Resource Management Guides
Ferdinand State Forest
30-day Public Comment Period (March 1 – March 30)

The Indiana State Forest system consists of approximately 160,251 acres of primarily forested land. These lands are managed under the principle of multiple use-multiple benefit to provide forest conservation, goods, and services for current and future generations. The management is guided by scientific principles, guiding legislation and comprehensive forest certification standards which are independently audited to help insure long term forest health, resiliency, and sustainability.

For management and planning purposes each State Forest is divided into a system of compartments and tracts. In general terms compartments are 300-1,000 acres in size and their subunits (tracts) are 10 - 300 acres in size. Resource Management Guides (RMGs) are then developed for each compartment or tract to guide their management through a 15-25 year management period. There are approximately 1,600 tracts in the State Forest system. During annual planning efforts 50-100 tracts are reviewed and RMGs developed based on current conditions, inventories and assessments.

The RMGs listed below and contained in this document are part of the properties annually scheduled forest inventories under review for Ferdinand State Forest.

Compartment 3 Tract 10

To submit a comment on this document, go to:

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

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

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

Note: Some graphics may distort due to compression.

Ferdinand State Forest | Compartment: 03 | Tract: 10
Forester: Eugene Ballance | Date: 5/18/2022 | Acres: 140
Management Cycle End Year 2042 | Management Cycle Length 20 years

Location

This tract, also known as 6310310, lies within Jefferson Township in Dubois County approximately 2 miles south of Birdseye, Indiana. More specifically, the tract is located within Sections 2/11, Township 3S, and Range 3W.

General Description

The tract contains several ridges running from east to west, with slopes ranging from moderate to steep. There are also several small creeks present in the tract. Most of the tract consists of a mixed-hardwood cover type that is over mature. Scattered pockets of old pine plantations can also be found throughout the tract.

History

- The state acquired this tract over a period of 32 years. The first portion to be purchased was the central 80 acres, which the state bought from Richard Borden in November 1944.
- In January 1950, the northern 40 acres was purchased from Herman and Marjorie Wright.
- In November 1976, the most recent purchase consisted of the southern 20 acres, which the state bought from South Construction Company, Inc.
- The tract also shows indications of timber harvests from when the tract was still privately owned.
- An inventory and resource management guide were completed by Russ Dotzaur in March of 1979. The inventory showed 6310310 containing a volume of approximately 143,703 board feet (bdft) with 1,026 bdft per acre. The top three species were white oak 70,477 bdft, black oak at 23,050 bdft, and northern red oak at 15,138 bdft.
- In March 1982, a 1.25-acre opening was planted.
- Some weeding was accomplished in 1985, and John Zvirblis checked the plantation in 1997.
- In July 2003, Jamie Winner completed an inventory and resource management guide. The inventory showed 6310310 containing a volume of approximately 786,300 bdft with 6,552 bdft per acre. The top three species were as follows white oak 299,800 bdft, tulip-poplar at 133,000 bdft, and black oak at 128,900 bdft.

Landscape Context

The landscape north of the tract is mostly flat, with slight north and south facing slopes and is primarily used as an agricultural field with a small amount of forest directly adjacent to the property line. The landscape east of the tract consists of a relatively steep eastern aspect slope and is private forest. South of the tract, the property also consists of a steep eastern slope. It is

mostly private forest, however, there is a residential property adjacent to the tract. The land west of the tract is mostly flat and consists of private forest. Evidence of unauthorized ATV use was noted and reported. Old logging roads can also be found inside the tract boundary.

Topography, Geology and Hydrology

6310310 contains several east-west oriented ridges with north and south facing slopes, the severity of slopes ranging from moderate to steep. The property also slopes downhill in an eastern facing direction, with the western side of the tract at a higher elevation than the eastern side. This is more pronounced on the southern portion of the tract. There are multiple small creeks located in the tract. They all flow eastward and eventually drain into the Anderson River. Most of the underlying bedrock on the tract consists of shale, limestone, and sandstone.

Soils

There are seven soil types on the tract, including Cuba silt loam (Cu), Gilpin silt loam (GID2 and GIE), Gilpin-Berks Complex (GoF), Gilpin-Orthents complex (GuD), Wellston silt loam (WeC2), and Zanesville silt loam (ZnC2)

Cu is nearly level soil that is deep and well drained. It is located on flood plains subject to occasional flooding. It has a high available water capacity and is moderately permeable. It is in capability subclass IIw and woodland suitability subclass 1o. Site index is 100

GID2 is found on 12-18% slopes and is moderately deep and well drained. The soil is eroded, moderately deep, and well drained. The soil is in upland areas, on side slopes, drainageways, and hillsides. It has rapid runoff and low organic matter. It is in capability subclass IVe and woodland suitability subclass 2r. Site index is 80.

GIE is found on 18-25% slopes and is moderately deep and well drained. It is found on hillsides and sharp breaks along drainage ways. Rock outcrops are possible. It has low water capacity and is moderately permeable. It is in capability subclass VIe, woodland suitability subclass 2r. Site index is 80.

GoF is found on 20-50% slopes and is moderately deep and well drained. The soil is located on hillsides in upland areas. It has a low available water capacity and is moderately permeable. It is in capability subclass VIIe, and the woodland suitability subclass is 2r for the Gilpin part and 3f for the Berks part. Site index is 80.

GuD is found on 12-25% slopes and is moderately steep and severely gulled. The soil is located on narrow ridges between gullies. The soils have a low available water capacity and are moderately permeable. It is in capability subclass VIIe, and the woodland suitability subclass is 2r or the Gilpin part. Orthents are not assigned to a woodland suitability subclass. Site index is 80.

WeC2 is found on 6-12% slopes and is deep and well drained. The soil is located on narrow ridgetops and side slopes along natural drainageways. The soil has a high available water

capacity and is moderately permeable. It is in capability subclass IIIe and woodland suitability subclass 2o. Site index is 71.

ZnC2 is found on 6-12% slopes and is deep and well drained. The soil is located on ridgetops and upper parts of side slopes along natural drainageways. The soil has a moderate available water capacity and is slowly permeable. It is in capability subclass IIIe and woodland suitability subclass 30. Site index is 68.

Access

There is no public access to the tract. Access has been gained for management purposes along the west-central side of the tract. The access road, located off Taylor Hollow Road, is in poor condition and will require improvements. There are no fire lanes within this tract, however, good access could be provided into the tract using ridgetops entering the tract from the west. These ridgetops are connected by a major north-south running ridge under private ownership. Some of the east-west ridgetops have old roadbeds that could facilitate future access.

An unauthorized access lane has been created on the northern border of the tract that could provide access into the northern portion of the tract upon further investigation. A private gravel driveway was discovered crossing the extreme southwestern corner of the tract and is under review. It would be challenging to cross some of the drainages running east-west through this tract if accessing the tract from the southern end. There are steep slopes, drainages lined with sandstone outcroppings, and sandstone shelters that would cause difficulty.

Boundary

Boundaries for this tract were last marked in July and August of 2003. Boundary lines were marked with pink flagging tape. The northwest corner of the track is marked by a fallen tree marked with flagging and state forest boundary signs. The north boundary of the tract follows an old fence line. The northeast corner of the tract is marked with a stone corner, county survey marker, state forest boundary sign and flagging. The eastern boundary of the tract is an interior forest line and follows some fence remnants, however the fence line shifts as it crosses a ravine. The southern portion of the eastern tract boundary is marked with flagging tape. Boundary markers on the southern border of the tract are unreliable, with several markers showing signs of having been tampered with. As a result, the southern boundary is not clearly marked. The western edge of the tract is also an interior forest line marked by flagging and old fencing. A survey marker stone is found along the line in the northern third of the boundary.

Ecological Considerations

Mammals that were directly or indirectly observed on the tract included white-tailed deer (*Odocoileus virginianus*), Virginia opossum (*Didelphis virginiana*), squirrels (*Sciurus spp.*), and raccoon (*Procyon lotor*). Birds that were directly or indirectly observed on the tract include eastern wild turkey (*Meleagris gallopavo*), and a wide variety of songbirds such as ovenbird (*Seiurus aurocapilla*) and scarlet tanager (*Piranga olivacea*). Reptiles and amphibians directly or indirectly observed on the tract included the eastern box turtle (*Terrapene carolina carolina*),

five-lined skink (*Plestiodon fasciatus*), American toad (*Anaxyrus americanus*), and wood frog (*Lithobates sylvaticus*). No fish species were directly observed.

No threatened and endangered species are found on the tract. However, the state-endangered Cerulean Warbler (*Setophaga cerulea*) has been observed within one mile of the tract.

The different hard mast producing species in the tract provide a good source of food for small mammals and birds. Additionally, there are healthy amounts of regeneration that provide a good food source for white-tailed deer. Snags and cavity trees present in the tract provide bird habitat. The small creeks not only provide water sources for the larger fauna, but also provide habitat for reptiles and amphibians.

The Indiana DNR Division of Forestry has developed compartment level guidelines for snag tree retention, an important wildlife feature. Snags are standing dead or dying trees. Snags provide value in a forest in the form of habitat features for foraging activity, den sites, decomposers, bird perching, bat roosts, squirrel caches, and stores a wide variety of invertebrates. As time passes, these sang trees fall contributing to the nutrient cycling as downed woody debris (DWD). DWD decomposes providing nutrients for the remaining and new vegetation growth, as well contributing to the complexity of the forest floor.

Snags	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
(all species)					
5″+ DBH	144	252	217	73	-35
9″+ DBH	108	216	168	60	-48
19″+ DBH	18	36	58	40	22

Most of the tract consists of a late successional mixed hardwood forest. Some areas in the southern portion of the tract consists of a late successional beech-maple forest. Scattered pine plantations can also be found in the tract. Three exotic/invasive species were encountered during the inventory: Japanese stiltgrass, multiflora rose, and autumn-olive, the invasive species are scattered and should be managed situationally at this time. No rare, threatened, or endangered plants are known to occur on the tract.

A Natural Heritage database Review is part of the management planning process. If Rare, Threatened, or Endangered communities were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

Recreation

There are no established recreational trails in this tract. There is limited hunting by neighbors, several deer stands were observed during the inventory.

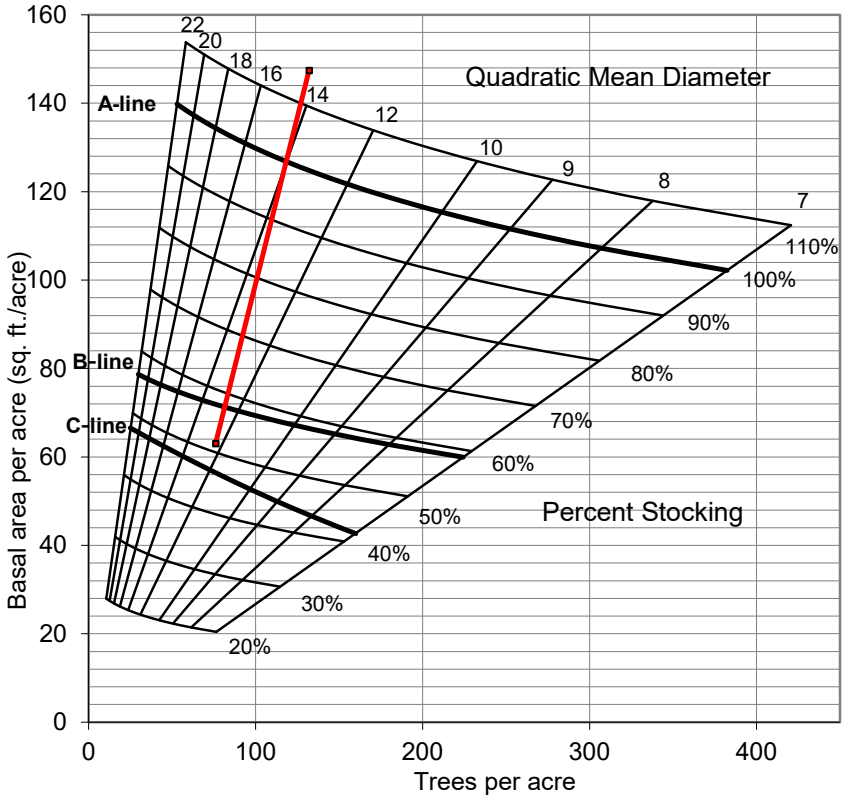
Cultural

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

Tract Subdivision Description and Silvicultural Prescription

The current forest inventory was completed by Eugene Ballance and forestry intern Johnathan Waterman. A tract summary is provided in this guide. Pre harvest and post-harvest stocking is indicated by the red line on the Gingrich stocking level chart located below. According to the inventory data the tract is overstocked and would benefit from a timber harvest to reduce the number of trees and basal area per acre.

Total Trees/Ac. = **132 Trees/Ac.** Overall % Stocking = **110% (Over Stocked)**
Basal Area = **147.4 Sq. Ft./Ac.** Harvestable Trees = **52 Trees/Ac.**
Present Volume = **15,390 Bd. Ft./Ac.**



Mixed Hardwoods (116 acres) Predominant species include white oak, northern red oak, black oak, tulip-popular, sugar maple, and blackgum. White ash and hickory species can also be found. Regeneration varies between sites, but usually consists of oak, beech, maple, or pawpaw. Many oak trees in this tract have dead man's fingers (*Xylaria polymorpha*) and armillaria root rot growing at base of trees. The stands have an average basal area of 140 square feet per acre and 14, 850 board feet per acre. For these stands, a harvest should be conducted to thin the stands

down to no less than 60 percent. The harvest should be conducted through selective thinning focusing on removing mature oaks. The areas affected with armillaria will need a sanitation zone cut to reduce the spread of the root rot and any trees infected with dead man's fingers.

Planted Pine (18 acres) can be found throughout the tract. These stands consist of either eastern white pine, Virginia pine, or shortleaf pine. Other overstory trees in these pine stands include blackgum and tulip poplar. Currently the stands have an average basal area of 150 square feet per acre and volume of 20,380 bdft per acre, however the pine species are showing decline and significant amounts of mortality. Native hardwoods have started regenerating the sites. Patch-cuts will accelerate the regeneration of native hardwoods on these sites.

Beech-Maple (4 Acres) stands can be found in the southern portion of the tract. These stands contain American beech, red maple, and sugar maple in the overstory and understory. These stands have an average BA of 130 square feet per acre and an average volume of 14,500 bdft per acre. As with the mixed hardwood portions of the tract, a harvest should be conducted to thin the stand down to no less than 60 BA. This area will be maintained as a shade tolerant un-even aged stand.

Old Field (2 Acres) stratum is in the southeast corner of the tract. This stand is comprised of river birch, sycamore, red and sugar maple saplings. This stratum would be excluded from any future harvest activities.

Summary Tract Silvicultural Prescription and Proposed Activities

A timber harvest is recommended for this tract to remove over mature trees and promote species and vertical structure diversity. The primary goal will be to selectively reduce the current basal area of the tract to promote a healthy and productive forest. This will be completed using two methods. Selective thinning to remove mature, poor formed and diseased individuals from hardwood stands. Patch-cuts will be established the areas where pine is present. Some oak will remain in patch cut openings as reserves for native seed sources. This harvest will cause short-term disruption to wildlife but will benefit a broad range of wildlife in the long-term by allowing regeneration of native hardwoods and early successional "young forest" habitat.

Before harvest occurs the access road to the property will need improvements. Minor issues such as fallen trees across the access road also prevent ease of access to the portions of the tract and will need to be removed.

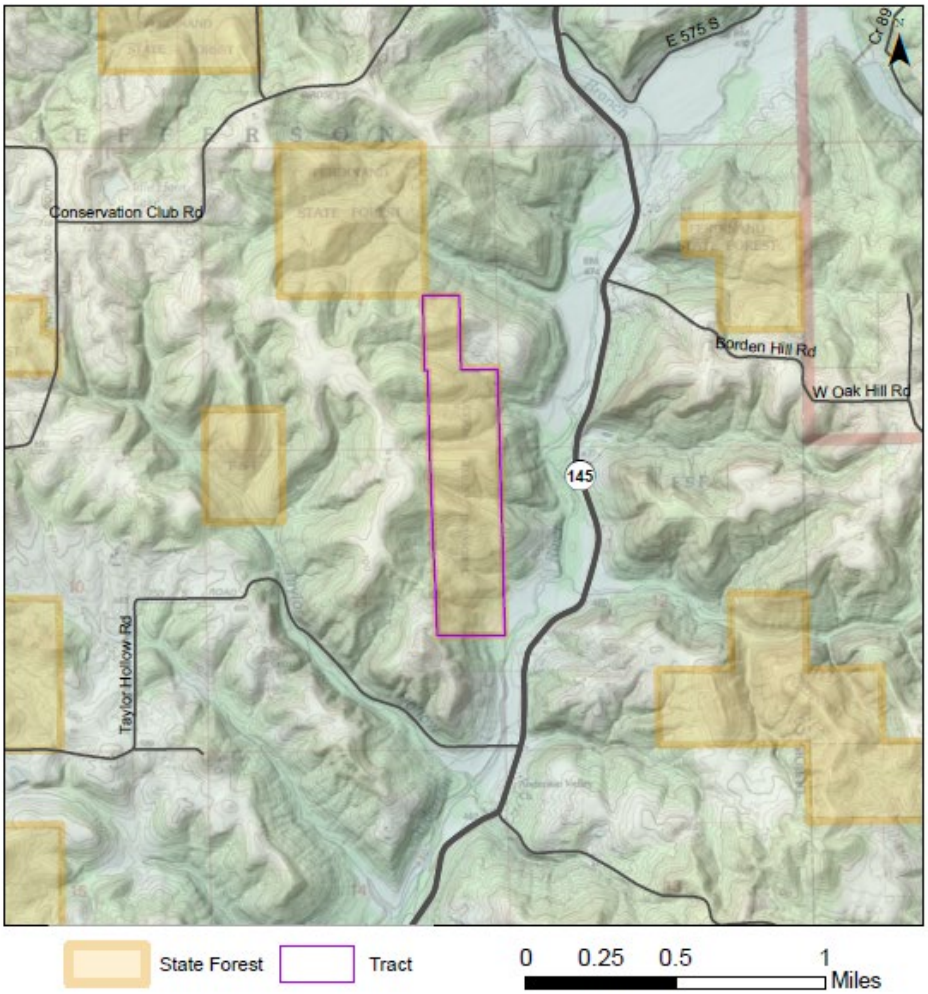
Post-harvest timber stand improvement (TSI) should be conducted to complete several additional management objectives. The post-harvest TSI should focus on opening completions and vine control. Post-harvest TSI will likely occur one year after the harvest. Additionally, a prescribed fire could be used as a post-harvest TSI tool. The prescribed fire should be conducted three to five years following the proposed harvest. The prescribed fire would encourage hard mast tree species regeneration and increase available forage habitat for game and non-game wildlife.

The forested tract will require another forest inventory conducted in 2042 to ascertain the condition of the forest at that time and to determine what management decisions will need to be implemented in the future.

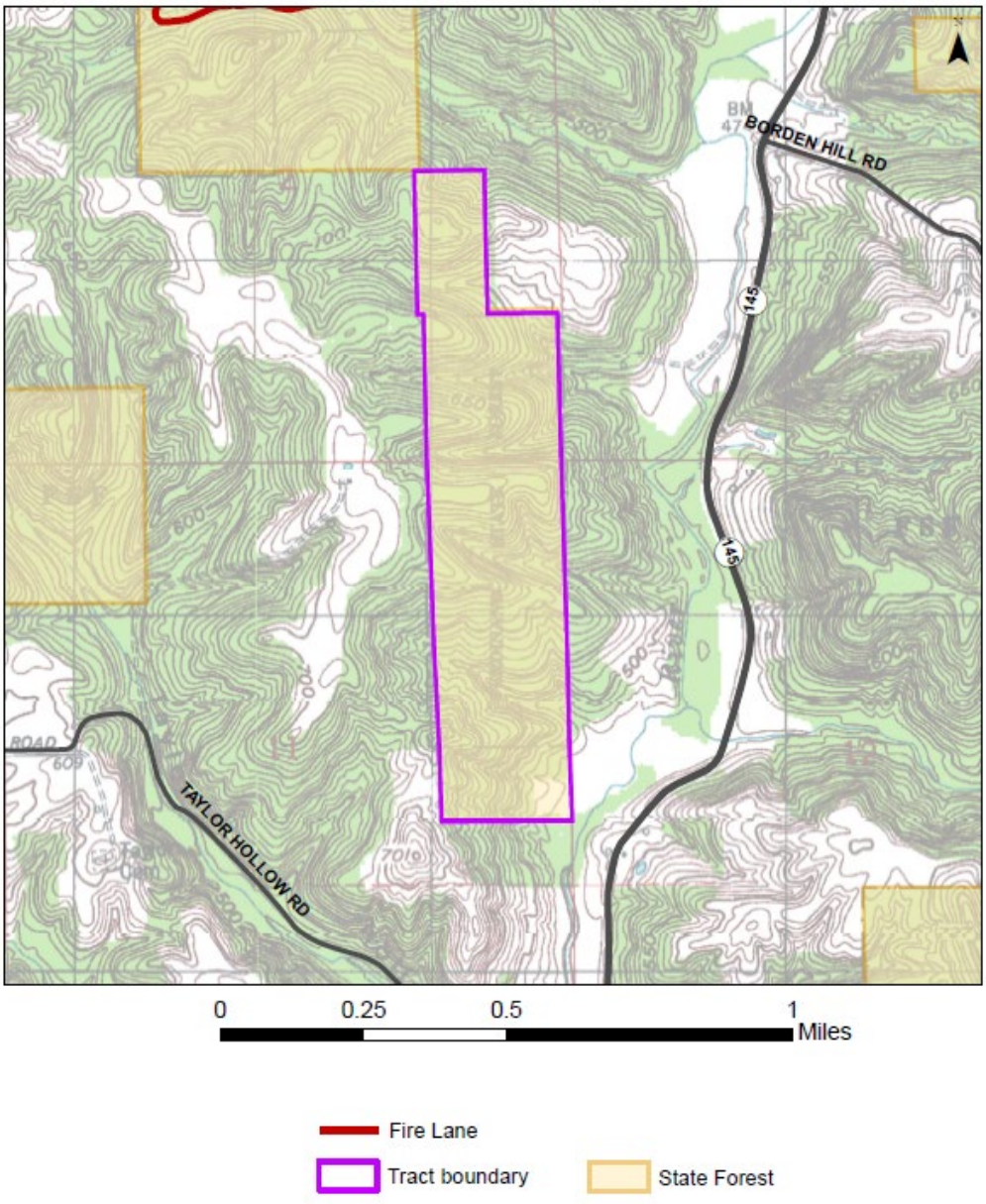
Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
Access Road Improvements	2023
Timber Harvest	2023/2024
Post-Harvest TSI and vine control	2026
Prescribed Fire	2027-2029
Forest Inventory	2042

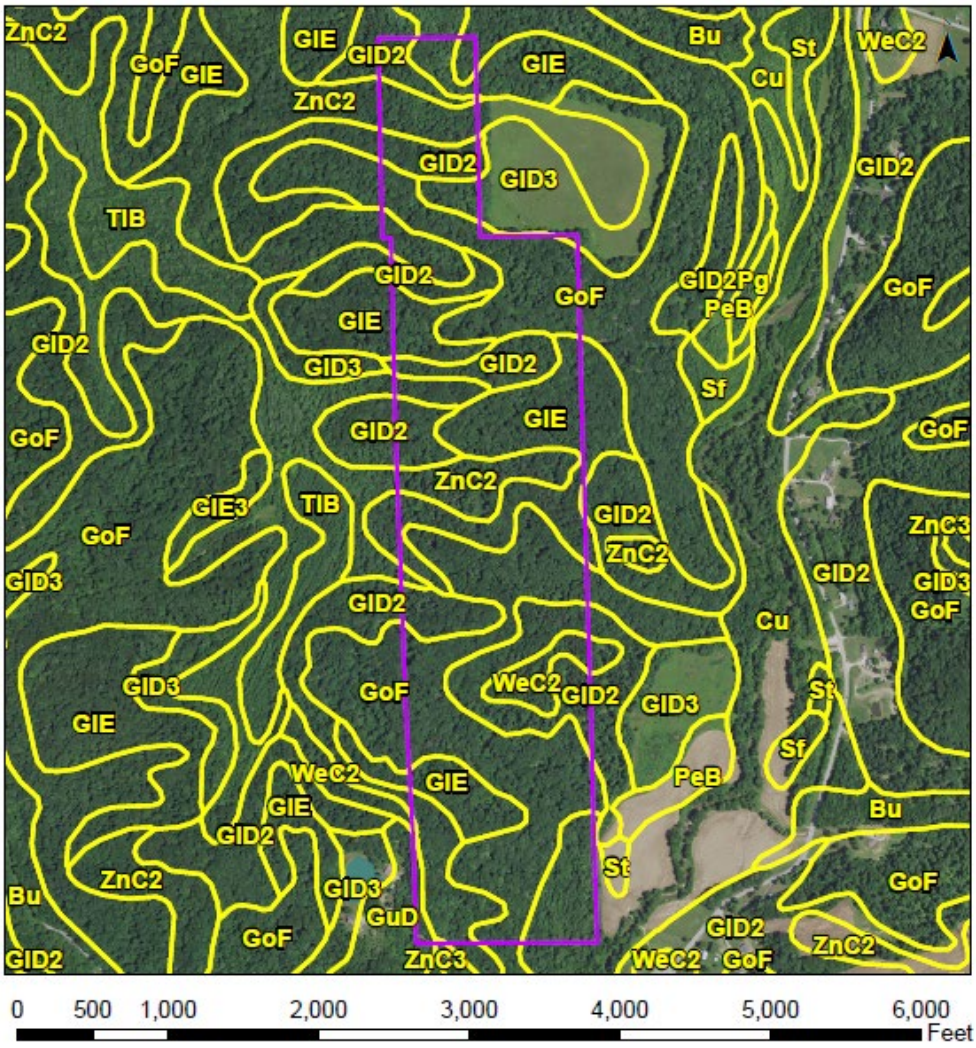
Ferdinand State Forest
Location Map
Compartment 3 Tract 10



Ferdinand State Forest
Compartment 3 Tract 10
Tract Map



Ferdinand State Forest
Compartment 3 Tract 10
Soils Map



Ferdinand State Forest
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Cover Type Map