

**Resource Management Guides
Greene-Sullivan 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 Greene-Sullivan State Forest.

Compartment 5 Tract 4
Compartment 5 Tract 5

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/>

Greene-Sullivan State Forest
Forester- **Cole Jones**
Management Cycle End Year - **2043**

Compartment **5**
Date- **01/12/2023**
Management Cycle Length - **20 years**

Tract **4**
Acres: **142**

Location

The tract hereto referred to as 6330504 resides within Greene and Sullivan County, section 31 of Stockton Township and section 36 of Jefferson Township, T7N R7W & R8W. County Road 1550 W and 1525 W form the eastern boundary of the tract. County Road 100 S forms part of the northern tract boundary. It is approximately 4 miles southwest of Linton and 5 miles south by southeast of Dugger.

General Description

The tract's 142 acres is, for the most part, mixed hardwood forest. About 13 acres of the tract is open water, primarily from Hornbeam Lake and Reservoir 29. A 6-acre square along CR 100 S is early successional habitat (e.g., small trees, shrubs, etc.) as a result of a reclamation salvage project.

History

- 1936 to 1964 – Tract establishment was through various land acquisitions from Central Indiana Coal Company
- 2007 - Management guide written by forester Andy Maday
- 2008 - Pre-reclamation salvage sale marked and sold by forester Phil Jones. Total of 13,779 bd ft sold to Estel Patton for \$3,200
- 2010 - 56 logs leftover from reclamation project sold to Carlisle Wood Products for \$400

Landscape Context

The landscape surrounding the tract is mostly forested land and open water in the form of lakes. Agricultural fields are within a mile of the tract, but none reside next to it.

Topography, Geology and Hydrology

The topography in 6330504 is typical of tracts in Greene-Sullivan State Forest that have a history of surface coal mining. Steep, narrow ridges of varying heights commonly called strip hills run parallel to each other across most of the tract area. It is not uncommon for the ditches between the strip hills to fill with water, causing small bodies of water to form. These are often not mapped and range in size between a small vernal pool and a large pond.

Hornbeam Lake resides almost entirely within 6330504 and Reservoir #29 forms part of the west tract boundary. Both, along with all of the lakes at Greene-Sullivan State Forest, are manmade lakes that resulted from surface mining activity prior to state ownership. No major streams fall within the tract. This tract lies within the Brewer Ditch subwatershed. Water resources within this hydrologic boundary are part of the Black Creek watershed.

Soils

FcG- Fairpoint very parachannery loam, 35 to 90 percent slopes

This very steep, deep, well drained soil is in the uplands. They are series of narrow elongated

mounds of spoil from surface mining for coal. This soil is poorly suited to trees due to slope. Site by site evaluation is needed to determine suitability for management activities. This soil has not been evaluated for site index.

St- Strip mines

This classification is for coal extracted mine spoils and has not been evaluated for forest management and productivity.

Access

The eastern boundary of 6330504 is accessible via CR 1550 W and CR 100 S. Internal access is somewhat challenging due to the strip hills. Vehicle access is limited to the Red Loop Horse Trail, which also serves as a fire lane and runs through part of the tract and a few old access roads from previous timber harvests.

Boundary

Private property makes up part of the northern tract boundary along with CR 100 S, while the rest of the tract is bordered by state forest land to south and east. Reservoir 29 forms the western tract boundary and part of the northern tract boundary.

Ecological Considerations

Direct observations of various wildlife species or observations of wildlife sign were noted in the inventory. These include but are not limited to whitetail deer (*Odocoileus virginianus*), eastern wild turkey (*Meleagris gallopavo*), squirrels (*Sciurus spp*), American beaver (*Castor canadensis*), and various songbirds. A high number of standing dead trees (snags) were observed as well. There are many areas of standing water in low lying spots between strip hills, which provide excellent habitat for amphibians and aquatic invertebrates.

The Division of Forestry has developed compartment level guidelines for important wildlife structural habitat features such as snags. Snags are standing dead or dying trees. Snags provide value to a stand in the form of habitat features for foraging activity, den sites, decomposers, bird perching, and bat roosting. Snags eventually contribute to the future pool of downed woody material. Downed woody debris provides habitat for many species and contributes to healthy soils.

Snags	Maintenance Level	Inventory	Available Above Maintenance
5"+ DBH	568	5060	4492
9"+ DBH	426	1937	1511
19"+ DBH	71	140	69

Current assessments indicate the abundance of these habitat features meet or exceed recommended maintenance levels in all diameter classes.

The tract’s overstory is highly diverse, with a high number of trees producing hard and soft mast. The understory has little native vegetation besides spicebush and is instead a mix of invasive

species. Multiflora rose, Autumn olive, Amur honeysuckle, Japanese honeysuckle, oriental bittersweet, Japanese stiltgrass, and callery pear were all observed in the inventory. Invasive control is recommended.

Recreation

The Red Loop Horse Trail runs through parts of the tract and is accessible from CR 1525 W. Trails may be temporarily closed during management activities due to public safety considerations. Reservoir 29 and Hornbeam Lake provide fishing opportunities to the public and will remain open during management activities, including boat ramps. Hunting and foraging are also major recreational uses of the tract.

Cultural

Cultural resources may be present, but their location is protected. Adverse impacts to significant cultural resources will be avoided during any activity.

Tract Subdivision Description and Silvicultural Prescription

The tract can be divided into the following cover types.

Mixed Hardwoods - 122 acres

Most of the tract is composed of mixed hardwoods, with black cherry, black locust, and red maple being the most common. Various oak species and black walnut are present and should be released to grow and produce seed. Eastern white pines were noted in the inventory but only make up about 3% of the total trees present within the tract and about 4% of the total volume.

Non-Forested - 6 acres

This semi-open field is the result of the Yew Lake reclamation project, also referred to as a highwall project. Steep spoil banks were clearcut and levelled out to create a manageable field which was then planted in trees. There are no sawtimber trees here but invasives such as Bradford pear and Autumn olive are present. These along with black locust trees are outcompeting the trees that were planted. Timber stand improvement (TSI), including invasive work is recommended to reduce the presence of invasive plants and release the planted trees to advance.

Lakes - 13 acres

The lakes bordering and within the tract will not be affected by resource management activities. Some areas within this subdivision are forested islands which are impractical for resource management efforts.

The current forest resource inventory was completed on 1/11/2023 by Forester Cole Jones. A summary of the estimated tract inventory results are located in the table below.

Tract Summary Data (trees >11”DBH):

Species	# Sawtimber Trees	Total Bd. Ft.
Eastern Cottonwood	758	194,481
Black Cherry	1,585	168,982
Red Maple	960	117,545
Black Locust	1,401	86,810
Black Walnut	667	80,674
American Sycamore	246	74,323
Eastern White Pine	233	42,890
Scarlet Oak	354	36,088
Sassafras	378	22,530
Northern Red Oak	112	20,733
Hackberry	404	19,128
Shingle Oak	112	18,759
Black Oak	181	10,264
White Oak	83	8,299
Boxelder	121	5,917
American Elm	143	5,322
Total:	7,737	912,555

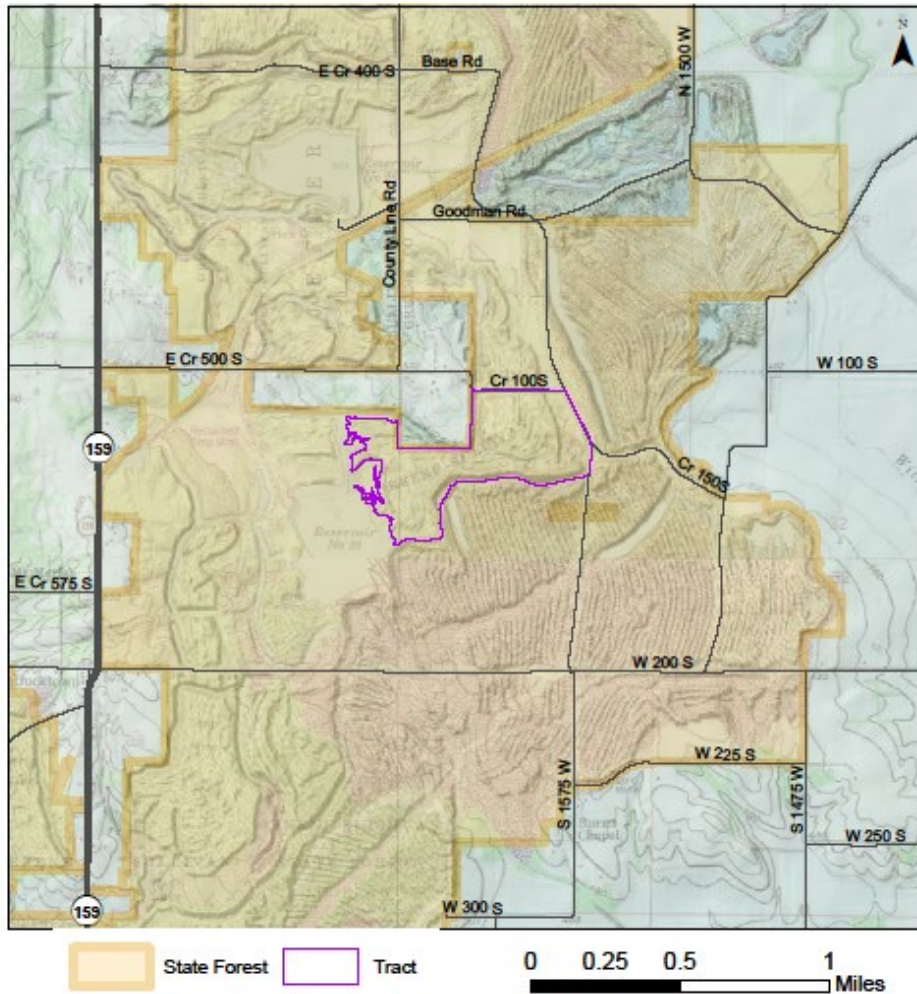
Summary Tract Silvicultural Prescription and Proposed Activities

This tract would benefit from a light improvement harvest. Timber marking would primarily use single selection and patch-cuts to release desirable tree species, remove trees with poor form, remove overmature trees, and improve the overall vigor of the stand. Efforts will also be made to salvage standing dead timber with sound volume, where applicable. Post-harvest TSI and invasive control will need to be done within two years of the end of harvesting operations. Since the invasives in the tract are very dense in spots, invasive control should be done every year for three to five years after the harvest. Some work could begin prior to the harvest, however many of these species are found throughout the county and may require a situational approach. Invasive control should start with cut-stump work on the larger invasives and continue with foliar treatments in later years. If the invasives are not repeatedly controlled, opening the canopy will cause the invasives to spread and grow.

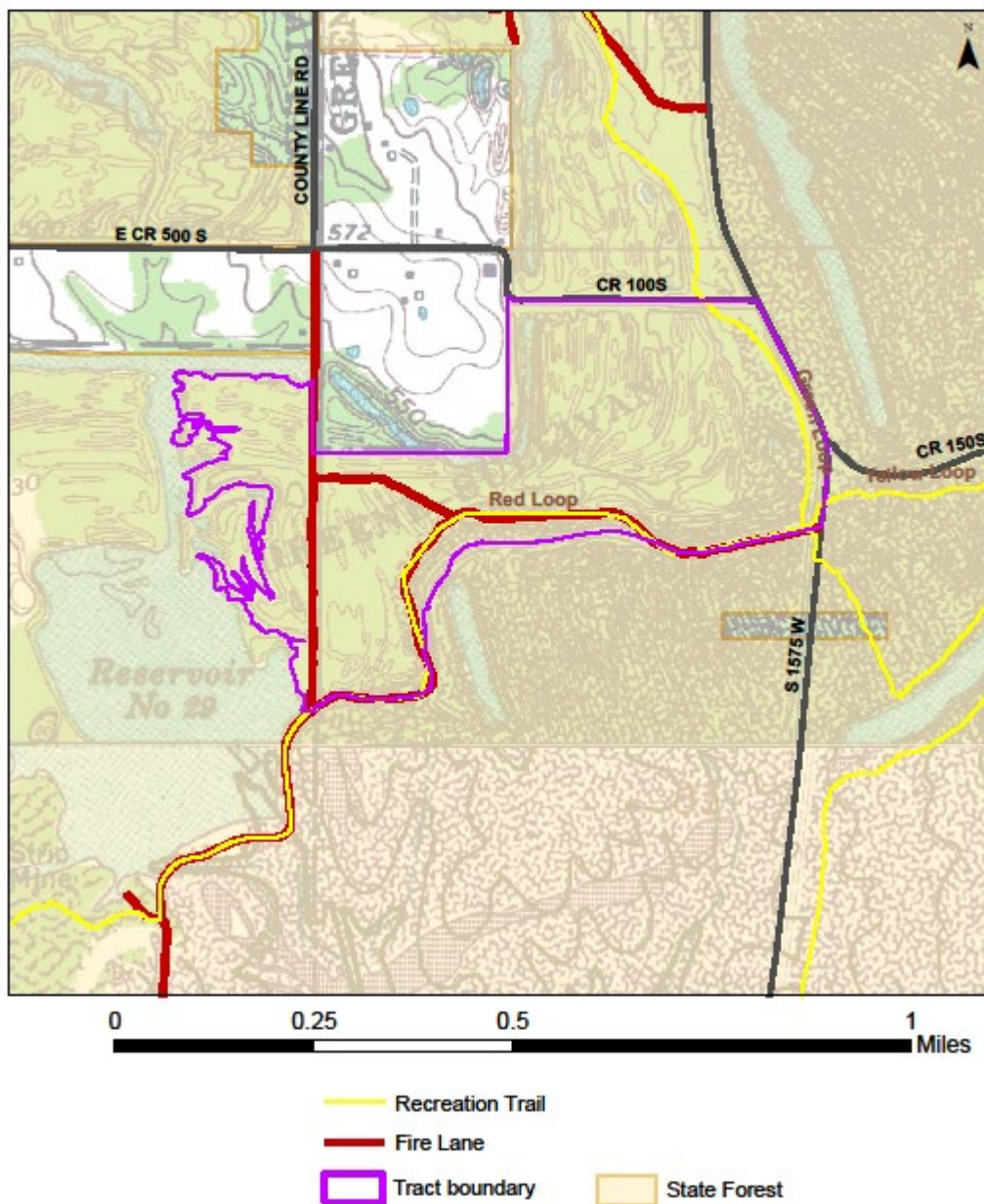
Proposed Activities Listing

<i>Proposed Management Activities</i>	<i>Proposed Date</i>
Timber marking	2023
Timber harvest	2024-2025
Invasive control using cut-stump method	Directly following harvest
Post-harvest TSI	Within 1-2 years after harvest
Invasive control using foliar application	3-5 years following harvest
Inventory and management guide	2043

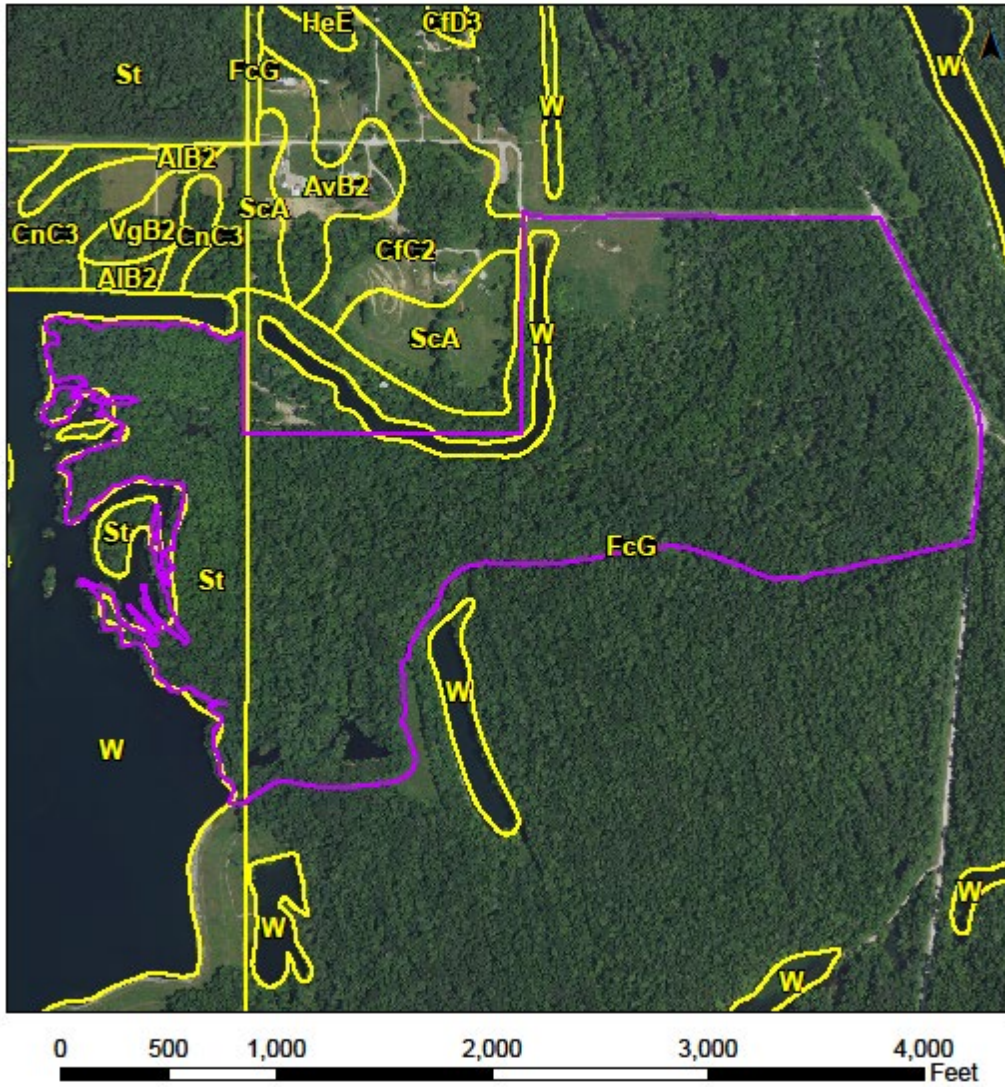
Greene-Sullivan State Forest Location Map Compartment 5 Tract 4



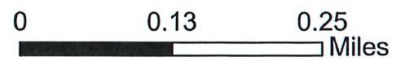
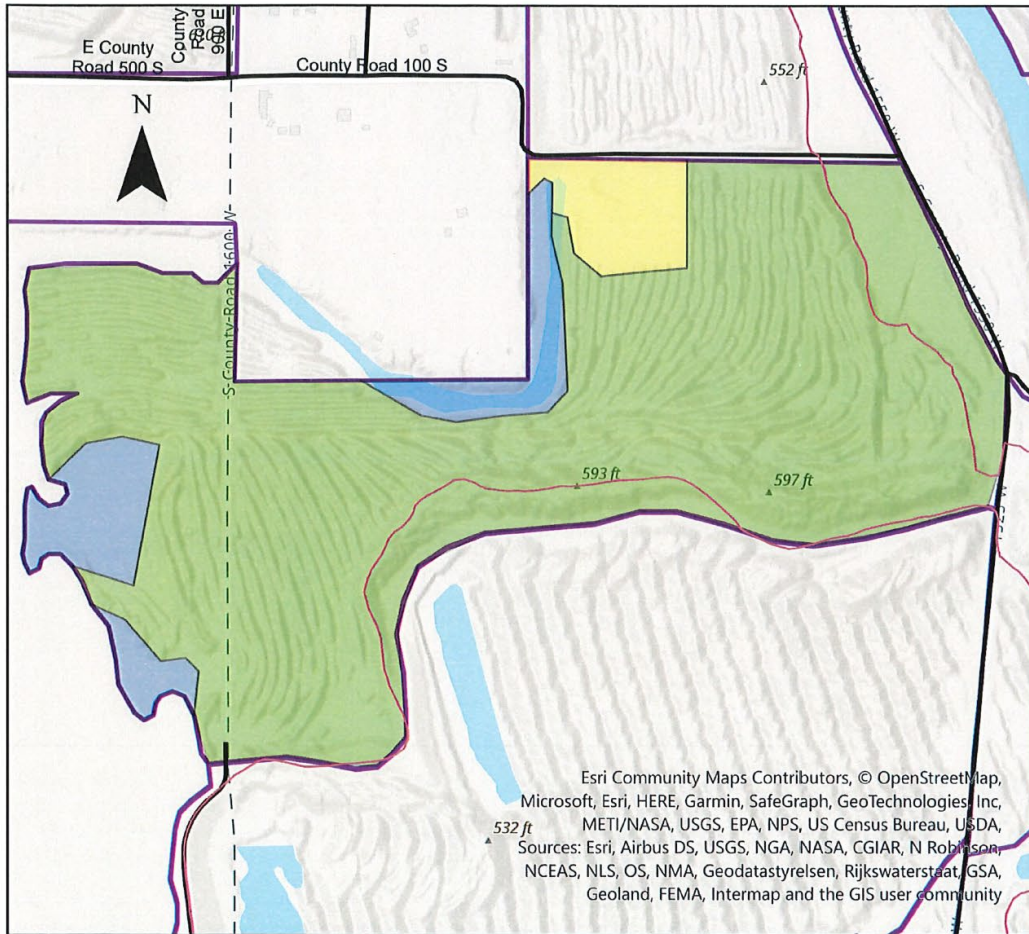
Greene-Sullivan State Forest Compartment 5 Tract 4 Tract Map



Greene-Sullivan State Forest Compartment 5 Tract 4 Soils Map



Greene-Sullivan State Forest Compartment 5 Tract 4 Cover Types Map



- Horse trails
- Local Roads
- Mixed Hardwoods
- Non-Forested
- Lakes
- Tract Boundary

Greene-Sullivan State Forest
Forester- **Cole Jones**
Management Cycle End Year- **2043**

Compartment **5**
Date- **1/27/2023**
Management Cycle Length- **20 years**

Tract **5**
Acres: **204**

Location

Tract 5, also known as 6330505, is located in Greene County, Stockton Township, section 31 – T7N – R8W. It is approximately 1.25 miles east of Bucktown and located west of CR 1525 W.

General Description

Most of the tract's 204 acres are comprised of mixed hardwood/pine forests and open water, such as lakes and ponds.

There is no known harvest record for this tract while under state ownership. The tract was strip mined prior to state ownership and the existing forest was removed to facilitate mining operations. Trees were planted shortly after the DNR acquired the tract. Steep, narrow ridges commonly called strip hills run NW-SE and make interior access challenging.

History

- 1964- Acquisition by the DNR from Sentry Royalty Company
- 2013- Inventory/Cruising- Tom Tompkins
- 2013- Resource Management Guide- Tom Tompkins
- 2022- Inventory/Cruising- Cole Jones
- 2023- Resource Management Guide- Cole Jones

Landscape Context

The surrounding landscape near the tract is predominantly closed-canopy deciduous/mixed forest and open water. The primary block of the State Forest lies to the north and south. State forest land almost completely surrounds the tract but there is a small private inholding on the east side of the tract.

Other minor cover/habitat types present on the landscape include early successional forest (< 20 years old), Old fields/Shrub-scrub, Grasslands/Hayfields/Pasture, and Open water (lakes, ponds, rivers, streams, etc.).

Landscape level forest threats include parcelization and development of private land tracts, and introduction of invasive plants that are routinely introduced during home landscaping efforts.

Topography, Geology and Hydrology

The general topography of this region consists of steep, parallel ridges caused by coal mining activity that occurred prior to DNR ownership.

This tract lies within the Brewer Ditch subwatershed. Water resources within this hydrologic boundary are part of the Black Creek watershed.

Soils

FcG- Fairpoint very parachannery loam, 35 to 90 percent slopes

This very steep, deep, well-drained soil is in the uplands. They are series of narrow elongated mounds of spoil from surface mining for coal. This soil is poorly suited to trees due to slope. Site by site evaluation is needed to determine suitability for management activities. This soil has not been evaluated for site index.

St- Strip mines

This classification is for coal extracted mine spoils and has not been evaluated for forest management and productivity.

Access

This tract is accessible via County Road 1525 W to the east. The gate is approximately 0.1 miles south of the intersection of CR 1525 W and CR 1550 W. Access within the tract is poor, with the primary access limitation being steep and irregular topography. Access improvements are recommended to facilitate resource management operations and improve public access.

Boundary

State Forest borders all sides of the tract except for a 2-acre private inholding on the eastern tract boundary along CR 1525 W. The boundary between the tract and this private inholding has never been marked. CR W 200 S makes up part of the southern tract boundary. The rest of the tract boundaries are adjoining other tracts within Greene-Sullivan State Forest.

Ecological Considerations

Wildlife species observed during the inventory include eastern gray squirrels (*Sciurus carolinensis*), fox squirrels (*Sciurus niger*), eastern wild turkey (*Meleagris gallopavo*), whitetail deer (*Odocoileus virginianus*), and various songbird species. Evidence of the American beaver (*Castor canadensis*) was observed (e.g., damaged trees, small dams, etc.). The tract has many areas of standing water which currently provide good habitat for reptiles, amphibians, and fish.

The Division of Forestry has developed compartment level guidelines for important wildlife structural habitat features such as snags. Snags are standing dead or dying trees. Snags provide value to a stand in the form of habitat features for foraging activity, den sites, decomposers, bird perching, and bat roosting. Snags eventually contribute to the future pool of downed woody material. Downed woody debris provides habitat for many species and contributes to healthy soils.

Snags	Maintenance Level	Inventory	Available Above Maintenance
5"+ DBH	816	2000	1184
9"+ DBH	612	1227	615
19"+ DBH	102	132	30

Current assessments indicate the abundance of these habitat features meet or exceed recommended maintenance levels in all diameter classes.

The general plant community in the overstory is mixed bottomland hardwoods/pine. The pine

species encountered during the inventory (Virginia pine and shortleaf pine) were most likely planted prior to state ownership. Exotic invasive plants encountered were those commonly observed throughout the county and should be managed situational. Exotic invasives encountered include but are not limited to: Autumn olive, Amur honeysuckle, Japanese honeysuckle, multiflora rose, tree of heaven, winged burning bush, Oriental bittersweet, and Japanese stiltgrass.

Recreation

Primary recreational uses of the tract include horseback riding, birdwatching, hunting, fishing, boating/paddling, and foraging. Corky Lake features a boat ramp while Almond and Green Ash Lakes are accessible by foot only. Part of the Red Loop Horse Trail makes up some of the tract boundaries.

The values of these recreation facilities will be given consideration during forest management activities. Where necessary use may be restricted during activities for user and worker safety reasons.

Trail impacts and other recreational values will be considered in the planning and implementation of forest resource management activities. This may include modified harvest intensities, visual management, risk tree management and trail routing.

Cultural

This tract was reviewed for cultural sites during the forest resource inventory. Cultural resources may be present on this tract, but their location(s) are protected. Adverse impacts to significant cultural resources will be avoided during any management activity.

Tract Subdivision Description and Silvicultural Prescription

The tract is subdivided into three cover types. Each cover type has its own silvicultural prescription.

Mixed Hardwood/Pine - 147 acres

Most of the tract's land area falls into this category and is where the majority of active management is recommended. Hardwood trees such as American sycamore and Eastern cottonwood dominate the tract, although Virginia and shortleaf pine are scattered throughout the stand. Various oak species are present though their form and quality is generally poor.

According to the inventory data, this stand is due for a harvest to reduce the overall stand density, release high-quality sawtimber trees, and remove declining and overmature trees. However, the steep ridges and ravines because of strip mining make this tract better suited for even-aged management. Even aged management could be accomplished by harvesting every tree on every third ridge or harvesting two ridges leaving the next four. Desirable species such as black walnut, black cherry, oaks, hickories, and maples could be left within the harvested rows when feasible to promote those species. This would allow for easier access within the tract while also leaving two thirds of the tract to remain. Approximately one third of the tract's volume would be removed. Invasive control and timber stand improvement (TSI) would be necessary

following the harvest.

Non-Forested - 20 acres

A portion of the tract has no forest cover. These areas are access roads, horse trails, and mowed fields. These areas will be maintained as they are but may be used for resource management activities (log yards, haul roads, etc.). Other options are to plant open mowed areas to trees.

Lakes - 37 acres

Corky Lake, Green Ash Lake, and Almond Lake reside within the tract, providing wildlife habitat and recreation opportunities to the public. Small islands of timber are in Corky Lake but are inaccessible to timber management operations. If a highwall project is done, access to Corky and Almond Lake will be suspended temporarily.

The current forest resource inventory was completed on 1/3/2023 by Forester Cole Jones. A summary of the estimated tract inventory results are located in the table below.

Tract Summary Data (trees >11"DBH):

Species	# Sawtimber Trees	Total Bd. Ft.
American Sycamore	2,629	366,286
Eastern Cottonwood	1,402	231,414
Sweetgum	1,803	159,149
Northern Red Oak	780	152,969
Virginia Pine	2,060	147,589
Shortleaf Pine	1,444	101,781
Black Cherry	352	30,430
Red Maple	234	30,156
Black Locust	322	20,344
Shingle Oak	31	11,097
White Oak	162	10,922
Sassafras	140	10,753
White Ash	76	8,549
Black Walnut	46	8,312
River Birch	180	7,886
Yellow Poplar	66	5,984
Total:	11,728	1,303,622

Summary Tract Silvicultural Prescription and Proposed Activities

An even-aged harvest is recommended to improve access within the tract, remove low-value pine and hardwood species, and promote the growth of desirable hardwood species. This will remove approximately 403,800 board feet from the tract. Post-harvest TSI and invasive control should be done within two years after the harvest. Due to the high density of invasive species in the understory, invasive control will be needed every year for five years after the harvest to be

effective. A combination of cut-stump and foliar methods should be used.

State established Best Management Practices (BMPs) will be followed to reduce the impact of harvesting activities on soils and hydrology.

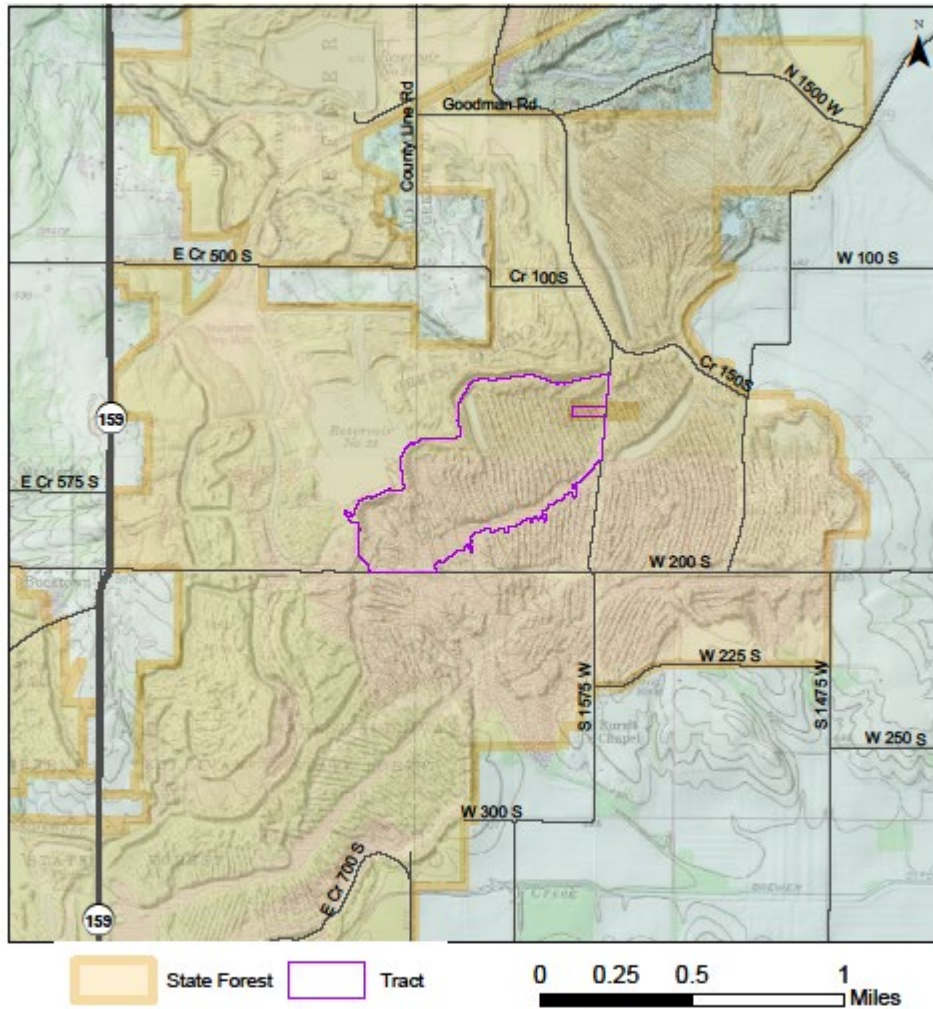
Prescribed management activities will have an immediate but minor impact on wildlife habitat in the tract. Early successional species such as woodcock will gain habitat in harvested areas, and post-harvest TSI will create additional snags often utilized by species such as bats and woodpeckers. Invasive control will allow for native plant species to regenerate, further increasing biodiversity.

Public recreation activities within the tract will be suspended during active management for public safety. If needed, trails will be re-routed around the harvest area or closed during the duration of management activities. Hunting opportunities will be enhanced following management activities through the creation of new early successional wildlife habitat. Fishing opportunities will most likely remain unaffected.

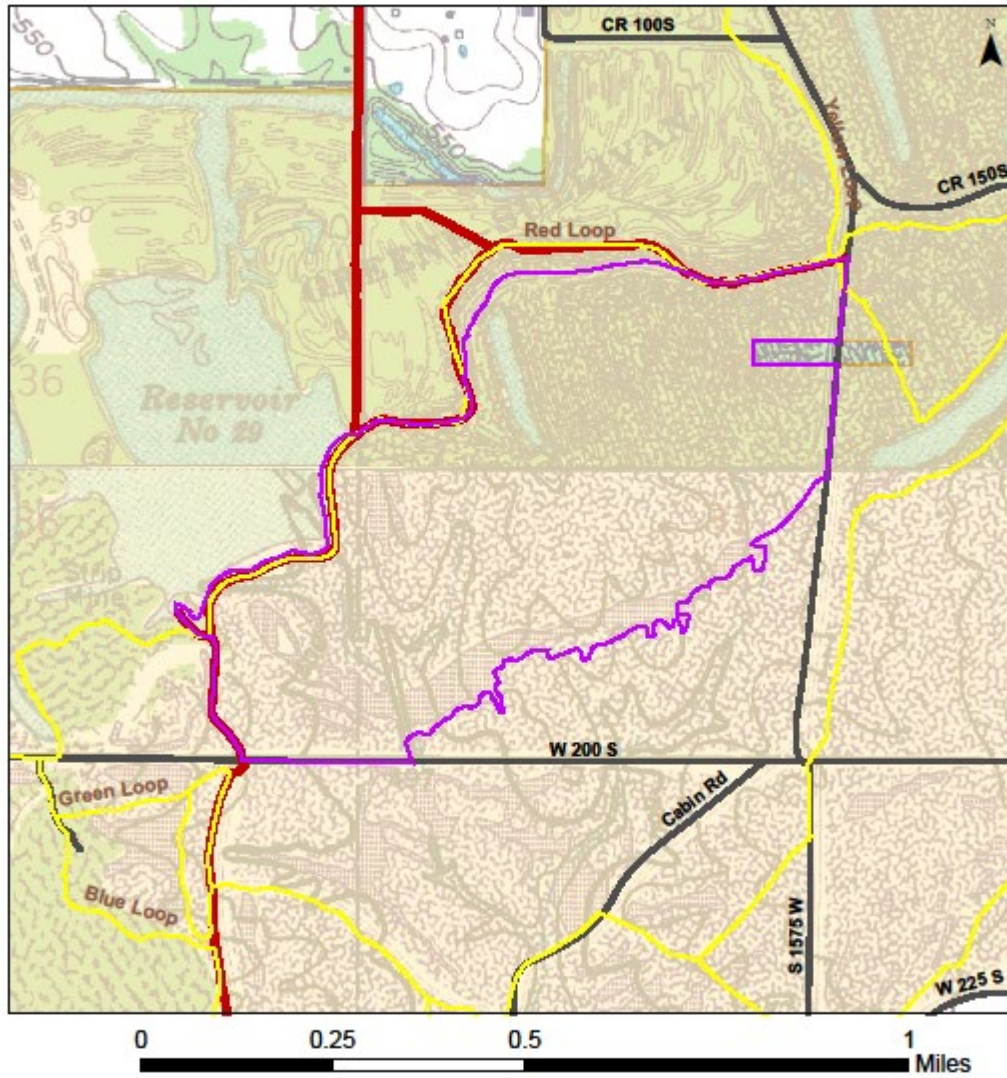
Proposed Activities Listing

<u>Proposed Management Activity</u>	<u>Proposed Date</u>
Timber Marking	2023
Timber Harvest	2023-2025
Post-harvest TSI	1-2 years after Harvest
Invasive Control	Each year for 5 years after Harvest
Inventory and Management Guide	2043

Greene-Sullivan State Forest
Location Map
Compartment 5 Tract 5

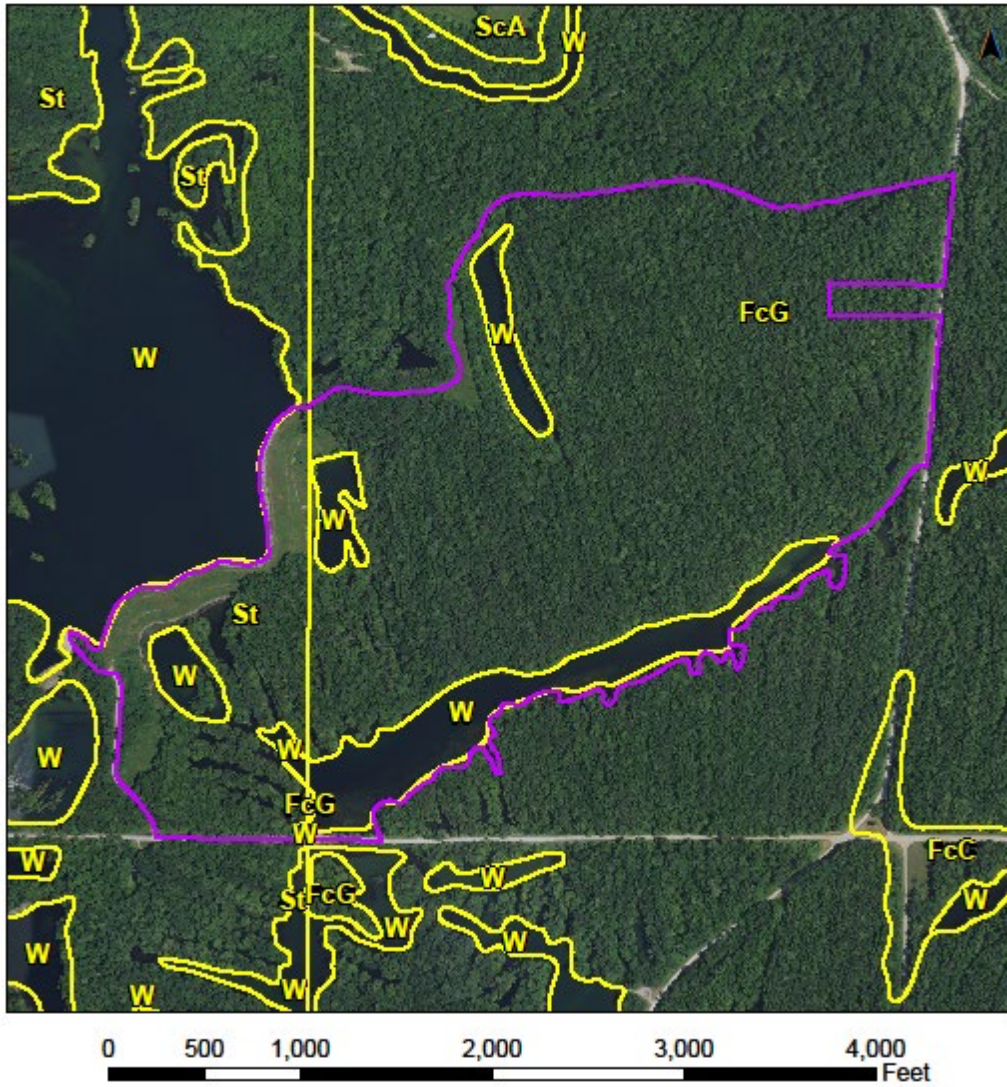


Greene-Sullivan State Forest Compartment 5 Tract 5 Tract Map

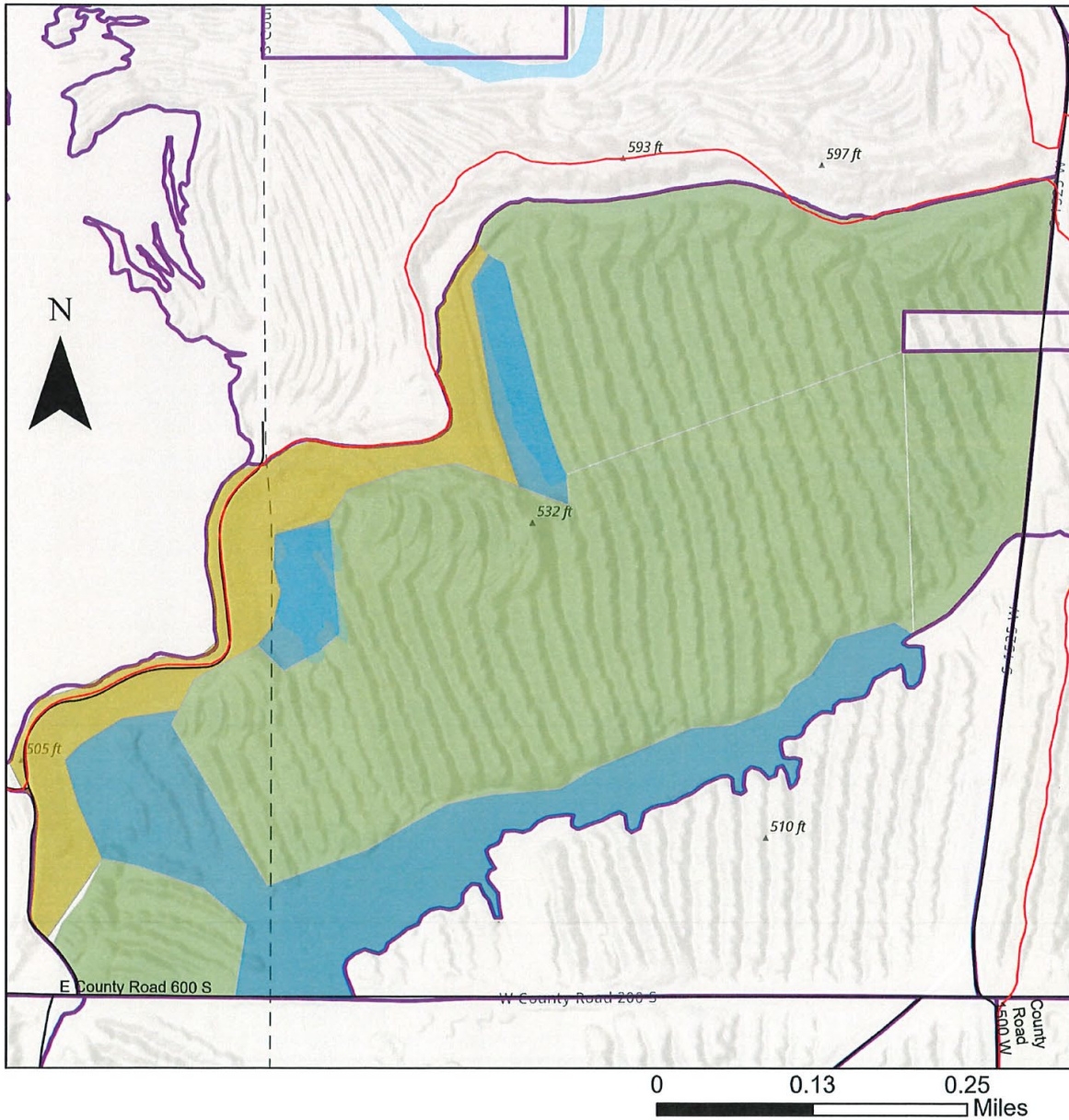


- Recreation Trail
- Fire Lane
- Tract boundary
- State Forest

Greene-Sullivan State Forest Compartment 5 Tract 5 Soils Map



Green-Sullivan State Forest Compartment 5 Tract 5 Cover Types Map



- Horse trails
- Local Roads
- Lakes

- Non-Forested
- Mixed Hardwoods/Pine
- Tract Boundary