

FOREST MANAGEMENT

MYTHS



TRUTHS

of

Indiana State Forests



Morgan-Monroe State Forest

INTRODUCTION

“... New attitudes have directed forest management away from timber production and toward other forest ecosystem values such as preservation. Unfortunately, it is too often believed that total protection will permit the forest to maintain or restore these values. This belief is in error because oak and hickory are shade-intolerant keystone species subject to successional replacement ... ”
Fralish, James S. 2004. The Keystone Role of Oak and Hickory in the Central Hardwood Forest.

Indiana’s state forests have been managed by the Division of Forestry since the first state forest was established in 1903. Most state forest acres were brought back from derelict conditions under which trees would not grow. For several years, the management of these forests has been the subject of considerable debate. Much disinformation regarding forest management has been circulated that attempts to refute the true science. As a result, the acreage, management, level of harvest, the forestry profession, and a number of other issues have been discussed in media outlets around the state.

Some widespread myths and misconceptions about management of the state forests are addressed in this publication. An attempt is made to separate truth from opinion and replace allegations and myths with facts and understanding showing the many benefits of managing these forests.

The Merriam-Webster Dictionary defines a myth as an unfounded or false notion. Daniel Botkin characterizes a myth as follows: “... people believe it whether or not it’s supported by facts, but also, when challenged by facts, there is a tendency for the true believer to deny his true belief and claim that it was just an old idea, no longer believed by the vast majority. Then, left alone, this believer returns to his myth and makes decisions, assuming it’s true.”

Botkin, Daniel B. 2017. *25 Myths That Are Destroying the Environment: What Many Environmentalists Believe and Why They Are Wrong*. Taylor Trade Publishing, Lanham, MD.



Division of Forestry

Much of the land first acquired for the State Forest system was like this tract on Clark State Forest in 1926, overharvested timberland or eroded abandoned cropland.

MYTH #1: Deforestation is increasing on Indiana's state forests.

TRUTH: Deforestation is the permanent conversion of forest land to non-forest land. Timber harvesting as a practice of sustainable forest management on state forest land does not result in deforestation. The overwhelming amount of deforestation occurs when forests are cleared for agriculture or development. Indiana's state forests will remain intact as forests, and trees in areas that are harvested will regrow.

The Division of Forestry has gone from annually harvesting 0.3% of the merchantable trees before 2005 to harvesting 1.2%. Mathematically, that is a 300% increase, which sounds like a huge percentage. But for a visual that paints a truer picture than that misleading figure, consider that for every 100 trees in a given state forest, about 98.8 are left standing after a timber harvest. To a large degree, the seemingly high percentage of harvesting increase is due to the historically low harvest levels of two decades ago and the amount of forest recovery and growth under DNR Forestry management during the last century. Harvest levels are reviewed periodically against scientifically collected data to ensure long-term sustainability of state forests.

Oak-hickory forests have been part of the Indiana landscape for thousands of years. Oaks became the predominant species about 7,000 years ago, concurrent with the warming of the climate, the presence of fire, and the arrival of humans. Humans have been the driving disturbance factor in Indiana forests ever since. Fire was used to clear land for agricultural use and to drive or create conditions for improved habitat for wildlife like bison and deer. Even today, nature preserves within the state forests receive management to provide for the conditions and habitat needs of many plant and animal species.



Division of Forestry

An aerial view of Morgan-Monroe State Forest in 2018. Harvests have been conducted in this area over the past 15 years, and the forest is still intact.

Citations:

- Carman, S.F. 2013. Indiana forest management history and practices. Pages 12-23. In: The Hardwood Ecosystem Experiment A Framework for Studying Responses to Forest Management. (Swihart, R.K., M.K. Saunders, R.A. Kalb, G.S. Haulton, and C.H. Michler, eds.). General Technical Report NRS-P-108. U.S. Department of Agriculture, Forest Service. Northern Research Station, Newtown Square, PA.
- Jenkins, Michael S. 2012. The History of Human Disturbance in Forest Ecosystems of Southern Indiana. In: The Hardwood Ecosystem Experiment: A Framework for Studying Responses to Forest Management. (Swihart, R.K., M.K. Saunders, R.A. Kalb, G.S. Haulton, and C.H. Michler, eds.). General Technical Report NRS-P-108. U.S. Department of Agriculture, Forest Service Northern Research Station, Newtown Square, PA.
- Internal data source

MYTH #2: *Forests don't need to be managed. Indiana's forests should be preserved untouched to keep them healthy. They will do better if left to their own devices. They'll survive on their own, as they did for thousands of years.*

TRUTH: Management of any forest is based on objectives for the future condition of that forest. If left unmanaged, forests eventually will undergo a change in species composition, from shade-intolerant tree species to shade tolerant species, as well as a decline in vigor and growth.

Managed forests are more resilient under multiple stressors, such as invasive plants and insects, fire, and drought. Managed forests are healthier and provide greater habitat diversity for both plants and animals. Managed forests continue to provide habitat for wildlife, wood products, clean water, clean air and carbon storage. Unmanaged forests show symptoms of decline, while managed forests remain healthy and vigorous.

Humans are part of the natural system. As such, we have suppressed natural events such as wildfire and wildlife migratory patterns, as well as sped up other events, such as the introduction of invasive species-the natural system does not exist as it did 200 years ago. It needs some assistance to maintain the diversity we expect on the landscape.

Citations:

- Botkin, Daniel B. 2017. 25 Myths That Are Destroying the Environment: What Many Environmentalists Believe and Why They Are Wrong. Taylor Trade Publishing. ISBN 9781442244924
- Cook, Bill. 2014. Benign Neglect. Michigan State University Extension.

MYTH #3: *State forests provide the only opportunities within Department of Natural Resources lands to allow forests to mature to old-growth conditions and for the public to connect with this type of wild nature.*

TRUTH: Indiana currently has about 637,000 acres of public forest land in federal, state and municipal ownership. Of state-owned forestland, 50% is off limits to commercial activity, including logging. When federal lands are included, the amount that is set aside increases to almost 70%, including the 13,000-acre Charles Deam Wilderness Area of Hoosier National Forest. More forest land in Indiana has the potential for developing into old-growth conditions outside of the state forest system.

The Division of Forestry is only one part of the of the DNR land-holding portfolio. For perspective, consider the full property portfolio of the DNR and the differing missions of these various properties:

- 289 designated nature preserves (set asides) in excess of 50,000 acres. More than 2,900 of those acres are within state forests.
- The Division of State Parks preserves more than 100,000 acres of forest that are set aside from timber harvesting.
- The Division of Fish & Wildlife properties contain 86,650 acres of forestland, of which 90% is set aside from timber harvesting.



Ten O'Clock Line Nature Preserve, Brown County.

When federal public forest lands in Indiana are included, such as Hoosier National Forest; Big Oaks, Muscatatuck, and Patoka national wildlife refuges; Indiana Dunes National Park and Lincoln Boyhood National Memorial; and Army Corps of Engineers Reservoirs, this no-harvest area is even larger. Of this more than 637,000 acres of public forest land, more than 68% is no-harvest forest land (>432,000 acres).

The DNR has and continues to establish no-harvest areas across its portfolio. There is ample opportunity across the DNR lands portfolio for forest lands to develop into old-growth conditions. State forests are the only properties where long-term, sustainable, multiple-use forest management is realized.

MYTH #4: *Foresters are fundamentally loggers and are only concerned about trees as an economic crop.*

TRUTH: Foresters are trained professionals, requiring a four-year degree from an accredited school of forestry. They are trained in the sciences (biology, chemistry, ecology, and silviculture) and in soils, wildlife, and water, allowing them to consider and analyze the whole forest ecosystem. The professional foresters employed by the Division of Forestry use the best available science to achieve long-term management goals for multiple outcomes. The management choices that they are making today consider the future, the future of forests that provide a diversity of habitats for all wildlife, not just those species that use mature forests.

Citation: Environmental Science.org. What is a Forester?
<https://www.environmentalscience.org/career/forester>

MYTH #5: *The backcountry areas have always been off-limits to commercial timber harvesting.*

TRUTH: Backcountry areas were established in 1981 to provide a primitive experience for hikers and campers. Upon designation of these areas, a policy was developed stating that “hunting will continue to be allowed in the backcountry area, as well as timber management”, and that timber harvests would be restricted to “single-tree selection of mature, damaged or diseased trees.” Backcountry areas were designated on three state forests—Morgan-Monroe, Yellowwood, and Clark. Management activities on all backcountry areas have been designed to maintain the primitive recreational experience. Timber harvests are scheduled on a longer reentry period than on other state forests—rather than the normal 15-20 years used for other tracts, these backcountry areas are scheduled at 30- to 40-year intervals. Since 1981, timber harvests have been part of the management on all backcountry areas. The area within Morgan-Monroe/Yellowwood had several harvests in the 1960s. Recently a harvest was conducted on 299 acres to remove dead and dying ash, tulip poplar and chestnut oak. A total of 1,733 trees were harvested.



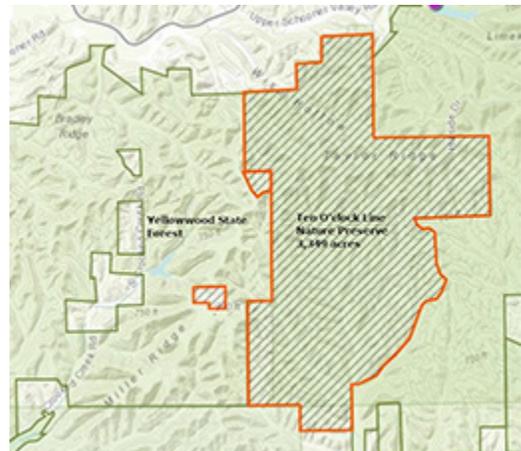
Division of Forestry

An aerial view of part of the 2017 harvest area of Yellowwood State Forest’s Backcountry Area. These small canopy gaps are typical of the single-tree selection harvest on the 299 acres.

Citation: Internal data source

MYTH #6: *We need to conserve large tracts of natural forests on our state forests to provide a baseline to compare to managed forests and to observe how these forests respond naturally to stresses, such as those increasingly brought on by pollution and climate change. Allowing large areas of forest to evolve into mature, all-age, old-growth forests can provide forest managers with a wealth of information.*

TRUTH: There are large tracts of public forest land outside of the state forests that could be used for baseline studies. For example, adjacent to Yellowwood State Forest is the Ten O’Clock Line Nature Preserve. This 3,349 acre section of Brown County State Park constitutes the high-quality core within the largest contiguous forest block in Indiana. This nature preserve provides critical habitat for numerous forest interior plants and animals dependent upon unfragmented ecosystems. Using this area as a baseline, it could be compared to Yellowwood State Forest, which is actively managed. These two areas are of comparable forest types, topography, and land-use history.



Map of Ten o’clock Line NP and Yellowwood SF.

This maps shows the proximity of 3,349-acre Ten O’clock Line Nature Preserve and Yellowwood State Forest.

Citation: Internal data source

MYTH #7: *Public forests should be managed to supply public benefits not readily available from private land, including watershed protection, habitat for forest wildlife, recreation, and other non-destructive public uses.*

TRUTH: The state forests are managed for multiple uses. Timber management and other uses are not mutually exclusive. Upon establishment of the state forests in 1903, the Indiana legislature designated them as multiple use: *It is the public policy of Indiana to protect and conserve the timber, water resources, wildlife, and topsoil in the forests owned and operated by the division of forestry for the equal enjoyment and guaranteed use of future generations. However, by the employment of good husbandry, timber that has a substantial commercial value may be removed in a manner that benefits the growth of saplings and other trees by thinnings, improvement cuttings, and harvest processes and at the same time provides a source of revenue to the state and counties and provides local markets with a further source of building material. Indiana Code 14-23-4-1 Title 14: Natural and Cultural Resources, Article 23: Forestry, Chapter 4: State Forest Management, Section 1.*

Citation: Internal data source

MYTH #8: *If trees have to be harvested, only single-tree selection harvesting should be used.*

TRUTH: Single-tree selection harvests are preferred for the management of a relatively mature, diverse forest that promotes the regeneration of shade-tolerant trees such as sugar maple and American beech. The small canopy gaps created by single-tree selection quickly fill with the expanse of the crowns of surrounding trees. Not enough light gets to the forest floor, so these gaps are filled by the shade-tolerant trees present in the understory. Tree species that are shade intolerant (tulip poplar, pecan, black walnut) or have intermediate tolerance (white oak, Northern red oak, hickory, yellowwood) will not regenerate using single-tree selection harvest. To regenerate these species requires larger openings in the canopy to allow sunlight to reach the forest floor for the majority of the day. As such, forest management should include timber harvesting practices that incorporate shelterwood harvests and the creation of larger openings to regenerate tree species with lesser shade tolerance.



D. Rogler/IN DNR

The understory of American beech at Morgan-Monroe State Forest. Single-tree selection harvesting in the past has promoted the regeneration of shade-tolerant tree species. Canopy gaps are not large enough for more shade-intolerant species, such as oak, hickory, cherry and walnut to grow past seedling stage.

Citations:

- Dey, Daniel C., Randy G. Jensen, and Michael J. Wallendorf. 2008. Single-tree Harvesting Reduces Survival and Growth of Oak Stump Sprouts in the Missouri Ozark Highlands. In Proceedings of the 16th Central Hardwoods Forest Conference, West Lafayette, IN. April 8-9, 2008. Douglass F. Jacobs and Charles H. Michler, eds.
- Frelich, Lee E. and George L. Martin. 1988. Effects of Crown Expansion into Gaps on Evaluation of Disturbance Intensity in Northern Hardwood Forests. *Forest Science*, Vol. 34, No. 2, pp. 530-536. Copyright 1988 by the Society of American Foresters

MYTH #9: *It doesn't matter if we lose the oak trees from our forests. Other tree species will take over, and new wildlife species will move in.*

TRUTH: No other current tree genus fills the functional role of oaks for wildlife in Eastern forests. Oaks are keystone species in the forests of the Central Hardwoods. Not only are they important in maintaining biodiversity, they also provide food and support for a substantial number of wildlife species and invertebrates. Without the oaks in our forests, the forest ecosystem would be dramatically different.

- Oaks produce acorns that are a primary fall and winter food source for many wildlife species, including deer, turkey, and wood ducks.
- Leaves, twigs, and young shoots of oaks provide food for a diversity of vertebrates and invertebrates.
- Oak trees support a diverse insect population that is the base food for numerous songbirds.
- White oak is the preferred nesting tree of the state-endangered Cerulean Warbler.
- Cavities that develop in living and dead oak trees supply nesting sites for many birds.
- Oak forests generally have a rich understory of herbaceous plants, which support various neotropical migrant birds and insect populations.
- Bat activity in shelterwood harvest areas is greater than in unharvested areas.

Citations:

- Fralish, James S. 2004. The Keystone Role of Oak and Hickory in the Central Hardwood Forest. In Upland Oak Ecology Symposium: History, Current Conditions and Stability. Fayetteville, AR. 2002.
- McShea, William J. et. al. 2006. Forestry Matters: Decline of Oaks Will Impact Wildlife in Hardwood Forests. The Journal of Wildlife Management 71(5):1717-1728
- Tallamy, Douglas W. 2007. Bringing Nature Home. Timber Press. ISBN-13:978-0-88192-854-9



James Solomon, USDA Forest Service, Bugwood.org

The emergence of forest tent caterpillars in the spring coincides with newly hatched forest birds. These caterpillars are found in forests with a dominance of oak trees. Sixty bird species have been documented to eat these caterpillars, including White-breasted Nuthatch, Yellow- and Black-billed Cuckoo, Carolina Chickadee, Baltimore Oriole, and numerous wood warblers, all found in Indiana's state forests.

MYTH #10: State forest timber is being sold at below-market rates.

TRUTH: The sale price of timber is dependent on many variables—the species, size and quality of the trees, market conditions, access to the site, and contract requirements such as mandatory best management practices to be implemented after the harvest. Private forest land sales differ from public forest land sale in many aspects. Timber can be sold with or without the services of a professional forester. The use of a professional forester will generate higher prices for the timber on private land. Often the goal of the landowner is to maximize income from the sale, so the biggest and/or the best trees are marked to be sold, which ultimately brings a higher price.

On the state forests, the maximization of income is never the goal for conducting a timber harvest. Every tract in every state forest has a management goal and objectives to meet that goal written in a management plan. In most cases the goal of the tract is to improve the forest for the future. Most often, dead or dying trees are selected to encourage the growth of the remaining trees and to improve the health of the forest overall. The biggest and the best trees are most often left in the tract. So, the trees that are sold are usually of lower quality or are species that do not contribute as much to wildlife, which in turn brings a lower price. But not all dead or dying trees are selected for harvest. A certain number of “snags” are left per acre for wildlife. Another consideration in the price that is paid to the Division of Forestry.



D. Rogler/IN DNR

Here the maple is marked for harvesting, leaving the large white oak and red oak. Most of the timber harvesting on Indiana's State Forests is designed to improve the stand for the future, leaving the best trees in the stand.

Trees to be harvested are marked by the forester. A bid sheet is developed listing the number of trees of each species and the volume of the trees in board feet. The bid sheet is sent to timber harvesters who place a sealed bid on the trees. On a designated day and time, the sealed bids are opened, and the highest bidder gets the trees. All state forest timber sales require a contract between the timber purchaser and the Division of Forestry. That contract requires the implementation of best management practices (BMPs) after the harvest. BMPs include grading logging and skid roads and log landings, and installation of water bars to prevent erosion on roads. These extra steps to prevent erosion are a cost to the timber purchaser and usually considered in their bid.

Eighty-five percent of the revenue from timber sales stays within the Division of Forestry and is dedicated to forest land management or new initiatives. Fifteen percent of every timber sale goes to the county where the sale is held.

Citation: Internal data source