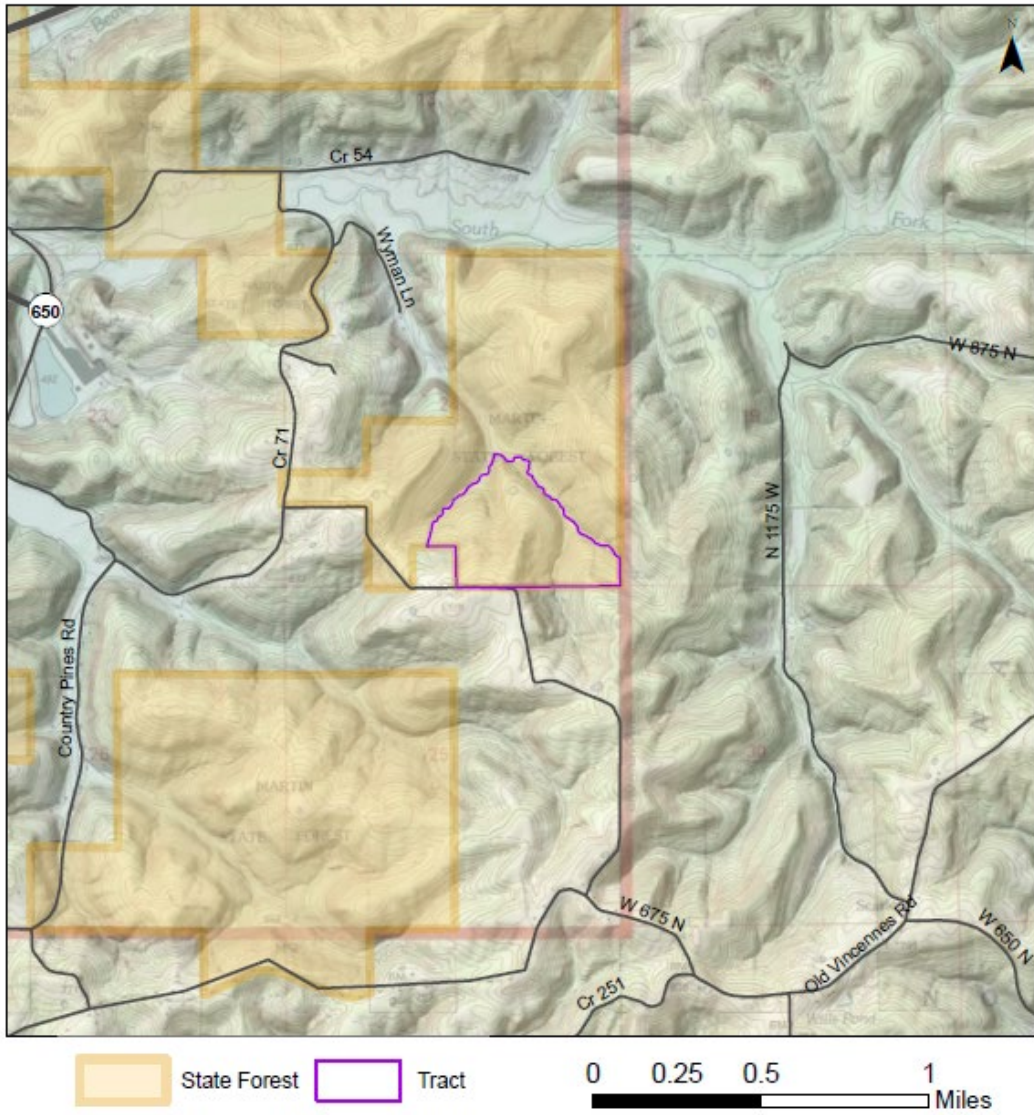


# Martin State Forest Location Map Compartment 7 Tract 3

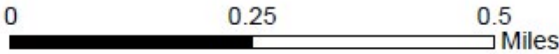
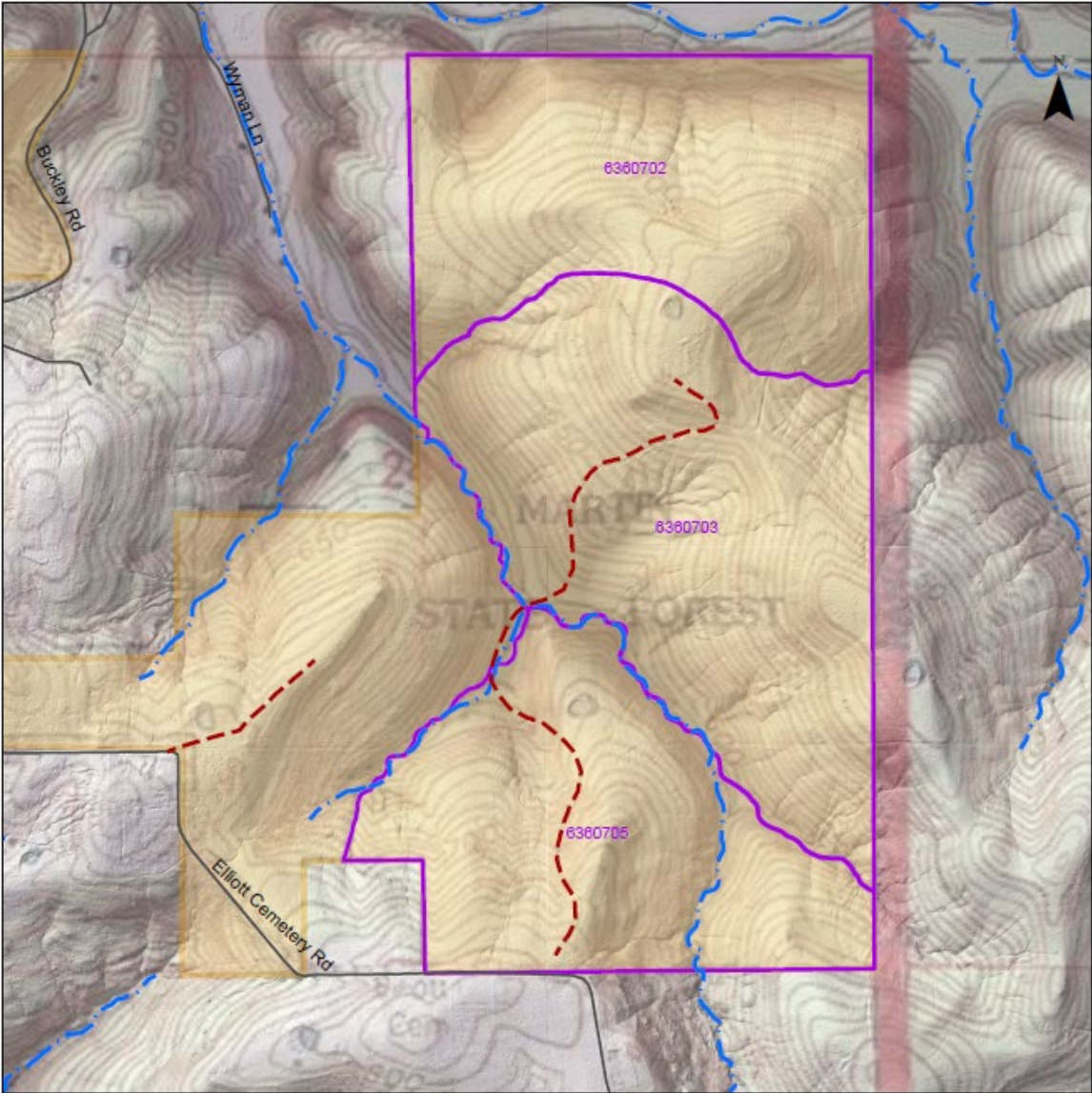




# Martin State Forest Location Map Compartment 7 Tract 5



# Martin State Forest Proposed Burn Area Compartment 7 Tracts 2,3,5



## Legend

-  Proposed Tracts
-  Mapped Streams
-  Fire Lanes
-  State Forest