

**Resource Management Guides
Pike State Forest
30-day Public Comment Period (November 13 – December 12, 2024)**

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 Pike State Forest.

Prescribed Fire RMG – Compartment 12 Tracts 4

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

Ferdinand-Pike State Forest

Compartment: 12

Tract: 4

Forester: Jamie Winner

October 29, 2024

Acres: 166

Overview

The prevalence of fire on the landscape of southern Indiana has varied over time. It is known Native Americans used fire on the landscape for reasons including agriculture, hunting, and ease of travel. As early settlers moved into the area, fire was viewed as something to be suppressed whenever it occurred due to damage to crops and homes.

In recent years, the lack of fire on the landscape was determined to cause other negative effects such as increased fuel load leading to excessively intense wildfires, but more directly impacting this area is the oak regeneration problem. When fire is removed, oaks and hickories lose some of their competitive edge against other more shade tolerant species. There are several reasons for this which will be described below. With the lack of fire, other species become predominant in the understory. Typically, this includes a large component of American beech and sugar maple or red maple.

Oak and hickory are fire adapted with features such as thicker bark, hypogeal germination, large root systems, prolific sprouting, and the ability to compartmentalize scars. Oak leaf litter is specially adapted to carry fire through the woods versus leaf litter of other more shade tolerant hardwoods in the forest. Prescribed fire can reduce the component of shade in the understory to allow a moderate light condition that is conducive to oak establishment. Too little or too much light will affect the species able to establish in the understory and midstory.

In addition to the appropriate light conditions, fire also reduces existing leaf litter to provide a better seedbed for natural seed source as well as increasing the layer of herbaceous vegetation. Fires release nutrients held in dead plant matter and lower fuel loads to help reduce the chances of an uncontrolled wildfire.

Location

The proposed prescribed burn area is located in Marion Township of Pike County, Indiana, Sections 11 and 14, T2S, R7W. The location is approximately 4.2 miles southeast of Winslow and 2.6 miles west of Velpen, Indiana.

General Description

The prescribed burn area includes a portion of tracts 4, 5, and 6 encompassing 481 acres. Tracts 5 and 6 have finalized resource management guides (2023) addressing the use of prescribed fire as a management tool. The 2003 resource management guide for tract 4 did not include prescribed fire as a management tool. However, the presence of oak and an understory dominated by maple and beech in tract 4 make fire an effective, cost-efficient approach to improving conditions more favorable to oak and hickory.

Tract 4 consists of a combination of 71 acres of early state forest ownership purchased in 1936, and 95 acres of more recent ownership purchased in 2001. Total land area in tract 4 is 166 acres. The last timber harvest was recorded in 1986, but the 95-acre purchase shows signs of harvesting previous to state ownership. Invasive species have also been treated on the edges of this area including ailanthus, autumn-olive, bush honeysuckle, and some multiflora rose.

The area includes dry to mesic oak-hickory forest on the upper ridges and ridgetops, with mesic mixed hardwoods in the lower slopes. The eastern boundary of the tract begins to transition to a wet mesic floodplain forest. A portion of the east tract boundary is the Patoka River. Little or none of this area will be included in burn area. Ridgetops and upper slopes include white oak, black oak, red oak, pignut hickory, and shagbark hickory. Lower slopes and valleys include more shade tolerant species such as sugar maple, American beech, and yellow poplar.

General Discussion and Prescription

There are no records of previous prescribed fire use within tract 4. The presence of sawtimber oak and hickory species in the area indicates some sort of past disturbance to the landscape. This could have been grazing, fire, or a combination of these and other human caused factors.

This tract follows the general property trends as illustrated in the below Continuous Forest Inventory (CFI) data. The data illustrates that the relative abundance of beech-maple timber type generally decreases as you move up from the sapling through large sawtimber growth stages. Conversely the oak-hickory timber type increases in abundance as you move up from the sapling through large sawtimber growth stages. This is an example of how the future regeneration in the area is trending to the shade-tolerant beech-maple timber type due to lack of disturbance and fire suppression.

Species Group	Sapling	Pole	Small Saw	Large Saw
Oak-Hickory	2.4%	14.4%	35.5%	57.1%
Beech-Maple	44.4%	39.4%	11.0%	14.2%
Yellow-poplar	9.8%	5.2%	13.3%	21.4%
Mixed Hardwoods	43.4%	28.7%	26.6%	7.1%
Conifers	0.0%	11.8%	13.3%	0.0%

Portions of the tract include higher soil indexes and more moist conditions, such as on north facing slopes, lower slopes, and valleys. In some of these areas, it will only make sense to manage for more shade tolerant species. The upper more dry slopes and ridgetops with lower site indexes are going to generally be the preferred locations for oak and hickory future regeneration.

Follow-up mechanical treatments will be needed to control more advanced saplings and pole species in sites conducive to oak regeneration. This is generally referred to as a mid-story treatment and can include basal bark treatment, chainsaw felling with chemical application, or girdle and chemical application. This activity will be targeted based on the results of the fire as well as the specific topographic and site index concerns mentioned above.

It is also likely that one or more follow up burns may be needed in the area. Typically, a single

prescribed burn will not sufficiently reduce competition to allow oak and hickory regeneration to succeed. Additionally, multiple prescribed fires can continue to increase the component of oak regeneration if they are spaced appropriately in time. This ideal timeframe for recurring fire is on a 3 to 7 year burn frequency until sufficient advance oak regeneration is established.

To summarize, the above determined treatments are prescribed for the area to include fire and follow up mechanical release of any oak and hickory regeneration present after the fire. A follow up burn will be prescribed in 3 to 7 years if future conditions indicate the need. This would be based upon recurring surveys of regeneration condition.

Other Considerations

The fire tower, which is currently closed, is located across the road from the northwest corner of the burn area. This tower is outside of the burn area but will be monitored during any burn for added protection.

A small cemetery, Corn Cemetery, is located on the northern edge of the burn area. The cemetery is maintained, and the sparse vegetation and lack of leaf litter likely would not support fire, however this area will be buffered to further protect the area.

A multi-use trail travels through the interior and edges of the burn area. The public road and multi-use trail make up part of the proposed prescribed fire boundary. Use of both will be temporarily restricted (i.e., briefly) during the prescribed burn.

Cultural resources may be present, but their location(s) are 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.