

Resource Management Guide
Patoka Lake – R.A. Walton Farm Tract 1
30-day Public Comment Period

Patoka Lake consists of approximately 26,000 acres of primarily forest lands. Most of these lands are owned by the United States of America through the United States Army Corps of Engineers (USACE) yet are managed by the State of Indiana through the Department of Natural Resources (IN-DNR). These lands are managed under the principles of multiple-use/multiple-benefit. The multiple-use/multiple-benefit principle considers that the resources and uses on public lands should be utilized in a balanced combination that will best meet the current and future needs of the people and the environment. Subsequently, land management efforts are guided by scientific principles and guidance of various agencies (ex., U.S. Fish & Wildlife Service) for conservation purposes, as well as to help insure long term health, resiliency, and sustainability.

For natural resources management and planning purposes, Patoka Lake has been divided into a system of management units. Forestry compartments and tracts are currently in development at Patoka Lake, with the R.A. Walton Farm tract being the first developed forestry tract. Tracts typically range between 10 – 300-acres in size, whereas management units and forestry compartments typically exceeding 1,000 acres. Resource Management Guides (RMGs) are being developed for forested tracts to guide their management through a 15 -25-year management period.

The RMG listed below and contained in this document is part of an initial scheduled forest inventories under review for Patoka Lake.

Compartment: R.A. Walton Farm Parcel
Tract: 1

To submit a comment on this document, go to:

<https://www.in.gov/dnr/forestry/state-forest-management/public-comment/submit/>

You must indicate the Property Name, and Tract Name in the “subject or file reference” line to ensure that your comment receives appropriate consideration. Comments received within 30 days of posting will be considered and review posted at:

<https://www.in.gov/dnr/forestry/state-forest-management/public-comment/>

Note: Some graphics may distort due to compression.

State Property:	Patoka Lake		Management Unit:	Eastern End		Compartment:	R.A. Walton Farm Parcel
Forester:	Janet Eger		Date:	November 14, 2022		Tract:	1
Management Cycle End Year:	2047		Management Cycle Length:	25		Acres:	128

Location

Tract 1 is located within Crawford County, Indiana, more specifically Township 2 South, Range 1 West, Section 8 of Patoka Township. This area is located approximately 1.75 miles north of Taswell, IN on the west side of Highfill Chapel Road and north of W Alstott Road.

General Description

The general cover type for this tract is Dry Oak-Hickory with stands of Mixed Hardwoods. Dry Oak-Hickory areas are composed of black oak, white oak, and pignut hickory in the upland areas. The oaks and hickories are interspersed with sugar maple, American beech, and tulip poplar. The forested lowland areas predominately contain American sycamore, black walnut, and American elm.

A few small (< 6 acres/field) grassland/shrubland openings exist on ridgetops located in the western and southern portion of the tract.

History

- Initial efforts to procure the land began with Indiana Dept. of Natural Resources Director Patrick Ralston via written correspondence to Illene Howell of the Farmers Home Administration in May 1989. The property was procured as part of the Indiana DNR's effort to, "...sustain timber production and wildlife populations".
- In 1991, the 234-acre overall R.A. Walton Farm parcel was purchased from the United States of America by the Secretary of Agriculture acting through the Farmers Home Administration who had come to possess the land due to default loan payments and marginality of the farmland. The land was considered "surplus inventory" to the Farmer's Home Administration and eventually conveyed to the Indiana Dept. of Natural Resources to include the preservation and maintenance of wetland and floodplain areas, as well as enhancement of plant and animal habitat and populations.
- Prior to acquisition by the Indiana Department of Natural Resources, approximately half of the 234-acre property was used for agricultural row crops and/or pasture. Trash and fencing suggest the previous tenant had raised pigs in the forested areas north and west of Highfill Chapel Road. Raising pigs in forested areas used to be common in southern Indiana, as pigs could gain extra weight before slaughtering season from rooting the ground each fall for free acorns and hickory nuts.

Landscape Context

Tract 1 lies at the very southeast boundary of the roughly 26,000-acre Patoka Lake property. Of the 128-acre tract, approximately 19.5-acres are currently considered grassland/shrubland and 108.5-acres are considered forestland. Geographic information system data indicates approximately 128-acres north and west of Highfill Chapel Road (*Appendix I*).

The land surrounding Tract 1 is largely agricultural, mixed with public (*ex., United States Army Corps of Engineers*) and privately-owned forestlands. Most farmlands are annual corn and soybeans row cropped lands. Forestlands in the area vary by soil type and topography but tend to be oak-hickory dominated. Single-family residences do lie within one mile of the property boundary. As of November 2022, the property had eleven (11) private landowners adjoining to the various boundaries.

Topography, Geology and Hydrology

The topography varies within Tract 1 from gently rolling hills to the south/west and steeper long hills to north/east. Hydrologic drainage is in a southerly direction, flowing towards Little Patoka River, a tributary of Patoka Lake. A single mapped unnamed intermittent stream flows from north to south through the 128-acre tract. The parent material of the tract consists of sandstone, siltstone, and shale.

Soils

Soils at the Walton Farm tract are generally low in fertility and organic matter. Many areas within southern Indiana have shallow depths to bedrock, so low fertility and organic matter is to be expected. Soil types, based on a *Natural Resources Conservation Service Web Soil Survey* analysis range from Adyeville -Tipsaw and Zanesville complex on the ridge tops through Apalona-Zanesville silt loam complex on the slopes to Haymond-Wellston silt loam in the valley lowlands (*Appendix III*). All these soils except the Haymond lie on fluctuating topography, ranging from 0% to 75% slope. Given this fluctuating landscape, erosion will be a major consideration that will affect use and management.

- **Adyeville silt loam (AbqE3):** The Adyeville series consists of moderately deep, somewhat excessively drained soils on hills. Adyeville soils are typically found on slopes of hills underlain with interbedded sandstone, siltstone, and shale. The erosion hazard, the equipment limitations, seedling mortality, windthrow hazard, and plant competition are concerns in managing the forestlands. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. The site indexes for hardwood species were not available via USDA Web Soil Survey. Preferred trees to manage for include blackgum, black oak, scarlet oak, shingle oak, white oak, and Chestnut oak.
- **Adyeville-Tipsaw complex (AciE):**

The Tipsaw series consists of moderately deep, somewhat excessively drained soils on scarps and hills. The erosion hazard, the equipment limitations, seedling mortality, windthrow hazard, and plant competition are concerns in managing the forestlands. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. The site indexes for

hardwood species include 70 for black oak, northern red oak, and Virginia pine. Preferred trees include blackgum, black oak, scarlet oak, shingle oak, and chestnut oak.

- **Apalona-Zanesville silt loams (AgrB) (AgrC2) (AgrC3):** The Apalona series consists of very deep, moderately well drained soils. These soils are usually found on benches of hills. The Zanesville series consists of moderately well drained soils. They are typically located on ridgetop slopes but can be found on severely eroded hillsides. This soil is well suited for trees. Plant competition is moderate. Seedlings survive and grow well if competing vegetation is controlled by cutting, girdling, or spraying. The site indexes for hardwood species range from 70 (white oak) to 88 (yellow poplar). Preferred trees to manage for are black oak, chestnut oak, shagbark hickory, white oak, and scarlet oak.
- **Haggatt silt loam (HarE2):** The Haggatt series consists of deep, well-drained soils. Haggatt soils are commonly on summits, shoulders and back slopes of hills and sinkholes underlain with limestone. Slopes are typically from 6 to 25 percent but range from 2 to 25 percent. Seedlings survive and grow well if competing vegetation is controlled by cutting, girdling, or spraying. The site indexes for hardwood species range from 68 (white oak) to 86 (tuliptree). Preferred trees to manage for are American beech, black cherry, black oak, black walnut, chinkapin oak, northern red oak, pignut hickory, shagbark hickory, sugar maple, tuliptree, and white oak.
- **Haymond silt loam (HcgAH):** The Haymond series consists of very deep, well drained, soils that formed in silty alluvium. These soils are on flood plains and flood-plain steps. These soils are dominantly subject to rare to frequent flooding for very brief or brief periods in late winter and spring in normal years. A few areas are subject to flooding of long duration. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion.
- **Tipsaw-Adyeville complex (TbIG):** The Tipsaw series consists of moderately deep, somewhat excessively drained soils on scarps and hills. The Adyeville series consists of moderately deep, somewhat excessively drained soils on hills. The Adyeville series consists of moderately deep, somewhat excessively drained soils on hills. The erosion hazard, the equipment limitations, seedling mortality, windthrow hazard, and plant competition are concerns in managing the forestlands. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. The site indexes for hardwood species include 70 for black oak, northern red oak, and Virginia pine. Preferred trees include blackgum, black oak, scarlet oak, shingle oak, and Chestnut oak.
- **Wellston silt loam (WhfD3):** The Wellston series consists of deep, or very deep, well drained soils formed in silty material from loess and from fine-grained sandstone or siltstone. These soils have moderate permeability and are classified as well drained. The erosion hazard, the equipment limitations, seedling mortality, windthrow hazard, and plant competition are concerns in managing the forestlands. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. The site indexes for hardwood species ranged from 70 for white oak to 90 for yellow

poplar. Preferred trees include black oak, northern red oak, pignut hickory, shagbark hickory, sugar maple, white ash, white oak, and yellow poplar.

Access

Parking area(s) have not been developed on this tract. Employees maintain an approximate 0.50-mile mowed lane from Highfill Chapel Road into the property for equipment access and for foot travel. Members of the public typically foot access from W Alstott Road.

Boundary

The boundaries of this property were marked by Wildlife Specialist Brian Finch in October of 2020 with pink flagging. Boundaries were identified utilizing Quitclaim Deed #67805, ArcMap software, Geographic Positioning Systems, and field identification/location of fence lines on-site. As of November 2022, the property does not have a certified survey map on record and has not been surveyed by a licensed surveyor. All surrounding neighboring properties were notified by a mailed letter in prior to the boundary marking in October 2022, with no comments received. The property has eleven private landowners adjoining the property. Tract boundaries are defined by private property line to the north, east, west, and south.

Ecological Considerations

This tract contains diverse vegetation and wildlife resources conducive to providing habitat for a variety of wildlife species:

- Mixed hardwood stands with varied structure, but limited age class diversity.
- Contiguous oak-hickory stands with varied structure, but limited age class diversity.
- Native butternut (AKA: white walnut) has been documented on the site.
- The tract boasts 19.5-acres of grassland/shrubland habitat, supporting biodiversity in wildlife and invertebrate species.
- Hard mast trees such as oaks, hickories, and American beech provide food sources to both game and non-game species.
- Dead/hollowed American Beech trees provide shelter/habitat for game and non-game species.

Wildlife habitat management and analysis is an important element of tract level forest management. Wildlife species vary greatly in habitat use, so managers must consider diversity of wildlife habitat features. Considering those features in smaller areas of a landscape, such as tracts, allows managers to better measure and work towards improved habitat features. Wildlife habitat feature examples include snags, live trees, cavity/den roosting trees, downed woody material, mast trees, shrubs and fruit producing vines.

Snag observations were made during the initial inventory process in November 2020. “Snags” are standing dead or dying trees which provide value in a forest environment in the form of habitat features such as foraging activity sites, den sites, decomposers, bird perching, bat roosts, squirrel caches, and habitat for a wide variety of invertebrates. As time passes, snags fall contributing to the nutrient cycling as downed woody debris (DWD). DWD decomposes providing nutrients for remaining and new vegetative growth as well contributing to structure complexity of the forest floor which provides cover and foraging habitat for small mammals, ground-dwelling birds, reptiles, and amphibians.

While snags were present in various diameter classes, cull tree data from *TCruise*¹ software suggests that additional snags could be created during post-harvest timber stand improvement. The larger area is likely to support snag densities suitable for a variety of species, particularly on federal United States Army Corps property to the west. As management of this unit evolves greater information on snag densities will be determine.

The tract is primarily a mixed hardwood forest with stands of oak and hickory. Multiflora rose, autumn olive, and tree-of-heaven were observed within the forested tract. Prior to a timber harvest, treatment of these invasive species should be conducted.

A *Natural Heritage Database* review was completed for this tract in July 2022. If rare, threatened, or endangered species (RTE's) were identified for this tract, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

Patoka Lake falls within the *Interior Plateau Region*, as outlined in the Indiana *State Wildlife Action Plan*. The *Interior Plateau Region* is currently the most forested region in the state, has the highest percentage of grasslands, and happens to host most of Indiana's karst subterranean systems. The *State Wildlife Action Plan* indicates the following threats and actions that should be prioritized in the *Interior Plateau Region*:

- ❖ **Habitat Degradation to Karsts:**
 - Restrict access
 - Education of landowners (e.g., sewer, trash, and recreational users)
 - Acquiring and managing lands to buffer karst features

- ❖ **Habitat Loss of Early Successional Forest:**
 - Land management (e.g., timber cutting, fire, girdling, and mechanical and chemical treatments)

- ❖ **Habitat Degradation to Forests:**
 - Controlling problematic native wildlife
 - Land management (e.g., timber cutting, fire, girdling, and mechanical and chemical treatments)

-Excerpt from Indiana State Wildlife Action Plan, 2015

Recreation

No recognized or named trails run through Tract 1. Various species of game are hunted during their respective seasons. Anecdotal observations by property personnel indicate deer hunting and turkey hunting to be the biggest uses of the property by the public.

Cultural

Most land parcels within the State of Indiana may be environmentally suitable to contain archaeological deposits but have not been investigated to verify the presence or absence of cultural deposits. Indiana Code 14-21-1 provides protection to archaeological sites and cemeteries on both private and public land by prohibiting digging anywhere with the intent to recover artifacts and disturbing the ground within

¹ *TCruise* is a forest inventory software program utilized in conjunction with a data recorder. The program can process 100% tally, point, plot, double point, or stump forest cruises/forest inventories. In addition, the program provides growth projection, reproduction plot summaries, and site index evaluation for selected key species.

100 ft. of a cemetery without an approved plan from the IDNR – Division of Historic Preservation and Archaeology. In addition, if archaeological artifacts (an object made or modified prior to 1870), features (non-portable evidence of human occupations, such as a well), or human remains are uncovered during ground disturbing activities, state law requires that the discovery must be reported to the Department of Natural Resources within two (2) business days. Additional information can be obtained by contacting the Division of Historic Preservation and Archaeology at 402 W. Washington St., Rm. W274, Indianapolis, IN 46204, 317-232-1646, dhpa@dnr.in.gov, or at <http://www.in.gov/dnr/historic/index.htm>.

An archeological field check was completed November 16, 2021, by Preservation Officer Alicia Ariens. A final Division of Historic Preservation and Archaeology review was completed June 22, 2022.

Tract Subdivision Description and Silvicultural Prescription (Appendix II).

Dry Oak-Hickory Woodland (67 acres)

The northwestern portion and the southwestern portion of Tract 1 could easily be described as Dry Oak-Hickory Woodland. These areas are on ridgetops or sides of ridges facing predominately south. Black oak is the most prevalent with an estimated 94.579 thousand Doyle board feet (DM²BF) followed by pignut hickory with 64.479 DMBF and shagbark hickory with 58.756 DMBF. Other species that were abundant included chinkapin oak, shingle oak, and white oak. Scattered throughout this stand is sugar maple, red maple, sassafras, and blackgum. The understory offers black oak, pignut hickory, shagbark hickory, and white oak regeneration. When a harvest occurs, much of the volume from this area will come from sugar maple and American beech. Most of these trees are crowding and/or shading out the oaks/hickories. A single tree selection harvest would release younger, healthier mature trees providing canopy gaps for sunlight, understory development, and advancement of oak and hickory understory.

Mixed Hardwoods (41.5 acres)

This area of the tract is characterized as mixed hardwoods. Yellow poplar and sugar maple are the dominant species. The inventory estimated 203.932 DMBF of yellow poplar followed by 103.139 DMBF of sugar maple. The bulk of the remaining tree species in this cover type are American beech and American sycamore. The understory is diverse, but sugar maple and American beech are the dominant understory trees followed by sassafras and red maple. Most of the hardwoods observed appeared healthy except for white ash which showed signs of decline from Emerald ash borer. Many of the yellow poplar are crowded or overly mature and would benefit from a thinning to release and promote regeneration of younger, healthier species. Regeneration openings are recommended in areas of this stand with good quality oak and hickory already established to encourage the contiguous presence of oak and hickory within the stand.

Grassland/Shrubland Fields (19.5 acres)

Tract 1 has six small acreage fields composed of a mixture of cool-season grasses, warm season grasses, shrubs, and young trees. None of the fields exceed six acres, but together equal approximately 19.5

² Doyle board feet (DMBF): A Doyle board foot is an estimate of the board feet of lumber in a log. A lumber board foot is a piece of lumber that is 1 foot x 1 foot x 1 inch thick. The Doyle scale is one of the most commonly used formulas for calculating board feet. Developed in the 1800's, it is based on a mathematical formula and is prominently used in the Midwest United States.

acres of land. Spice bush, American sycamore, tulip poplar, hackberry, and smooth sumac are found within and on the outskirts of these grassland/shrubland sites. These fields are likely former pastures or areas that were once farmed by the previous tenant. Invasive species are common in these disturbed areas, with multiflora rose, autumn olive, and Japanese honeysuckle commonly identified. Proper mulching of these sites with a skid steer vegetation shredding apparatus combined with proper herbicide application could transform these areas to improved openings for true grassland nesting habitat or improved sites for tree establishment.

Tract Summary Data – November 2020 Inventory

Species	# Sawtimber Trees	DMBF
American Beech	179	21.212
American Elm	13	2.240
American Sycamore	48	15.770
Black Cherry	175	16.311
Blackgum	70	14.001
Black Oak	418	94.579
Black Walnut	139	6.569
Chinkapin Oak	286	29.659
Eastern Red Cedar	29	1.775
Northern Red Oak	96	45.220
Pignut Hickory	716	64.479
Red Elm	66	2.524
Sassafras	64	3.141
Shagbark Hickory	491	58.756
Shingle Oak	39	1.948
Sugar Maple	1,061	103.139
White Oak	332	53.833
Yellow-poplar	648	203.932
TOTAL	4,870	739.086

Total acreage surveyed = 101

Total trees per acre = 132

Basal area per acre = 104.0

Present volume per acre = 7,318 bd. ft. per acre

Projected harvest volume per acre = 2,000-3,000 bd. ft.

Summary Tract Silvicultural Prescription and Proposed Activities

The desired future condition is a forest of mixed aged hardwoods, favoring oak-hickory species, with a range of tree sizes (diameter & height) that can provide wildlife habitat, periodic timber harvest and general aesthetics.

In November of 2020, an initial timber inventory was completed by Wildlife Specialist Brian Finch, District Forester Janet Eger, and District Forester Zachary Smith. A detailed summary report was created

on May 4, 2021. This summary report indicated that Tract 1 had approximately 7,318 board feet per acre, with an average basal area ³of 104.0 per acre.

With the goal of favoring oak-hickory as the dominant cover type to improve habitat for early successional wildlife species, the District Forester has recommended removing trees to open the canopy and promote a basal area closer to 80 square feet per acre. The desired future condition of a forest of mixed ages hardwoods, favoring oak and hickories can be achieved through the following prescriptions:

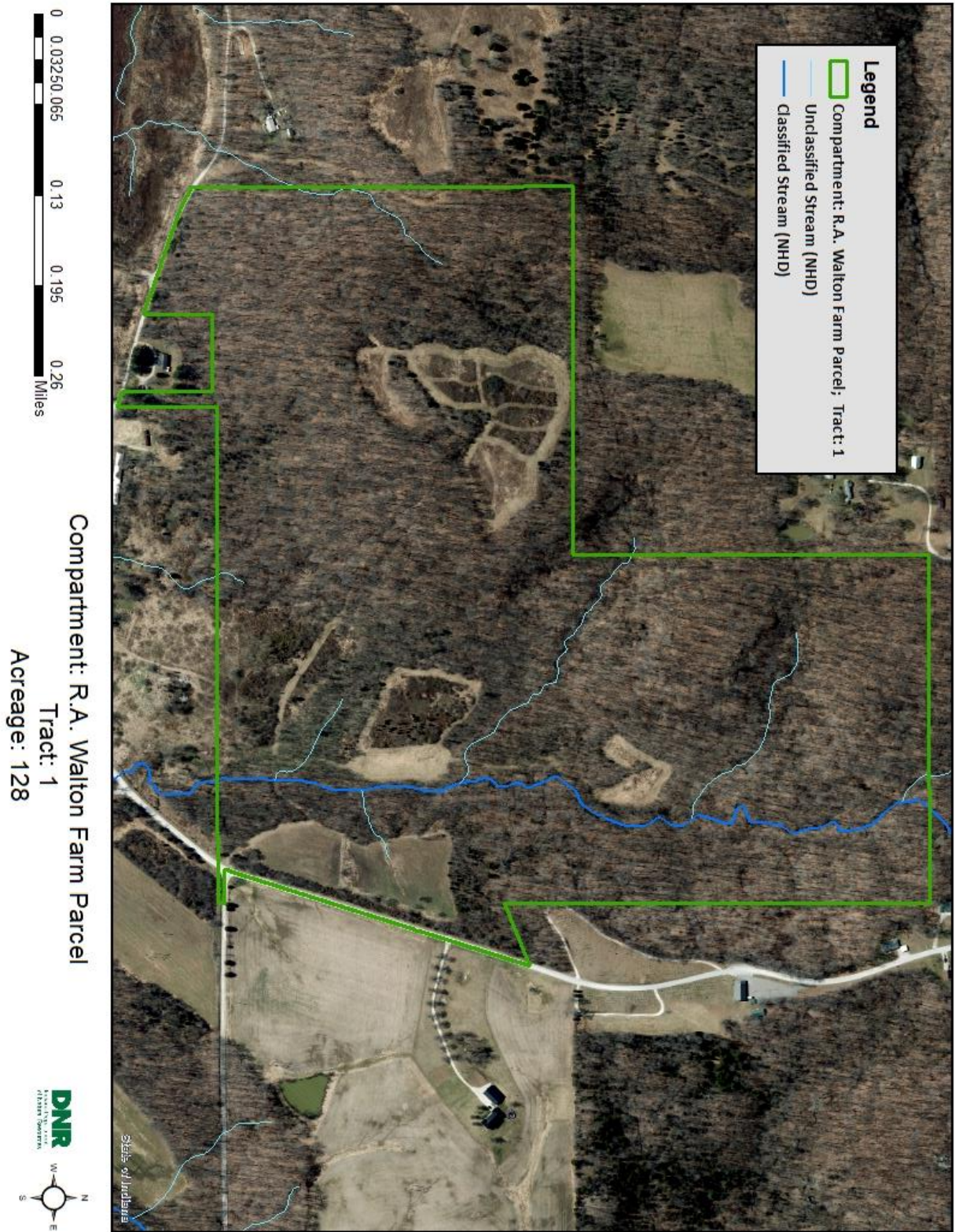
- Conduct pre-harvest vine and invasive species control.
- Conduct a timber harvest to reduce the stocking of trees in the tract to a more sustainable level. A timber harvest using a combination of single tree and group selection techniques will help sustain the overall health of the tract especially in areas of overcrowding and suppression. The site index of the soils presents a good opportunity for regeneration of desirable species to regenerate from the tree species released from a harvest (Appendix IV).
- Create one to two openings, one to two acres in size to promote younger forested conditions interspersed in the forest tract. Creating a couple of openings for oak regeneration would encourage diversity of wildlife, particularly early successional species. Once succession begins, these openings will become occupied by a mixture of tree seedlings, shrubs, grasses, and/or forbs that contribute to the diversity of the forest. These early successional forest stages are rich in insects, berries and seeds. They also provide cover making them valuable habitat for many species of wildlife including deer, turkeys, northern bobwhite quail, rabbits, American woodcock and a variety of songbirds.
- Conduct post-harvest Timber Stand Improvement (TSI) to remove poor quality trees and invasive species.
- Encourage native grasses, forbs, and shrubs particularly within and along the edges of current grassland/shrubland fields.
- This tract should receive another inventory and management guide in 25 years.

Proposed Activities Listing

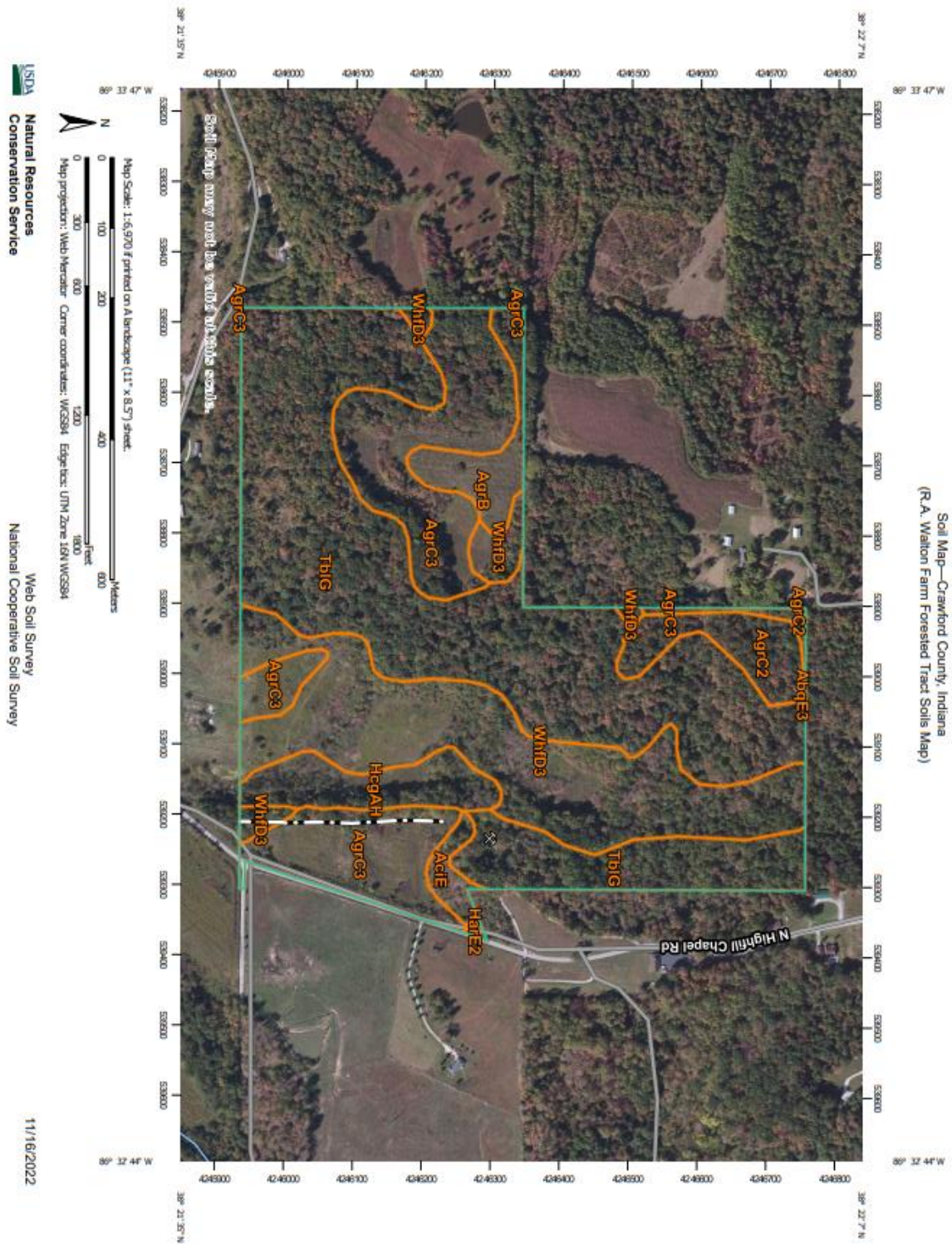
Proposed Management Activity	Proposed Date
Forest Inventory	2020-2021
Invasive Species Control	2021-2023
Timber Harvest	2022-2023
Timber Stand Improvement	2022-2025
Inventory and Management Guide	2047

³ Basal Area: Basal area is defined as the cross-sectional area (usually in square feet) of trees at breast height, or 4.5-feet above ground, expressed per unit of land area (ex., acres). Basal area is a common way to describe stand density but can also be utilized by wildlife managers to help determine if site conditions need manipulation to improve habitat for a particular species (ex., northern bobwhite quail)

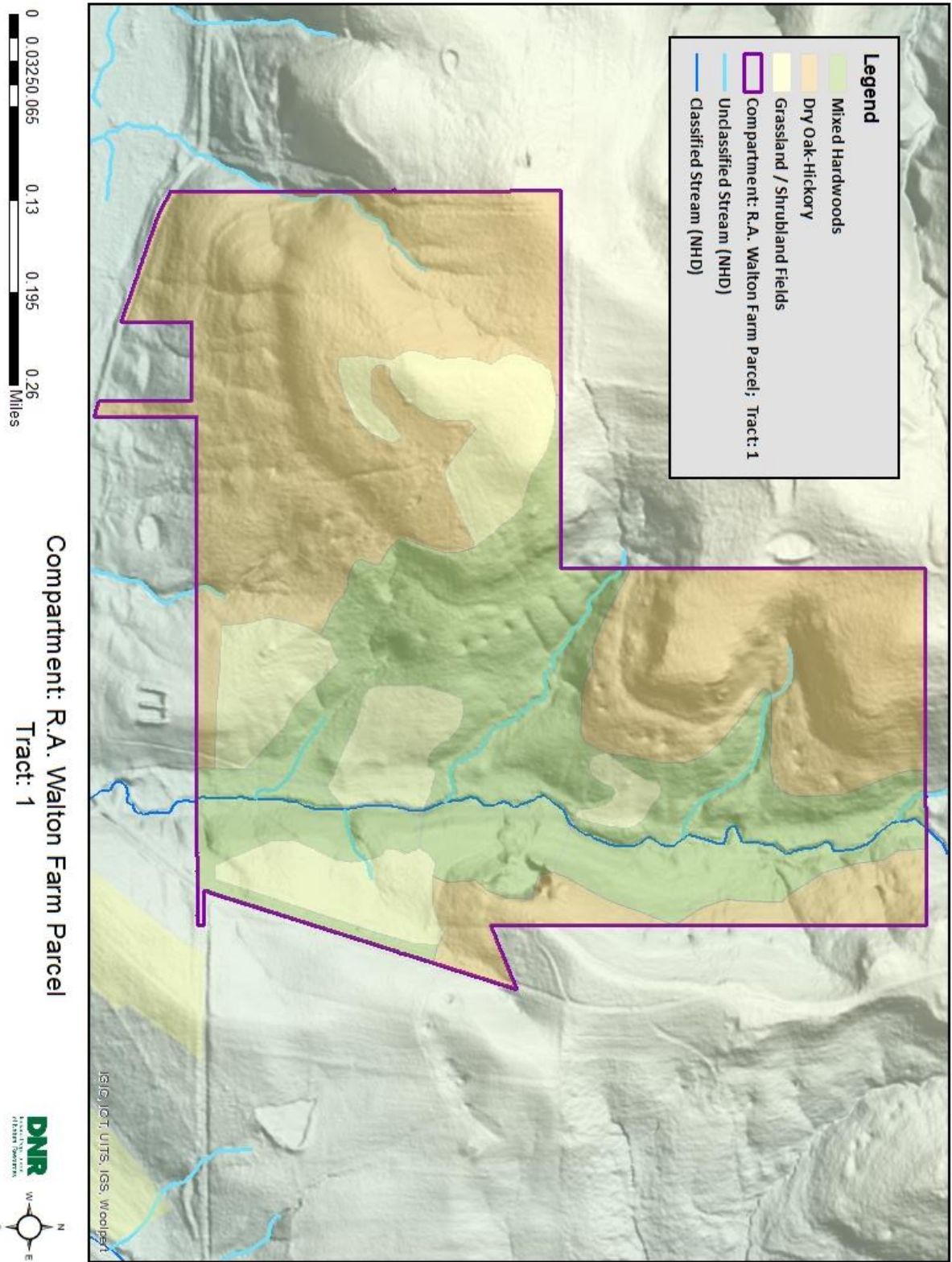
Appendix I. Compartment Overview Map



Appendix II. Compartment Soil Map



Appendix III. R.A. Walton Farm Parcel Tract 1 Cover Types Map



Appendix IV. Proposed Timber Harvest Map

