

Ohio Department of Natural Resources Division of Forestry

Forest Management Plan for State Forests

2021-2031



Reviewed and Approved By:

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Date:

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OUR MISSION:

To promote and apply management for the sustainable use and protection of Ohio's private and public forest lands.

OUR VISION:

The Ohio Division of Forestry envisions healthy, diverse forests valued for the life-sustaining benefits they provide now and forever.

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Introduction

In 2010, the ODNR-Division of Forestry (DOF) achieved certification to the standards and principles of the Forest Stewardship Council® and the Sustainable Forestry Initiative®.¹ These forest management certification standards are third-party, globally recognized, independent environmental standards of good forest stewardship. DOF-managed state forests remain the only dual-certified forest lands in Ohio.

State forest planning efforts have aimed to conform to the certification standards above as well as the statewide comprehensive forest resource assessment of all forests in Ohio, titled the Ohio Forest Action Plan.² The statewide Ohio Forest Action Plan was recently updated in 2020. The DOF state forest management plan relies heavily on the Ohio Forest Action Plan and the intent of the state forest plan is to apply the statewide plan recommendations to state forest management.

This management plan serves as an umbrella document. As an umbrella document, this plan will describe an integrated management strategy by referencing state laws, policies, and procedural documents.³

Ownership, Legal Status, and Rights

State forests are owned by the state of Ohio. These lands are managed by the Ohio Department of Natural Resources (ODNR) – Division of Forestry (DOF). The director of natural resources has authority to formulate and institute all the policies and programs of ODNR⁴, including the DOF.

Furthermore, the chief of the DOF has authority over the administration, use, visitation, and protection of the state forests.⁵ Ohio Revised Code, section 1503 is the foundation for the organization of the DOF and the management of state forests.

As the time of this writing, there are 24 state forests totaling 200,358 acres. Acreages change over time with land acquisitions or divestitures. In general terms, the state has rights to the surface of all state forests. Sub-surface rights are owned by third parties on approximately 25% of the state forests. Third parties also own use-rights to the surface through a variety of easements, licenses, or other agreements for structures such as electric utilities, fiber optic lines, or oil and gas wells on some state forests. Before any transaction or agreement is executed, there

¹ More information about state forest certification, including past audit reports, are available on our website ohiodnr.gov/forestry.

² The Ohio Forest Action Plan (FAP) consists of two documents: Forest Resource “Assessment” and the Forest Resource “Strategy”. Both documents are publicly available at ohiodnr.gov/forestry

³ The Land Management Manual is the Division’s primary procedural document for forest management activities.

⁴ Ohio Revised Code, Section 1501.01.

⁵ Ohio Revised Code, Section 1503.01.

is a process for establishing and researching title and rights through our department's Division of Real Estate and Land Management.⁶

Description

Land Use History

The state forest system in Ohio began in 1912 when the Ohio legislature amended the Ohio Constitution to allow for the creation of a forest reserve system. At that time, laws were passed that encouraged the propagation and cultivation of forestry on all lands, and DOF was part of the Ohio Agricultural Experiment Station (OAES). The first state forests were purchased in 1916, consisting of 221 acres in Athens County and 1,500 acres in Lawrence County, which led to the creation of Waterloo State Forest and Dean State Forest. By the end of the 1920s, DOF had acquired more than 30,000 acres of marginal and degraded farmland in need of restoration.

The Land Utilization Program helped the division acquire more than 40,000 acres from the federal government during the late 1930s, which resulted in the creation of Blue Rock, Tar Hollow and Zaleski state forests. The objective of the Land Utilization Program was to return land to its most productive capacity by generating a forest community, aiding flood control, and preventing soil erosion, and by so doing, establishing an economic base to maintain a rural population.

In the 1940s, the Ohio legislature appropriated \$1.5 million to add more than 32,000 acres of forest land to the state forest system. The following state forests were created: Yellow Creek, Shade River, Richland Furnace, Maumee, Memorial (at Mohican), Athens (now Stroud's Run State Park), and the forest-parks of Hueston Woods and Beaver Creek – both of which are now state parks. State forests at that time totaled 138,628 acres.

In 1949, the Ohio Department of Natural Resources was created, and DOF and all state forests were transferred from OAES to ODNR. Of note was the consolidation of recreation areas under the newly created Division of Parks. The "forest- park" areas, formally owned and managed by the DOF, were combined with the Canal Lands from the Department of Public Works to create a new state park system. All lands in five state forests and portions of seven others were transferred to this new division. The remaining state forests continued to be managed for their original purposes: long-term forest management, demonstration of proper forestry practices, and revenue production. State forests continued to provide areas for "back-country" activities.

In the 1960s, the DOF took responsibility for mine reclamation areas in Perry County, Jefferson County, and Harrison County. These areas contained approximately 8,000 acres of badly damaged, strip-mined land in desperate need of rehabilitation. The DOF retained responsibility for Perry, Fernwood, and Harrison state forest areas and has since maintained stewardship.

The DOF continues to purchase land from willing sellers and receive lands by donation. Recent additions to the state forest system include Beaver Creek state forest, which was purchased in

⁶ More information is available at ohiodnr.gov/real-estate

1998, the Vinton Furnace state forest purchased in 2010, West Blue Rock state forest which was acquired in 2012, and Willow Grove State Forest was acquired in 2019.

Much of the land that are state forests were historically abused. Several state forests were mined for both coal and iron ore prior to the turn of the century. Charcoal had to be produced as part of the iron making process, so the timber was heavily cut several times to make charcoal. Remains of iron furnaces can still be seen today at Vinton Furnace and Zaleski state forests. Eventually, when the iron ore was depleted, these areas were then mined for the coal resources. Many old mineshafts and strip-mined areas from around 1900 are still evident in these forests. These areas were also subject to many wildfires in the forest due to train routes that run through the middle of the current properties.

In addition to mining on the properties mentioned above, subsistence farming was common on lands that later would become Mohican-Memorial, Yellow Creek, Hocking, Blue Rock, Sunfish Creek, Shade River, Tar Hollow, Scioto Trail, Pike, Brush Creek, and Shawnee. Trees were cut, and the hillsides were cleared to make way for farm fields. Over time, the soils were depleted and eroded to the point where crop production suffered and many of these lands were abandoned. Other lands in southern Ohio were abused through unsustainable timber harvesting practices, primitive agricultural practices, and uncontrolled wildfires. These lands were commonly viewed as wastelands. They became candidates for inclusion into the state forest system.

The efforts of the Civilian Conservation Corps in the 1930s led to a mass reforestation project that resulted in thousands of trees being planted on state forests for erosion control. The CCC crews also built many of the roadways, dams, lakes, buildings, and other infrastructure still used by the state forest system and state parks today. Since that time, state forest lands continue to be restored and managed into healthier forests through sound science and proper care and protection. For example, in 1972 nearly 8,000 acres of Shawnee state forest were administratively designated as a wilderness area. Timber management activities and public motorized travel have been eliminated in the area.

Other factors continue to influence our forests such as the ice storm of 2003 that had significant impact on Shawnee and Dean state forests. This ice storm resulted in much downed woody debris. Many trees became uprooted and fell over; some snapped off at the trunk, and excessive amounts of limbs were broken from the treetops. This weather event created a higher fuel loading on the forest floor, stressed living trees, and caused a reduction in growth and vigor, along with other impacts to the forested environment.

The ice storm also introduced additional stress on the already declining white oak population. This white oak decline is a symptom of many different influences including root disease and years of stress introduced by several species of insects. Throughout the forest, much white oak mortality can be found. These two factors have created an abundance of understocked and poorly stocked stands throughout the forest.

Natural Disturbance Regimes

The native vegetation of Ohio's state forests is made up of forest types that all have oak species as a major component. In the pre-settlement forests of Ohio, mixed-oak forest-types dominated much of the unglaciated Allegheny Plateau of southeastern Ohio.⁷ Since mixed-oak forests are mid-successional stage forests, they are subject to successional replacement unless there are disturbance regimes to maintain them. The most common disturbance regime was periodic surface fires coupled with occasional canopy-level disturbance.⁸

Forests were maintained in an open, park-like condition through burning by Native Americans inhabiting the area. Many researchers have discussed the extent to which the Native Americans used fire. Information on pre-settlement fire frequency varies but is generally accepted to be in the 5-to-20-year range.⁹ The adaptations to fire of upland oak species of eastern North America allowed the oaks to thrive under a recurring fire regime while suppressing fire sensitive, non-oak tree species.¹⁰

Fire, with canopy disturbance from storms or other damaging agents, was the main disturbance agent affecting the structure and composition of Ohio's forests. Fire kept the fire-sensitive species from spreading out of areas that were sheltered from fire such as coves and bottomlands. Fire kept the mid-story open, providing enough light for acorns to germinate, as well as preparing a proper seedbed. Oaks persisted over a 10,000-year timespan despite climate fluctuations, with the most likely explanation being fire use by indigenous peoples.¹¹ Oaks' fire adaptations of thick bark, deep and extensive rooting, and vigorous sprouting ability allow for oaks to persist in the understory until a canopy gap occurs allowing for significant height growth.

The historical impacts of fire on the oak dominated forest ecosystems of the eastern United States, including Ohio, were dramatically changed in the early 1900s as fire suppression efforts began. These actions removed the disturbance that kept competitive fire-sensitive species in the coves, bottoms, and other areas of the landscape that were sheltered from fire. These species began to spread out from these sheltered areas and became abundantly established in the understory.¹² Continued fire suppression throughout the decades resulted in the establishment of a competitive understory vegetation layer of red maple, blackgum, and other fire intolerants that has caused a failure in the oak regeneration process. Oak seedlings are unable to survive under

⁷ Gordon, R. B., 1969. The natural vegetation of Ohio in pioneer days. Bulletin of the Ohio Biological Survey, New Series 3(2), Ohio State University, Columbus, OH. Dyer, J.M., 2001. Using witness trees to assess forest change in southeastern Ohio. *Can. J. For. Res.* 31, 1708-1718.

⁸ Abrams, M.D., 2003. Where has all the white oak gone? *Bioscience*. 53(10). 927-939.

⁹ Abrams, M.D., 2005. Prescribing fire in eastern oak forests: is time running out? *Northern J. Appl. For.* 22, 190-196.

¹⁰ Abrams, M.D., 2003. Where has all the white oak gone? *Bioscience* 53(10). 927-939.

¹¹ Iverson, L., Bartig, J., Nowacki, G., Peters, M., Dyer, J., Hutchinson, T., Matthews, S., and Adams, B. 2019a. USDA Forest Service Section, Subsection and Landtype Descriptions for Southeastern Ohio. In: USDA Forest Service, Northern Research Station Research Map NRS-RMAP-10.

¹² Signell, S.A., Abrams M.D., Hovis, J.C., Henry, S.W., 2005. Impact of multiple fires on stand structure and tree regeneration in central Appalachian oak forests. *Forest Ecol. Manage.* 218, 146-158.

shaded conditions once their acorn energy reserves have been depleted due to the oak species' low to intermediate tolerance of shade.¹³

Most forests in Ohio today regenerated either during the period of intense logging and burning of the late 1800s and early 1900s or thereafter, as farms and mines were abandoned.¹⁴ The lack of disturbance since that era is changing Ohio's forests in a negative way. *Ohio's Forests*, a summary of USDA Forest Service Forest Inventory and Analysis data, discusses the dramatic increase in non-oak species across the state of Ohio. Ohio has experienced a decrease in the number of small oak trees between 1991 and 2006, the two most recent years of inventory data. Specifically, the number of oak trees has decreased in the 2-, 4-, 6-, 8-, 10-, and 12-inch diameter classes. Non-oak species increased in all these classes except the 2- and 4-inch classes. The report also states that the decline of oaks in the small diameter classes will significantly impact future oak resources in the state.¹⁵ The State Wildlife Action Plan notes that early-successional habitat important to many forest wildlife species is declining as Ohio's forests are maturing.¹⁶

Description of the Landscape

Based on FIA data, the total area of forest land in Ohio is 7,996,702 acres, representing 30% of the state's land cover. Prior to European settlement, Ohio was estimated to be 95% forested. The state experienced a steady decline in forest cover until the turn of the twentieth century. Data from the 1940's show Ohio's forest cover at 12%. Successive surveys from the FIA reported a steady increase in forest land up to the 1991 survey. However, surveys from 2006 and 2011 found the amount of forest land in Ohio has remained steady over a 25-year period. The primary driving force for the increase in forest land from 1940 to 1991 was the reversion of farmland to forest. That driver has all but ceased and any new forest land arising from reverting farmland is likely being offset by land being converted to non-forest land for development.

The largest ownership group of forest land in Ohio is the family forest group, which owns 70% of the state's forests. Family forests are non-industrial private forests that are held by family groups. Other private landowners like forest industry, non-governmental organizations, clubs, and corporations hold another 15% of Ohio's forests, for a total of 85% of forest land under private ownership. Governments hold the remaining 15% of forests in the state.¹⁷

Climate

Most of Ohio lies within a climatic region classified as Humid Continental, warm summer phase, with predictable general changes. The climate of the southern state forests somewhat different

¹³ Ibid.

¹⁴ Brose, P.H., Dey, D.C., Phillips, R.J., and Waldrop, T.A. 2013. A meta-analysis of the fire-oak hypothesis: Does prescribed burning promote oak reproduction in eastern North America? *Forest Science*. 59(3): 322-334.

¹⁵ Widmann, R. H., Balsler, D., Barnett, C., Butler, B.J., Griffith, D.M., Lister, T.W., Moser, W. K., Perry, C.H., Riemann, R., Woodall, C.W., 2009. Ohio forests: 2006. Resour. Bull. NRS-36. U.S. Department of Agriculture, Forest Service, Northern Research Station, Newtown Square, PA.

¹⁶ Ohio Department of Natural Resources, Division of Wildlife. 2015. Ohio's State Wildlife Action Plan.

¹⁷ Ohio Forest Action Plan Forest Resource Assessment. 2020. 9.

than the northern forests. The following is a climate snapshot from south to north. The climate in Scioto County near Shawnee State Forest is relatively mild with an average July temperature of 87° F and a January low of 24° F. The mean annual precipitation is 41.02 inches of rain and 13.5 inches of snow. Weather and climate data from the Toledo Express Airport near Maumee State Forest indicates the annual average maximum temperature is 58.5° F and the annual average low temperature is 38.3° F. The average annual rainfall is 32.5 inches and average annual snowfall is 37 inches. The average annual relative humidity is 60 and the average annual wind speed is 9.4 mph.

Within the state forests, many microclimates exist, each producing its own combination of vegetation and wildlife. Wind, solar radiation, and soil moisture vary between ridges and slopes and hollows, resulting in a variety of flora and fauna. Annual localized floods are common in such areas.

Climate science predicts that the climate will change at an accelerated pace. Climate models all show warming and precipitation increases in the northern latitudes, an increase in the number of days with temperature extremes, and a more vigorous hydrological cycle. The potential increase in the growing season and the change in the hydrological cycle in Ohio would potentially mean a change in our forest composition and dynamics. The potential changes in species composition because of climate change may lead to ecosystem vulnerabilities such as susceptibility to insects and disease, moisture stress in higher elevations, and adverse effects on wildlife populations.

The Division of Forestry consults tools such as the USDA Forest Service Climate Change Tree Atlas¹⁸ for potential impacts to Ohio's forests due to climate change. For our forests to be able to accommodate climate change, they should contain greater genetic diversity, be adapted to disturbances, be adapted to warmer and drier climates, and contain a diversity of plant communities and species. The goals and objectives of state forest management were formulated to create forests resilient to climate change. Specifically, focusing on oak ecology and management and discriminating against mesophytic encroachment onto xeric sites will increase climate resiliency on state forests.

Description of Forest-associated Resources and their Management

Rare, Threatened, and Endangered Species

The U.S. Fish & Wildlife Service is the lead agency administering the federal Endangered Species Act, and they enforce the protection of federally listed species (i.e., endangered or threatened). The ODNR Division of Wildlife administers the state's program for listing threatened and endangered wildlife species and the ODNR Division of Natural Areas and Preserves administers Ohio's listing of rare plants. The 2018 state list of rare native plants includes 84 presumed extirpated, 256 endangered, 158 threatened, and 106 potentially threatened taxa. Ohio has 20 federally threatened and endangered wildlife species and 175 state threatened and endangered wildlife species. These lists are publicly available at the Ohio DNR website.

¹⁸ fs.fed.us/nrs/atlas/tree

In addition to the rare species data, the analysis of forest-associated wildlife species in this assessment uses trend data for forest bird populations as an indicator of the condition of all forest-associated wildlife. The ODNR Division of Wildlife’s (DOW) approach for sustaining Ohio’s forest wildlife species, as outlined in the SWAP, is to use two conservation opportunity areas—the Appalachian Foothills and Tecumseh Forest Conservation Opportunity Areas (encompassing Zaleski, Vinton Furnace, and Shawnee state forests). Both of DOW’s focus areas are large, heavily forested blocks (>60,000 acres) that can meet the needs of all area-sensitive forest wildlife species and incorporate natural disturbances.

DOF’s approach to the conserving and protection RTE species is to follow the guidelines outlined in the Ohio Forest Action Plan Forest Resource Strategy.¹⁹ These strategies include the enhancement of oak regeneration; protecting unique communities through conservation easements and land acquisitions; maintaining a sustainable distribution of successional stages; increasing the area of early-successional forest habitat; and increasing the area of forests over 100 years old.

Furthermore, all state forest lands are delineated into management “zones”. These zones are spatially defined areas for which management activities and use of those areas are clearly defined.²⁰ Zones are designed to protect unique features, promote recreation, and preserve the aesthetic quality of these forests.

Table 1: State Forest Zones

Zone	Description	Acres
1A	CLASS 1 ZONE – High Conservation Value Forests: Natural Areas	5,713
1B	CLASS 1 ZONE – High Conservation Value Forests: Cultural/Historical Areas	8
1C	CLASS 1 ZONE – High Conservation Value Forests: Shawnee Wilderness Area	8,354
1D	CLASS 1 ZONE – High Conservation Value Forests: HCV Restoration Area	1,049
2	CLASS 2 ZONE - Reserved Lands	1,823
3A	CLASS 3 ZONE – Intensive Management: Resource Protection Area	9,028
3B	CLASS 3 ZONE – Intensive Management: Aesthetic Area	14,060
3C	CLASS 3 ZONE – Intensive Management: Timber Management Area	151,751
3C-G	CLASS 3 ZONE – Intensive Management: Timber Management Area, Grouse Management Area	2,696
3C-T	CLASS 3 ZONE – Intensive Management: Timber Management Area, Turkey Management Area	4,027
3D	CLASS 3 ZONE – Intensive Management: Research and Demonstration Area	3,737
4A	CLASS 4 ZONE – Recreation and Administrative Areas: Intensive Recreation Areas	591
4B	CLASS 4 ZONE – Recreation and Administrative Areas: Administrative Areas	673

Finally, all activities on state forest are assessed prior to the activity taking place for possible impacts and considerations to RTE species. These assessments are part of our procedure to protect RTE species. When forest management activities are proposed in areas where RTE species are located then mitigation or modification of the activity occurs.²¹

¹⁹ Ohio Forest Action Plan Forest Resource Strategy. 2020. 14.

²⁰ Land Management Manual. Chapter 2.

²¹ Land Management Manual. Chapters 2, 3, 4, 6, and 9.

Timber Resources

Extensive and detailed descriptions of the timber resources in Ohio are found in the Ohio Forest Action Plan Assessment.²² This assessment shows that in Ohio, volume of oak species has been on a downward trend since the 1970's, while the volume of maples has been increasing. As discussed earlier, oak forests have been the dominant forest type in Ohio historically, however, because of the lack of disturbance in the last century, they are being replaced by shade intolerant, mesophytic species such as maple and beech. Ohio's forests are getting denser, more shaded, and generally maturing. The increasing stocking levels also suggest a decline in open, early successional forest habitat.²³ Ohio's forests are maturing, although most forests are still less than 100 years old. Growth of timber in Ohio continues to outpace removals and mortality resulting in increasing wood volumes in Ohio's forests.²⁴

These trends are consistent with what can be observed on state forests. Oak species are the dominant forest type on state forests. However, the lack of oak regeneration and the intense competition of maple will lead to successional replacement by maple and beech without proper management practices.

From internal timber inventory data the timber resources on state forests can be described as the following: 75% of forested stands are classified as oak/hickory; 76% of forested stands are sawtimber or large sawtimber in size; fewer than 10% are less than 20 years old; 90% are between 20 and 100 years old; 82% of forested acres are between 76% - 100% crown closure, which means the trees in these forests have crowns that have grown tightly together allowing little or no sunlight to hit the forest floor. There are no stands on state forests that would be considered "old growth".

Disturbance from fire played an important role in the development of the state forests. Fire reduced the invasion of mesophytes in oak stands. Oak and hickory are shade intolerant keystone species that are subject to successional replacement if there are no disturbances. Without disturbance these stands will proceed to the next successional phase which is maple and beech.

Timber harvesting is one tool that is used on state forests to mimic natural disturbance regimes. In terms of timber volume, there is approximately 2 billion board feet of timber on state forests. These forests grow roughly 50 million board feet of volume each year. Removals from timber harvesting on state forests range between 8 million board feet to 12 million board feet per year. The average volume removed over the last five years is 10.1 million board feet. This represents about 0.5% of the total inventory of timber on state forests.

Consistently, timber removals on state forests have remained less than 25% of annual growth over the last decade. That means that 75% of the annual growth of timber is added to the forest each year. Even with an active timber sale program that is meant to mimic natural disturbance, timber inventory on state forest continues to increase each year.

²² Ohio Forest Action Plan Forest Resource Assessment. 2020. 21-30; 55-58.

²³ Ibid. 26.

²⁴ Ibid. 56.

Non-Timber Resources

Data from the FIA program shows that there are at least 769 different species of plants that grow in Ohio's forests; they include herbs, grasses, shrubs, vines, and trees.²⁵ The greatest number of species is in the forb/herb growth habit. Grasses make up the next group that represents a great number of species in the understory.

The USFS FIA program only collects data on species that they monitor. Data from the FIA provide good coverage of tree species and forest structure, but without corresponding data on understory species (i.e., shrubs and herbaceous plants), characterizations of complete plant communities cannot be made.

Forest understory vegetation has many significant ecological roles including regulating microclimate, mitigating runoff, and providing habitat for wildlife. A dense herbaceous layer is important to produce flowers and seeds and of organic material for insects. However, it has been observed in the central states that the high density of mesophytic regeneration (maple and beech) within oak-hickory forests is have a major deleterious effect on the herbaceous layer.²⁶ This is true on state forests. Because oak trees have thin crowns and space between the crowns, light can penetrate to the forest floor permitting the survival of herbaceous plants. As forests transition to maple and beech, the high density of stems, the density of the leaf litter, and the extreme shady conditions will lead to the loss of herbaceous diversity.

State forests are also areas where visitors may collect nuts, berries, and wild edible mushrooms. Collection of these non-timber resources is permitted by law.²⁷

Wildlife Resources

A statewide strategic plan for wildlife species conservation (SWAP) was developed by the ODNR Division of Wildlife in 2015.²⁸ A major trend for forest wildlife species with rebounding forest cover since 1940 has been increases in populations of forest-dependent species, like wild turkey, white-tailed deer, black bear, and bobcat.

However, the SWAP notes that early-successional habitat important to many forest wildlife species is declining as Ohio's forests are maturing. Forest bird populations provide a good indicator of overall forest wildlife communities. Using data from the USGS Breeding Bird Survey, the Ohio Forest Action Plan states that most mature and mid-successional forest bird species are increasing, although some exceptions exist such as cerulean warblers and Kentucky

²⁵ Widmann, Richard H. et al., Ohio's Forests 2011. Resource Bulletin NRS-90. U.S. Forest Service, Newtown Square, PA. 2014. Page 50.

²⁶ Fralish, James S., The Keystone Role of Oak and Hickory in the Central Hardwood Forest. From Spetich, Martin A., ed 2004. Upland oak ecology symposium: history, current conditions, and sustainability. Gen. Tech. Rep. SRS-73. Asheville, NC: USDA Forest Service, Southern Research Station. 82.

²⁷ Ohio Administrative Code, Section 1501:3-2-06.

²⁸ Ohio Department of Natural Resources, Division of Wildlife. 2015. Ohio's State Wildlife Action Plan.

warblers which are declining. Both species are low-level disturbance specialists, with cerulean warblers relying on small canopy gaps and disturbance in an otherwise forested landscape, while Kentucky warblers use open canopy forests with dense understories. Disturbance suppression and canopy closure are key factors in the decline of Kentucky warbler populations.²⁹ Many early-successional forest bird species are showing population declines, including the American woodcock, blue-winged warbler, eastern whippoorwill, and ruffed grouse. Many local and regionally appropriate conservation initiatives and recovery plans are in some way promoting the maintenance of early successional habitat (young forests) and oak forests through methods such as prescribed burning and/or timber harvesting.³⁰ Young forests are recognized by these conservation efforts as being critically important.

Among the most important management activities that occur on state forests related to wildlife is hunting and fishing. All state forests are open to hunting and fishing which ensures that game populations will be managed at sustainable levels. Hunting also contributes to a healthy forest by limiting tree damage from over-browsing of deer and curtailing the spread of wildlife diseases. State forests provide visitors with a place to hunt, and the economic impact of these visitors is important to the communities surrounding these forests. The dollars spent by hunters and fishermen are used by the ODNR - Division of Wildlife to manage wildlife habitat in Ohio.

All management activities on state forests shall be consistent with the strategies outlined in the Ohio Forest Action Plan Forest Resource Strategy 2020. State forests also have several wildlife species-specific management areas. Tar Hollow and Zaleski state forests have a ruffed grouse management area where management activities are planned specifically for ruffed grouse habitat. Zaleski State Forest also has a wild turkey management area where management favors wild turkeys. Several state forests have received grant funding from the National Wild Turkey Federation for plantings of native plants or mast producing shrubs for turkey habitat. A few state forests have also received support from The Wildlife Management Institute for the creation of early successional habitat that favors bird species of concern such as the American woodcock.³¹ Other conservation efforts have focused on the Cerulean warbler, Karner blue butterfly recovery, black bear, and bobcats. All these efforts will be maintained or promoted during this planning cycle, and new opportunities will be considered as they become available.

Finally, our procedures prescribe an assessment be conducted before any management activity takes place on state forests to determine the wildlife attributes that are present and make recommendations for the conservation or the creation of wildlife habitat attributes.³² These assessments reference guidelines regarding retention of live trees, large and small cavity trees, snags, down woody debris, trees with exfoliating bark, and legacy trees.

²⁹ Ohio Forest Action Plan Forest Resources Assessment. 2020. 49.

³⁰ The Golden-Winged Warbler Conservation Initiative (gwwa.org), Managing Habitats for Migrating Land Birds in the Western Lake Erie Basin (nature.org), American Woodcock Habitat Best Management Practices for the Central Appalachian Mountains Region (timberdoodle.org), The Ruffed Grouse Conservation Plan (ruffedgrousesociety.org), Managing Forest Birds in Southeast Ohio (obcnet.org), Ohio Bird Conservation Initiative All Bird Conservation Plan (obcnet.org).

³¹ More information can be found at wildlifemanagement.institute

³² Land Management Manual. Chapters 4 and 5.

Soil and Water Resources

Except for Maumee and Mohican-Memorial state forests, all state forests are in the hill country of east-central and southeastern Ohio. This area is referred to as the “Southern Unglaciaded Allegheny Plateau Section of the Eastern Broadleaf Forest Province” and is characterized as a maturely dissected plateau of high hills, sharp ridges, and narrow valleys.³³ Maumee State Forest is in the Maumee Lake Plains which is characterized as flat-lying Ice-Age lake basin with beach ridges, bars, dunes, deltas, and clay flats. The area contained the former Black Swamp and is slightly dissected by modern streams. Mohican-Memorial State Forest is in the Glaciaded Allegheny Plateau which is characterized as ridges and flat uplands generally above 1200’, covered with thin drift and dissected by steep valleys; valley segments alternate between broad drift-filled and narrow rock-walled reaches.

Table 2: State Forest Soil Regions

State Forest	Soil Region³⁴
Maumee	Hoytville-Nappanee-Paulding-Toledo
Mohican-Memorial	Westmoreland-Homewood-Loudonville
Beaver Creek, Yellow Creek, Harrison, Perry, and parts of Zaleski	Coshocton-Westmoreland-Berks
Hocking, Tar Hollow, Richland Furnace, Vinton Furnace, Dean, Scioto Trail, Pike, Brush Creek, Shawnee and parts of Zaleski	Shelocta-Brownsville-Latham- Steinsburg
Fernwood, Sunfish Creek, Blue Rock, Gifford and Shade River	Gilpin-Upshur-Lowell-Guernsey

Ohio’s forestry pollution abatement rules and standards require all landowners and loggers conducting harvesting operations or other silvicultural activities to utilize best management practices (BMPs) to prevent water quality degradation associated with soil erosion.³⁵ Under the forestry pollution abatement rules, persons responsible for a logging operation may also file a voluntary timber harvest plan with the SWCD in the county where the logging is to occur. The plan describes the BMPs that will be used to control soil erosion and protect water quality. Our policy prescribes that DOF files timber harvest plans with the local SWCD on all timber sales.³⁶

The Ohio Forest Action Plan notes that the conservation of soil and water resources is closely tied to the management of forests and this plan outlines several strategies to conserve soil which DOF follows on state forests.³⁷

³³ McNab, Henry W. and Avers, Peter E. Ecological Subregions of the United States. U.S. Forest Service. WO-WSA- 5. July 1994

³⁴ <https://soilhealth.osu.edu/soil-health-assessment/soil-type-history>

³⁵ Ohio Revised Code. Section 1503.50 to 1503.55.

³⁶ Land Management Manual. Chapter 8.

³⁷ Ohio Forest Action Plan Forest Resource Strategy. 2020. 14.

DOF requires the use of best management practices for logging practices to control erosion.³⁸ DOF enforces guidelines for acceptable working conditions for logging during times of wet weather to prevent sedimentation and minimize rutting.³⁹ Guidelines for the retention of biomass in the forest including live tree, fine woody debris, and snag retention are also in place to promote long-term soil productivity.⁴⁰ DOF promotes carbon sequestration tree plantings on state forests. Training for all relevant state forest staff is conducted on BMPs and biomass retention.

The Ohio Forest Action Plan has detailed descriptions of the forested watersheds in Ohio.⁴¹ The principal causes of impairment of Ohio's forested watersheds are related to landscape modification from agricultural land use and urban development.⁴² The Ohio EPA has designated many Superior High Quality Waters and Outstanding State Waters based on a number of factors, including aquatic life.⁴³ High quality waters that are located on state forests include the Clear Fork of the Mohican at Mohican State Forest, Brush Creek at Brush Creek State Forest, and Scioto Brush Creek at Shawnee State Forest. DOF promotes good water quality using BMPs for erosion control and the designation and management of Streamside Management Zones.⁴⁴

Special Management Areas

There are a variety of special management areas located on state forests. These include the Shawnee Wilderness Area and the Shawnee backcountry management area. The plans for the Shawnee Wilderness Area and the Shawnee backcountry management area are now included as appendices in this ten-year management plan.⁴⁵

The wilderness area at Shawnee is governed by laws written into the Ohio Revised Code⁴⁶ to provide a contiguous, undeveloped area of forestland that receives only passive management. The backcountry management area is designed to limit human access in a portion of Shawnee through strategic road closures. No changes are proposed in this plan for either area.

Several other areas of on various state forests have special designations. Such as High Conservation Value Forests, Representative Sample Areas, and wildlife-specific management areas. These areas, and their management guidelines, are listed in our zoning guidelines in the Land Management Manual.

³⁸ All timber sale contracts require BMPs for all operations on state forests consistent with BMPs for Erosion Control for Logging Practices in Ohio. OSU Bulletin 916. 2004. A revision of the BMP guidelines is in-progress and therefore future timber sale contracts will reference the newly revised BMP guidelines when completed.

³⁹ Land Management Manual. Appendix G.

⁴⁰ Land Management Manual. Chapter 8.

⁴¹ Ohio Forest Action Plan Forest Resource Assessment. 2020. 110-114.

⁴² Ohio Environmental Protection Agency. 2018b. Ohio 2018 Integrated Water Quality Monitoring and Assessment Report.

⁴³ Ohio EPA Division of Surface Water

⁴⁴ Land Management Manual. Chapter 4.

⁴⁵ See Appendix A and B at the end of this plan.

⁴⁶ Ohio Revised Code. Section 1503.43.

Management Objectives

Sustainable forest management has been and continues to be a central objective for state forest management. Third party forest certification of state forests, maintained since 2010, is the primary way in which the ODNR Division of Forestry ensures sustainable forest management. Therefore, for this planning period DOF will continue to conform to the principles and criteria of the Forest Stewardship Council and the Sustainable Forestry Initiative and be audited by third party certification bodies for conformance.⁴⁷

Since a full three-quarters of state forest acreage consists of Oak/Hickory forest types, oak ecology and management is extremely important. On state forests, consistent with the entire mid-Atlantic region, oak and hickory tree species are considered “keystone” species.⁴⁸ A keystone group of species includes those that make an unusually large contribution to forest structure or processes. Keystone species influence other species, or they cause other species to exist or persist in the forest. Managing for keystone tree species such as oak and hickory is a way of managing for all species in a forest community.

Unfortunately, as the Ohio FAP Assessment discusses, oak forests are in peril due to a lack of disturbance, a lack of oak regeneration, and the invasion of mesophytic species in the understory, and many other threats. Total protection of oak forests from disturbance will not maintain or restore ecosystem values. Oak and hickory species are shade intolerant keystone species that are subject to successional replacement.⁴⁹ Therefore, disturbance (fire and/or timber harvesting) plays an important role in the development and maintenance of oak ecosystems.⁵⁰

Because most of the forests in Ohio are privately owned in small parcels, it is unlikely that thousands of private landowners will manage their woodlots for oak and hickory species using the type of practices required to maintain them. Therefore, it is critically important that the relatively small amount of state-owned land employ the silvicultural practices necessary to keep oak forests maintained on state owned land, and to demonstrate these practices to other public and private forestland owners.

The management objectives on state forests are consistent and guided by the Ohio FAP Strategy and have been designed to address key threats to biological diversity on state forests, primarily the declining abundance of oak regeneration.⁵¹

- a. Management objectives to achieve desired future condition on state forests.

⁴⁷ Proof of conformance to the FSC and SFI standards - certificates and audit reports - can be found at the Division of Forestry website at ohiodnr.gov/forestry.

⁴⁸ Fralish, James S., The Keystone Role of Oak and Hickory in the Central Hardwood Forest. From Spetich, Martin A., ed 2004. Upland oak ecology symposium: history, current conditions, and sustainability. Gen. Tech. Rep. SRS-73. Asheville, NC: USDA Forest Service, Southern Research Station. 78-87.

⁴⁹ Ibid. 85.

⁵⁰ Ibid. 85.

⁵¹ Ohio Forest Action Plan Forest Resource Strategy. 2020. 13-15.

1. Maintain and promote the regeneration of oak-hickory forests by:
 - Enhancing oak regeneration as appropriate in state forest Zone 3.
 - Favoring oak and hickory in pre-commercial treatments.
 - At a minimum, attempt to preserve an oak component in oak-hickory stands where oak regeneration is unlikely.

2. Protect rare or threatened species and communities by:
 - Protecting High Conservation Value Forests through limiting disturbance, restoration efforts, and monitoring.
 - Assessing potential impacts to unique or rare forest plant species and communities for each forest management activity and mitigate, as necessary.

3. Maintain and promote habitat for a diversity of forest-associated wildlife by:
 - Managing for a diversity of forest wildlife by maintaining a sustainable distribution of successional stages.
 - Increasing the area of early-successional forest habitat (age class < 20 years old in zone 3).
 - Maintaining High Conservation Value Forests that contain old forests.
 - Ensuring that critical habitat requirements for rare forest wildlife species are being met.

Land Management (Real Estate, Timber, Minerals)

Real Estate

State forests are supported by a specialty division within ODNR known as the Division of Real Estate and Land Management. This division assists DOF with land acquisitions and divestitures. Land acquisitions and divestitures are rare within the state forest system. In this planning cycle, there are no efforts to divest of any state forest land. Furthermore, acquisitions may occur from time to time from donations or grant funding, however, these transactions are rare.

Timber Inventory and Silvicultural Prescriptions

State forests are divided into compartments. Compartments are further divided into management units or stands. Compartments, and the stands within them, are inventoried roughly every 20 years. During these inventories (“cruises”), the trees are statistically sampled to give the foresters numerical data that assists in detailing the prescription for that area. Tree health, forest health, wildlife and aesthetic values, and oak regeneration are some of the important assessments that are made during the cruise. Once the compartment has been cruised and the data analyzed, foresters recommend the most appropriate course of action for the area.

Since roughly 75% of state forest stands are oak/hickory forest types, DOF uses guidelines developed by researchers from the US Forest Service to guide the sequence and timing of

silviculture to foster oak regeneration.⁵² SILVAH (short for Silviculture of Allegheny Hardwoods) is a computer tool for making silvicultural decisions in hardwood stands of the mid-Atlantic and upper Appalachian region. SILVAH also contains a wildlife attributes report, forest stand growth simulator, provides the ability to test alternative cuts, enables development of a forest-wide inventory database, and facilitates other forest management planning functions. SILVAH is a systematic approach to silviculture, in which current conditions are identified through a systematic inventory of overstory and understory. These conditions are evaluated using an objective set of research-based standards and the constraints and objectives of DOF.

During the inventory procedure, oak regeneration is classified into one of three categories: competitive oak, established oak, and new oak seedlings. Competitive oak regeneration are oak stems that are at least three feet tall and 0.75 inches in diameter. Competitive oak regeneration has the best chance of surviving into a new stand following harvesting. Established oak regeneration are stems that are six inches tall to three feet tall. Established oak regeneration has a chance of survival but not as high a chance as competitive oak regeneration. New oak regeneration are newly sprouted seedlings from acorns. They have only a small chance of survival. To regenerate oak forests there must be an adequate number of competitive stems on the site.

Variances from the Oak SILVAH program are allowed on case-by-case basis. During each year of this planning cycle, approximately 7,000 to 10,000 acres will be cruised, and 2,000 to 3,000 acres may receive some type of written prescription. Once the area has been cruised, appropriate prescriptions have been written, the trees have been marked, and timber volumes have been estimated, a timber sale may result.

Generally, even-aged silvicultural systems are employed to manage oak forests such as shelterwood harvests, deferment harvests, small clearcuts (less than 10 acres), and intermediate treatments such as thinning and improvement cuts. Approximately 25% of state forests stands consists of mixed mesophytic species, cove hardwood species, northern hardwood species, or pine plantations. These species possess a range of shade tolerances. Silvicultural systems employed to manage these mesophytic sites can be even-aged or uneven-aged systems. Pine plantations exist on legacy farmland. They are managed with the overall goal of restoring native hardwoods on these sites over time thru thinning and eventual overstory removal.

When timber harvesting is recommended, a pre-harvest assessment is completed. The pre-harvest assessment covers a review of any sensitive features, rare or threatened species, the presence of any cultural or historical feature, how water features will be protected, and consideration of visual aesthetics. Mitigation measures for identified issues are determined prior to harvest. Various consultations occur with wildlife biologists and other experts on potential considerations that need to be made prior to the harvesting.

⁵² Brose et al. 2008. Prescribing regeneration treatments for mixed-oak forests in the Mid-Atlantic region. GTR NRS-33. Newtown Square, PA.

Timber Harvesting

Timber harvests are prescribed to meet the management objectives outlined above in section III. Timber harvesting is intended to mimic natural disturbance regimes. Timber harvesting maintains oak /hickory forests by providing opportunities for oak regeneration. Oak and hickory trees have two fundamental requirements for successful regeneration: 1) the presence of competitive sources of oak regeneration and 2) the timely, sufficient release of these oak regeneration sources.⁵³ Harvesting helps meet these two requirements by altering the light characteristics in the stand and by releasing competitive oak regeneration. Silvicultural practices are employed that promote the health and vigor of oak regeneration or other hardwood species and are based on established scientific norms for this region.⁵⁴

Because timber harvesting is a site-disturbing activity, many other considerations and restrictions must be in place prior to or during harvesting. Foresters will follow all ODNR policies regarding site-disturbing activities.⁵⁵ The size and type of harvest machinery is specified in the timber sale contract. In Ohio, generally all harvest operations utilize ground-based harvest machinery such as rubber-tired skidders and crawler dozers. For pulpwood thinning operations, low-impact cut-to-length may be used

Timber harvesting also has many indirect benefits such as economic benefit to local communities, providing sportsmen with access and early successional habitat, providing for maintenance and additional areas for recreation, providing for clean water by using BMP's, and providing young forest which is in short supply in Ohio.

Timber harvesting on state forests has been verified as sustainable by third party certification bodies. Over this planning cycle, the allowable harvest limit will be set at an average of 50% of the annual growth volume. Annual growth volume is defined as additional board foot volume that the forest has accumulated over the past year due to diameter or height growth. Annual growth is not the total volume of the entire forest. Additionally, the allowable harvest limit is calculated based only on "available" acres, not on total acres of the forest. Sensitive and restricted areas not zoned for timber management are considered "not available" and are removed from this calculation.

Our current policy is that the allowable harvest limit, across the state forest system, will not exceed 50% of the annual growth over a five-year rolling average. On individual large state forests, defined as forests greater than 5,000 acres, the 5-year harvest average may be as high as 60% of the annual growth over that same period. Individual large forests may harvest up to 75% of the annual growth in any given year. On individual small state forests, defined as having less than 5,000 acres, the 5-year harvest average may be as high as 100% of the annual growth over

⁵³ Loftis, David L., Upland Oak Regeneration and Management. From Spetich, Martin A., ed. 2004. Upland oak ecology symposium: history, current conditions, and sustainability. Gen. Tech. Rep. SRS-73. Asheville, NC: USDA Forest Service, Southern Research Station. 163.

⁵⁴ Silviculture systems used on state forests are outlined in Brose et al. 2008. Prescribing regeneration treatments for mixed-oak forests in the Mid-Atlantic region. GTR NRS-33, and in the Land Management Manual. Chapter 2 and 4.

⁵⁵ Land Management Manual.

that same period. Individual small forests may harvest up to 100% of the annual growth in any given year. On small forests, site conditions, silvicultural needs, or other operational or ecological considerations may warrant harvesting 200% of the annual growth in a single timber sale. Any proposed timber sale over 100% of annual growth must have additional approval by the Chief and must ensure that the harvest volume systemwide will still meet the 50% target over the 5-year planning period.

In the last five years, as the timber inventory of the state forest grows each year, only 23% of that growth was removed. In other words, the remaining 77% of the growth was added to the total forest inventory. This means that not only is harvesting sustainable but also that the timber inventory has increased, provided there are no significant weather or natural disaster emergencies. By policy, harvesting 50% or less of annual growth will help to increase biodiversity by creating more early successional forests, which are in short supply, and by increasing oak regeneration which is a statewide issue of concern.

Table 3: State Forest Timber Inventory, Growth, and Yield.

Forest	Forested Acres	Harvestable Acres	Total Inventory (Board Feet)	Total Annual Growth (Bd Ft/Yr)	Growth on Harvestable Acres (Bd Ft/Yr)	Average Harvest Last Five Years (Bd Ft/Yr)	Harvest as % of Growth
Beaver Creek	1,026	272	6,594,102	225,474	59,775	-	0%
Blue Rock	4,560	4,272	29,060,880	1,002,106	938,815	104,482	11%
Brush Creek	13,348	12,639	146,279,794	3,761,280	3,540,777	1,078,894	30%
Dean	2,745	2,517	5,000,000	549,000	503,400	2,860	1%
Fernwood	3,029	2,866	11,885,796	665,653	629,832	67,994	11%
Gifford	319	237	2,282,445	70,103	52,083	-	0%
Harrison	1,321	1,232	5,071,319	290,303	270,744	4,880	2%
Hocking	9,217	7,369	130,317,737	2,706,693	2,181,748	75,091	3%
Maumee	3,070	2,977	19,730,890	674,663	654,226	30,113	5%
Mohican-Memorial	4,500	1,800	32,033,966	647,000	257,400	4,006	2%
Perry	4,619	4,485	29,265,984	1,015,071	985,624	107,469	11%
Pike	11,861	11,125	147,183,603	3,294,300	3,097,107	1,148,221	37%
Richland Furnace	2,430	2,383	28,762,834	643,561	631,609	156,953	25%
Scioto Trail	9,451	9,016	107,120,887	2,756,918	2,614,641	1,018,096	39%
Shade River	2,815	2,331	16,785,845	618,624	512,261	70,858	14%
Shawnee	63,118	52,251	628,456,616	18,682,097	15,555,692	2,932,594	19%
Sunfish	637	637	4,140,500	125,000	125,000	-	0%
Tar Hollow	15,104	13,743	209,315,204	3,839,947	3,436,070	1,472,941	43%
Vinton Furnace	12,089	9,437	51,000,000	2,656,679	2,073,875	4,163	0%
Yellow Creek	753	753	3,977,346	165,479	165,479	-	0%
Zaleski	27,313	19,844	319,366,663	7,369,785	5,295,709	1,876,789	35%
Total	193,325	162,186	1,933,632,411	51,759,736	43,581,867	10,156,404	23%

Stumpage timber sales are sold on a competitive sealed bid basis. Merchandised log sales are also sold on a competitive basis to local timber markets. The size and type of harvesting machinery is outlined in the Timber Sale Agreement for each timber sale. In general, conventional ground-based logging equipment including rubber-tired skidders and dozers are used to remove designated timber.

During the timber harvest operation, safety and environmental considerations are used to prevent unnecessary damage to the site and prevent injury of the operators.⁵⁶ Finally, all timber sales are harvested by trained Master Logger Companies that have been certified by the Ohio Forestry Association.⁵⁷ These companies receive training on safety and Best Management Practices. They are required to wear personal protective equipment and they have been trained to mitigate environmental hazards. All timber sales are monitored by a trained Timber Sale Administrator who inspects the timber sale to ensure protection measures are in place and to verify compliance with contract provisions.

Minerals

Historically, many state forest lands were surface mined or drilled for oil and gas. Many of the streams near coal and ore sites cannot support aquatic life and only harbor the most pollution-tolerant organisms. In most cases, these sites need a modern reclamation project to achieve long-term water quality improvements. The Abandoned Mine Lands (AML) program administered by ODNR – Division of Mineral Resources Management (MRM) represents an opportunity during this planning cycle some these sites to provide the fundamental ecosystem service of clean water expected from forests.

State forests' geologic layers contain a mixture of previously extracted minerals, strata with future potential, and strata with a lack of known useable resources. It is difficult to estimate the long-term potential of these resources. The Utica and Marcellus shale booms in the last decade have proven that technology improvements may result in extractable resources in strata previously thought to be uneconomical.

Two large storage fields exist on state forests at Hocking and Mohican. These fields are currently owned by Columbia Gas. The rights of the storage well gas owner predate the creation of the state forest system therefore DOF is legally obligated to allow maintenance of the wells and infrastructure associated with this use.

Production wells located on state forests include wells at Blue Rock, Shade River, Perry, and Zaleski. Recently, some horizontally drilled wells, with surface footprints located on private property, have drilled underneath state forests. Division of Forestry staff work with the ODNR – Division of Oil and Gas to ensure the above activities are properly monitored when impacting the surface of state forests. When abandoned wells are discovered, the state's Orphan Well Program can fund permanent caps.

While there is viable mineral development potential in state forests includes oil, gas, and coal; decisions to extract minerals on state owned land reside at the highest levels of state government. Therefore, it is not possible to outline in this document what mineral exploration, if any, will take place.

⁵⁶ A legal contract is executed for each timber sale with terms and conditions that must be followed by the operator. See Ohio Revised Code, Section 1503.05.

⁵⁷ For a complete description of the Master Logger Program and its training requirements see The Ohio Forestry Association, Master Logging Company program.

Research

The Division of Forestry has a long history of commitment to forest-related research and will continue over this planning cycle to maintain a commitment to research that relates to the mission of the Division.

Several state forests provide sites for on-going forest or wildlife-related scientific research. Among these forests is Vinton Furnace State Forest which serves a dual role of being not only a state forest but also the location for a U.S. Forest Service experimental forest. The Division of Forestry supports and collaborates with many organizations by providing research sites and in-kind labor. Those organizations include the U.S. Forest Service, the Ohio State University, and Ohio University.

Current topics of research include prescribed fire, oak regeneration, and invasive species management. Many of the research projects on state forests are long-term projects such as the Fire and Fire Surrogates Study that is part of a national research program. Aside from providing forest sites and in-kind labor, the Division also organizes and oversees a Research Advisory Committee particular to the Vinton Furnace State Forest that reviews and coordinates potential research projects.

Over the course of this planning period, the Division will maintain its commitment to providing forested sites for existing research as well as evaluating any new potential research projects as they are proposed by partner organizations. New research proposals will be evaluated on a case-by-case basis through the special use permit procedure.

Forest Health and Invasive Species

The Ohio Forest Action Plan devotes large sections to describes the major threats that Ohio's forest face and strategies to manage them.⁵⁸ State forests are impacted from these same damaging insects and disease and from the establishment of invasive plant species. The Ohio Forest Action Plan guides our response to forest health threats and the strategies employed on state forests. DOF's management is an integrated strategy. By taking the recommendations of the Ohio Forest Action Plan to integrating them into our Land Management Manual, foresters can address damaging agents and invasive species.

State forest precommercial activities include timber stand improvement, artificial regeneration of poor sites, and invasive species control. The objectives of state forest precommercial activities

⁵⁸ For a complete description of forest health problems see Ohio Forest Action Plan Forest Resource Assessment. 2020. 58-80. For management strategies to deal with forest health problems see Ohio Forest Action Plan Forest Resource Strategy. 2020. 16-19.

are to maximize forest productivity and quality, restore poor sites to forestland, and to eliminate invasive plant species that prevent natural vegetation from establishing on disturbed sites.

Since forest management activities often require disturbance, invasive species control on state forest focuses on mitigating risks of invasive species establishment or spread at these disturbed areas. For example, invasive species are surveyed and reported during timber inventory on proposed silviculture sites. Invasive species treatments are recommended and prescribed during pre-sale timber layout activities. Invasive species are treated or monitored during post-harvest activities. These efforts mitigate the establishment of invasives due to forest management disturbances.

Where invasive plant species exist on undisturbed areas of state forests with no forest management activities, those areas are cataloged and scheduled for special projects or grant funding. Occasionally, grant funding provides for the treatment of these areas. State forests are committed to complying with the FSC and SFI standards regarding pesticide use. The Land Management Manual details the procedures for the use of pesticides on state forests.⁵⁹

Mapping

Accurate and detailing mapping is critically important to manage state forests. All mapping for state forests is electronically managed using Geographic Information System (GIS) technology. Specifically, DOF uses ESRI's ArcGIS software to store and manage all spatial data relating to state forests. With this software, DOF can overlay a variety of spatial data with our state forest resources. This ability to see more information about our forest's aids in good stewardship and decision making.

Many spatial datasets are available on the internet and are not stored internally. Soil and water resources, historical sites, climate data, wildlife, and plant distribution maps, as well as a host of other data are routinely consulted online.

Fire Management

History

Wildfire protection in Ohio has its origins in southern Ohio in the early 1920s. Division of Forestry Fire Wardens had the responsibility to organize fire crews, keep hand tools and equipment ready, and enforce burning regulations. In this period, the fire towers were constructed to help detect wildfires. Only seven towers remain on state forests today. Most towers, when closed in the late 1970s, were dismantled and sold for scrap metal.

When a wildfire occurs today, its suppression falls primarily to the local fire department. Within the Forest Fire Protection District of the state, the ODNR Division of Forestry has cooperative agreements with over 300 rural volunteer fire departments (VFDs). These VFDs receive a

⁵⁹ Land Management Manual. Chapter 9.

nominal payment in return for providing a wildfire report to the Division. The Division maintains an online database for the fire departments to enter the wildfire reports.

The Division also offers training to firefighters ranging from basic wildfire instruction to specialized courses to improve skills necessary in the complex and dangerous business of wildland firefighting. The Division maintains some larger specialized equipment such as bulldozers to assist in suppression efforts. A limited number of federally owned vehicles and equipment are also loaned as available to cooperating VFDs through the Federal Excess Personal Property Program (FEPP). The Firefighter Property Program (FFP) also administered by the Division of Forestry makes federal excess vehicles available to cooperating VFDs which are titled to them at no cost.

Most fire activity in the state is confined to the far southern, river counties. The state wildfire protection area follows the line of glaciation through the state, covering the eastern third of the state, except for an area around Maumee State Forest. This area was defined in this manner since most of the timber resources in the state are in these counties. The western two-thirds of the state are generally agricultural lands. The U.S. Forest Service, through a cooperative agreement, also has responsibilities for fire control in their Athens and Ironton Ranger Districts.

Fire Suppression Objectives

The Division of Forestry has the statutory authority for fire suppression and protection within the designated forest fire protection area of the state. Division employees serve as initial attack resources within the forest boundaries and assist VFDs outside the forest boundaries, when requested. Most requests are for specialized equipment. Most of these fires occur on privately-owned lands.

Prescribed Fire

Prescribed fire is a very important part of the overall forest management on the state forest system. Burning will primarily fall into three categories: site preparation/release, restoration, and fuel reduction.

Site preparation/release burning will target oak/hickory stands to aid in the development of oak regeneration. Oak/hickory stands benefit from the use of fire by reducing the competition from thin barked tree species such as red and sugar maple and yellow poplar. Oaks and hickories concentrate early seedling growth to the root system whereas thin barked species such as maple and poplar concentrate growth upwards. Prescribed fire is used to top-kill the oak/hickory competitors which are not able to re-sprout as vigorously once top-killed. However, this may take repeated burns to accomplish.

Prescribed fire will also be used to manage rare habitats located on state forests such as at Maumee State Forest which lies in the globally rare "Oak Openings" region. Many rare, threatened, and endangered species located there are part of a fire-dependent ecosystem.

Fire is also used as a restoration tool to help reduce the amount and density of woody vegetation that is present on the site. Fuels reduction is inherent to a site preparation or release burn, but specific fuels reduction projects have taken place in the past and will continue to be used where appropriate. Events such as the 2003 ice storm at Shawnee State Forest, which impacted nearly half of the forest acreage, is one such event where fuels reduction burning was undertaken. Reducing the amount of fuel on the forest floor reduces the risk for a large scale and catastrophic wildfire event. Other such natural disasters such as windstorms, ice storms and events that impact large areas of forestland are areas that would be targeted for fuels reduction burning to reduce the amount of fuel available to burn if a wildfire started.

Stands to be burned for oak/hickory regeneration purposes will be drawn from recommendations of the foresters and other land management staff. GIS layers will be used to track when the stands were last cut or burned. Generally, areas will be targeted to burn 5-8 years after the first stage of shelterwood, other harvests, or the last burn. This gives the oak regeneration time to develop adequate root systems so that it can re-sprout vigorously after being top killed. Areas where harvests are not immediately scheduled and have good oak regeneration that may not be competitive with thin barked competitors are also stands that will be targeted to burn. This will reduce the number of oak/hickory competitors prior to opening the canopy and releasing the regeneration that is already present.

Once stands are identified to burn, the area will be inventoried to determine the regeneration that is present in the stand. SILVAH Oak can be used as a tool to help quantify regeneration data and to help with possible prescriptions. This information will be used as a baseline for future monitoring of oak/hickory regeneration. Once data have been collected, a burn plan outlining (at a minimum) the purpose, site description, pre-burn preparations, burn parameters, firing techniques, contingencies, smoke management, resources, and post burn monitoring will be developed. These plans are developed at the local and district level and must be written by an Ohio Certified Prescribed Fire Manager (OCPFM). An OCPFM must also oversee the burn on the day it is conducted. Burns are conducted according to Department and Division policy as well as following all applicable laws and are lit only when conditions are favorable for burning with the appropriate resources in place.

Post fire monitoring for these areas is conducted in the season or two after the burn to evaluate the effectiveness of the prescribed burn. The post-fire monitoring can also be used to help develop plans for the land management staff regarding regeneration of shelterwood cuts that may be ready for the overstory removal cut.

The number of acres to be burned each year will vary based on previous management and will be dependent upon the size of the regeneration present. 1,000 acres per year may be an average burn year. Some years may be less and other times significantly more. As more shelterwood harvests approach the age where burning may be beneficial, the acreage each year may increase.

Fire Prevention

Most wildfires in Ohio are human caused and the most common cause is from debris burning. To promote wildfire prevention and awareness, the local forest manager will work with the District Forest Manager and Columbus staff to coordinate fire prevention activities such as Smokey Bear events and handing out informational brochures.

Fire Program Training

Employees are encouraged to participate in Ohio's Interagency Fire Crew. This program gives the personnel and the Division additional experience and training opportunities that broaden their overall wildland fire suppression knowledge.

Classroom training will be offered to all Volunteer Fire Departments as requested. Staff training will be available through the Fire Management Program, and generally most training for Division staff is received at the Mid-Atlantic Wildland Fire Academy.

Recreation Management

Management of recreation on state forests is guided by Ohio law and departmental plans. Ohio law states that the director of the department of natural resources shall plan and administer a system of recreational trails on state lands (including state forests).⁶⁰ The director is compelled to produce and publish a comprehensive plan for the statewide trail system.⁶¹ This plan is known as the Statewide Comprehensive Outdoor Recreation Plan (SCORP) and was last updated in 2018.⁶² Further direction came in 2019 from The Ohio Trails Vision; a set of goals to promote and advance recreational trails in Ohio.⁶³

The 2018 SCORP identifies the State's outdoor recreation priorities and strategic actions for the next five-year planning period. Based on the information and data collected and presented in the SCORP report, the State has five outdoor recreation priorities, in no order of importance: advance the trail network, improve, enhance, and adapt existing recreational facilities, emphasize recreational opportunities and access to Ohio's waters, improve awareness and access to outdoor recreation opportunities, and to protect and sustain the natural environment.⁶⁴

The recreational opportunities on state forests are passive, dispersed, and undeveloped. Ohio law states the general rules and provisions for recreation on state forest land.⁶⁵ These include opportunities such as public hunting and fishing, trails, parking areas, and limited primitive camping. Other more developed forms of outdoor recreation, such as swimming pools, golf courses, RV camping, and cabins and lodges are located on state parks. DOF's approach to

⁶⁰ Ohio Revised Code, Section 1519.01.

⁶¹ Ohio Revised Code, Section 1519.03.

⁶² Ohio Department of Natural Resources. Statewide Comprehensive Outdoor Recreation Plan. 2018.

⁶³ Ohio Department of Natural Resources. The Ohio Trails Vision. 2019.

⁶⁴ Ohio Department of Natural Resources. Statewide Comprehensive Outdoor Recreation Plan. 2018. 50.

⁶⁵ Ohio Administrative Code, Sections 1501.3-2 through 1501.3-6.

outdoor recreation on state forests is to provide a “backcountry” experience rather than developed recreational facilities commonly found on state park land.

State forests offer visitors numerous outdoor recreation opportunities that require a large land base. Not only are these recreational opportunities compatible with sustainable forest management, but they also benefit from it. Forest management provides diversity of wildlife habitats, increases forest health, improves access for hunters, and improves trails. Best Management Practices and trail construction standards are employed to improve trails during forest management activities.

DOF also endeavors to mitigate the environmental impact of recreational trails. Research shows that trails can negatively impact wildlife movement, nesting, and security. Trails can also negatively impact water quality. Therefore, DOF may employ measures such as seasonal or permanent trail closures to mitigate environmental impacts. When new trails are proposed, environmental impacts must be assessed, and mitigation recommended before new trails are approved.

Periodic inspections of trails and other recreational facilities are regularly performed by state forest staff for maintenance needs and hazard to visitors. In addition, campgrounds, picnic areas, trailheads, and other places where forest visitors congregate are monitored for hazard trees. Trees identified as being possible hazards to the public will be removed by state forest crews.

A key part of the maintenance of recreational trails are agreements with numerous volunteer groups to assist DOF with trail maintenance. Partnerships with volunteer groups are important for maintaining quality recreational experiences.

Approximately 290 miles of bridle trails, 164 miles of hiking and backpacking trails, 48 miles of motorized trails, and 24 miles of mountain bike trails are found on Ohio’s 24 state forests. State forests have the only designated motorized trail riding areas on four state forests for off-road APV’s and motorcycle riding. In addition, primitive camping is available as select state forests. Certain state forests also possess shooting ranges, historic fire towers, and adjacent state parks.

Table 4: State Forest Recreation

State Forests	Land Acres	County(ies)	Miles of Trail - Primary Use					Mtn. Bike	Shooting Range	Campsite	Fire Tower	State Park w/in State Forest	Other Features
			Hiking	Bridle	APV	Backpack							
Beaver Creek	1,122	Columbiana										Adjacent to Little Beaver Creek State & National Wild, Scenic River	
Blue Rock	4,578	Muskingum		15						Y	Y		
Brush Creek	13,419	Adams/Scioto	2.8	10.2									
Chapin	371	Lake											
Dean	2,759	Lawrence		7.8				Y				Trail connects to Wayne National Forest	
Fernwood	3,023	Jefferson	4.8					Y	F-22			Trap, pistol, rifle ranges; fishing ponds	
Gifford	320	Athens	4									Experimental seed orchards, fishing pond, picnic area	
Harrison	1,345	Harrison		12.5				Y	H-20 & F-7			Fishing ponds	
Hocking	9,815	Hocking	7.3	31.3					H-23 & H-Group	Y	Y	Rock climbing, rapelling, Buckeye Trail	
Maumee	3,332	Fulton/Henry/Lucas	1.9	8.3	6.2							Windbreak arboretum, tree improvement area, wet sedge meadows	
Mohican-Memorial	4,541	Ashland	2	21.4			24		P-10 & H-Group	Y	Y	Memorial Forest Shrine, Discovery Forest	
Perry	4,706	Perry		6.2	20								
Pike	12,531	Pike/Highland	28.2	28.5	15						Y	Buckeye Trail	
Richland Furnace	2,530	Jackson/Vinton			7.3							Historic iron ore area	
Scioto Trail	9,600	Ross	4.5	25						Y	Y	Buckeye Trail	
Shade River	2,859	Meigs	2									Fishing pond	
Shawnee	64,735	Adams/Scioto	9.6	67.2		46.4			H-58	Y	Y	8,000 acre wilderness area, Buckeye Trail, fishing lakes	
Sunfish Creek	637	Monroe										Steep terrain along Ohio River	
Tar Hollow	16,446	Ross/Vinton/Hocking	14	27.5		20			H-46	Y	Y	Buckeye Trail, Logan Trail, Grouse Mgmt Area	
Vinton Furnace	12,086	Vinton										Hunters Camp	
West Blue Rock	675	Muskingum											
Willow Grove	350	Belmont											
Yellow Creek	756	Columbiana							H-16			Adjacent to Highlandtown Wildlife Area	
Zaleski (including Waterloo)	27,822	Vinton/Athens	0.5	29.5		26		Y		Y	Y	Grouse Mgmt Area, Hunters Camp, Forest of Honor	
	200,358		Total Miles of Trail = 537							F-Family H-Horse P-Park & Pack			

Any use of state forests that falls outside of the rules outlined in Ohio Administrative Code, Section 1501:3 is called “special use”. DOF has internal procedures for granting permission for special use of state forests. When relevant, an interested party would complete a special use permit application. It would then be evaluated by Division staff, and if approved, a permit for that use would be issued. These are commonly issued for short term events in which one or more of the “forest rules” would need to be waived for the event to take place. In some cases, the division may require an application fee, proof of insurance, and a surety bond.

Law enforcement relating to activities with state forests are the responsibility of Natural Resources Officers (NRO) under the authority of the Division of Parks and Watercraft. The responsibilities of NRO’s, in proximity to state forests, include law enforcement and patrolling of state parks and state forests. Both the Division of Forestry and the Division of Parks and Watercraft law enforcement supervisors collaborate to have a safe and effective law enforcement program.

Forest Operations Management

Forest operations connect all our state forest management activities. Quality forest operations ensures that our land management, fire, and recreation programs are running smoothly while also protecting environmental values. DOF employees who work primarily in forest operations are trained and skilled equipment operators, natural resource technicians, wildland firefighters, pesticide applicators, construction tradesmen, mechanics, and custodians.

Roads

State forests include roads from various jurisdictions such as state highways, county roads, township roads, ODNR roads, and service roads. Some township roads unmaintained roads, but not classified as abandoned, and remain available for travel by legal vehicles. Depending on the specific forest, any combination of the listed road types may be present. ODNR roads on state forest land are referred to as “forest roads” and are numbered.

Within the state forest road system there over 200 miles of forest roads, 65 bridges, and several thousand culverts and headwall systems. There are numerous parking areas, pull-offs, scenic vistas, and service roads.

DOF’s strategy toward road management is to provide for public safety and to limit environmental impact. Road maintenance sometimes require additional site disturbance therefore, an assessment is preformed to identify and mitigate environmental impacts. Road management work involves performing Ohio Department of Transportation (ODOT) Scope of Services Request once per fiscal year by inventorying road conditions as well as bridges, drain tiles, and header conditions. Larger construction projects are submitted to ODOT through this service request process, environmental and other reviews are conducted, and the jobs are bid out to contractors.

Most forest roads are maintained by the forest crews who are employed by DOF and stationed at individual state forests. These employees operate heavy equipment such as dozers, graders, roadside mowers, excavators, and heavy trucks. Operations work also involves routine road work such as inspecting and maintaining forest roads, culverts, bridges, ditches.

Roadside mowing on forest roads is utilized to increase visibility and public safety and will be conducted according to the forest manager’s discretion. When roadsides are not mowed properly, forward visibility, ditch visibility, and road edge visibility may become a safety issue. Damage to ditch and drainage systems as well as road surfaces may also occur due to overgrown vegetation. Roadside mowing is extremely important in maintaining infrastructure and public safety.

Facilities

Throughout the state forest system, there are a total 14 of staffed facilities. Each of these facilities have several buildings and associated infrastructure. Each is designed to support

management, maintenance, and land management staff. Each facility also supports public visitation for assistance. These buildings are operated and maintained by forest employees, at the cost of DOF.

Several state forests also have residences that are utilized by ODNR employees. Priority is given to leasing to law enforcement staff, but Division of Forestry employees may also utilize the houses to provide for a more rapid response to wildfire occurrences on both public and private land. These tenants also provide a security presence. Tenants are largely required to maintain their leased areas; however, maintenance staff may be assigned to conduct approved projects involving maintenance and repair.

There are several historic fire towers that still exist. They no longer function as active lookouts but are a reminder of the Division's history and current responsibilities in fire response and prevention within the state's Fire Protection Areas. Each tower is maintained by state forest staff. When weather conditions allow, the public has access for climbing the stairs up to the cab. Several fire tower sites include interpretive signage geared toward educating the public on wildfire, prescribed fire, and forest management.

Lakes, dams, and spillway maintenance continues to be a priority for Division of Forestry staff. There are several small unclassified wildlife ponds that require minimal maintenance, but the Division also manages nine classified dams. These lakes and associated infrastructure are frequently inspected, and the dam's Emergency Action Plan or Emergency Preparedness Plan is followed if concerning issues are developing. The Division of Forestry utilizes the Division of Engineering for technical expertise and the Division of Soil and Water regulates these classified structures. Maintenance items on these dams include mowing the earthen levees, minor repair to spillway and associated structures, vegetation clearing, spillway clearing, ice mitigation, and exercising the drain valves if present. Lake maintenance may include seasonal water level lowering, inlet maintenance, snag removal, perimeter vegetation clearing, and mowing.

Throughout the state forests, many types of informational signs exist and are maintained by staff. This may include road signs, public safety signage, informational kiosks, educational signs relating to land management activities, and administrative postings. Signage will be maintained and replaced as needed. They will either be purchased or constructed by forestry staff. Evaluations will be made, as needed, pertaining to the state of degradation, need for maintenance or replacement, and locations of signage. Active prescribed fire treatments and timber sales are posted with signage notifying visitors that the area is closed.

Merchandising

State forest crews are responsible for the processing of logs generated in our merchandising program (see above section IV Land Management, b. Timber Harvesting). Merchandising involves operation of equipment to process trees into measured logs and to sort them into products by species, size, and quality. This work is typically done in the winter months. Once the

logs are processed, they are sold by competitive bid. Our Land Management Manual details the chain-of-custody procedures we follow when selling merchandised logs.⁶⁶

Sawmill Operation at Zaleski State Forest

A circular sawmill was built in the 1950's at Zaleski State Forest. Historically, logs harvested from sustainable forest management on state forests were sawn and used for a multitude of construction projects on state land. The lumber was air dried in the open until an open-ended drying shed was built in the 1980s. Unfortunately, in 2017 the sawmill was lost in a fire.

Recently, DOF procured a used Frickco circular sawmill and rebuilt the facility in an existing building at the Zaleski Headquarters. This new mill has been built with an operator cab and computer operations for it to be safer and easier to operate. This sawmill facility is not a full-time operation, rather it is usually run for approximately 1 to 3 months in an average year. DOF makes no certification claims on the products produced from the Zaleski sawmill.

The lumber sawn at the sawmill is used by forest operations for bridge decking, trail structures, and other construction projects as they are needed. DOF may also sell lumber to other state agencies, local governments, and commercial buyers on a case-by-case basis. Occasionally, there is a limited amount of surplus lumber that can be bought by the public.

DOF is proud to provide this sawmill for educational and research purposes. University students and private woodland owners will tour the sawmill and discuss its operations and timber harvesting systems. The sawmill was used as part of a research project with the US Forest Service to study prescribed fire effects on lumber quality. It is anticipated that this facility will continue to serve the state of Ohio in educational and research endeavors.

Property Boundary

Property boundary surrounding state forests provide a very important measure of protection of the state's forest resources. Well maintained boundary lines help to mitigate timber theft and encroachment. All state forest property boundaries are marked with yellow blazes on trees or carsonite posts in the ground or both. The property boundary surrounding each state forest will be maintained by painting on a four- or five-year rotation. All forest boundaries will be marked according to Division policy. Real estate transactions that result in a change in ownership will be evaluated for the most appropriate means of marking the property boundaries. Acquisitions and transfers may require survey prior to marking and the Division of Real Estate will be utilized for expertise if necessary.

Monitoring

⁶⁶ Land Management Manual. Chapter 13.

DOF's approach to monitoring is outlined in the Land Management Manual.⁶⁷ Disturbance related activities are monitored while in-progress and when completed. Special areas, such as High Conservation Value Forests, are monitored annually. Results of monitoring are incorporated into a variety of reports for public viewing.

Evaluation of Social Impacts

Consultation with Statewide Comprehensive Plans.

In the formulation of this state forest management plan, DOF has consulted the most current versions of the Statewide Comprehensive Outdoor Recreation Plan, the Ohio Forest Action Plan, and the Statewide Wildlife Action Plan. All these plans identified issues and threats and made recommendations that are consistent and complementary of the management objectives in this state forest management plan. These Ohio-focused plans had robust public and stakeholder input, including public meetings throughout the state. Therefore, by incorporating these plans into the state forest management plan, we ensure public input into our management objectives.

Stakeholder Consultation Process

The Division of Forestry invites public participation at annual state forest open houses which are open to the public. State forest open houses are important in that they serve as a way of gathering informed input from interested stakeholders, as well as viewing and commenting on annual work plans. Each state forest is represented at open houses at centralized district offices or at individual state forest headquarters during evening hours on weekdays. Open houses may be held virtually if needed. Relevant employees are present for individual interaction with the public.

Open house attendees are asked to register, and these sign-in sheets are used for updating the stakeholder list and addressing individual questions or information requests. Verbal or written comments are solicited at the open houses, and citizens are welcome to send their comments after the open house via mail or email. Input received from the annual open houses reviewed the Chief of the Division.

Beyond the annual state forest open house, DOF holds direct consultations with many varied and diverse affected stakeholder groups. Generally, these direct consultations are held via meetings or communications. The Division of Forestry maintains a list of interested stakeholder groups and staff regularly interacts with a host of affected groups. These stakeholders include volunteer fire departments, local county and township governments, school districts, organized user groups, trail groups, friends' groups, environmental organizations, conservation groups, NGO's, and sportsmen's organizations. DOF accepts comments or concerns at any time throughout the year.

Forestry Advisory Council

⁶⁷ Land Management Manual, Chapter 12.

The Forestry Advisory Council is a Governor-appointed council with a mandate to provide additional advisory functions to the Chief of the Division. The Forestry Advisory Council consists of eight members appointed by the Governor with the advice and consent of the State Senate. Members represent forest-based research activities, small private forestland owners, larger private forestland owners, the pulp and paper industry, other forest industries, soil science, forest recreation and the public. Each serves a four-year term and not more than four are permitted from the same political party. Forestry Advisory Council meetings are held quarterly.

Economic Impact

Direct economic benefits from state forest timber sales to local communities result each year as proceeds from the sale of stumpage timber sales are shared with counties, townships, and school districts where the sales are located.⁶⁸ Approximately, \$1.5, and \$2 million is shared to local governments each year.

Timber sales from Ohio's state forests support the \$22 billion forest industry in Ohio, which employs over 118,000 forest and sawmill workers. Many of these jobs are in rural Appalachian counties which rank as some of the poorest counties in Ohio and even the U.S.⁶⁹

Local communities and tourism benefit from state forest recreation. It has been estimated that outdoor recreation, including forest-based recreation, contributes \$8.1 billion to Ohio's economy each year and employs over 132,000 workers.⁷⁰ Some state forests have active timber management programs and there has been no decrease in recreation due to timber management. In fact, recreational use of state forests continues to increase despite timber management activities. Indirect economic benefits from public hunting, fishing, hiking, trail riding, etc. on state forest lands is also readily apparent and compatible with forest management.

Cultural and Historic Areas⁷¹

Ohio has no federally recognized tribes. All state forests have been assessed for the presence of cultural or historic areas using the best available data and consultation from stakeholders. Historical sites that possess importance are generally earthworks from prehistoric indigenous peoples or cemeteries from early settlers. These areas have been mapped and delineated on our GIS. Maps of these location are consulted during the assessment phase of planning for disturbance related activities. For public works projects, the division consults with the Ohio History Connection as required by ORC Chapter 149 (state funds) or 36 CFR 800 (federal and/or state funds).

⁶⁸ Ohio Revised Code. Section 1503.05.

⁶⁹ indexmundi.com/facts/united-states/quick-facts/ohio/percent-of-people-of-all-ages-in-poverty#map

⁷⁰ Gioglio, Robert, et al. Economic Valuation of Natural Areas in Ohio. Ohio State University. CFAES. November 2019.

⁷¹ The Cultural and Historic Areas section was amended on September 3, 2024 to clarify the Division's policy regarding its consultation with the Ohio History Connection. No change to policy has been made.

Outreach and Demonstration

State forests contain many outreach and demonstration areas to show the importance of forest management. These demonstration areas may be in the form of a short hiking trail through forest management activities, or they may be larger areas with many activities. Demonstration areas are visited by school groups, university students, and private landowners because they demonstrate a variety of silvicultural practices. DOF is always looking for new opportunities that can showcase the importance of forest management to public and private forest landowners.

Annual Work Plans

The annual work plan is the offspring of this management plan. Annual work plans are produced every year for each district and includes the state forests within that district. This state forest management plan is intended to guide DOF staff for them to generate annual work plans. Annual work plans contain details such as individual timber harvests, prescribed fire units, precommercial treatments, trail projects, road projects, interpretative signs, trail closures, road construction, any new building construction, or new facilities. Annual work plans describe details such as acreages and timing of activities. They contain detailed maps of treatment areas.

Annual work plans are generally written in the early summer months and disseminated to the public via our website in late summer to roughly correspond with the state fiscal year. Annual work plans are intended to be read and commented on by stakeholders and the public. Annual work plans are also given to the ODNR-Division of Wildlife and other experts who provide feedback from a wildlife biology perspective which gives an interdisciplinary approach to state forest activities.

After a reasonable comment period, all feedback from our annual work plans is considered by DOF management and changes are made if deemed necessary. The chief of the Division of Forestry will give final approval to the annual work plan after consideration of all comments and issues and then the annual work plan can be implemented.

Periodic Revision

The statewide comprehensive Ohio Forest Action Plan is periodically revised on a 10-year schedule. The current Ohio FAP is in effect from 2020-2030. The state forest management plan is dependent upon the Ohio FAP. Therefore, this plan is in effect for the period of 2021-2031. The next scheduled plan revision will be in 2031 to coincide with the next Ohio FAP.

However, the Division of Forestry may amend this plan at any time during this planning cycle. It is anticipated that any number of circumstances may change in the next 10 years, including by not limited to, changes in administration, changes in law, changes in scientific knowledge, changes climate or weather patterns, or a host of catastrophic events may occur that necessitate this plan being amended.

Training Required to Implement the Plan

All foresters who work for the ODNR-Division of Forestry are required, as part of their minimum qualifications, to possess a minimum of a Bachelor of Science from an accredited university in forest management or a closely related field, and relevant work experience.

Internally, DOF has implemented a training schedule for new foresters that includes training on BMPS, soil and water resources, cruising and pre-harvest layout, and timber sale administration. Secondly, DOF provides refresher trainings to all foresters at least once per year covering a host of forest and wildlife topics.

Forestry is a “generalist” discipline, in that forester’s knowledge lie not only in forest ecology and silviculture, but also encompasses botany, wildlife biology, insects and disease, hydrology, geology and many other disciplines. Furthermore, foresters working on state lands all possess credentials in wildland fire fighting and pesticide application. These credentials must be kept current with continuing education.

Finally, all state lands foresters will be briefed on the contents of this plan and its implementation.

Publicly Available

This plan is publicly available at the Ohio Department of Natural Resources – Division of Forestry website at ohiodnr.gov/forestry.

Appendix A: Shawnee Wilderness Plan

I. Introduction

The Shawnee Wilderness Area was first designated in 1972 with statutory protection occurring in 1988 (Ohio Revised Code 1503.43). Bounded by Forest Road 17 and Sunshine Ridge to the north, Upper Twin Creek Road to the east and northeast, US 52 to the south, and Lower Twin Creek Road to the west and south west, the area contains 8,466 acres of contiguous state forest ownership in Adams and Scioto Counties. There are numerous private properties within these boundary roads, but they occur primarily along the roads themselves.

Shawnee State Forest lies on the un-glaciated Allegheny Plateau. Topographically it is very rugged and steep. Most of the Shawnee Wilderness Area is traversed by Buckhorn Ridge extending from the north near the junction of township road 202 and county road 7 and progressing south toward Buena Vista. There are numerous small valleys and slopes descending to the east and west towards Upper and Lower Twin Creeks. Several small drainages descend south into Upper and Lower Twin Creeks and eventually the Ohio River.

Shawnee State Forest is part of the Central Hardwood Region, the largest conglomeration of deciduous hardwoods in the world. The forest is composed primarily of deciduous angiosperms and contains mostly oak-hickory forest types, typical of forests in southeastern Ohio.

The Division of Forestry employs a passive management strategy for the Shawnee Wilderness Area, consistent with Ohio Revised Code. Under this strategy, obvious signs of human influences are minimized, and late-succession forest communities increase in abundance. The Department of Natural Resources is unaware of any other area in the state containing over 8,000 acres of undeveloped forest land where obvious evidence of human activities is gradually disappearing. As a result, the Shawnee Wilderness Area affords unique opportunities for current and future generations to enjoy the sense of solitude, awe, and grandeur that wilderness provides.

II. Goals and Objectives

- To uphold the law according to Ohio Revised Code Section 1503.43, Shawnee Wilderness Area
- To maintain a contiguous area of undeveloped State-owned land as a designated Wilderness Area
- To provide an area in which humankind's past influences are largely unnoticed
- To allow for natural forest succession and natural forest disturbances to occur without human influence
- To provide an area that has outstanding opportunities for solitude and primitive recreation

III. History

Prior to settlement by Europeans and their descendants, up to 95% of what is now Ohio was covered by forests and woodlands. As the population grew, forests were harvested, and land was

cleared for agriculture. As the decades passed, the forests were reduced until, by the early 1900s, only about one-tenth of Ohio remained forested.

Thanks to an aggressive reforestation program statewide, improved forest management of private woodlands, and expanded public ownership of forest lands, approximately 30 percent of Ohio is now forested. ODNR's Division of Forestry manages over 200,000 acres of state forest lands for multiple uses.

As a result of the public's appreciation of natural resources, there has been a nation-wide movement to protect undisturbed wilderness areas. In the 1960s and early 1970s, Congress enacted legislation creating a National Wilderness Preserve system. In 1972 the Ohio Department of Natural Resources added to this effort and designated an 8,000-acre tract of contiguous forest land within Shawnee State Forest as a "Wilderness Area." Most of the land was acquired by the Division in the 1940s and 1950s, and some as early as the 1930s. Prior to acquisition by the state, some of these properties had been heavily impacted by settlement, mining, and other activities. After state acquisition, these lands were managed in accordance with sound forestry practices and some timber was harvested from the area through the 1960s.

Since the 1972 decision to designate these lands as wilderness, no logging has taken place. Other than hunting, trail use, and other low impact recreation, little human activity has occurred in the area. The effects of past activities are now largely unnoticed.

The 1972 administrative designation of these lands was an important step in providing a wilderness experience for Ohioans. In 1988, House Bill 699 placed this wilderness designation in statute, formalizing the Shawnee Wilderness Area. HB 699 specified in Ohio Revised Code the management intent, the boundaries of the area, and prohibited certain activities.

In 2003 a major ice storm impacted much of the Shawnee State Forest, including the Wilderness Area resulting in a substantial amount of downed woody debris. Many trees were uprooted and fell over, some snapped off at the trunk, and many received significant crown damage. Consistent with the wilderness designation, forest succession following this disturbance is proceeding without human intervention with the exception that hiking and bridle trails in the wilderness area were cleared of downed trees. The ice storm has provided an opportunity to observe how forest ecosystems recover following such events.

IV. Citizen Participation

The 2021-2031 Shawnee Wilderness Area plan is the fifth management plan version for the area. Plans have been written or revised in 1989, 1999, 2009, and 2013. The fifth, and current, revision is taking place to allow for a small change. The current Wilderness Plan states that no new trails are to be constructed, and the Division would like to be able to allow for new hiking trail designation. Any trail proposals would follow the Annual Work Plan public input process. Current discussions include a foot trail that would mostly follow an existing but undesignated path into Vastine Hollow. This is a popular destination within the Wilderness Area and having a mapped and designated trail will further protect the environmental and historical resources as

well as allow for a safer visitor experience. The current Shawnee Wilderness Area law does not prohibit new trail creation so a small edit in the Plan is needed. The Wilderness Plan will also be formally added as an appendix to the Division's 10 Year Management Plan". This will simply combine these documents to allow for ease of access as well as 10-year revision reviews.

The plan is being posted on the internet at the Division of Forestry's website and also presented at the 2021 Open Houses. Public comments are to be solicited throughout the review period and will be accepted in writing, via e-mail, and through conversation with Division of Forestry staff.

Public participation is important to the Division of Forestry and, most importantly, to the people of Ohio as stakeholders. Comments will be reviewed and incorporated as appropriate into an updated plan.

V. General Wilderness Rules

The following are prohibited within the Shawnee Wilderness Area:

- Picking, removal, cutting, or alteration in any manner of any vegetation unless the person first has obtained written consent from the Chief of the Division of Forestry for that activity and the action is necessary for appropriate public access, the preservation or restoration of a plant or wildlife species, or the documentation of scientific values.
- Granting of any easement or license, or sale or lease of any of the land, for any purpose. This does not apply to any private easement or license in existence on September 14, 1988.
- Exploration for, or extraction of, any coal, oil, gas, or minerals.
- Operation, construction, or installation of a utility facility above or below the surface of the land.
- Operation of a commercial enterprise.

The following are also prohibited within the Shawnee Wilderness Area, except as necessary to meet emergency requirements or as exempted in 1503.43 (E)(1) for maintenance on the designated trails:

- Use of the land as a temporary road.
- Construction of a road upon any of the land or use of the land as a road.
- Operation of a motor vehicle, motor boat, other form of mechanical transport, or motorized equipment.
- The landing of an aircraft.
- Construction of any building or other structure.

The emergency use of equipment and use of equipment for trail maintenance are further defined in the appropriate sections of this plan.

The following areas, which are necessary for the administration of Shawnee State Forest and the state forest system, are not subject to the prohibitions of this section per 1503.43 (E) (1):

- The Buena Vista manager's residence
- The Buena Vista walnut seed orchard

The status of the Buena Vista manager's residence and the Buena Vista walnut seed orchard will be re-assessed in the next evaluation period.

VI. Wildfire Management

Wildfires are a common occurrence every year in southern and southeastern Ohio. Division of Forestry statistics show that from 2010 through 2020, approximately 500 fires burned over 3,800 acres in Scioto and Adams counties. Not all wildfires are reported to the Division so the actual number of fires and acreage burnt will be larger than these reported statistics. Most of these fires are caused by either careless debris burning or arson. Fire danger is at its highest during the fall months of October and November and before green-up in March, April, and May. However, wildfires may occur at any time of the year, particularly during times of drought.

In most wildfire situations, it is critical to contain the fire early in its development. In order to accomplish these suppression goals, firefighters must attack the fire quickly and aggressively. Wildland fires occurring in the Wilderness Area will be suppressed using tactics normally available to firefighters and the following details will be considered when appropriate:

- Heavy mechanized equipment (bulldozer, blade, or plow) for fire line construction will be used as a last resort. Severity of fire conditions, the fire's size, rate and direction of spread, weather, location, availability of personnel and equipment, and other factors will be evaluated to determine if non-mechanized methods (such as hand lines) will effectively and safely contain the fire. With the exception of circumstances where lives are at risk, bulldozer use will be limited to that necessary to establish containment lines. Minimum Impact Suppression Techniques (M.I.S.T.) will be utilized whenever possible to effectively meet suppression and resource objectives and minimize environmental impacts. The use of heavy mechanized equipment will be approved by the Fire Protection Area Supervisor. This decision will be communicated immediately to the District Manager and Chief of the Division of Forestry.
- Non-powered and powered hand tools (leaf blower, chain saw, small hand tools) may be used at the discretion of the Incident Commander.
- The Forest Manager will determine the appropriate amount and intensity of fire line rehabilitation. The additional disturbance created by fire line rehabilitation will be evaluated against the benefits rehabilitation provides prior to any rehabilitation efforts.
- Prescribed burning will not be utilized as a management tool within the Shawnee Wilderness Area, nor will any fires be allowed to burn.

VII. Emergency Response

Due to the recreational uses and work performed within the Wilderness Area, it is probable that rescue personnel may need to address emergency response situations. An emergency is defined as an immediate life threatening or safety situation.

The Incident Commander will assess the emergency and deploy resources appropriately in consultation with the Forest Manager or other supervisory personnel.

Mechanized equipment may be used but only if critical to the situation. These critical decisions will be relayed to the District Manager and Chief of the Division of Forestry as soon as possible.

VIII. Insect and Disease Management

Currently, insect and disease populations within the Wilderness Area are at an endemic level. These populations will continue to be evaluated but will generally be allowed to fluctuate naturally within the Shawnee Wilderness Area boundaries. The following principles will be followed to evaluate insect and disease issues.

- Native insect infestations and disease infections will not be controlled except in extreme epidemic situations in which the lack of control would significantly affect the forest resources outside of the wilderness area.
- If non-native forest pests or diseases populate the Wilderness Area and begin to threaten forest resources, any treatments will be consistent with ODNR management goals and policies. Other ODNR divisions, federal agencies, and scientists will be consulted prior to the decision to treat for non-native forest pests or diseases.
- Cutting of trees by ODNR Division of Forestry personnel or any other agency, person, or group, is not permitted except for trail maintenance, safety, or as approved by the Chief of the Division of Forestry for the prevention of the spread of pests and diseases as described above.

IX. Recreation Management

The Wilderness law prohibits the use of mechanical transport or motorized equipment for recreation. However, the wilderness area is available for non-motorized forms of recreation. Buckhorn Ridge (5.5 miles) and Cabbage Patch Hollow (2.5 miles) bridle trails are accessible for horse riding recreation. Also, within the Wilderness Area are approximately 5 miles of backpacking trail as well as a portion of the Buckeye Trail. Hunting and fishing activities are permitted as well as wilderness camping. The following conditions apply to public access of the wilderness area:

- Bicycles are considered mechanized and are prohibited.
- Signage will be kept to a minimum.
- Horses must stay on the designated bridle trails.
- Parking is permitted along the berms and legal road rights-of-way.
- Dispersed wilderness camping is permitted but the following regulations apply:

- a. A permit must be first obtained from the Shawnee Forest Manager. Permits may be denied during periods of high fire danger, an actual ongoing fire, or other unforeseen safety threats.
- b. Permits must be applied for 10 days in advance and in writing, but this provision may be waived as determined by the Forest Manager.
- c. Fires are prohibited except in portable stoves.
- d. Cutting of trees is prohibited.
- e. "Leave No Trace" camping practices must be exercised

X. Vegetation and Trail Management

Vegetation management will be conducted according to the following:

- Any proposal for managing endangered or threatened plants and animals will be reviewed by the Chief of the Division of Forestry on a case-by-case basis. The Division will also rely on the expertise of other organizations and agencies, such as the Division of Natural Areas and Preserves and Division of Wildlife for their input.
- There are approximately 26 acres of non-native planted pine in eight different plantations. These plantations were established before the wilderness designation. They will not be maintained in any manner and natural succession will occur allowing the plantations to revert to native vegetation.
- New trail proposals must be presented in the District's Annual Work Plan for public input and review. Any trail proposal must follow the Shawnee Wilderness Area law (Ohio Revised Code, 1503.43, Appendix A)
- Volunteer assistance will be relied upon as much as possible to clear trails of debris and to perform trail maintenance. Trail maintenance will also be conducted by forestry personnel. Lesser maintained trails will also contribute to the wilderness recreation experience.

Designated trails are listed in 1503.43 as Buckhorn Ridge and Cabbage Patch bridle trails as well as the Wilderness Loop hiking trail. All maintenance on these trails will be performed with hand tools as appropriate, but mechanical equipment such as weed eaters, chainsaws, leaf blowers, four wheelers and UTVs, trail dozers, skid steers, tractors with bush hogs and buckets, or similar equipment may be used at the forest manager's discretion to maintain the designated trails. If mechanized equipment is to be used on any future trail, a revision to ORC 1503.43 will be needed in order to add any new trails to the list of trails in which mechanized equipment can be utilized.

It should be noted that both Buckhorn Ridge Bridle Trail and Cabbage Patch Bridle trail are old road grades that predate the wilderness legislation. Buckhorn Ridge Bridle Trail was an actual Forest Road open to public vehicles and currently has a compact road base with ditches, culverts, and catch basins. Cabbage Patch Bridle Trail was a gated forest access road. Neither are single path trails in their current condition. Only portions of the wilderness loop hiking trail are single track.

The following criteria will be utilized when conducting trail maintenance:

- With the exception of small seedlings and saplings, no live trees will be cut unless the live tree presents a safety hazard to trail users. Seedlings and saplings and other plant material will only be cut to maintain the existing trails.
- All plant material, including trees, will remain in the wilderness area to decay.
- The existing trail grade will not be widened, only cleared of downed trees and vegetation that hinders the designated recreation use.
- NO excavation will occur. Trail dozers will only be used on existing bridle trails (old road grade trails) and to only push downed trees off of the trail.

XI. Wildlife Management

All hunting, fishing, and trapping within the Wilderness area will be according to the Division of Wildlife's rules and regulations as provided in Ohio Revised Code 1503.43, Shawnee Wilderness Area.

Efforts to stock or reintroduce species of game and non-game wildlife will not be considered by the Division of Forestry unless the efforts are consistent with state or district-wide Division of Wildlife goals and are initiated by the Division of Wildlife.

XII. Research Management

Because of its unique protection status, the Wilderness Area is a valuable source of information for natural resource studies. In order to further limit the impact on the Area, only scientific studies that are dependent upon the wilderness area will be allowed.

- All research in this area must be conducted in a manner consistent with the Wilderness Area law.
- All studies must have little or no impact on the forest environment.
- Permission from the Division of Forestry is required using the "Special Use Permit" process.

VI. Ohio Revised Code, 1503.43 Shawnee Wilderness Area

(A) As used in this section:

(1) "Wilderness area" means a contiguous area of relatively undeveloped state-owned land administered by the division of forestry and consisting of not less than five thousand acres or of sufficient size as to make practicable its preservation and use in an unimpaired condition that either has retained its natural character and influence or has been substantially restored to a near natural appearance and that meets both of the following qualifications:

- (a) The area is one in which humankind's past influences are largely unnoticed;
- (b) The area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

(2) “Utility facility” includes, without limitation, towers, poles, pipes, sewers, tubing, conduits, conductors, cables, valves, lines, wires, manholes, and appurtenances thereto owned by a utility facility operator.

(3) “Utility facility operator” means a person or public authority that supplies any of the following materials or services by means of a utility facility:

- (a) Flammable, toxic, or corrosive gas;
- (b) Crude oil, petroleum products, or hazardous liquids;
- (c) Coal;
- (d) Electricity;
- (e) Electronic, telephonic, or telegraphic communications;
- (f) Television signals;
- (g) Sewage disposal or drainage;
- (h) Potable water;
- (i) Steam or hot water.

(B) That portion of contiguous state lands located in Scioto and Adams counties and within the Shawnee state forest and bounded by forest road seventeen and sunshine ridge to the north, by upper Twin Creek road to the east and northeast, by United States route fifty-two to the south, and by lower Twin Creek road to the west and southwest is hereby designated the Shawnee wilderness area. Except as otherwise specifically provided by this section or by rule adopted under this chapter, the provisions of this chapter apply to the Shawnee wilderness area, and that area shall continue to be a part of the Shawnee state forest.

(C) The Shawnee wilderness area shall be managed to preserve natural conditions and ensure the continuance of natural processes. The chief of the division of forestry, with the approval of the director of natural resources, shall administer the Shawnee wilderness area in accordance with a management plan, which the chief shall develop and adopt within one year after September 14, 1988. Sixty days prior to adopting a plan, the chief shall solicit public review and comment on a draft plan. At least once every ten years, the chief shall conduct a review of the plan, with public input, and revise the plan as appropriate. The chief shall make the plan available for review by any person upon request.

(D) Notwithstanding any other authority granted to the chief under this chapter, the chief shall include within the management plan adopted under division (C) of this section prohibitions of the following activities within the Shawnee wilderness area except for the areas exempted in division (E) of this section:

- (1) Picking, removal, cutting, or alteration in any manner of any vegetation unless the person first has obtained written consent from the chief for that activity and the action is necessary for appropriate public access, the preservation or restoration of a plant or wildlife species, or the documentation of scientific values;
- (2) Granting of any easement or license, or sale or lease of any of the land, for any purpose. Division (D)(2) of this section does not apply to any private easement or license in existence on September 14, 1988.
- (3) Exploration for or extraction of any coal, oil, gas, or minerals;
- (4) Operation, construction, or installation of a utility facility above or below the surface of the land;
- (5) Operation of a commercial enterprise;

(6) Except as provided in division (D)(7) of this section, construction of a road upon any of the land or use of the land as a road;

(7) Except as is necessary to meet emergency requirements for administration of the area:

(a) Landing of an aircraft;

(b) Operation of a motor vehicle, motor boat, other form of mechanical transport, or motorized equipment;

(c) Construction of any building or other structure;

(d) Use of the land as a temporary road.

(E)(1) The following areas, which now are necessary for the administration of the Shawnee state forest and the state forest system, are not subject to the prohibitions of division (D) of this section:

(a) The Buena Vista manager's residence;

(b) The Buena Vista walnut seed orchard.

(2) The following areas, which now are necessary for the administration of the Shawnee state forest and the state forest system, are not subject to the prohibition established in division (D)(7)(b) of this section for the purpose of trail maintenance:

(a) The hiking trail west of upper Twin Creek road known as the wilderness loop;

(b) Buckhorn ridge bridle trail;

(c) Cabbage patch bridle trail.

(3) At any time that the chief makes a determination that it is no longer necessary for the administration of the Shawnee state forest or the state forest system for an area excluded in division (E)(1) or (2) of this section to be excluded, the area shall become subject to the prohibitions established in division (D) of this section or the prohibition established in division (D)(7)(b) of this section, as applicable.

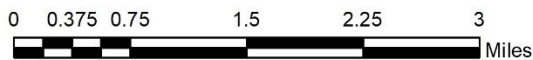
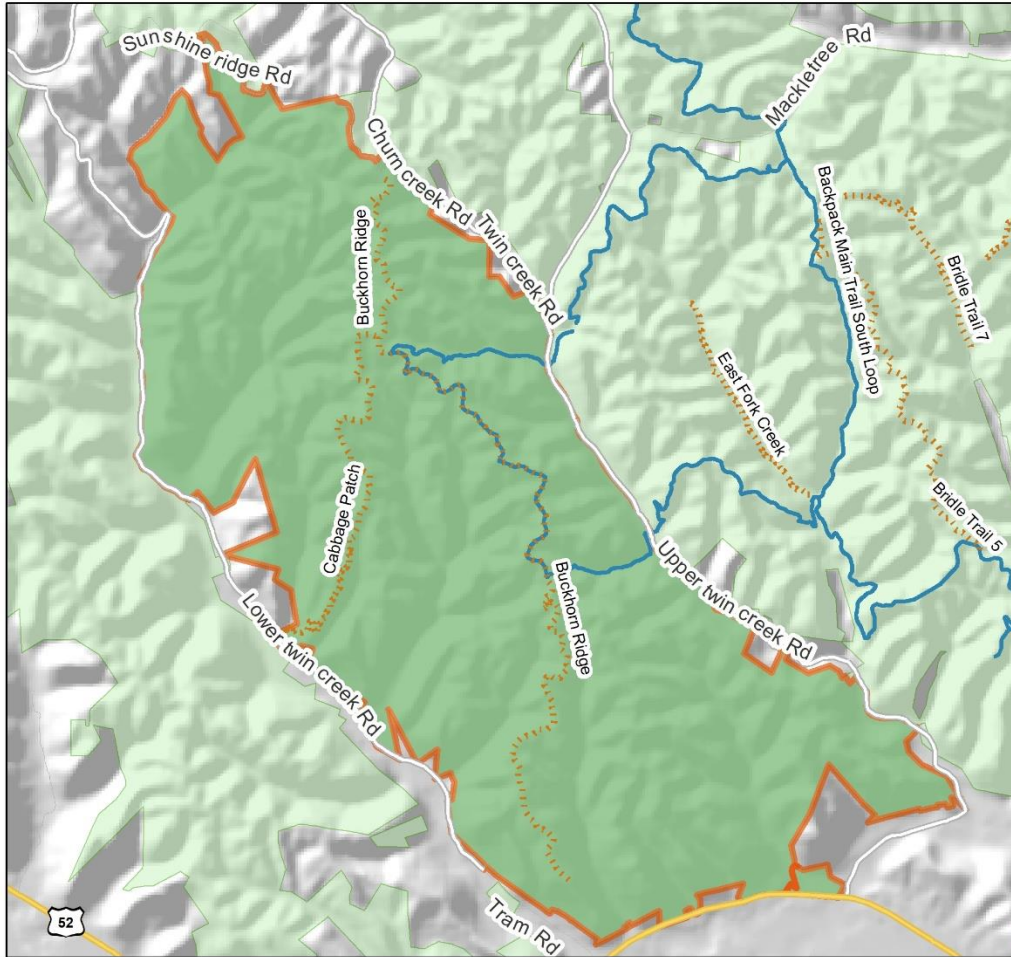
(F) The chief, in developing a management plan under division (C) of this section, may not prohibit any hunting, fishing, or trapping that is done in conformity with Chapters 1531. and 1533. of the Revised Code or any rules adopted under those chapters.

Amended by 129th General Assembly File No. 127, HB 487, § 101.01, eff. 9/10/2012.

Effective Date: 03-18-1999.

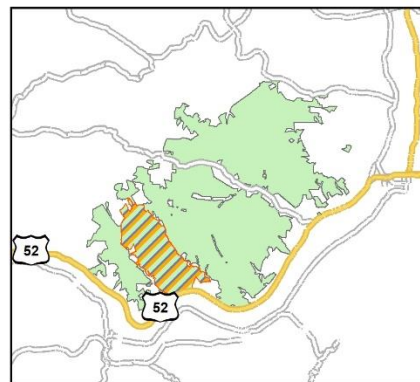
Appendix A

Shawnee State Forest Wilderness Area



1 inch = 5,000 feet

Legend	
 Shawnee State Forest	 US Routes
 Wilderness Area	 State Hwy
Forest Trails	
 Backpack	 County Road
 Bridle	 Twp Road



Appendix B: Shawnee Backcountry Management Plan

The Shawnee Back Country Management Area (BCMA) encompasses approximately 8,000 acres of Shawnee State Forest. The area is bounded on the west by the 8,000-acre Shawnee Wilderness Area. It is bounded on the north by Forest Road 2, Pond Run Road on the east, and US 52 on the south.

The Shawnee Back Country management Area was adopted on February 4, 1999. The purpose of the BCMA was to: “(1) provide management opportunities for forest wildlife and state listed (endangered or rare) species, (2) provide limited motorized vehicle travel, and (3) create a unique walk-in hunting, back-country camping, and recreational viewing opportunities.

The BCMA will be managed in accordance with Division of Forestry (DOF) Policy, the Land Management Manual, and by certification standards. Management projects will be designed to achieve the desired future condition for state forests as well as incorporate the Division’s top biodiversity goals.

Vehicle access will remain closed to the public. Gates will remain closed on Forest Road 7 and the gravel portion of Forest Road 5 (also known as bridle trails 7 and 5).

Special Use permits for recreation or research shall be considered in accordance with current DOF policy.

The BCMA will continue to provide a back country experience for hikers, horse riders, and hunters.

Road-side mowing will be limited to after leaf senescence in the fall of the year except as necessary to maintain vehicular safety. Boom mowing of the road-side banks will occur after leaf senescence and before leaf-out in the spring.

This Shawnee Back Country Management Area Plan will be added to the Division’s 10-year Management Plan for ease of access and periodic review.

Citizen Participation

Citizen participation is important to the Division of Forestry and to the people of Ohio. Proposed changes to the BCMA will be made publicly available on the DOF’s website and at the Open House event. To ensure citizen participation, comments will be accepted in writing, via email, and through conversations with DOF staff.