

SAVAGE RIVER STATE FOREST ANNUAL WORK PLAN

FISCAL YEAR 2023



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SFI-00050

Prepared:	_____	_____
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Savage River State Forest
FY-23
Annual Work Plan



**Savage River State Forest
FY-23 Annual Work Plan**

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I. State Forest Overview

Savage River State Forest is approximately 55,155 acres in size and is situated in the northeastern quadrant of Garrett County in Western Maryland. It is a second growth mixed hardwood forest dominated by mixed oak species, sugar and red maple, black cherry, hickory and ash. Owing to high rainfall and certain topographic features, Savage River State Forest contains many excellent quality growing sites stocked with superior quality trees. The forest contains approximately 2,800 acres of conifer plantations that were established in the 1940's following state acquisition. Red pine is the dominant tree species within these plantations but other conifers include white pine, Norway spruce, larch, and Scotch pine. These plantations were established as nurse crops to rehabilitate abandoned and depleted farm fields, with the long-term goal of conversion back to native hardwoods as appropriate.

Savage River State Forest has been intensively managed over the past nine decades. Forest harvest and grooming operations are undertaken to thin overstocked stands, to effectively deal with public safety concerns, to harvest mature or diseased/dying trees, to improve habitat for certain wildlife species, to assist and provide for certain research needs, to address aesthetic concerns and to increase the proportion of age/height diversity of forested stands.

II. Annual Work Plan Summary

The FY-2023 Annual Work Plan for Savage River State Forest was formulated in 2021. It contains projects to be undertaken in the areas of Special Projects, Maintenance and Operations, Recreation, Watershed Protection, Ecosystem Restoration / Protection, and Wildlife Management. In addition to the routine operations and management of the State Forest, the FY-23 Annual Work Plan for Savage River State Forest details six land management projects that will be the focus of the State Forest management staff for FY-23. All projects and proposals within this Plan have been developed to meet one or more of the Land Management Guidelines and Objectives outlined in the Savage River State Forest Sustainable Management Plan including:

Forest Economy: management activities intended to maintain an economically sustainable forest and contribute to the local economy through providing forest-related employment and products.

Forest Conservation: management activities with a purpose to protect significant or unique natural communities and elements of biological diversity, including Ecologically Significant Areas, High Conservation Value Forests and old growth Forests. Old growth forest management serves to restore and/or enhance old growth forest structure and function.

Water Quality: management activities designed to protect or improve ecological functions in protecting or enhancing water quality.

Wildlife Habitat: management activities with a purpose to maintain and enhance the ecological needs of the diversity of wildlife species and habitat types.

Recreation and Cultural Heritage: management activities with a purpose to maintain and enhance areas that serve as visual, public camping, designated trails, and other high public use areas.

A. Special Management Projects Include:

1. Continued Development of the Certified, State Forest Sustainable Forest Management Plan - with special focus on addressing items identified as in need of improvement as a result of the 2019 FSC/SFI Certification Audits.

2. Forest Stand Delineation, Inventory and Monitoring – Completion of the project to re-inventory and redefine stands on the entire forest. This critical project will continue in FY-22. To date, 100% of the data collection in harvestable stands is completed. Areas of HCVF including wildlands, ecologically significant areas, old growth, old growth ecosystem management areas and areas that preclude timber harvest operations will be inventoried secondarily to the harvestable areas. The project will allow a thorough analysis of this complete data set from which further management plans will be derived. Inventory work will continue in the form of follow-up monitoring protocols associated with the initial inventory and certification requirements.

3. Non-Native Invasive Species (NNIS) Inventory and Control Work - The Sustainable Forest Management Plan calls for various responses to NNIS and the Forest Inventory Project has allowed for a broad view of the problem forest wide.

B. Land Management Projects Include:

1. Continuation of the ecosystem restoration project involving control of invasive and exotic plants forest wide.

2. Continuation of the ecosystem restoration efforts involving control of invasive, exotic forest pests, particularly the Hemlock wooly adelgid.

3. 6 Silvicultural projects including:

4 Intermediate Harvests on 169 acres and 2 Regeneration Harvests on 124 acres.

Forest harvest operations are undertaken to utilize mature and dead/dying/diseased trees; to thin overstocked stands; to improve and diversify wildlife habitat; to effectively correct public safety concerns and issues; to reduce the forests vulnerability to insect attack, disease or wildfire hazard; to facilitate certain approved research needs; to improve certain aesthetic aspects of an area; and to improve the proportions of age class and species diversity within stands and management blocks. This forest has been intensively managed since its inception, utilizing both even and uneven-aged techniques via selective removals and regeneration harvests. Early records indicate that as cut over land was acquired, foresters culled the forest, removing the poorly formed and damaged timber left behind in the wake of the cut and run practices employed by early timber speculators. By removing these undesirable trees, newly forming seedlings were released from competition and were thus cultured into the future growing stock of trees that is

enjoyed today. The benefits of this work have been significant including improved wildlife habitat diversity, improved forest health and more abundant mast production, improved utilization of gypsy moth damaged trees, reduced forest fire hazard, and the considerable financial contribution of management to the state and local economies as well as to those employed in the forest products industry.

The FY-23 Annual Work Plan outlines 6 harvests on 225 acres, producing a harvest of approximately 1,200,000 board feet of sawtimber and accounting for an estimated \$400,000 worth of raw wood products entering local markets. Much of the silvicultural work laid out in this work plan is focused on initiating seedling development to better ensure regeneration successes in future harvests. Much of the value of the harvests in the work plan will be directed back into the forest providing the essential investment in pre-harvest cultural work that will safeguard the long term sustainable management of these important forest resources. The cultural operations and management projects outlined within the FY-23 Annual Work Plan are selected to provide significant contributions to the sustainability of forest resources found within the State Forest and the ecosystems associated with it.

III. General Location Map for FY-23 Land Management Project Proposals

Approximately 225 Acres

Map Key

- | | |
|--|--|
| 1. <i>Compartment 1&2 Stands 16, 17 & 18</i> | <i>58-Acre Conifer Thinning</i> |
| 2. <i>Compartment 5 Stands 16 & 24</i> | <i>15-Acre Hardwood Thinning
21-Acre Hardwood Regeneration</i> |
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| 6. <i>Compartment 69 Stands 13,15&16</i> | <i>35-Acre Hardwood Thinning</i> |

IV. Special Projects - Forest Resource Management and Planning

A. Continued Development of the Certified State Forest Sustainable Forest Management Plan.

Beginning in 2011, the Forest Service began revising the long term sustainable management plans for all three of the State Forests in the Western Region. The initial framework follows the sustainable management plan format established for the State of Maryland's Chesapeake Forest on the Eastern shore. The Department's goal is to have the updated sustainable forest management plans receive dual third party certification under both the Forest Stewardship Councils (FSC) and Sustainable Forestry Initiatives (SFI) standards and guidelines.

Throughout the course of the last seven years, broad resource assessments have been carried out identifying the various management units and features located on the forests including identification and mapping of High Conservation Value Forest Areas (HCVF), much of which was formerly identified as the State Forests "Special Management Zone". Within the HCVF are located a broad range of Ecologically Significant Areas (ESA). These areas typically contain rare, threatened or endangered species and their critical habitats. By spring of 2011 initial drafts of the Forest's Sustainable Management Plan were developed and shared with stakeholders for initial comment and review. The plans were submitted to both the FSC and SFI organizations in the spring of 2011, at which point audits have been completed on all three of the western state forests. Following the audits, draft plans and audit findings were presented to the State Forests Citizen Advisory Committees for review and comments. The Draft Sustainable Management Plans were made available for public comment fall of 2011. Revisions and updates to the Sustainable Management Plan were completed in April of 2019.

Each year the State Forests Management Program is audited for compliance to the standards set forth by the Certifying Organizations. Any shortcomings in the programs identified during the audits are identified in a Corrective Action Reports (CARs) and/or observations identified as being in need of improvement in order to be "certified" as sustainably managed forest lands under the internationally recognized FSC and SFI standards. These corrective actions vary from simple formal documentation of routine practices, to more complex policy and procedure development involving various stakeholders and partners. The program requires that all of these items be addressed before the next annual audit, with some needing more immediate attention. A minor corrective action request was issued by SFI in regard to leaking equipment on a harvest site and the apparent absence of safety equipment. A corrective action plan was formulated that would add the items to the BMP checklist and confirmation of compliance would be done during each site visit by Forest Service Staff or agents.

State Forest staff time and field operations are adjusted and redirected to assist in addressing any Corrective Action items in the course of the next year.

B. Forest Stand Delineation, Inventory and Monitoring

A critical part of developing long term sustainable management plans is the availability of up-to-date forest inventory data. Initial stand data collection has been completed on the harvestable areas of the forest using the SILVAH Inventory System developed by the US Forest Service which incorporates intense surveys of both the overstory and understory to assist in the formulation of appropriate silvicultural prescriptions in specific forest types. The demand for this important data set is increasingly evident as special projects evolving out of demands placed by Forest Certification Standards utilize this data set for project planning including the Annual Work Plan and the Non-Native Invasive Species Inventory.

What had historically been carried out on a 10-year interval offering a snap shot in time view of the forest, has evolved into an annual sampling approach that gives a more frequent look at overall forest condition throughout the years. This approach will allow a much closer watch on developing forest conditions and allows for more rapid and timely responses. This approach is especially valuable in light of the numerous and frequent introductions of foreign insects, diseases, and invasive plants that can rapidly disrupt forest systems. The initial Stand Delineation and Inventory Project will be continued as a Forest Monitoring program as required under certification in order to allow for documented observations of changing conditions throughout the forest. Program focus will include: monitoring of developing regeneration sites allowing for the timely response to the investment in intensive silvicultural work such as herbicide control of invasive and interfering plants and prescribed fire; NNIS monitoring and control work; silvicultural results with respect to management objectives and outcomes and recreation/visitor impacts, etc.

V. Maintenance and Operations

Aside from the detailed cultural work planned for the State Forests, the following is a partial list of projects that are often on-going from year to year and are an integral part of State Forest operations: Routine maintenance projects include building repair and maintenance, vehicle maintenance, mowing at the office facility, snow removal, repair and replacement of fire rings and tables at the camp sites, brush hogging trails and repair of road surfaces.

A. Maintenance and Management of Roads and Trails

There are approximately 107 miles of trail and hardened road surface on the forest and approximately 1/3 of the mileage is maintained each year. Maintenance in these areas includes brush hogging, mowing, and rehabilitation of road surfaces. Herbicide usage has been integrated into the road maintenance regime in order to control growth in areas where mechanical control methods are not feasible (i.e. steep slopes, narrow paths, rocky areas). The use of herbicide along forest roadways can also reduce operational costs for the maintenance staff by controlling unwanted vegetation along these travel corridors for several years, when applied properly.

B. Boundary Line Maintenance

Savage River State Forest currently has 336 miles of boundary line, including interior lines, exterior lines and road frontage. Boundary maintenance is critical to the management of all

public lands. In order to keep up with this effort, State Forest staff maintain approximately 60 miles of line each year. In addition to routine marking and painting, considerable effort is spent on researching, relocating, or establishing missing and/or new line, as well as addressing boundary conflicts. As conflicts arise, every effort is made to resolve the issue in a timely and professional manner. Often, this work leads to the need for a licensed surveyor and legal recourse in order to resolve the issue. With the assistance of Land Planning and Acquisition staff, a minimum of five miles of previously unpainted and/or missing boundary line are to be reestablished until the entire forest boundary is demarcated.

C. Campground Operation and Maintenance

There are 71 primitive camp sites that are maintained on a regular schedule throughout the year. Major campsite maintenance coincides with major holidays, the end of winter and at the traditional end of the camping in late summer/early fall. The campsites are also frequented during the white-tailed deer firearms seasons in the fall and winter, during spring turkey season in early spring and during the opening weekend of trout season in late winter/early spring. Maintenance and operation of these primitive campsites includes: managing group site reservations; maintenance of information / bulletin boards; camper contacts to insure policies are understood; self-registration fee collections and deposits; weekly site inspection and cleaning; hazardous tree evaluation and removals; grass mowing (typically the week before the summer holidays and otherwise as needed); maintenance and replacement of picnic tables, lantern posts, and fire rings; and site impact monitoring.

D. Rifle Range Maintenance and Management

There is a 100-yard shooting range on the forest that is open to the public year round located at 3250 New Germany Road. Maintenance is ongoing and includes replacing backstops as well as the backstop stands, trash clean-up, mowing and weed eating around the facility, plowing the entrance road, restocking range permits, collecting range fees and posting range closures when necessary. Prior to and during the various hunting seasons, range use increases appreciably resulting in more frequent maintenance visits. Typically, at the conclusion of spring turkey season, the backstops and stands from the previous year are replaced, depending on the severity of damage.

The shooting range is open daily from 8 a.m. to dusk and offers hunters an ideal location to sight in weapons. The range features ten stations with distances ranging from 25 to 100 yards. Hunters can pay the \$5.00 daily fee at the range using envelopes provided. The annual pass costing \$25 and the family pass costing \$50 are available at the Forest Headquarters Office. Rules and regulations are posted at the range, with the only restrictions being no fully automatic weapons and no clay pigeons.

VI. Recreation

A. Recreation Opportunities (See Figure 2 p. 12)

1. Hiking, Biking and Horseback Riding Trails

Savage River State Forest has over 70 miles of trails open to hikers, mountain bikers and horseback riders of any ability. Not all trails are open to all recreational pursuits and it is recommended that before engaging in any activities visit or contact the state forest headquarters to become aware of any trail restrictions. A backpacking permit must be obtained at the forest headquarters or at any of the self-registration areas. Trail guides featuring a topographic map and trail descriptions can be purchased at the forest headquarters.

2. Off Road Vehicles

Snowmobile and off-road vehicle operators can enjoy many miles of scenic trail along the Meadow Mountain Trail, East Shale Road, Margraff Plantation, Negro Mountain Trail and the newly constructed St. John's Rock ORV Trail. Unlike the aforementioned trails, the St. John's Rock ORV Trail is the first trail on Department lands ever designed specifically for ORV enthusiasts. Features include a multi-site primitive campground designed to support ORV riders, children's riding trails within the campground, technical spur loops and hare scramble style trail sections for all terrain vehicles and motorcycles, a full-size rock crawl area for jeeps and four-wheel drive vehicles and miles of forest access roads for all purpose riding opportunities. The total trail system is approximately 13 miles in length with varying challenges for riders of all skill levels. The trail officially opened to the public on July 23, 2017. Usage statistics for the second year of operation can be found in Appendix 1.

Be sure to display a current Department of Natural Resources ORV permit, available at the forest headquarters or online at www.dnr.maryland.gov.

3. Hunting

Hunting is permitted throughout the forest except where posted with safety zone signs. The 55,000 acres of Savage River State Forest includes two state park areas (New Germany and Big Run) where hunting is prohibited. The forest boundaries are marked with yellow paint on trees - a yellow bar as you enter the forest and a yellow dot as you exit the forest. Hunting on or crossing private land within or near the State Forest requires the written permission of the land owner. Parking is permitted along roadways as long as traffic is not blocked. Hunters must have a valid Maryland Hunting License and should refer to the current Hunting & Trapping guide for season dates and specific regulations.

Several access roads are opened every fall to accommodate hunters. These gated roads are opened prior to squirrel season in September and remain open through January 31. A copy of the road-opening schedule is available in the Forest Headquarters Office. Opened roads can be used by all hunters and allow for vehicular traffic. Due to the nature of these roads, the use of four-wheel drive is recommended. Handicapped hunter access roads are also available. More details about handicapped accessibility appear in this brochure and on the current road-opening schedule.

*Hunter Safety Classes, required for the purchase of a license, are taught periodically through the Department of Natural Resources. These classes are usually offered in the county at one of the local State Parks.

4. Trapping

Trapping is permitted both on land and in the water. A permit can be issued for trapping on Savage River State Forest at the Regional DNR Wildlife Office in Flintstone. Trappers are required to obtain a certificate of trapper education from the Department of Natural Resources. Trapper education courses are held statewide. Refer to the current Hunting & Trapping Guide for complete regulations. A valid hunting license is required when applying for a trapping permit.

5. Fishing

Anglers with a Freshwater Fishing License have the opportunity to catch multiple species of fish in the Savage River Reservoir including walleye, large-mouth bass, smallmouth bass, yellow perch, bluegill and several trout species. Anglers with a trout stamp can fish the Savage River for wild brook trout and stocked brown and rainbow trout. Tributaries of the Savage River, including Middle Fork, Poplar Lick and Blue Lick to name a few, provide a unique backcountry fishing experience for native brook trout that is unsurpassed in the region. The majority of the Savage River watershed is within the Zero Creel Limit Area for brook trout and can only be fished with artificial flies and lures. For regulations, creel limits and special management areas consult the Maryland Freshwater Sportfishing Guide or contact the Western Maryland Fisheries Office at (301) 334-8218.

6. Boating/Paddling

The Savage River Reservoir provides excellent boating and paddling opportunities. Three public boat launches offer convenient access at Dry Run Road, Big Run State Park and ¼ mile north of the dam breast on Savage River Road. Gasoline engines are prohibited on the reservoir. Recreational whitewater releases occur periodically throughout the year on Savage River below the dam that are sponsored and coordinated by the Upper Potomac River Commission, Savage River State Forest, Garrett College Adventuresports Institute, Verso-Luke Mill and several commercial boating outfitters. The events are at no cost to the participants, but donations are accepted to cover the cost of shuttle services and on site restroom facilities.

7. Winter Recreation

Cross-country skiers and snowshoers of all abilities can enjoy a winter wonderland on the New Germany and Mount Aetna trails. The Asa Durst Trails are recommended for a backcountry snowshoe experience. Snowshoers must be careful to walk beside and not on cross-country tracks as it disrupts them.

8. Geocaching

Currently, 28 geocaches are located throughout Savage River State Forest for those interested in testing their navigational and tracking skills. All geocaches must be reviewed and approved by the staff before being placed anywhere on the forest. Applications and general rules for geocache placement are available at the state forest headquarters.

9. Maps

Brochures and maps are available at the Savage River State Forest Headquarters Office located at 127 Headquarters Lane, Grantsville, Maryland 21536.

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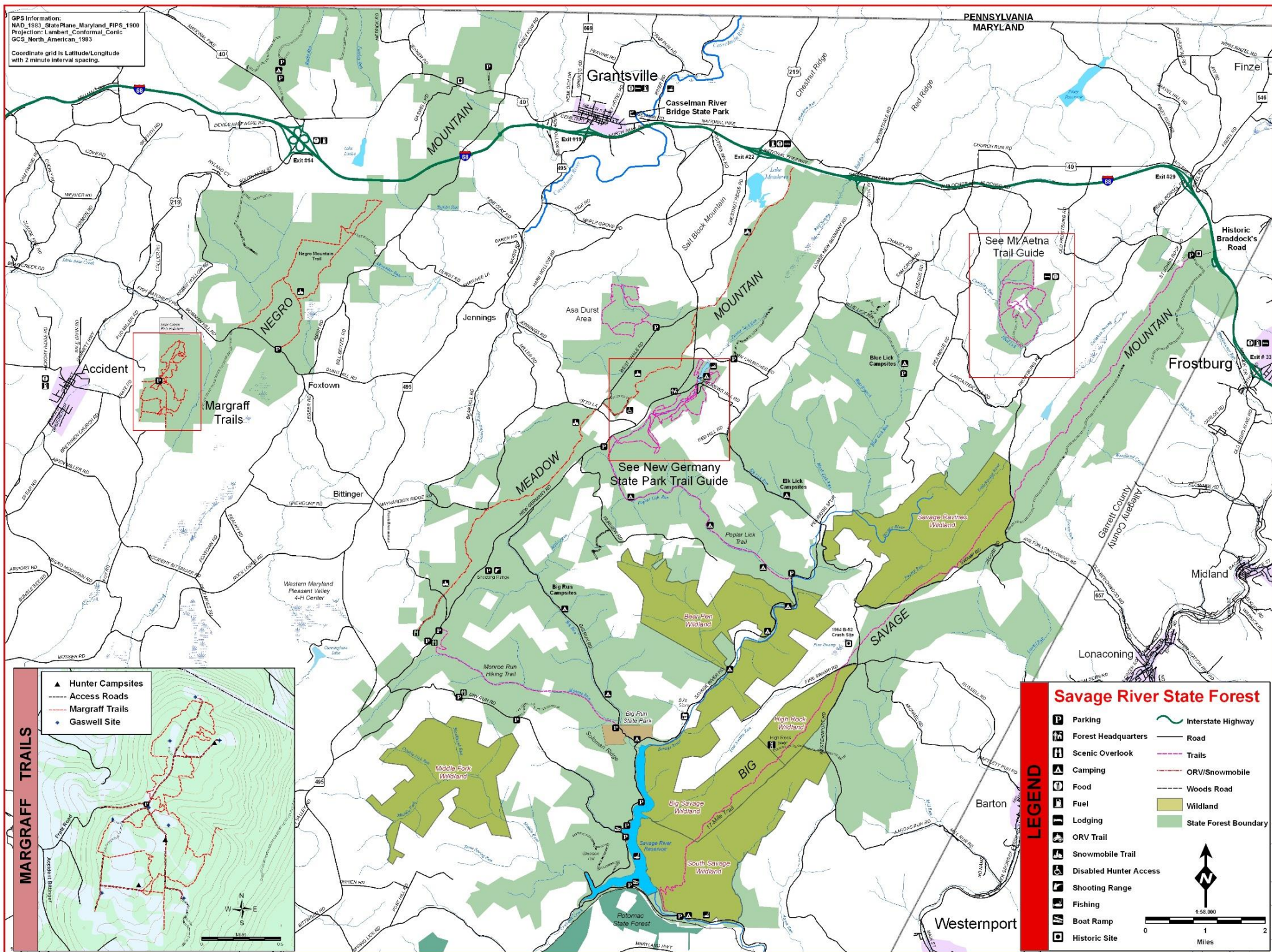


Figure 2. Recreational Opportunities on Savage River State Forest

B. Recreation Proposals

National Recreation Trails Grant Requests: To Enhance Recreation and Trails Opportunities for Visitors of Public Land.

Savage River State Forest has submitted one National Recreation Trails Grant Request to fund enhancements to various recreation trails on the forest:

1. St. John Rock Road, ORV Trail Maintenance – \$37,500

This project will provide seasonal maintenance personnel (2) to maintain the newly developed 13-mile long St. John Rock Road and Red Dog Road ORV Trail. Hiring these seasonal employees will benefit trail users by maintaining the surface of the trail and vegetation overgrowth. Operating the ORV trail will require regular maintenance and upkeep. The grant will fund five elements of trail upkeep including:

- 1) Maintenance of water control devices.
- 2) Monitoring use and providing public outreach.
- 3) Clean up of litter and debris.
- 4) Providing protection to environmentally sensitive areas adjacent to the trail
- 5) Maintaining closure of existing illegal trails and deterring new trails from being developed.

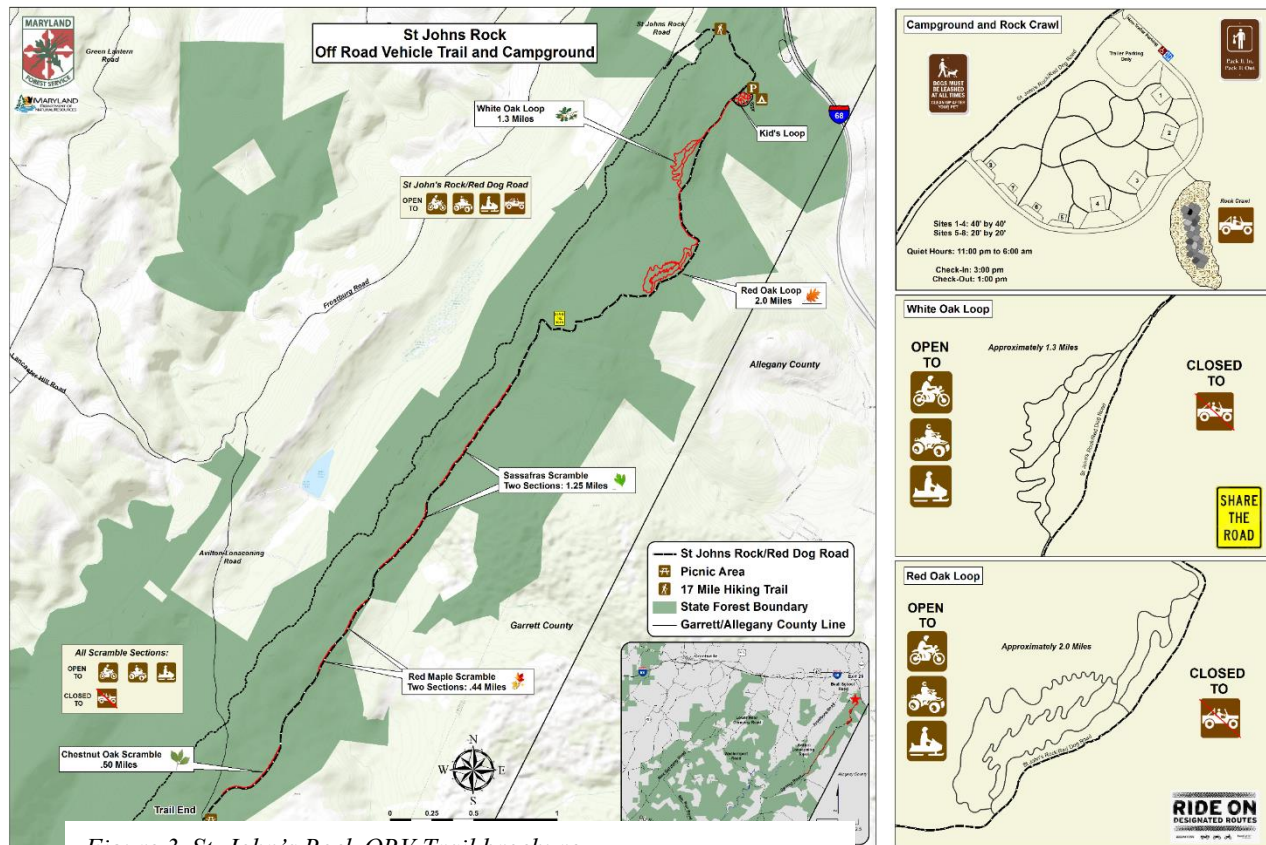
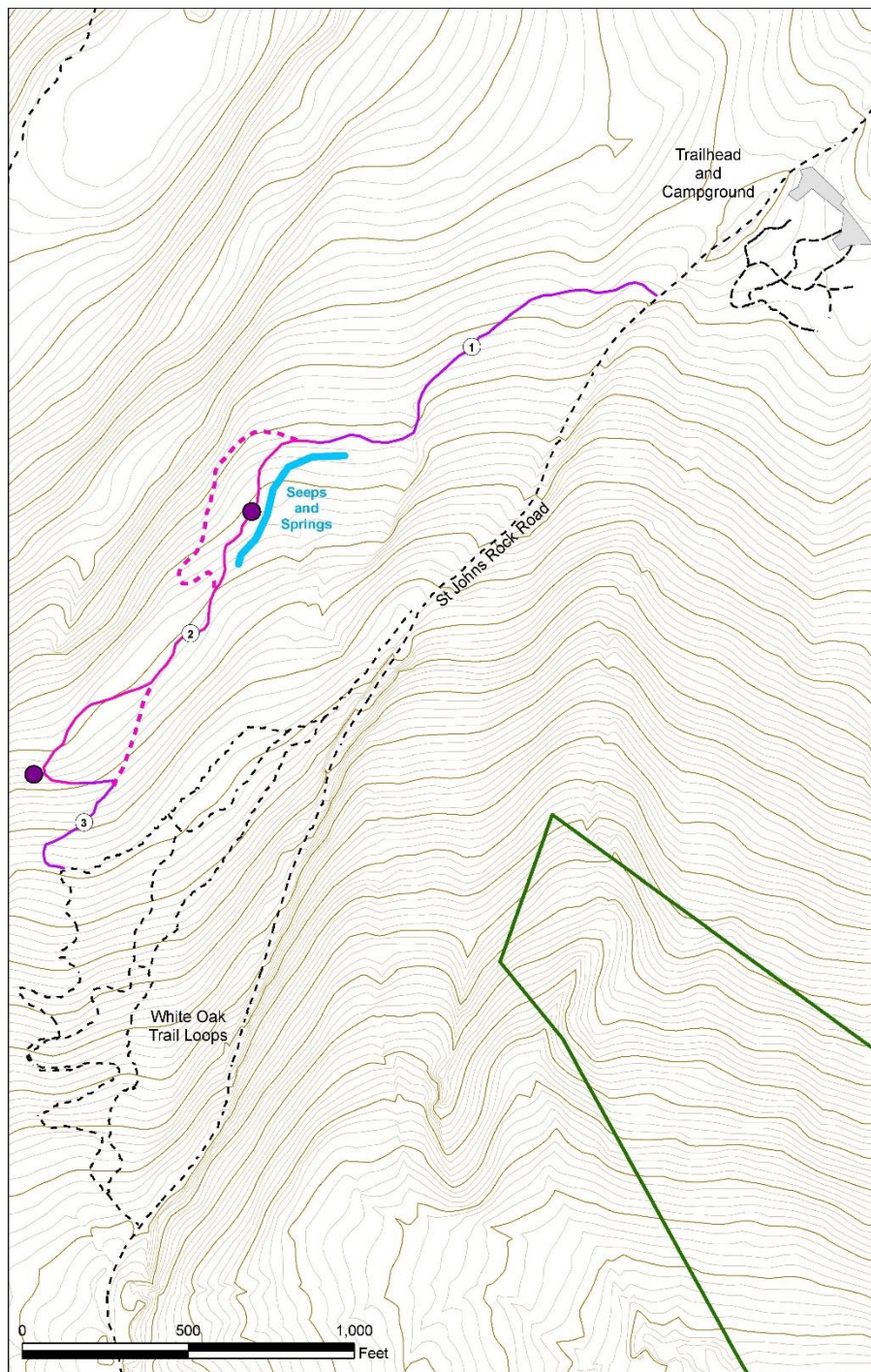


Figure 3. St. John's Rock ORV Trail brochure

St. John's Rock ORV Trail Construction – Phase II

- Construction anticipated to commence Spring 2022
- Approximately 1 mile (5280 feet) connector of the campground with the first set of loop trails (White Oak Loop)
- Proposed 2017 shortly after official opening of the ORV Trail and after several revisions and input from Engineering and Construction and the Heritage Service the plan has been finalized for implementation in FY22 / FY23



2. Meadow Mountain Trail Construction (Continental Divide Loop Trail)

In fiscal year 2011, the forest was asked to participate in a large bike trail effort that would begin in Pennsylvania, travel along Meadow Mountain Trail, cross the University of Maryland 4-H property and continue south into Oakland, MD and then travel north through the Youghiogheny Wild and Scenic Corridor back into Pennsylvania. This project is currently referred to as the Continental Divide Loop Trail which is being spearheaded by Garrett Trails, a non-profit volunteer group dedicated to the development of sustainable trails that provide access to the economic, historic and environmental resources of Garrett County.

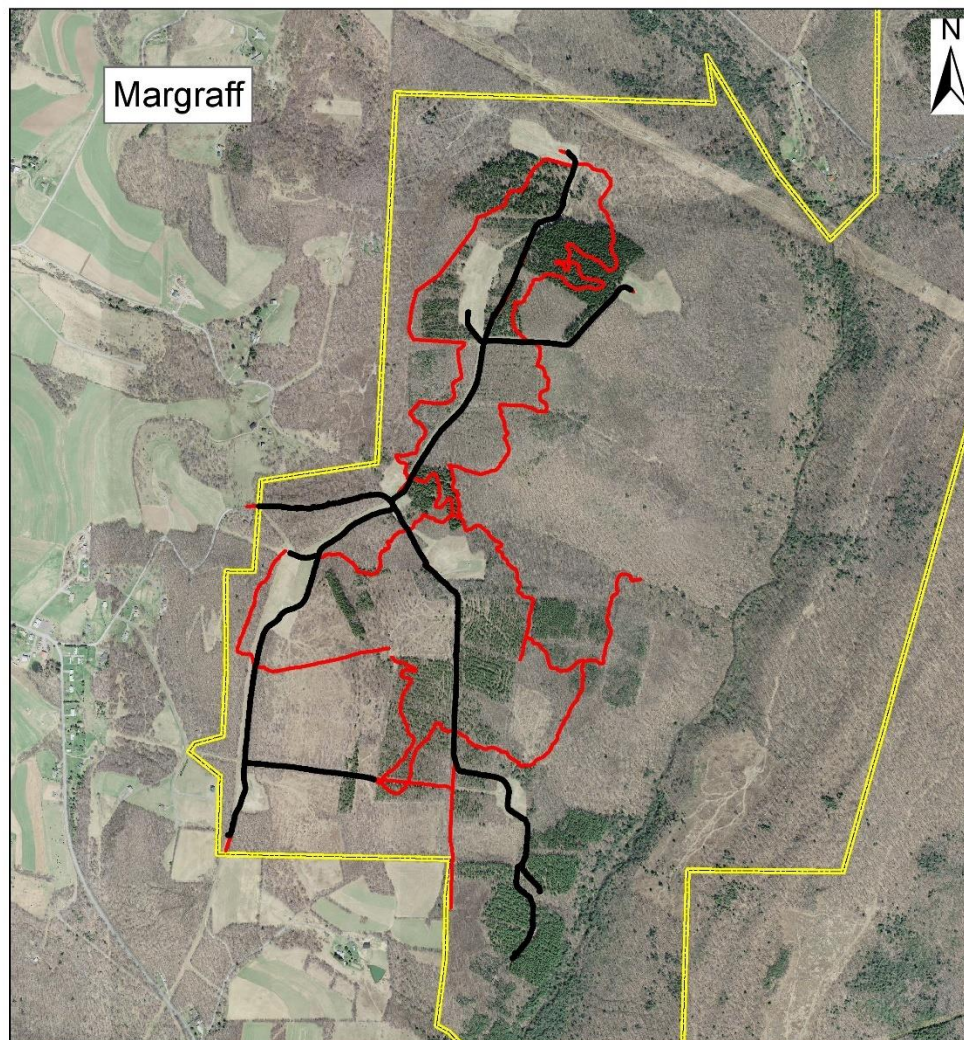
The southern section of the bike trail from State Route 495 to Frank Brenneman Road was completed in mid-2016. Funding was secured to continue construction of the trail northward beginning at Frank Brenneman Road and ending at New Germany Road just south of West Shale Road following existing forest access roads. Groundbreaking occurred in July 2017 and this phase of construction extended from Frank Brenneman Road to Otto Lane adding approximately 7.5 miles of resurfaced trail to the ongoing project.

Grant funds have been made available from the Maryland State Highway Administration Recreational Trail Program and the Appalachian Regional Commission Area Development Funds to complete the final 3-mile phase of the project that extends from the southern end of West Shale Road to New Germany Road. Approximately \$400,000 dollars will be used to construct the trail, stabilize the trail surface with aggregate, install split rail fencing at the trail head as well as interpretive signage along the riding route, mobilization/demobilization of construction equipment and contingency costs. Upon completion of the project, a total of over 10 miles of new riding trail surface will be available for visitor recreational opportunities. To complement the new construction, three interpretive panels have been placed along the trail to educate trail users about the rich history of Garrett County, particularly the Native Americans that inhabited the land from the Paleo-Indian Period until the 17th Century.

Phase III of the Meadow Mountain Trail resurfacing project was completed in November 2020 and the entirety of the trail system is now complete. Some initial inquiry and planning has been done on capping the trail surface with rock dust to serve as a smoother riding experience and also possibly installing some “rider-friendly” gates that don’t require trail users to stop and get off their bikes. We will continue to work with Garrett Trails on this project and continue to improve the trail system on the state forest as time and funding are available.

3. Margraff Trail Maintenance

We have partnered with Garrett Trails to enhance and re-establish the hiking / mountain bike trail system at the Margraff Plantation. This trail system started as an unauthorized construction by local mountain bike enthusiasts some years ago and is in need of some substantial maintenance to get it back to a sustainable trail system. Garrett Trails has taken the project and actively incorporated volunteers into the trail reclamation work and mowing. It has been a great help to our trail maintenance program here at Savage River State Forest to have this group as engaged on this project.



Legend

- Margraff Roads
- Margraff Bike Trails
- Savage River SF Boundary



1:15,000

1 inch = 1,250 feet

0 375 750 1,500 2,250 3,000 Feet



4. Savage River State Forest Shooting Range

Critical Maintenance funding has been allocated to renovate the shooting range in FY23

Insert Details

5. Camping / Camis Reservation System

In response to elevated camping and state forest visitation during the COVID-19 Pandemic we have enrolled a portion of the state forest campsites in the Maryland Park Service reservation system (contracted to Camis). The COVID-19 Pandemic brought people outdoors and more specifically to areas like Savage River State Forest to escape the urban areas during the height of the pandemic. What we found was that our campsites were at capacity much of the spring / summer and we had folks driving several hours to arrive and be unable to get a campsite. The move was made in October 2020 to move the 18 state forest campsites along Big Run Road into the Camis system and allow users to reserve sites in advance. The project was implemented in February 2021 and those 18 sites have remained “reservation only” for the past camping season. There were some issues that were worked through early on, but the system has worked out well for the summer 2021 camping season.

Following the success with the Big Run sites we made a motion to move our 8 campsites at St. John’s Rock into the Camis system. Due to low user levels at St. John’s Rock we acknowledged that we needed to make some changes and petitioned to eliminate the day-use fees (\$9 per day) and make the campsites available to all users instead of only ORV riders. The 8 sites were formerly handled through the DNR Compass Portal; and to streamline our processes while opening the sites up to all users we pushed to have the sites incorporated into the Camis system. The project was implemented September 2021 and we have already seen an uptick in campsite use at St. John’s Rock.

We still maintain the majority of our campsites as first-come first-served to allow forest users the ability to spontaneously make a visit and find a campsite. The sites included in the reservation system cost a small amount more per night due to surcharges involved with the reservation process, so we upgraded these sights with new (handicap friendly) picnic tables and steel fire rings in Spring 2021.

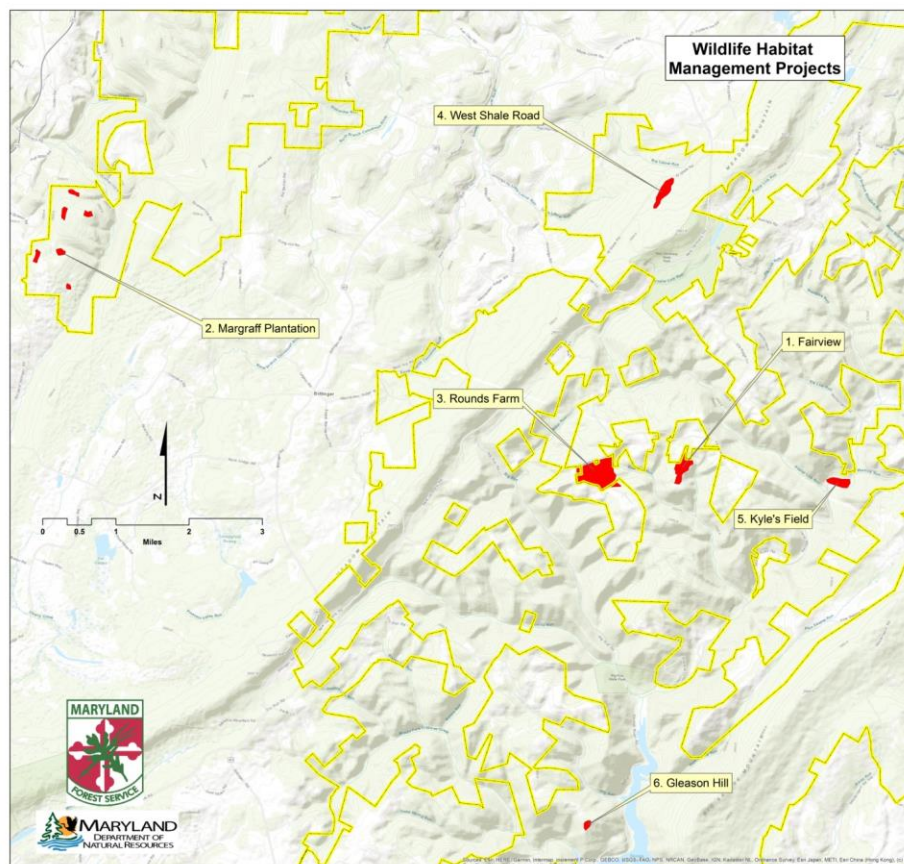
VII. Wildlife Habitat Management Projects

A. General Wildlife Habitat Maintenance

Approximately 38.5 acres of wildlife specific projects have been implemented throughout the state forest. These projects are located in the Margraff tract of Compartment 14 east of Accident, MD, the Nature Conservancy acquisition of Fairview Road, the “Rounds Farm” located off Pea Patch Road, West Shale Road, “Kyle’s Field” off Savage River Road and Gleason Hill. General practices include liming and fertilizing as well as planting of cover and grain crops, where appropriate. Plantings include millet, peas, corn, turnips (*Brassica spp.*), warm season grasses, native wildflowers and clover (See Wildlife Habitat Management Projects map and summary, p. 14).

As part of the Mentored Hunt Program, a stocked pheasant hunt will take place on the Horse Farm property, West Shale Wildlife Area and Margraff Plantation in late November. This is a do-it-yourself hunting opportunity for junior license holders, apprentice license holders and lapsed hunters. A random lottery drawing will take place and all successful applicants will receive a packet of information with maps and other helpful information. More information is also available on the Maryland DNR Wildlife and Heritage Service web page:

http://dnr.maryland.gov/wildlife/Pages/hunt_trap/Mentored-Hunt-Program.aspx.



VIII. Ecosystem Restoration / Protection Projects

A. Non-Native Invasive Species (NNIS) Control

Across the State, a biological invasion of non-native and invasive plants is spreading into fields, forests, wetlands and waterways. Referred to in a variety of ways including exotic, non-native, alien or non-indigenous, invasive plants impact native plant and animal communities by displacing native vegetation and disrupting habitats as they become established and spread over time. Early Detection and Rapid Response (EDRR) to control the spread of problematic species is important for the conservation of native flora and fauna. Control efforts often require considerable resources including labor, time and money.

As in many cases, the introduction of these widespread and invasive plants cannot be prevented. It is important to evaluate and plan control efforts in order that such efforts contribute meaningfully to the success of forest conservation plans. EDRR efforts targeting NNIS discovered during the forest wide inventory have been successful in identifying and controlling a number of NNIS populations. Species-specific management plans have been developed for two notable species including Japanese knotweed and Yellow Archangel (See Appendix 2 and 3).

The State Forest staff has treated and/or is monitoring several plant colonies or sites including: five tree-of-heaven sites, ten Japanese knotweed sites, two mile-a-minute weed sites and one yellow archangel site (See corresponding map for locations).

1. Japanese knotweed (*Fallopia japonica*). Several areas of Savage River State Forest have become infested with the invasive plant Japanese knotweed (*Fallopia japonica*). Seven treatment areas have been delineated and six of them will be treated and monitored to determine the most effective course of action for suppressing and ultimately eradicating the plant from these areas of the forest. Knotweed growth below the Savage River Reservoir has reached a critical level and will not be treated at this time due to the overwhelming investment that would be required to reach any reasonable level of control. As more effective treatment methods become available for large areas, this area will be reevaluated in regard to implementing a control plan.

The initial treatments occurred in the first week of June, 2011. Treatments in all areas of the forest involve a two-step process that includes both mechanical and chemical means of control. First, the knotweed is cut and allowed to grow back for 8 weeks, reaching only 2 to 4 feet in height. Second, the new growth is treated with a 2% solution of glyphosate as the active ingredient. Treatment of these areas has been repeated on a yearly basis and will continue until the plant has been eradicated from the target areas.

2. Yellow archangel (*Lamium galeobdolon*). Dry Run, a tributary of the Savage River and Savage River Reservoir has been infested with the aggressively growing, non-native invasive perennial, yellow archangel (*Lamium galeobdolon*). The infestation of the area most likely originated from a private residence which was abandoned and the once maintained yard area was neglected, allowing the plant to escape to the adjacent property. After establishing a colony at the head of the watershed, the plant quickly enveloped the drainage from the private residence to the high water mark of the Savage River Reservoir, encompassing nearly 15 acres of forest land.

The plant grows quickly and out-competes native vegetation for resources. Yellow archangel spreads in several ways; by seed, by stem fragments, and by rooting at the nodes of the

stem. This makes the plant very difficult to control and requires multiple applications of herbicide and diligent monitoring to limit the spread of the plant in natural forest environments. There is no projected end date for the herbicide treatments due to the persistent nature of this plant and efforts will be made annually until the spread of the plant is contained or the plant is eradicated. Recent late season snowfalls and above average rainfall have limited any attempts to control the species. Successful eradication of this plant is anticipated given the relatively confined area of infestation. Site monitoring will continue after the eradication of the plant for at least 5 years.

3. Mile-a-Minute Weed (*Persicaria perfoliata*) A small patch of mile-a-minute weed (*Persicaria perfoliata*), another aggressive non-native invasive, was discovered in Compartment 29A. The area was treated in FY 19 with a 2% glyphosate solution, but a field survey revealed that the initial treatment was unsuccessful. Herbicide treatment of triclopyr was applied for two consecutive years and monitoring of the site will continue into FY 20 and beyond until the plant has been eradicated. A previously discovered patch of mile-a-minute weed in Compartment 38 near the St. Johns Rock ORV Trail that was seemingly removed during the excavation for the trail campground reemerged and has been treated. Monitoring of the area will continue and the site will be treated as necessary in order to eradicate this plant from the site.

4. Tree-of-Heaven (*Ailanthus altissima*) Individual stems of the exotic invasive tree-of-heaven have been identified in several areas of the forest. Control measures including both mechanical and chemical have been implemented to remove this species from the limited areas in which it is present. These plant colonies are now part of our long term monitoring program, with follow-up treatments planned as necessary in the interest of preventing these species from establishing themselves in the otherwise natural forest communities in which they were found.

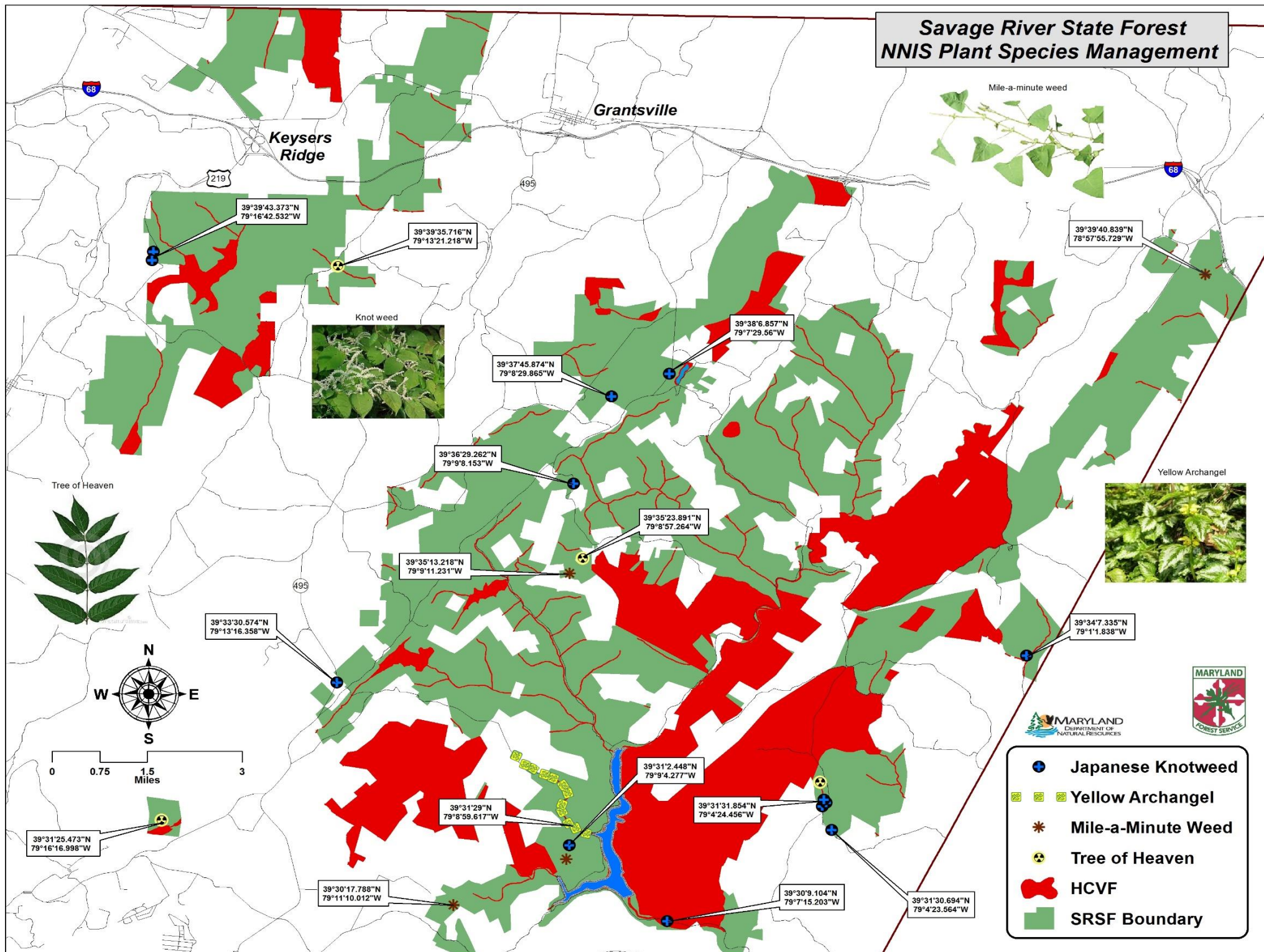


Figure 6. Map of NNIS treatment areas on Savage River State Forest

IX. Monitoring and Research Projects

A. Monitoring

1. Silvicultural Activities

All silvicultural operations taking place on Savage River State Forest will be monitored on a weekly basis and more frequently when adverse weather conditions arise to ensure that all Best Management Practices are being followed. Regeneration harvests will be monitored five and ten years after harvest. Non-native invasive species will be monitored yearly and herbicide treatment regimens will be implemented as necessary to eradicate these species from the forest ecosystem. Management documents outlining specific treatments and monitoring schedules have been drafted for the individual species.

B. Research Projects *(Full write-ups of each project are available at the State Forest Office)*

1. Hemlock Woolly Adelgid: Field study of the Impact of Imidacloprid of the Subterranean Life-Cycle of *Laricobius* species. Virginia Tech. University.

A research project to study field and biological studies of *Laricobius* species with an emphasis on the subterranean portion of their life cycle has been funded by the USDA Forest Service, Forest Health Protection agency. A graduate student in Dr. Scott Salom's forest entomology lab has been tasked with studying the impact of the widely used insecticide imidacloprid on the soil aestivation of *Laricobius nigrinus* and *Laricobius osakensis* (*Laricobius* spp.).

Imidacloprid is a systemic neonicotinoid insecticide used to treat the hemlock woolly adelgid. In addition to chemical treatments, biological control with *Laricobius* spp. is quickly being established for management of the hemlock woolly adelgid. *Laricobius* spp. spends a crucial developmental portion of its life cycle in a subterranean state below the soil surface and it is currently unknown what the impact of historical imidacloprid applications is on this life stage. This project, in conjunction with one in Blacksburg, VA, aims to shed light on the question of the impact of historic imidacloprid applications on subterranean survivorship of *Laricobius* spp.

Savage River State Forest has been identified as a site where long term application of the insecticide imidacloprid has taken place with detailed records of such applications. A selection of 20 eastern hemlocks will be made based on historical treatment data, DBH and proximity to public pathways & each other. Trees will be selected from the Wolf Swamp area of the Savage River State Forest (Figure 1). Ten soil injection treated trees from 2017 (Figure 2) and ten non-treated trees from the border of the Savage River State Forest with New Germany road (Figure 3) will be used for this study. During the fall and winter of 2020, trees will be selected and four traps will be placed below each tree, approximately one meter from the base of the trunk in each cardinal direction. A small, temporary fence or protective barrier will be installed to protect traps from wildlife and park visitors (Figure 4). Each trap will consist of a PVC lined in yellow sticky tape and covered with a fine mesh screen (Figure 5). Ten pre-pupal larvae will be placed into each respective trap in April 2021. Beetle emergence will be checked once per month until January 2022 by Ashleigh Hillen. Soil samples will be taken at three intervals, April 2021,

August 2021 and January 2022. Project will be completed and all supplies retrieved and cleared by graduation date, December 2022, by Ashleigh Hillen. No insecticide application will be necessary since we are specifically looking at the impact of past imidacloprid applications on the subterranean survivorship of *Laricobius* spp. Sites will be accessible by use of New Germany Road and a Savage River State Forest access road.

The results from this project will be of importance to Savage River State Forest as well as all hemlock woolly adelgid managers in Maryland. As Hemlock Woolly Adelgid managers continue to use biological and chemical control to trees infested trees, an understanding of how the two interact during this crucial life stage of the insect *laricobius* spp. will build upon the knowledge of best management practices and strengthen our understanding of this interaction.

Figure 2: Ten trees selected from the 2017 historically treated Wolf Swamp area of Savage River State Forest.



Figure 3: Ten control trees selected from the border of Savage River State Forest and New Germany Road

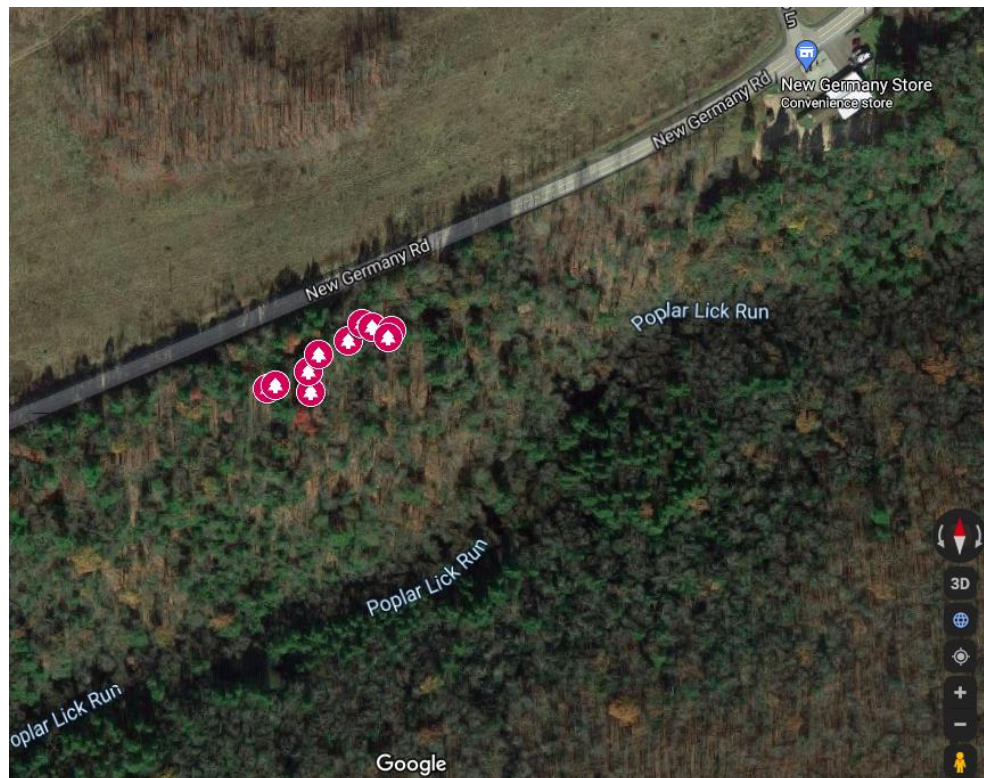
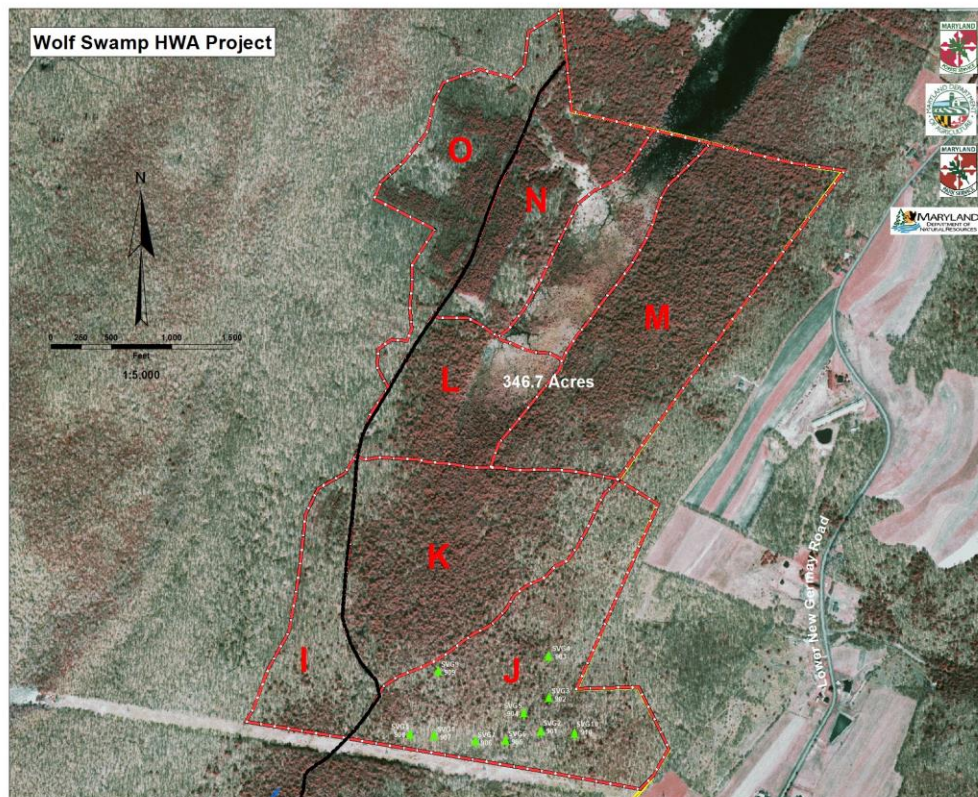


Figure 4: Four emergence traps placed at the base of a study tree.



2. Eastern Hemlock: Target-tree Release to Improve the Sustainability of Eastern Hemlock (*Tsuga canadensis*) in the Southern Appalachian Mountains. US Forest Service Southern Research Station and North Carolina State University.

This ongoing project will develop and validate a silvicultural tool that improves the health and sustainability of eastern hemlock, an ecologically keystone species in the southern Appalachians threatened by HWA. Individual or small clusters of "target" trees (i.e., suppressed or intermediate eastern hemlocks with moderate to good crown health) will be released by removing or girdling other stems competing for sunlight directly above and adjacent to the target trees. Increased sunlight is expected to improve hemlock crown health via improved carbon balance, enhanced foliage production, and reduced HWA settlement rates relative to unreleased trees. Treatments will be replicated at a number of southern Appalachian sites and will evaluate release by girdling versus felling and variations on the size of the resulting canopy gap. Operationally, the tool is expected to prolong hemlock health and survival and increase the efficacy of existing HWA management tools (e.g. biological and chemical control) when integrated with them (Jetton, Robert M., Mayfield, Albert E., Keyser, Tara, and Rhea, James 2017). The project will involve fifteen treatment sites; 10 located in the northern end of Wolf Swamp in Compartment 16 and five located along an unnamed tributary of Elk Lick Run in Compartment 26. Post treatment data collection was completed on all sites in March 2018 and again in July 2018 involving hemlock health at one year, adelgid density, vegetation measurements and data analysis. Follow up data collection and analysis is scheduled for Fall 2021 and will continue through the Fall of 2022.



3. Is the Grass Always Greener: The Response of a Neotropical Passerine to the Environment Over a Century of Change.

Abstract: Species are experiencing unprecedented rates of change in their environment. How they are responding is a major question in ecology and evolutionary biology today. This project aims to address if there is genetic response using high-throughput sequencing advances. This project will identify genetic regions associated with climate across the landscape of the Black-throated Blue Warbler (*Setophaga caerulescens*) – one of the most extensively sampled passerines of the 20th century. Once identified, we will examine these regions through time to identify if selection is acting in response to rapid environmental change. Sites will be revisited that were last sampled 20 years ago, to examine genes associated with climate across 100 years, to look for signatures of selection. With this data, we can identify genomic changes this model species has undergone in response to this rapid change in environment, allowing us to better understand the capacity organisms have for dealing with a changing environment.

Objectives / Justification: We have very little understanding of how adaptation to genetic change happens in small timescales, especially in non-model organisms. By utilizing a species that has been repeatedly sampled across decades, we can directly examine how selection acts through time. The last time our collaborator collected Black-throated Blue warbler samples in this area was 2002. Collecting samples from these regions now would expand our time span by two decades.

Species Information: Black-throated Blue Warbler (*Setophaga caerulescens*) is under status of least concern. Blood will be extracted and live birds will be released. Final deposition of blood samples / DNA is the Smithsonian National Museum of Natural History. No population impact as birds released.

Animal Sampling Methods: Birds will be identified by sound. We will then set-up a mist net and play a recording of Black-throated Blue Warbler song to draw the birds into the net. Then birds will be extracted, measurements and photos taken. Blood samples will be taken from the brachial vein, and feather samples will be plucked from the breast and scapular areas.

Study Design and Analysis: We will sequence the genomes of 120 individuals and conduct a genotype-by-environment association study. This tells us what genetic variation is associated with environmental variation. Then we will target those genetic regions most influenced by environment and sequence them in individuals from museum specimens as early as 1920 to present day, to measure selection through time.

4. Late Successional Forest Management Project. The Nature Conservancy.

The MD/DC Chapter of The Nature Conservancy is collaborating with Maryland Forest Service and the Maryland Wildlife and Heritage Service to implement a “Late-successional Forest Management Project” in western Maryland. The long-term goal of this project is to demonstrate the potential of using Structural Complexity Enhancement (SCE) methods to accelerate the development of late-successional characteristics in western MD

forests. Young- to-mid successional forests lack the structural complexity present in diverse, late-successional forests. However, “maintain and enhance species and structural diversity” is one of the climate adaptation strategies which would enhance climate resilience at landscape-scale. TNC will partner with Northern Institute of Applied Climate Science (NIACS), to use their Forest Adaptation Resources as a guide in developing this project. TNC, in consultation with DNR resource professionals, have identified two treatment sites, plus a reference site (a designated old-growth area) at Savage River State Forest (SRSF) to implement this project. The two treatment sites are located in between a wildland and an Ecologically Significant Area (ESA). There are “confirmed old growth sites” within the OGEMA, that are limited in size and connectivity. Hence, applying this type of silvicultural treatments with primary objectives of fostering old-growth conditions, would enhance old growth ecosystem functionality, which is a recommended action in the Sustainable Forest Management Plan for SRSF.

SCE is the use of a combination of silvicultural techniques to promote structural complexity in forest ecosystems including creating multi-layered canopies, increasing the number of snags and coarse woody debris, and increasing the number of large living trees. This complexity in vegetation structure and age-class distribution has a direct effect on the biological diversity in a forested system. At landscape scale, late-successional forests are a necessary element of landscape diversity, which enhances climate resilience. Recent studies have suggested that forests managed with SCE treatments have the potential to increase carbon storage and provide additional climate change mitigation benefits. The proposed project is part of a larger initiative to demonstrate different SCE treatments to foresters and landowners. In consultation with DNR resource professionals, TNC will develop communication materials such as pamphlets, infographics, videos and presentations to disseminate the learning outcomes of the project. In addition, field tours and workshops will be organized for foresters and landowners to promote understanding of SCE techniques as an option in forest management. Landowner adaptation of SCE will have a positive effect on the natural resources of Maryland by improving late-successional wildlife habitat and landscape diversity. Enhanced climate resilience of the landscape and improved ecosystem services will have numerous benefits to the natural environment and the citizens of the state.

5. Statewide Wood Turtle Population Assessment and Management.

Project Description: Maryland is participating in a regional Comprehensive State Wildlife Grant Project (11 states involved) from 2021-2023 to begin implementation of the 2018 northeast wood turtle conservation plan.

There are three main tasks to be achieved:

1. Conduct standardized visual encounter surveys in streams and along stream banks and use mark-recapture techniques to estimate population (this is a continuation of work done by DNR ecologist Ed Thompson until his retirement in 2018). DNA will be collected from a sample of turtles in priority populations and turtles will be pit-tagged; both methods to aid in law enforcement efforts related to confiscations from illegal collecting activities, and to refine regional genetic unit assignments. eDNA will be sampled from streams at 30 sites statewide.

2. Identify nesting habitat and, if needed and permission can be obtained from individual land unit managers, conduct management to enhance nesting opportunities. This would mostly involve invasive vegetation management but could include installing predator excluders and/or nesting substrate manipulation.
3. Work with willing land unit managers to establish BMP's for field mowing (wood turtles spend summers in hayfields and pastures) and roadway management to reduce roadkill.

General Site Conditions: Surveys will be conducted in a variety of small to large streams and rivers. Wood turtles prefer streams with hard sand or gravel bottoms (not clay or muck), moderate current, and clear water, and mostly use pools (not riffles). Management will occur primarily along stream banks and adjacent upland areas.

Project Considerations: Standardized population surveys require three surveys per season (spring and/or fall) for a maximum of six surveys. Each survey is of a 1 km stream reach, attempting to complete the 1 km survey in 1 hour of active searching. Turtles are measured, marked and released back at point-of-capture immediately. eDNA will be collected at the beginning of each survey at the 30 sites chosen statewide, three water samples per survey. DNR is partnering with the Susquehannock Wildlife Society (SWS) and Mid-Atlantic Center for Herpetology and Conservation (MACHAC). Staff from SWS (primarily Scott McDaniel and Brian Durkin) and from MACHAC (Lori Erb) will be conducting most of the Central Region surveys while DNR-NHP staff will be focused on the Western Region surveys. SWS and MACHAC will have DNR-issued Scientific Collecting Permits. Individual DNR land unit staff will be offered the opportunity to participate in surveys and report wood turtle sightings.

In addition to the projects outlines above, we continue to collaborate with other agencies within DNR and the Maryland Department of Agriculture on various ongoing monitoring and research based projects:

Maryland Department of Environment – Biological stream surveys
Maryland Department of Agriculture - Forest pest trapping
Maryland Department of Agriculture – Eastern Hemlock treatment
Bureau of Mines, Abandoned Mine Land – Water treatment (docers)
Wildlife and Heritage Service – Black bear bait station survey
Wildlife and Heritage Service – Hard mast survey

X. Silvicultural Proposals

COMPARTMENT 1&2 – Stands 16, 17 & 18

FY-23

Description/Resource Impact Assessment

Location: This proposal is located along the north side of State Route 40 in Compartments 1 and 2 in Stands 16, 17 & 18. The access road entrance is located approximately ½ mile west of the Route 40 / Route 219 intersection at Keyser's Ridge.

Forest Community Type and Condition: This 58-acre site consist of overstocked mixed mature conifer stands that are approximately 75 years old with an average merchantable diameter of 16.5 inches. The stands are dominated by Norway spruce (56%) and red pine (22%) with a minimal component of red maple (7%) and black cherry (3%). The stocking in this stand is at 89% relative density with a basal area of 175 ft²/acre. There is currently a sizeable cohort of Norway spruce regeneration in the understory. Desirable regeneration and overall plant diversity is scarce in the understory due to the thick duff layer and the dense overcrowded canopy as well as the interfering elements that are listed below. The overstory trees in several areas of stand 16 are beginning to decline and the stand is in need of a proper thinning.

Interfering Elements: Interfering understory plant competition is sufficient to cause significant interference with regeneration efforts in Stand 16 with 78% of the site containing some form of significant interference. Tall woody interference is found throughout 52% of the stand and is dominated by sweet birch and striped maple. Problematic levels of ferns and grasses are found on 37% of site. Non-native invasive species (NNIS) were not found in this stand during the inventory.

Historic Conditions: State Forest records show Stand 16 was last thinned in 1984. No evidence of fire was observed during the recon and there is no indication of significant forest pests at this time.

Rare, Threatened and Endangered Species: At this time, the Forest Manager knows of no rare, threatened or endangered species on the site that would be impacted by the silvicultural prescription.

Habitats and Species of Management Concern: The conifer plantation component of the forest landscape was implemented in an effort to rehabilitate overused and misused tracts of agricultural and mine land by serving as a nurse crop that would foster the reestablishment of native species and would subsequently be harvested in its entirety. Forest management priorities have not adhered to this strategy allowing the conifer stands to reach maturity and in the process, creating a unique habitat niche for a suite of species. However, in the absence of any silvicultural work being implemented, the planted conifer stands persist in a severely overstocked condition, some to the point of stagnation and decline. In an ongoing effort to maintain the conifer component of the forest, commercial thinnings will be implemented in order to reduce high stocking densities leading to increased health, vigor and growth in residual stands. Where

appropriate, final harvests will be applied to stands in accelerated states of decline followed by occupation of the site by native hardwoods or artificial regeneration with suitable species.

Water Resources: The stands drain east into Bucks Run, flowing within the Youghiogheny River Watershed. The proposed silvicultural treatments will be outside of all HC VF and stream buffer areas. No heavy equipment will be permitted within the protective riparian buffers of any streams or associated wetlands per the requirements set forth in the State Forests Sustainable Forest Management Plan.

Soil Resources: The dominant underlying soil type of Stand 19 is Ungers, Calvin and Lehew channery loams (UcB). This soil type is generally moderately deep over bedrock and well drained. Degree of slope ranges from 0-10% throughout the site. Equipment limits range from slight to moderate for slopes exceeding 15% and severe for slopes over 35%. Hazard of erosion is slight. The site has good productivity for woodland management, with a site index of 65-75 for upland oaks. Stand 22 is underlain with Ungers, Gilpin and Calvin channery loams (UnB). The soil is well drained with slopes ranging from 0-10% throughout the site and is potentially highly erodible creating moderate equipment limitations. High site indices are associated with this soil type, ranging from 75-85 for upland oaks.

Recreation Resources: No developed recreational resources are located within the stand. The access road for the stand is primarily utilized for hunting access. Hunting opportunities may be disrupted for the duration of the harvest activities and access to the site may be limited depending on the timing of the harvest.

Management and Silvicultural Recommendations

The planned silvicultural treatment for this site is a commercial thinning. The objective of this thinning is simply to reduce stocking levels in order to lessen competition among the remaining trees thereby, increasing the health, vigor and growth rate of the residual stand as well as maintaining the conifer component on the forest landscape. Approximately 90ft² of the basal area in each stand will be removed reducing the basal area to approximately 90-100 ft² /acre. The goal is to open the stand enough to release the established spruce seedlings and hopefully establish some new regeneration while maintaining enough basal area to prevent windthrow of the residual stand. Relative density will be reduced to 60% in both stands. Removals will focus on unacceptable growing stock as well as select trees that have reached maturity. Harvest volumes anticipated from removals will be approximately 6,000 board feet/acre.

Savage River State Forest FY 2023 AWP Proposals Keyser's Ridge Conifer Thinning



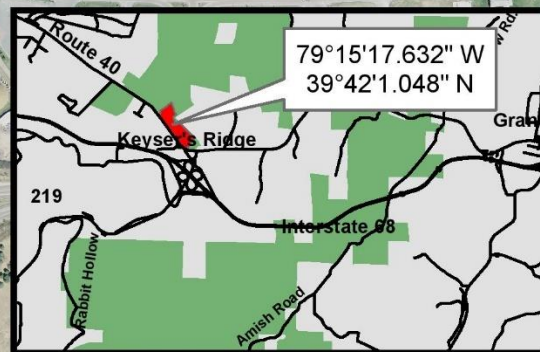
Buffer near house to prevent windthrow.
Speak to neighboring property owner to determine what they want removed / left.

Severely overstocked Norway Spruce.
Some sections appear to have not been thinned and are beginning to fall apart.

State Route 40

Interstate 68

Compartment 1 Stands 16,17&18
Management Area: 70 Acres
Area Harvested: 58 Acres
Basal Area: 175FT²
Relative Density: 89%
Target: 80-90FT²

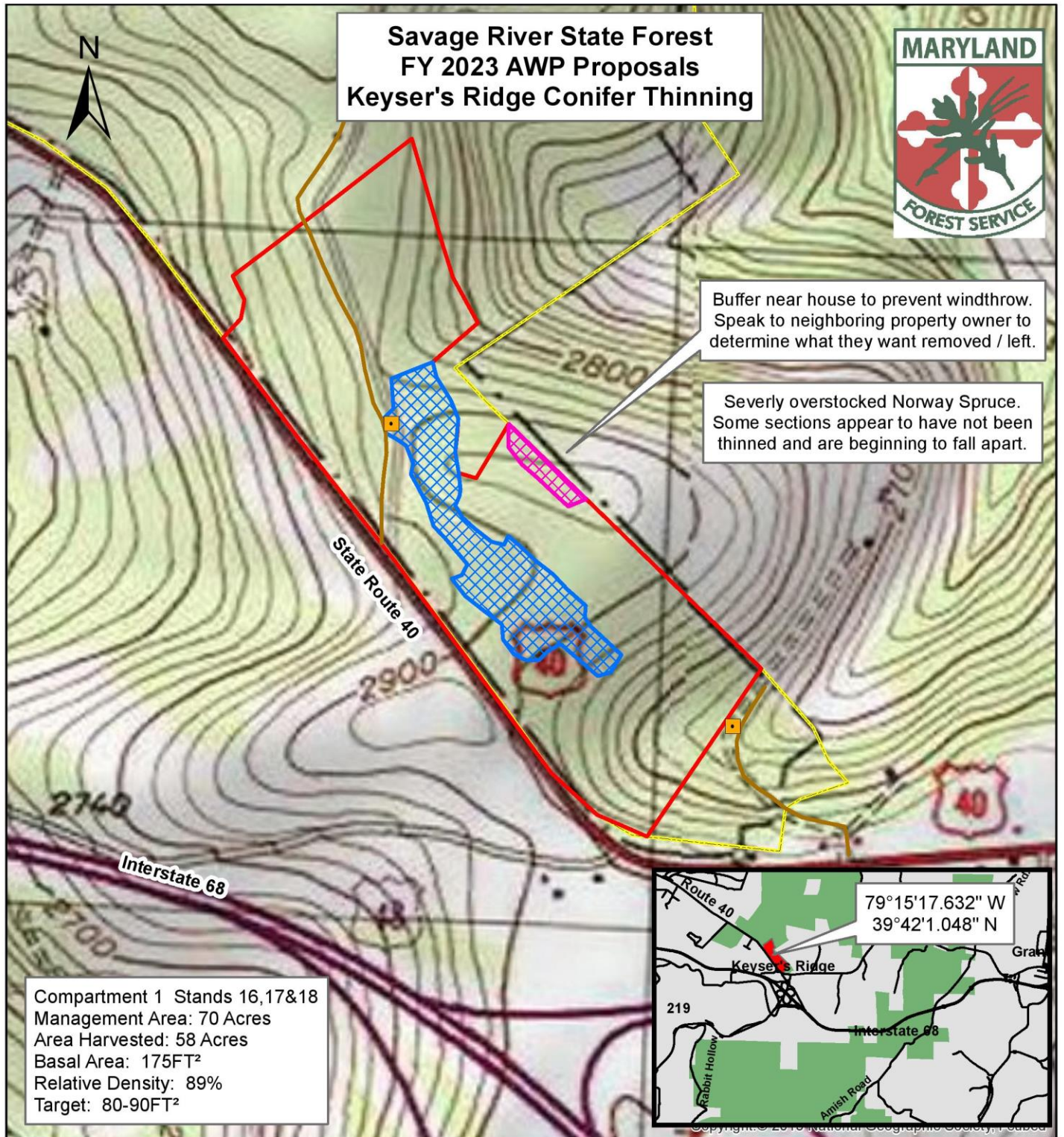


- Landing
- Haul Road
- Field
- Buffer
- Harvest Area
- Savage River SF Boundary
- Old Growth Ecosystem Area
- Ecologically Significant Areas
- Old Growth
- SRSF Wildlands
- streams and 50' buffers
- Wetlands of State Concern

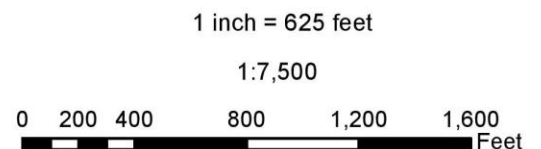
1 inch = 625 feet

1:7,500





- Landing
- Haul Road
- Field
- Buffer
- Harvest Area
- Savage River SF Boundary
- Old Growth Ecosystem Area
- Ecologically Significant Areas
- Old Growth
- SRSF Wildlands
- streams and 50' buffers
- Wetlands of State Concern



Description / Resource Impact Assessment

Location: This proposal is located along the east side of Gaswell Road in Compartment 5 stand 16. The harvest area is approximately 0.25 miles south the intersection of Gaswell Road with State Route 40. Landing location will be approximately 0.25 miles southeast of Gaswell Road along an existing forest access road.

Forest Community Type and Condition: This 21-acre site contains a medium sawtimber mixed hardwood stand that is approximately 83 years old with an average merchantable diameter of 14.1 inches. The overstory consists of red maple (38%), northern red oak (33%), sweet birch (16%) and blackgum (5%). The stocking in this stand is at 91% relative density with a basal area of 143 ft²/acre. Overall regeneration is lacking due to the mature condition of the overstory and lack of canopy gaps allowing sunlight to reach the forest floor. The lack of desirable regeneration is also due in part to the presence of the interfering elements explained in the following section.

Interfering Elements: Interfering understory plant competition is sufficient to cause complications in desirable regeneration efforts with the majority of the site containing some form of significant interference. This interference coupled with the tight canopy of the mature overstory trees is significantly hindering regeneration establishment on the site. Tall woody interference occupies approximately 83% of the stand consisting primarily of sweet birch and witch-hazel. Low woody interference occupies approximately 33% of the site, consisting primarily of striped maple and witch-hazel. Rhizomatous ferns and grass occupy only a minimal area of the stand (12%) due to the low levels of sunlight reaching the forest floor. Non-native invasive species were not observed within the stand.

In addition to interfering vegetation, the presence of white-tailed deer can have a negative influence on the regeneration success of the stand. Overbrowsing can facilitate failure of desirable seedling establishment and in extreme cases shift in species composition dominated by undesirable tree species. Field evaluations of the site estimated deer browse impact to be moderate. Monitoring of deer browse impacts will coincide with regeneration inventories to determine if additional measures need to be implemented to reduce deer herbivory and increase the likelihood of regeneration establishment on the site.

Historic Conditions: State Forest records indicate that the proposal area was thinned in 1991. The adjacent stand to the north was thinned in 2006. No evidence of forest fire was observed during the stand inventory.

Rare, Threatened and Endangered Species: No rare, threatened or endangered species have been identified on the site that would be impacted by the silvicultural prescription.

Habitats and Species of Management Concern: The management proposal does not directly border any areas that have been designated as High Conservation Value Forest. The closest area of concern would be the stream buffer on Spiker Run which will not be impacted by this proposal.

Water Resources: This stand drains north into Spiker Run within the Youghiogheny River Watershed. The proposed silvicultural treatments will be outside of all HCVF and stream buffer areas. No heavy equipment will be permitted within the protective riparian buffers of any streams or associated wetlands per the requirements set forth in the State Forest Sustainable Forest Management Plan.

Soil Resources: The predominant soil type of the site falls in the Cookport and Ernest very stony silt loams, 0 to 8 percent slopes (CuB). The soils are composed mainly of sandstone with some shale and siltstone found throughout. These soils are moderately deep to deep and moderately well drained with moderate equipment limitations primarily associated with a high water table generally in the spring of the year and during winter. The site has good productivity for woodland management, with a site index of 75-85 for upland oaks. The productivity of the site will be protected by minimizing the haul roads and skid trails per the Department's Best Management Practices and rutting guidelines.

Recreation Resources: No developed recreational resources are located within the stand. The access road for the stand is primarily utilized for hunting access. Hunting opportunities may be disrupted for the duration of the harvest and access to the site may be limited depending on the timing of the harvest.

Management and Silvicultural Recommendations:

The proposed silvicultural treatment for this site is a regeneration harvest removing the majority of the overstory and releasing the advanced regeneration currently present. The harvest should remove 7,500-8,000 board feet per acre while retaining 4-8 trees per acre to serve as wildlife habitat and a supplemental seed source. The targeted trees to be retained will primarily be oak species of good form coupled with stems that have cavities and habitat potential. The low average diameter of the current stand can be attributed to the cohort of poles and saplings that resulted from the 1991 thinning. The current stand has adequate volume of sawtimber-size stems to facilitate a commercial harvest while releasing any advanced regeneration to dominate the next stand of trees. The current stand conditions also show that the percentage of undesirable growing stock is roughly 50% of the overstory, making a removal harvest the best choice in releasing the desirable advanced regeneration.

Description / Resource Impact Assessment

Location: This proposal is located along the east side of Gaswell Road in Compartment 5 stand 24. The harvest area is approximately 0.25 miles south the intersection of Gaswell Road with State Route 40. Landing location will be approximately 0.25 miles southeast of Gaswell Road along an existing forest access road.

Forest Community Type and Condition: This 15-acre site contains a medium sawtimber mixed hardwood stand that is approximately 88 years old with an average merchantable diameter of 15.9 inches. The overstory consists of red maple (49%), northern red oak (21%), chestnut oak (10%), sweet birch (7%) and white oak (6%). The stocking in this stand is at 96% relative density with a basal area of 162 ft²/acre. Overall regeneration is lacking due to the mature condition of the overstory and lack of canopy gaps allowing sunlight to reach the forest floor. The lack of desirable regeneration is also due in part to the presence of the interfering elements explained in the following section.

Interfering Elements: Interfering understory plant competition is sufficient to cause complications in desirable regeneration efforts with the majority of the site containing some form of significant interference. This interference coupled with the tight canopy of the mature overstory trees is significantly hindering regeneration establishment on the site. Tall woody interference occupies approximately 70% of the stand consisting primarily of sweet birch and witch-hazel. Low woody interference occupies approximately 32% of the site, consisting primarily of green briar and blueberry. Rhizomatous ferns and grass occupy only a minimal area of the stand (30%) due to the low levels of sunlight reaching the forest floor. Non-native invasive species were not observed within the stand.

In addition to interfering vegetation, the presence of white-tailed deer can have a negative influence on the regeneration success of the stand. Overbrowsing can facilitate failure of desirable seedling establishment and in extreme cases shift in species composition dominated by undesirable tree species. Field evaluations of the site estimated deer browse impact to be moderate. Monitoring of deer browse impacts will coincide with regeneration inventories to determine if additional measures need to be implemented to reduce deer herbivory and increase the likelihood of regeneration establishment on the site.

Historic Conditions: State Forest records indicate that the proposal area has not been harvested since acquisition. The adjacent stand to the north was regenerated in 2006 while the small stand to the west (part of this proposal) was thinned in 1991. No evidence of forest fire was observed during the stand inventory.

Rare, Threatened and Endangered Species: No rare, threatened or endangered species have been identified on the site that would be impacted by the silvicultural prescription.

Habitats and Species of Management Concern: The management proposal does not directly border any areas that have been designated as High Conservation Value Forest. The closest area

of concern would be the stream buffer on Spiker Run which will not be impacted by this proposal.

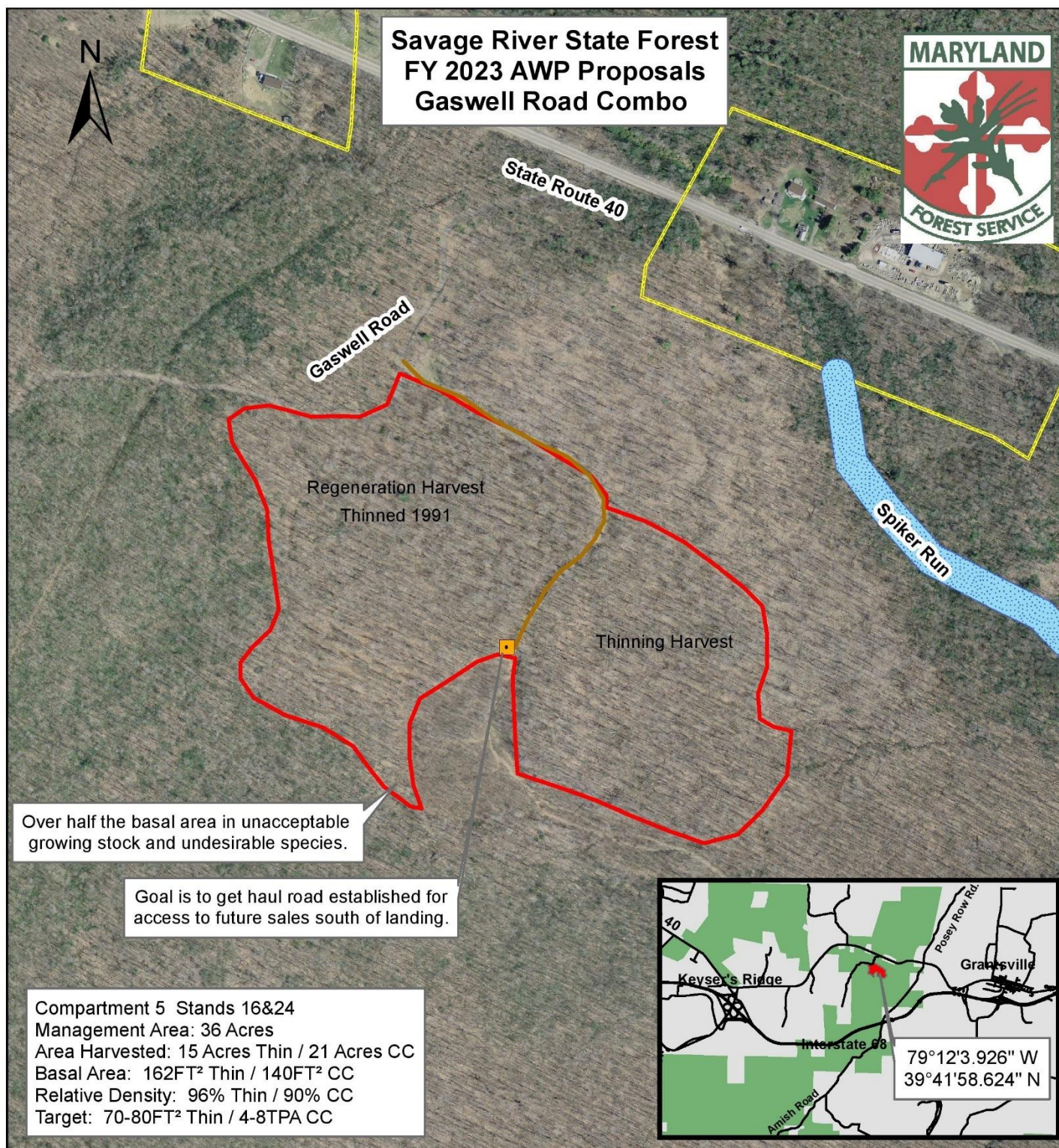
Water Resources: This stand drains north into Spiker Run within the Youghiogheny River Watershed. The proposed silvicultural treatments will be outside of all HCVF and stream buffer areas. No heavy equipment will be permitted within the protective riparian buffers of any streams or associated wetlands per the requirements set forth in the State Forest Sustainable Forest Management Plan.

Soil Resources: The predominant soil type of the site falls in the Cookport and Ernest very stony silt loams, 0 to 8 percent slopes (CuB). The soils are composed mainly of sandstone with some shale and siltstone found throughout. These soils are moderately deep to deep and moderately well drained with moderate equipment limitations primarily associated with a high water table generally in the spring of the year and during winter. The site has good productivity for woodland management, with a site index of 75-85 for upland oaks. The productivity of the site will be protected by minimizing the haul roads and skid trails per the Department's Best Management Practices and rutting guidelines.

Recreation Resources: No developed recreational resources are located within the stand. The access road for the stand is primarily utilized for hunting access. Hunting opportunities may be disrupted for the duration of the harvest and access to the site may be limited depending on the timing of the harvest.

Management and Silvicultural Recommendations:

The proposed silvicultural treatment for this site is a commercial thinning given that competitive regeneration is lacking and the stand is overstocked. A crown thinning will be implemented, removing approximately 80 ft² of basal area per acre and reducing the residual basal area to 70-80 ft². Removals will be concentrated on undesirable growing stock in the small to medium sawtimber size class coupled with mature individual trees that will afford large canopy gaps and facilitate regeneration establishment in the understory. Estimated yield for the thinning is approximately 5,000 board feet per acre. Residual trees will benefit from the improved spacing post-harvest with increased vigor, growth rates and overall stand health. Retention will favor small and medium sawtimber trees of superior form and health to facilitate seedling establishment of the future stand. Post-harvest monitoring will be conducted to determine if acceptable levels of desirable regeneration have naturally established within the stand and determine the next silvicultural treatment for the stand. The long-term goal for the site is to have a desirable cohort of regeneration occupying the site when a final removal harvest is conducted to release the regeneration as the new stand of trees.



- Landing
- Haul Road
- Harvest Area
- Savage River SF Boundary

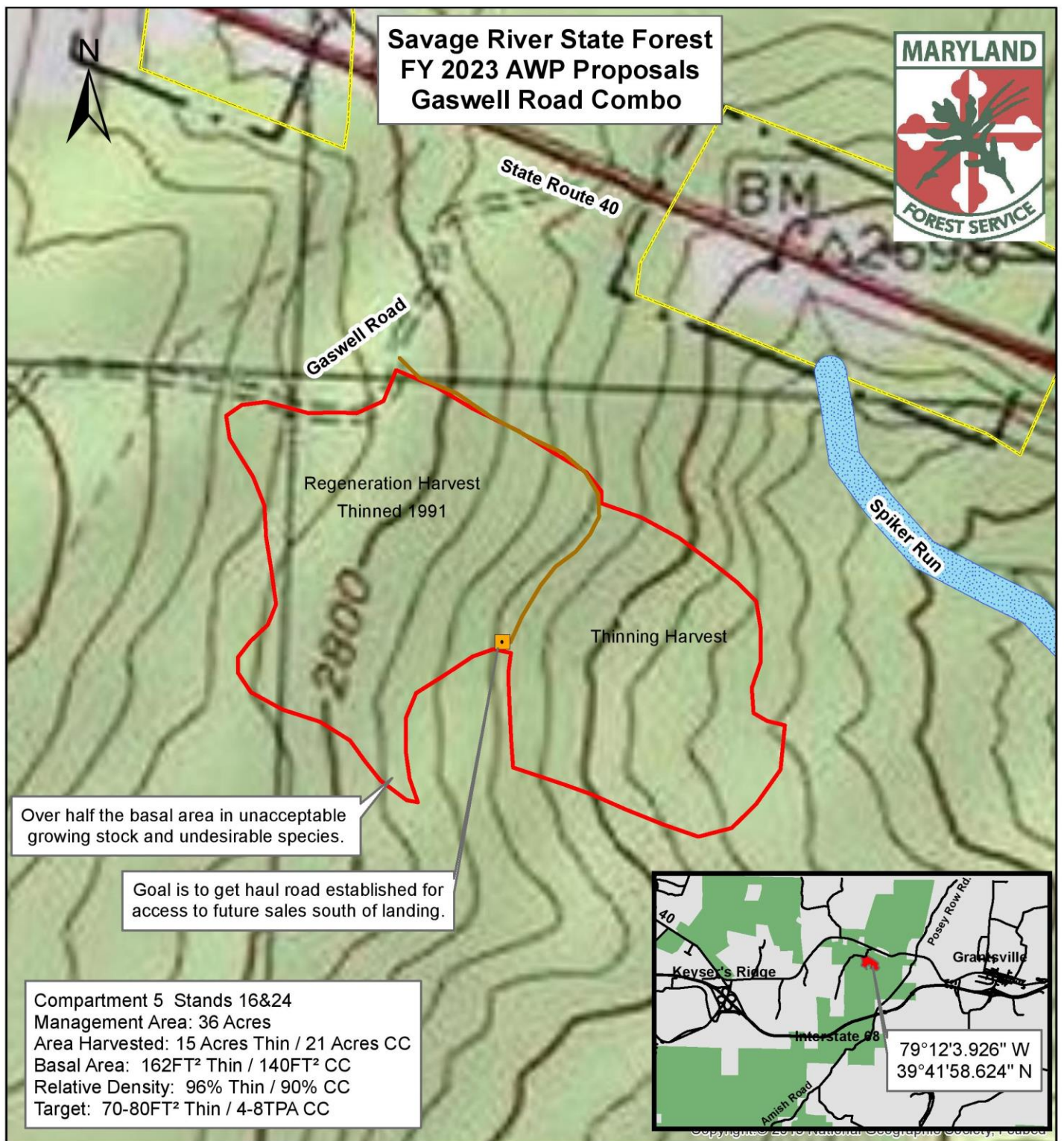
- Old Growth Ecosystem Area
- Ecologically Significant Areas
- Old Growth
- SRSF Wildlands
- streams and 50' buffers
- Wetlands of State Concern

1 inch = 417 feet

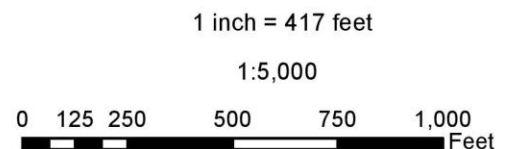
1:5,000

0 125 250 500 750 1,000 Feet





- Landing
- Haul Road
- Harvest Area
- Savage River SF Boundary
- Old Growth Ecosystem Area
- Ecologically Significant Areas
- Old Growth
- SRSF Wildlands
- streams and 50' buffers
- Wetlands of State Concern



Description / Resource Impact Assessment

Location: This proposal is located along the west side of Amish Road approximately 2.5 miles northwest of the intersection of Amish Road with Bowman Hill Road in Compartment 8 Stands 6 & 9. The harvest area is adjacent to Amish Road and bound to the north by an established state forest access road.

Forest Community Type and Condition: This 13.5-acre site contains a large sawtimber mixed oak stand that is approximately 100 years old with an average merchantable diameter of 18.4 inches. The overstory consists of northern red oak (64%), white oak (14%), chestnut oak (9%) and red maple (5%). The stocking in this stand is at 32% relative density with a basal area of 56 ft²/acre. The stand was thinned in 2010 leaving a residual overstory of mixed oak and scattered hemlock. Desirable oak regeneration is currently present and at sufficient levels to remove the overstory and allow the advanced regeneration to constitute the next stand.

Interfering Elements: Interfering understory plant competition was found to be minimal, undoubtedly as a result of the previous harvest. The previous thinning removed all undesirable growing stock along with most of the mid-story and pole size trees. The majority of the regeneration throughout the stand is free to grow with only minor overhead interference. Grass and fern impacts were also found to be minimal across the site.

In addition to interfering vegetation, the presence of white-tailed deer can have a negative influence on the regeneration success of the stand. Overbrowsing can facilitate failure of desirable seedling establishment and in extreme cases shift in species composition dominated by undesirable tree species. Field evaluations of the site estimated deer browse impact to be moderate. Monitoring of deer browse impacts will coincide with regeneration inventories to determine if additional measures need to be implemented to reduce deer herbivory and promote the advanced regeneration into the sapling stage.

Historic Conditions: State Forest records indicate that the proposal area was thinned in 2010. The adjacent stands to the north were thinned in 2015 while the large stand across Amish Road was thinned in 2000. No evidence of forest fire was observed during the stand inventory.

Rare, Threatened and Endangered Species: No rare, threatened or endangered species have been identified on the site that would be impacted by the silvicultural prescription.

Habitats and Species of Management Concern: The management proposal does not directly border any areas that have been designated as High Conservation Value Forest. The closest area of concern would be the stream buffer on Alexander Run which will not be impacted by this proposal.

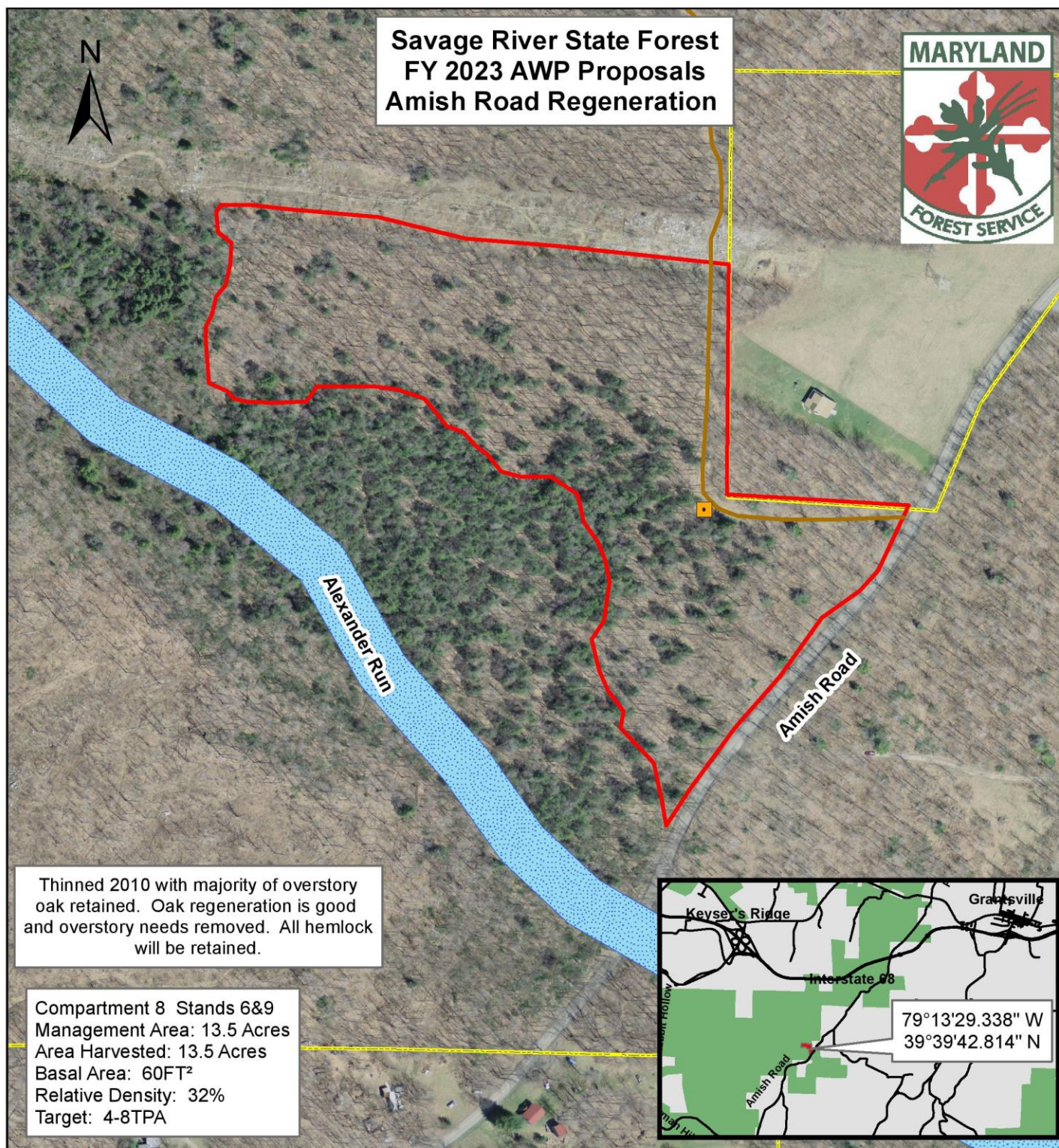
Water Resources: This stand drains south into Alexander Run within the Youghiogheny River Watershed. The proposed silvicultural treatments will be outside of all HCVF and stream buffer areas. No heavy equipment will be permitted within the protective riparian buffers of any streams or associated wetlands per the requirements set forth in the State Forest Sustainable Forest Management Plan.

Soil Resources: The predominant soil type of the site falls in the Cookport and Ernest very stony silt loams, 0 to 25 percent slopes (CuB & CuD). The soils are composed mainly of sandstone with some shale and siltstone found throughout. These soils are moderately deep to deep and moderately well drained with moderate equipment limitations primarily associated with a high water table generally in the spring of the year and during winter. The site has good productivity for woodland management, with a site index of 75-85 for upland oaks. The productivity of the site will be protected by minimizing the haul roads and skid trails per the Department's Best Management Practices and rutting guidelines.

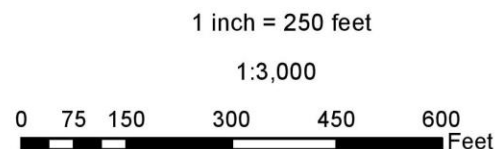
Recreation Resources: No developed recreational resources are located within the stand. The access road for the stand is primarily utilized for hunting access. Hunting opportunities may be disrupted for the duration of the harvest and access to the site may be limited depending on the timing of the harvest.

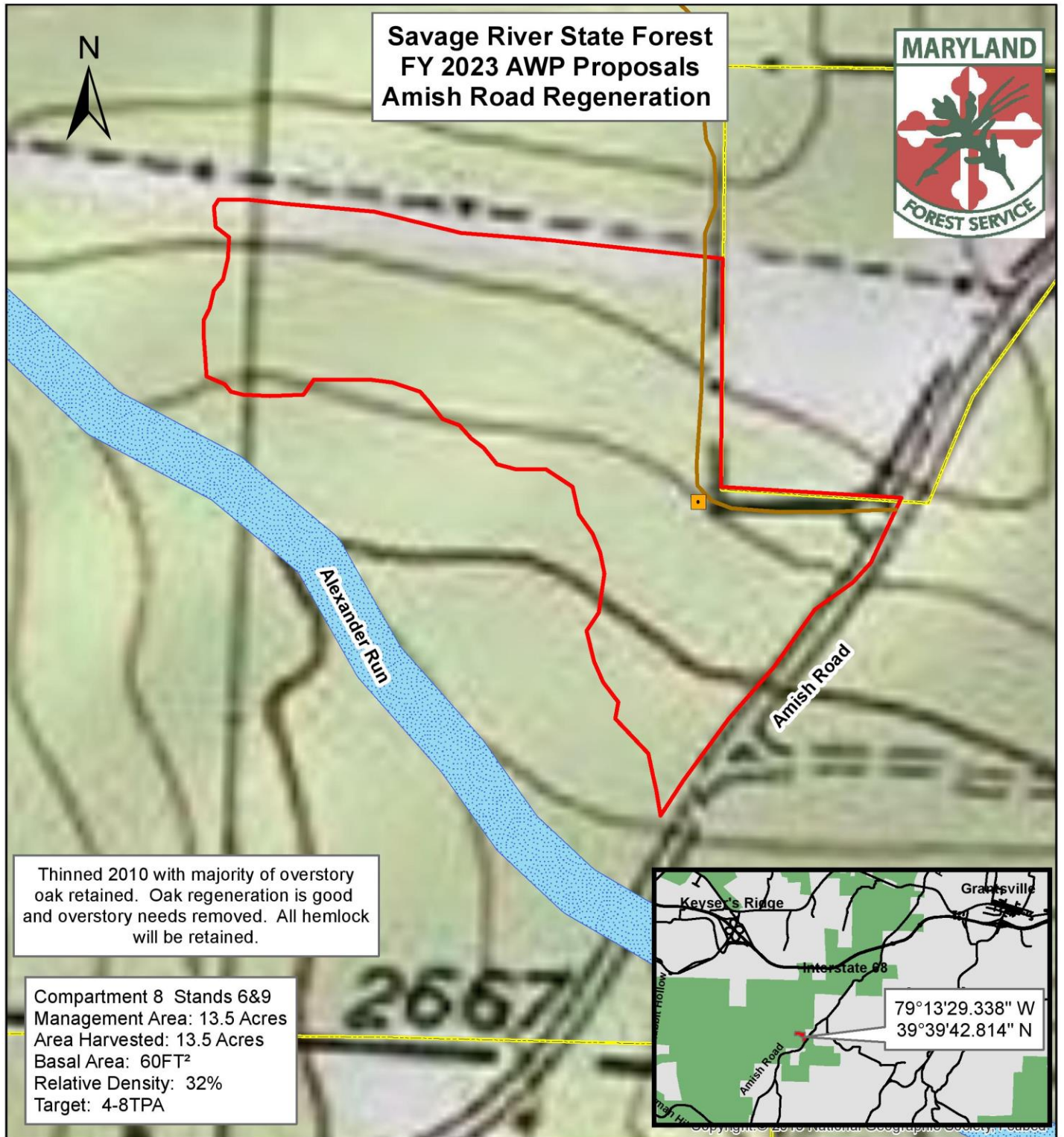
Management and Silvicultural Recommendations:

The proposed silvicultural treatment for this site is a regeneration harvest removing the majority of the overstory and releasing the advanced regeneration currently present. The harvest should remove 5,000 board feet per acre while retaining 4-8 trees per acre to serve as wildlife habitat and a supplemental seed source. The targeted trees to be retained will primarily be oak species of good form coupled with stems that have cavities and habitat potential. All eastern hemlock present within the stand will also be retained. The current stand has adequate volume of sawtimber-size stems to facilitate a commercial harvest while releasing the advanced oak regeneration to dominate the next stand of trees.



- Landing
- Haul Road
- Harvest Area
- Savage River SF Boundary
- Old Growth Ecosystem Area
- Ecologically Significant Areas
- Old Growth
- SRSF Wildlands
- streams and 50' buffers
- Wetlands of State Concern





- Landing
- Haul Road
- Harvest Area
- Savage River SF Boundary
- Old Growth Ecosystem Area
- Ecologically Significant Areas
- Old Growth
- SRSF Wildlands
- streams and 50' buffers
- Wetlands of State Concern

1 inch = 250 feet
1:3,000

0 75 150 300 450 600 Feet



Description / Resource Impact Assessment

Location: This proposal is located along a forest access road approximately 0.25 miles north of Laurel Run Road in Compartment 43. The access road entrance is along the north side of Laurel Run Road at the intersection of Willow Crest Road.

Forest Community Type and Condition: This 36.5-acre site contains a medium sawtimber mixed hardwood stand that is approximately 100 years old with an average merchantable diameter of 16.1 inches. The overstory consists of sugar maple (23%), black oak (11%), chestnut oak (9%), white oak (8%) and northern red oak (8%). The stocking in this stand is at 78% relative density with a basal area of 120 ft²/acre. Overall regeneration is lacking due to the mature condition of the overstory and lack of canopy gaps allowing sunlight to reach the forest floor. There is currently present a sizeable cohort of sugar maple regeneration less than three feet tall. The lack of desirable regeneration is also due in part to the presence of the interfering elements explained in the following section.

Interfering Elements: Interfering understory plant competition is sufficient to cause complications in desirable regeneration efforts with the majority of the site containing some form of significant interference. This interference coupled with the tight canopy of the mature overstory trees is significantly hindering regeneration establishment on the site. Tall woody interference occupies approximately 63% of the stand consisting primarily of American beech and witch-hazel. Low woody interference occupies approximately 39% of the site, consisting primarily of striped maple and green briar. Rhizomatous ferns and grass occupy only a minimal area of the stand (3%) due to the low levels of sunlight reaching the forest floor. Non-native invasive species were not observed within the stand.

In addition to interfering vegetation, the presence of white-tailed deer can have a negative influence on the regeneration success of the stand. Overbrowsing can facilitate failure of desirable seedling establishment and in extreme cases shift in species composition dominated by undesirable tree species. Field evaluations of the site estimated deer browse impact to be moderate. Monitoring of deer browse impacts will coincide with regeneration inventories to determine if additional measures need to be implemented to reduce deer herbivory and increase the likelihood of regeneration establishment on the site.

Historic Conditions: State Forest records indicate that the proposal area has not been harvested since acquisition. The adjacent stand to the north was regenerated in 2002 while several small stands to the northeast were regenerated in 2015. No evidence of forest fire was observed during the stand inventory.

Rare, Threatened and Endangered Species: No rare, threatened or endangered species have been identified on the site that would be impacted by the silvicultural prescription.

Habitats and Species of Management Concern: The management proposal borders the southern extent of the Cucumber Hollow ESA. No harvest activities are to occur within the ESA boundaries.

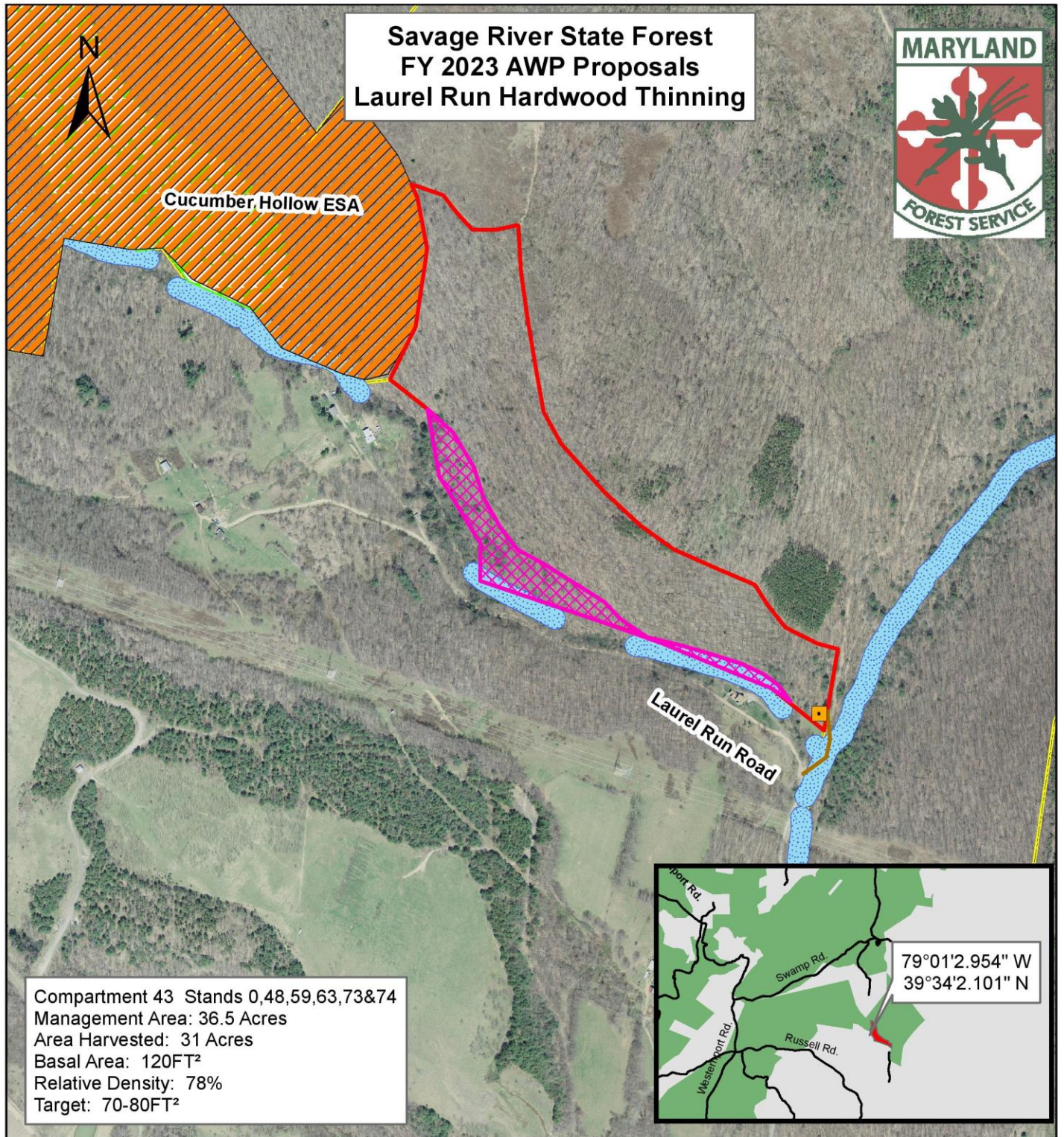
Water Resources: This stand drains northwest into Laurel Run within the Georges Creek Watershed. The proposed silvicultural treatments will be outside of all HC VF and stream buffer areas. No heavy equipment will be permitted within the protective riparian buffers of any streams or associated wetlands per the requirements set forth in the State Forest Sustainable Forest Management Plan.

Soil Resources: The predominant soil type of the site falls as Stony Land, Steep (SrF). These soils are moderately deep and well drained with moderate equipment limitations primarily associated with slope. The site has good productivity for woodland management, with a site index of 65-75 for upland oaks. The productivity of the site will be protected by minimizing the haul roads and skid trails per the Department's Best Management Practices and rutting guidelines.

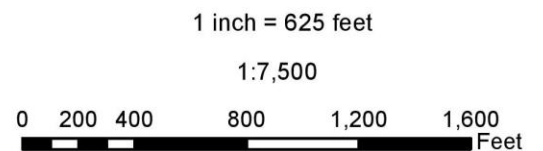
Recreation Resources: No recreational resources are established within the proposed harvest area. The forest access road is used primarily for hunting access which may be limited while the sale is active.

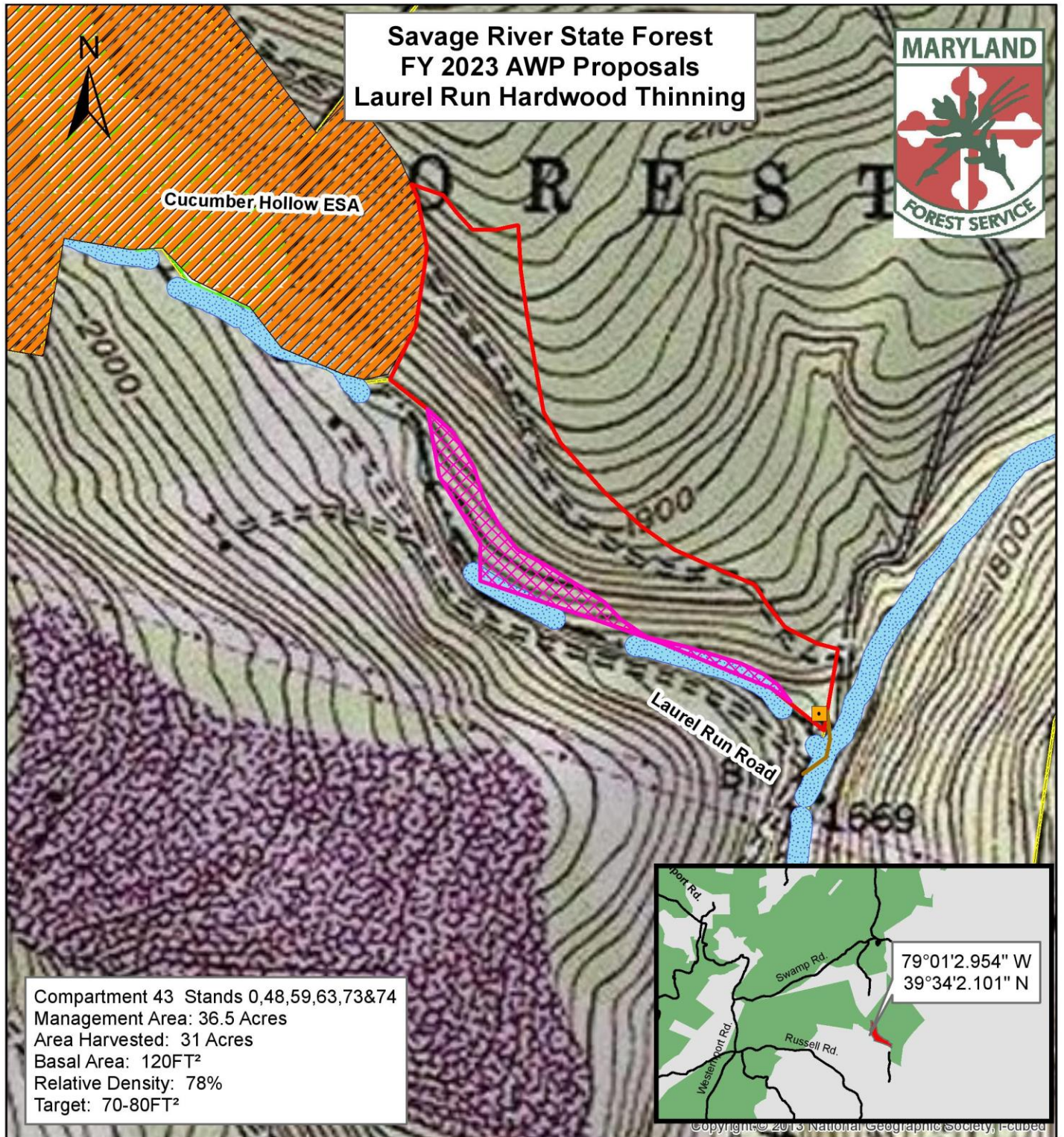
Management and Silvicultural Recommendations:

The proposed silvicultural treatment for this site is a commercial thinning given that competitive regeneration is lacking and the stand is overstocked. A crown thinning will be implemented, removing approximately 50 ft² of basal area per acre and reducing the residual basal area to 70-80 ft². Removals will be concentrated on undesirable growing stock in the small to medium sawtimber size class coupled with mature individual trees that will afford large canopy gaps and facilitate regeneration establishment in the understory. Estimated yield for the thinning is approximately 3,000 board feet per acre. Residual trees will benefit from the improved spacing post-harvest with increased vigor, growth rates and overall stand health. Retention will favor small and medium sawtimber trees of superior form and health to facilitate seedling establishment of the future stand. Post-harvest monitoring will be conducted to determine if acceptable levels of desirable regeneration have naturally established within the stand and determine the next silvicultural treatment for the stand. The long-term goal for the site is to have a desirable cohort of regeneration occupying the site when a final removal harvest is conducted to release the regeneration as the new stand of trees.



- Landing
- Haul Road
- Buffer
- Harvest Area
- Savage River SF Boundary
- Old Growth Ecosystem Area
- Ecologically Significant Areas
- Old Growth
- SRSF Wildlands
- streams and 50' buffers
- Wetlands of State Concern





- Landing
- Haul Road
- Buffer
- Harvest Area
- Savage River SF Boundary
- Old Growth Ecosystem Area
- Ecologically Significant Areas
- Old Growth
- SRSF Wildlands
- streams and 50' buffers
- Wetlands of State Concern

1 inch = 625 feet
1:7,500

0 200 400 800 1,200 1,600 Feet



Description / Resource Impact Assessment

Location: This proposal is located along a forest access road approximately 0.25 miles south of Swamp Road in Compartment 44 Stands 1 & 12. The access road entrance is along the south side of Swamp Road approximately 0.5 miles east of the intersection of Swamp Road with Westernport Road.

Forest Community Type and Condition: This 52.5-acre site contains a medium sawtimber mixed hardwood stand that is approximately 88 years old with an average merchantable diameter of 15.9 inches. The overstory consists of red maple (26%), northern red oak (22%), sugar maple (10%), black cherry (7%) and white oak (5%). The stocking in this stand is at 91% relative density with a basal area of 164 ft²/acre. Overall regeneration is lacking due to the mature condition of the overstory and lack of canopy gaps allowing sunlight to reach the forest floor. There is currently present a sizeable cohort of oak regeneration less than three feet tall. The lack of desirable regeneration is also due in part to the presence of the interfering elements explained in the following section.

Interfering Elements: Interfering understory plant competition is sufficient to cause complications in desirable regeneration efforts with the majority of the site containing some form of significant interference. This interference coupled with the tight canopy of the mature overstory trees is significantly hindering regeneration establishment on the site. Tall woody interference occupies approximately 64% of the stand consisting primarily of sweet birch and witch-hazel. Low woody interference occupies approximately 37% of the site, consisting primarily of striped maple and witch-hazel. Rhizomatous ferns and grass occupy only a minimal area of the stand (7%) due to the low levels of sunlight reaching the forest floor. Non-native invasive species were not observed within the stand.

In addition to interfering vegetation, the presence of white-tailed deer can have a negative influence on the regeneration success of the stand. Overbrowsing can facilitate failure of desirable seedling establishment and in extreme cases shift in species composition dominated by undesirable tree species. Field evaluations of the site estimated deer browse impact to be moderate. Monitoring of deer browse impacts will coincide with regeneration inventories to determine if additional measures need to be implemented to reduce deer herbivory and increase the likelihood of regeneration establishment on the site.

Historic Conditions: State Forest records indicate that the proposal area has not been harvested since acquisition. The adjacent stand to the south was regenerated in 2009 while the small stand to the north was thinned in 2018. The large stand to the east, between the ESA's was regenerated in 2011. No evidence of forest fire was observed during the stand inventory.

Rare, Threatened and Endangered Species: No rare, threatened or endangered species have been identified on the site that would be impacted by the silvicultural prescription.

Habitats and Species of Management Concern: The management proposal does not directly border any areas that have been designated as High Conservation Value Forest. The closest area of concern would be the Upper Cucumber Hollow ESA which will not be impacted by this proposal.

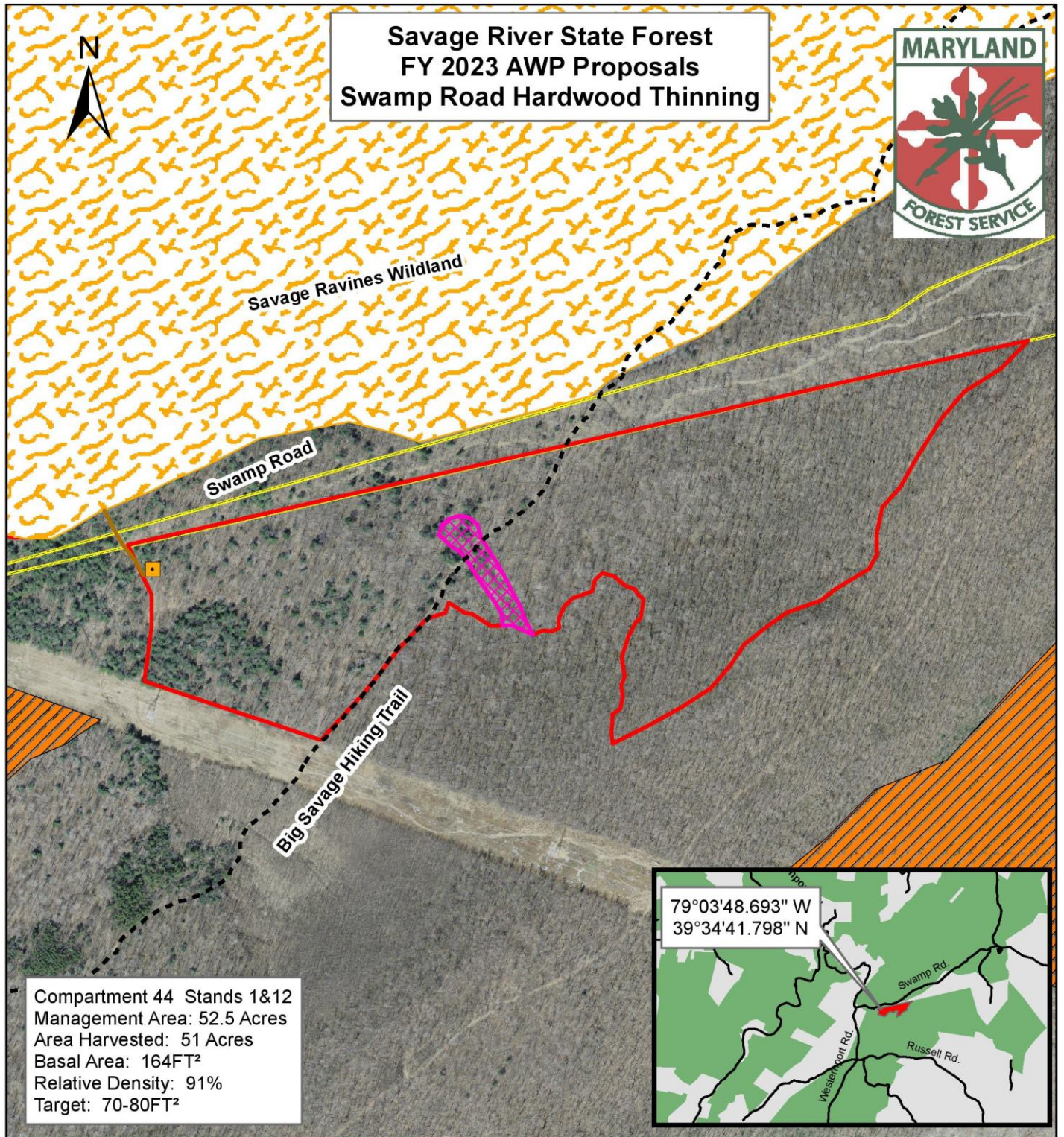
Water Resources: This stand drains northwest into Swamp Run within the Savage River Watershed. The proposed silvicultural treatments will be outside of all HCVF and stream buffer areas. No heavy equipment will be permitted within the protective riparian buffers of any streams or associated wetlands per the requirements set forth in the State Forest Sustainable Forest Management Plan.

Soil Resources: The predominant soil type of the site falls in the Albrights very stony silt loams, 0 to 15 percent slopes (AgC). This soil type is predominant on the mid to lower slopes and gives way to Meckesville very stony silt loam (MdD) and Stony Land, Steep (SrF) on the upper slopes. These soils are moderately deep and well drained with moderate equipment limitations primarily associated with slope. The site has good productivity for woodland management, with a site index of 65-75 for upland oaks. The productivity of the site will be protected by minimizing the haul roads and skid trails per the Department's Best Management Practices and rutting guidelines.

Recreation Resources: The Big Savage Hiking Trail (17 Mile Trail) bisects the harvest area along the top of Big Savage Mountain. Signs will be posted on site and also on the state forest webpage to warn trail users of the active timber harvest. Care will be taken to minimally cross the trail and trees maintained along the trail corridor.

Management and Silvicultural Recommendations:

The proposed silvicultural treatment for this site is a commercial thinning given that competitive regeneration is lacking and the stand is overstocked. A crown thinning will be implemented, removing approximately 80 ft² of basal area per acre and reducing the residual basal area to 70-80 ft². Removals will be concentrated on undesirable growing stock in the small to medium sawtimber size class coupled with mature individual trees that will afford large canopy gaps and facilitate regeneration establishment in the understory. Estimated yield for the thinning is approximately 4,500 board feet per acre. Residual trees will benefit from the improved spacing post-harvest with increased vigor, growth rates and overall stand health. Retention will favor small and medium sawtimber trees of superior form and health to facilitate seedling establishment of the future stand. Post-harvest monitoring will be conducted to determine if acceptable levels of desirable regeneration have naturally established within the stand and determine the next silvicultural treatment for the stand. The long-term goal for the site is to have a desirable cohort of regeneration occupying the site when a final removal harvest is conducted to release the regeneration as the new stand of trees.



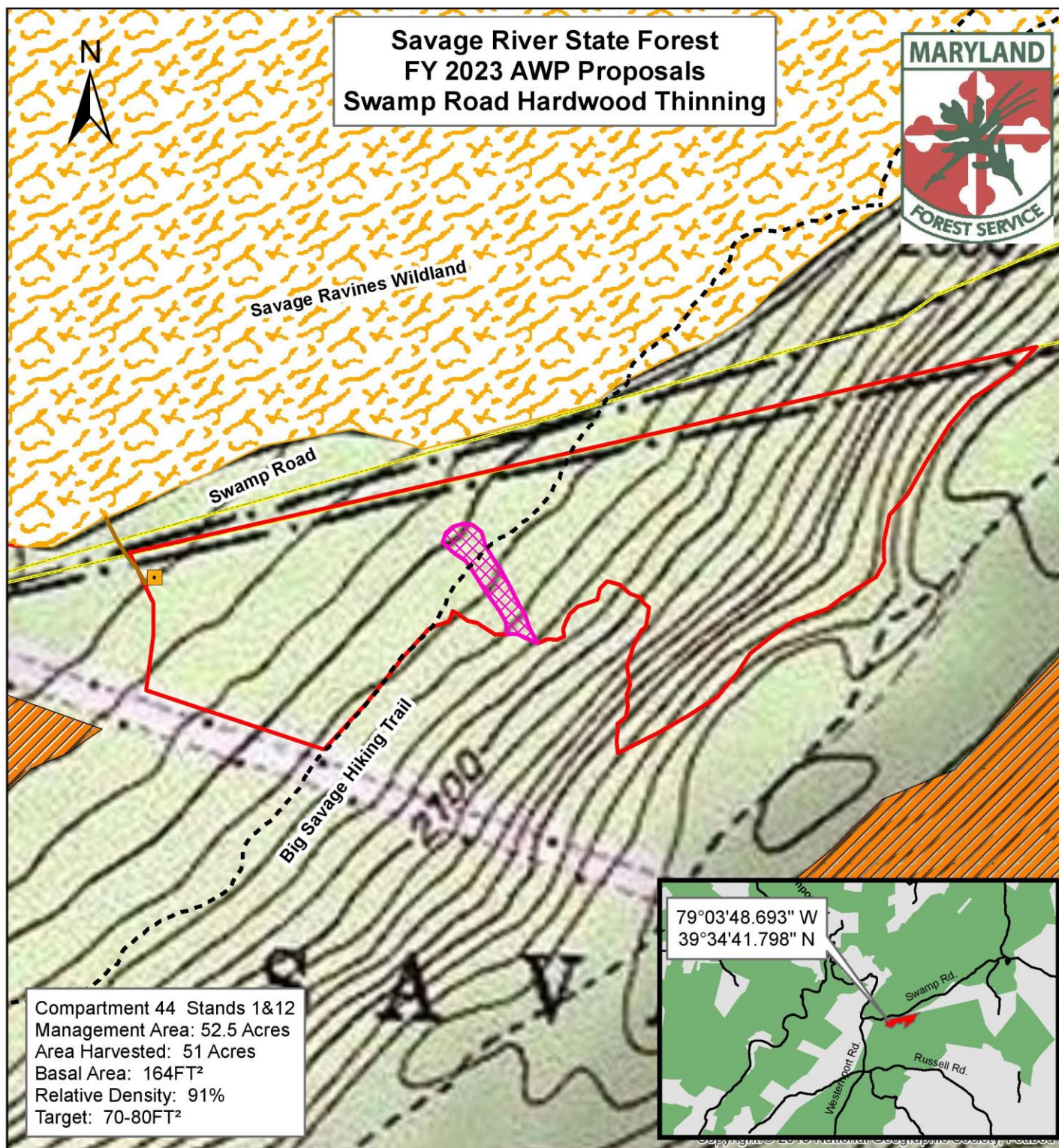
- Landing
- Haul Road
- 17 Mile Trail
- Buffer
- Harvest Area
- Savage River SF Boundary
- Old Growth Ecosystem Area
- Ecologically Significant Areas
- Old Growth
- SRSF Wildlands
- streams and 50' buffers
- Wetlands of State Concern













1 inch = 500 feet

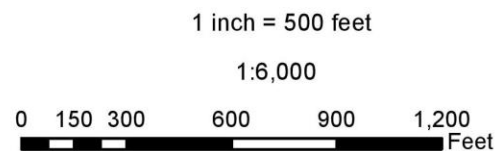
1:6,000

0 150 300 600 900 1,200 Feet





-  Landing
-  Haul Road
-  17 Mile Trail
-  Buffer
-  Harvest Area
-  Savage River SF Boundary
-  Old Growth Ecosystem Area
-  Ecologically Significant Areas
-  Old Growth
-  SRSF Wildlands
-  streams and 50' buffers
-  Wetlands of State Concern



Description / Resource Impact Assessment

Location: This proposal is located along the south side of Maynardier Ridge Road in Compartment 69 Stands 13, 15 & 16. The harvest area is approximately 1.75 miles east of the intersection of Maynardier Ridge Road and State Route 495. Access to the site and landing location will be along an established forest access road adjacent to the Meadow Mountain Trail.

Forest Community Type and Condition: This 39.5-acre site contains a large sawtimber mixed oak stand that is approximately 92 years old with an average merchantable diameter of 17.4 inches. The overstory consists of northern red oak (65%), red maple (13%), white oak (7%) and eastern hemlock (5%). The stocking in this stand is at 83% relative density with a basal area of 145 ft²/acre. Overall regeneration is lacking due to the mature condition of the overstory and lack of canopy gaps allowing sunlight to reach the forest floor. There is currently present a sizeable cohort of seedling oak regeneration less than three feet tall. The lack of desirable regeneration is also due in part to the presence of the interfering elements explained in the following section.

Interfering Elements: Interfering understory plant competition is sufficient to cause complications in desirable regeneration efforts with the majority of the site containing some form of significant interference. This interference coupled with the tight canopy of the mature overstory trees is significantly hindering regeneration establishment on the site. Tall woody interference occupies approximately 72% of the stand consisting primarily of sweet birch and witch-hazel. Low woody interference occupies approximately 20% of the site, consisting primarily of striped maple and witch-hazel. Rhizomatous ferns and grass occupy only a minimal area of the stand (20%) due to the low levels of sunlight reaching the forest floor. Non-native invasive species were not observed within the stand.

In addition to interfering vegetation, the presence of white-tailed deer can have a negative influence on the regeneration success of the stand. Overbrowsing can facilitate failure of desirable seedling establishment and in extreme cases shift in species composition dominated by undesirable tree species. Field evaluations of the site estimated deer browse impact to be moderate. Monitoring of deer browse impacts will coincide with regeneration inventories to determine if additional measures need to be implemented to reduce deer herbivory and increase the likelihood of regeneration establishment on the site.

Historic Conditions: State Forest records indicate that the proposal area has not been harvested since acquisition. The adjacent stand to the north was thinned in 1994 while the large stand to the southwest was thinned at the same time. Several large stands to the south, along the Meadow Mountain Trail were thinned in the early 2000's. No evidence of forest fire was observed during the stand inventory.

Rare, Threatened and Endangered Species: No rare, threatened or endangered species have been identified on the site that would be impacted by the silvicultural prescription.

Habitats and Species of Management Concern: The management proposal does not directly border any areas that have been designated as High Conservation Value Forest. One small drain and a small rock outcrop were noted during the inventory and tentative buffers have been mapped.

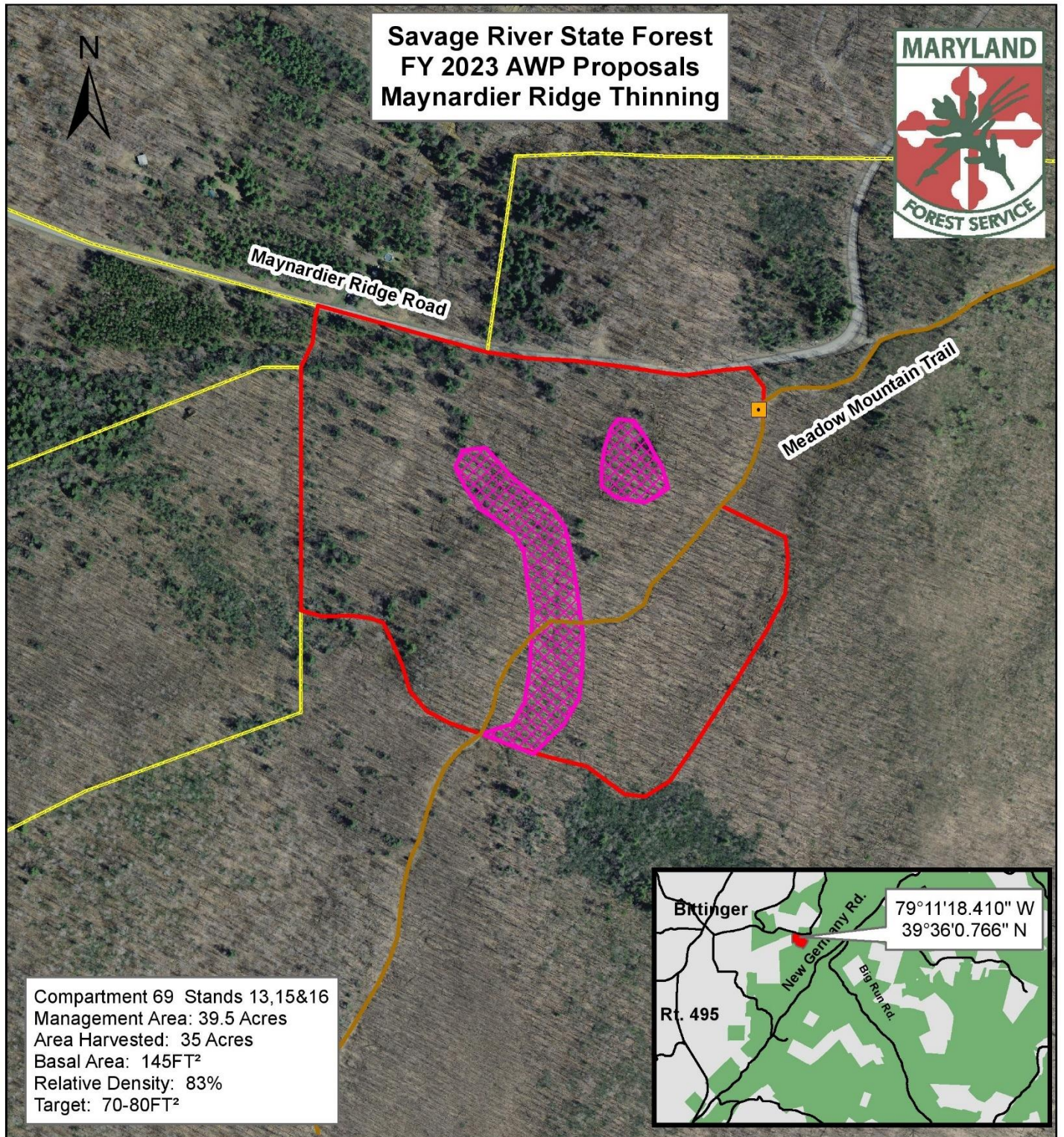
Water Resources: This stand drains north into the South Branch of the Casselman River within the Youghiogheny River Watershed. The proposed silvicultural treatments will be outside of all HCVF and stream buffer areas. No heavy equipment will be permitted within the protective riparian buffers of any streams or associated wetlands per the requirements set forth in the State Forest Sustainable Forest Management Plan.

Soil Resources: The predominant soil type of the site falls in the Cookport and Ernest very stony silt loams, 0 to 25 percent slopes (DcD). This soil type is predominant on the mid to lower slopes and gives way to Very Stony Land, Rolling (VsD) on the upper slopes. These soils are moderately deep and well drained with moderate equipment limitations primarily associated with a high water table in the winter and spring of the year. The site has good productivity for woodland management, with a site index of 75-85 for upland oaks. The productivity of the site will be protected by minimizing the haul roads and skid trails per the Department's Best Management Practices and rutting guidelines.

Recreation Resources: The Meadow Mountain Trail bisects the harvest area. Plans will be made to post appropriate signage both on site and on the state forest webpage to warn users of the active harvest. Plans are to set up at the northern end of the sale (closest to Maynardier Ridge Road) so as to prevent the closure of the trail. Depending on time of year and site conditions when the harvest is planned to commence this plan will be reevaluated.

Management and Silvicultural Recommendations:

The proposed silvicultural treatment for this site is a commercial thinning given that competitive regeneration is lacking and the stand is overstocked. A crown thinning will be implemented, removing approximately 80 ft² of basal area per acre and reducing the residual basal area to 70-80 ft². Removals will be concentrated on undesirable growing stock in the small to medium sawtimber size class coupled with mature individual trees that will afford large canopy gaps and facilitate regeneration establishment in the understory. Estimated yield for the thinning is approximately 5,000 board feet per acre. Residual trees will benefit from the improved spacing post-harvest with increased vigor, growth rates and overall stand health. Retention will favor small and medium sawtimber trees of superior form and health to facilitate seedling establishment of the future stand. Post-harvest monitoring will be conducted to determine if acceptable levels of desirable regeneration have naturally established within the stand and determine the next silvicultural treatment for the stand. The long-term goal for the site is to have a desirable cohort of regeneration occupying the site when a final removal harvest is conducted to release the regeneration as the new stand of trees.

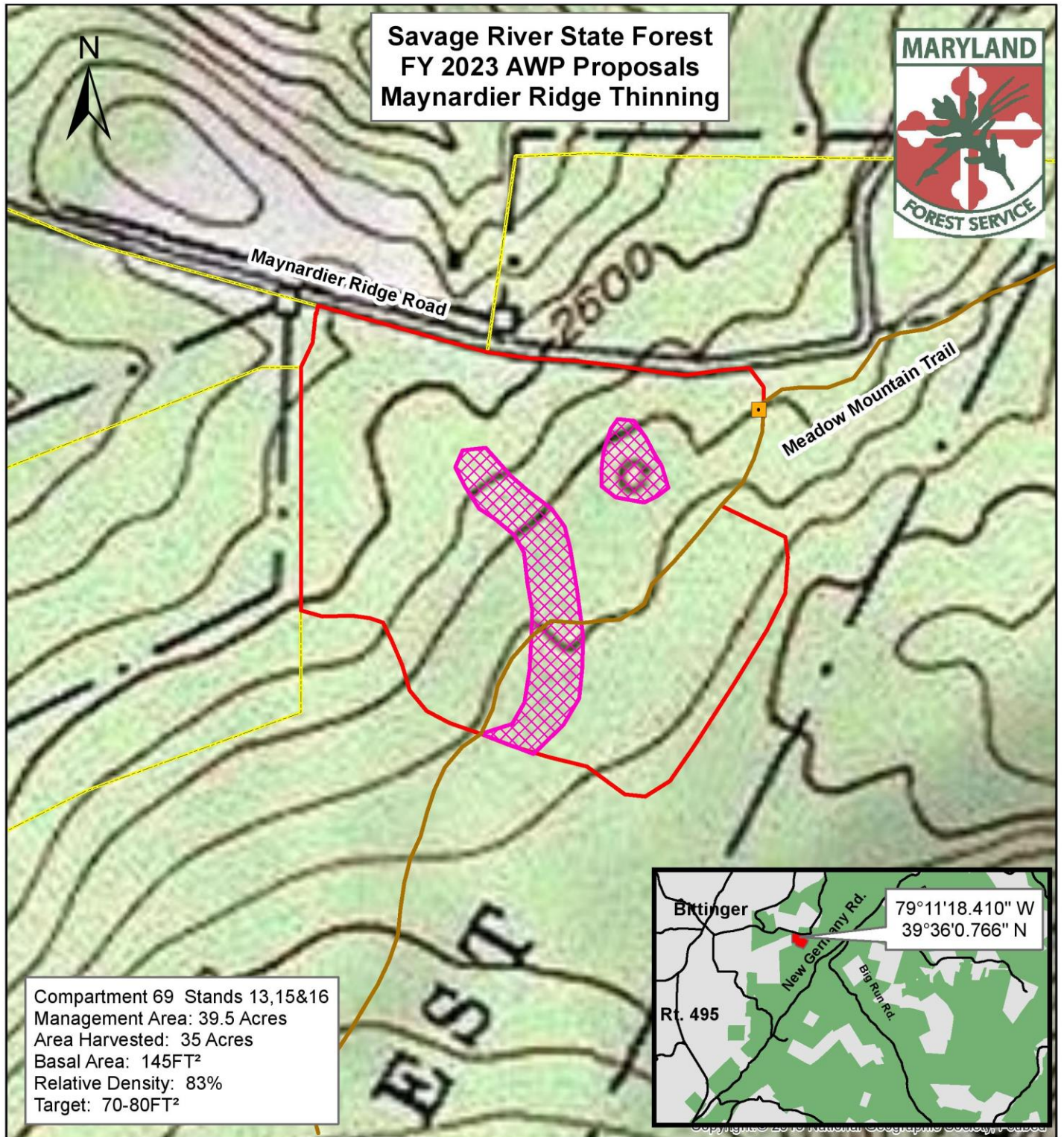


- Landing
- Meadow Mountain Trail
- Buffer
- Harvest Area
- Savage River SF Boundary
- Old Growth Ecosystem Area
- Ecologically Significant Areas
- Old Growth
- SRSF Wildlands
- streams and 50' buffers
- Wetlands of State Concern

1 inch = 417 feet
1:5,000

0 125 250 500 750 1,000 Feet





- Landing
- Meadow Mountain Trail
- Buffer
- Harvest Area
- Savage River SF Boundary
- Old Growth Ecosystem Area
- Ecologically Significant Areas
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- SRSF Wildlands
- streams and 50' buffers
- Wetlands of State Concern

1 inch = 417 feet
1:5,000

0 125 250 500 750 1,000 Feet



XI. Operational Management and Budget Summary

- A. Introduction
- B. Funding Sources
- C. Operational Cost

Submitted Budget Request

The submitted annual budget for Savage River State Forest totals \$582,120.00. Of that amount, \$433,117 goes to fund classified salaries and benefits for four employees; \$42,488.00 funds two contractual employees and \$106,515 for forest operations. Savage River has generated revenue that greatly exceeded its cost of operation for many years. The majority of revenue is obtained from the sale of forest products. Successful marketing in selling a mix of species and grades of wood products that the market most demands has contributed to substantial revenue generation over the years.

Operational Management

A. Introduction

This section of the plan is designed to cover the annual cost and revenues associated with the operational management of Savage River State Forest (SRSF). It is the Department's intent that all revenues generated from SRSF will be used to pay for the management and operation of the Forest. The numbers expressed in this section are only estimates and averages of annual expenses and revenues. These numbers will fluctuate each year based on management prescriptions, economic conditions and public use of the forest.

The following information is a breakdown of Revenues and Operational costs associated with SRSF. These figures are only estimates that are based on projected revenues and operational expenses. Yearly changes in timber markets and weather conditions can severely affect revenues. Operational expenses will vary from year to year and the numbers below are based on the budget request submitted for FY-2119.

B. SRSF Funding Sources: Estimated - \$582,120

State Forests in Maryland are funded from several sources. The first source is the revenue generated by the forests. These funds are deposited in the Department of Natural Resources Forest or Park Reserve Fund and must be appropriated by the General Assembly through the annual budgeting process before being spent. The state forest budget is prepared approximately one year before the beginning of the fiscal year in which it will be spent. The budget then goes through the legislative approval/review process along with all other state operating budgets. Once adopted, the budget goes into effect July 1st, the first day of the fiscal year. Revenue generated by the state forest is designated special fund revenue. There may be special funds provided from the Department of Natural Resources Forest or Park Reserve Fund

that are not generated by this particular forest or there may be a lesser amount of special funds shown in the budget than was generated on this specific forest.

Another source of funding for the state forest is Recreational Trail Grants. These grants are competitive and are generally limited to \$80,000 per year per grant. The source of this funding is the Federal Department of Transportation administered through the Maryland Department of Transportation, State Highway Administration. These funds are designated as reimbursable funds. Savage River State Forest has requested Recreational Trail Grant funds in the amount of \$30,000.00 for personnel to maintain the newly developed 13-mile long St. John's Rock ORV Trail.

C. Operational Cost: Estimated Annual Expenses - \$567,313

Operational expenses are those costs paid directly out of the Savage River State Forest operational budget. The Forest Manager prepares a proposed operational budget for the forest based on instructions provided approximately one year in advance of the fiscal year. The FY-2023 budget proposal was prepared in August of 2021.

- *Classified Salaries, Wages and Benefits: \$433,117*

This cost is associated with Special Funds which are state tax revenues provided annually. These funds are used to pay the salaries of the Maryland classified employees responsible for the management, operation and maintenance of the State Forest along with our Western Region Trails Planner.

- *Contractual Staffing: \$56,857*

This cost is associated with contractual staffing associated with operations of the state forest. Contractual personnel are responsible for conducting work outlined in the annual work plan, managing the daily activities on the forest, including boundary line work, maintenance of trails, forest roads, maintaining primitive campsites, a public shooting range, overlooks, wildlife habitat areas, and implementing all maintenance, recreational, silviculture and ecosystem restoration projects.

- *Land Operation Costs: \$77,339*

This includes expenses for office and field equipment, vehicles, gates, gravel, signs, boundary paint, roadwork contracts and construction, trash removal from illegal dumping, boundary line work & surveying, tree planting, site preparation, control of invasive species, non-commercial thinning and other forest management practices. These costs vary greatly from year to year based on the activities identified in the Annual Work Plan.

D. Summary

This is the general breakdown on Revenues and Operational Costs associated with the Savage River State Forest. As described, these figures will vary from year to year. A more detailed picture on revenues and operational cost will be reviewed quarterly as the actual picture develops within implementation of Annual Work Plan and as operating budgets are approved

XII. Appendices

Appendix 1: Yellow Archangel Management Plan

Savage River State Forest Non-Native Invasive Plant Management: Yellow Archangel (*Lamium galeobdolon*)

Compartments 54 and 55; Dry Run Road

Description:

Dry Run, a tributary of the Savage River and Savage River Reservoir has been infested with the aggressively growing, non-native invasive perennial yellow archangel (*Lamium galeobdolon*). The infestation of the area most likely originated from a private residence which was abandoned and the once maintained yard area was neglected, allowing the plant to escape to the adjacent property. After establishing a colony at the head of the watershed, the plant quickly enveloped the drainage from the private residence to the high water mark of the Savage River Reservoir, encompassing nearly 15 acres of forest land (See Invasive Species Management Map, p.20).

The plant grows quickly and out-competes native vegetation for resources. Yellow archangel spreads in several ways; by seed, by stem fragments, and by rooting at the nodes of the stem. This makes the plant very difficult to control and requires multiple applications of herbicide and diligent monitoring to limit the spread of the plant in natural forest environments. There is no projected end date for the herbicide treatments due to the persistent nature of this plant and efforts will be made annually, weather permitting, until the spread of the plant is contained or the plant is eradicated. Site monitoring will continue after the eradication of the plant for at least 5 years.

Treatment:

Ideal herbicide application time for this species occurs in March when the plant is beginning to grow and native plants are dormant. Weather conditions, particularly snow, have precluded the application of treatment in recent years. Approximately one acre of the drainage was treated from the bridge at the intersection of Savage River Road and Dry Run Road north for nearly 600' in length and 75' in width using a glyphosate based herbicide. All herbicide applications are conducted by registered employees working under the license of a certified applicator (Permit No. 30914-77618; Categories 2 and 6). The next treatment is scheduled for late March to early April of 2019 depending on weather conditions.

Treatment Schedule	
Monitoring	Chemical
April – September (Annually)	Early March to April (Annually)

Appendix 2: Japanese Knotweed Management Plan

Savage River State Forest Invasive Plant Management: Japanese Knotweed (*Fallopia japonica*)

Description:

Several areas of Savage River State Forest have become infested with the invasive plant Japanese knotweed (*Fallopia japonica*). The number of treatment areas that have been delineated (See Invasive Species Management Map, p.19) continues to grow and those of manageable size will be treated and monitored to determine the most effective course of action for suppressing and ultimately eradicating the plant from these areas of the forest. Knotweed growth near the Savage River Reservoir has reached a critical level and will not be treated at this time due to the overwhelming investment that would be required to reach any reasonable level of control. As more effective treatment methods become available for large areas, this area will be reevaluated in regard to implementing a control plan.

Japanese knotweed is a fast-growing, herbaceous, rhizomatous perennial that forms dense patches and shades out all nearly all native species. The plant originated in East Asia and was imported as an ornamental in the late 1800's. Also called Mexican bamboo, fleece flower, hu zhang, the plant can grow to heights of greater than 10 feet and can inhabit almost any terrestrial environment whether shaded or in full sunlight. It is difficult to control due to the massive number of seeds that are produced and the rhizomatous adaptation of the plant. Multiple applications of mechanical and chemical control as well as diligent monitoring will be necessary to control the spread of the plant in natural forest environments. There is no projected end date for the herbicide treatments due to the persistent nature of this plant and efforts will be made annually until the spread of the plant is contained or eradicated from the identified areas.

Treatment:

The initial treatments occurred in the first week of June, 2011 at campsite 171 on Rabbit Hollow Road and on Fairview Road approximately one mile from the intersection with New Germany Road. Both locations have small populations of knotweed. Treatments in all areas of the forest involve a two-step process that includes both mechanical and chemical means of control.

First, the knotweed is cut and allowed to grow back for 8 weeks, reaching only 2 to 4 feet in height. Second, the new growth is treated with a 2% solution of glyphosate as the active ingredient. Treatment of these two areas has been repeated on a yearly basis and other areas of infestation that are considered manageable are added to the treatment regime as they are discovered.

Several new areas have been added to the management plan including three patches adjacent to Route 495, just north of the intersection with New Germany Road, two patches located on Westernport and Aaron's Run Road, just south of the High Rock Tower, one small patch adjacent to the Handicapped Hunter Road on West Shale Road and a large occurrence along New Germany Road located approximately one mile north of the state forest headquarters. Product application is/was conducted by registered employees working under the license of a certified applicator permit (Permit No. 30914-77618; Categories 2 and 6). The next scheduled mechanical treatment will occur June 2022 followed by the herbicide treatment in July 2022.

Treatment Schedule		
Monitoring	Mechanical	Chemical
March – June 2018	June 1, 2018	July 27, 2018
March – June 2018	June 1, 2019	July 27, 2019
March – June 2019	June 1, 2020*	July 27, 2020*
March – June 2020	June 1, 2021*	July 27, 2021*
March – June 2021	June 1, 2022*	July 27, 2022*
March – June 2022	As needed	As needed

* Treatment schedules may be altered/eliminated depending on the efficacy of the previous treatment applications.

Appendix 3: 10-Year Timber Harvest Summary Table

<i>Fiscal Year</i>	<i>Planned Harvest</i>	<i>Bd. Ft. Vol. Harvested</i>	<i>Gross value</i>
2012	382,000 BD FT	144,349	\$26,834.50
2013	488,000 BD FT	863,049	\$161,910.00
2014	1,020,000 BD FT	521,526	\$72,689.77
2015	1,020,000 BD FT	1,286,994	\$275,126.44
2016	1,000,000 BD FT	941,285	\$225,796.59
2017	1,200,000 BD FT	853,347	\$248,487.50
2018	1,200,000 BD FT	1,152,074	\$205,100.00
2019	1,200,000 BD FT	1,406,680	\$401,481.00
2020	1,200,000 BD FT	1,161,591	\$304,172.62
2021	1,200,000 BD FT	784,520	\$289,280.00



Appendix 4: 2021 FSC Audit Summary

Date of Field Evaluation: 20-22 July 2021

Locations: Savage River State Forest / Potomac Garrett State Forest

Forest Stewardship Council

2021 Major Corrective Action Requests

2021.1 – FSC Indicator: FSC FM US 1.1.a

Corrective Action Request (or Observation):

Types of contractual documents for harvests. Of the list of types of contract templates below, 3 out of 13, those with asterisks and bolded, were found to have problems/omissions.

- 352B - Invitation to bid
- **Contracts**
 - **310 – Sales under 5k, ****
 - **352 – Sales under 5k, Lump Sum ****
 - 352-BL - Sales over 5k, Block
 - 352LS – Sales over 5k, One Step Method
 - 352N – Sales over 5k and less than 50k
 - 352WT - Sales over 5k, Weight
 - 352 – Sales over 5k, Lump Sum
- Amendment to Extend
- 352F - Amendment to allow harvesting of additional timber
- 352D – Special Conditions
- **402 – Amendment to Extend Completion Date ****
- 405G – Gatewood Agreement

Specific Issues found:

- One link downloads the incorrect template - 352 – Sales under 5k, Lump Sum **
- downloads the incorrect template *This template needs to be removed from the website*
- One template does not have the corresponding “Certification template” – non-cert version is: DNR/FS-402 ver 05/29/2015
- DNR/FS-310 – there is no master logger clause
- DNR/FS-352N – Clause 22: Chain of Custody – states an incorrect SFI cert code and notes that that the claim is harvested material is “FSC 100%”, nullifying the SFI claim. (note template was correct)

2021 Minor Corrective Action Requests

2021.2 – FSC Indicator: FSC FM US 7.1.m

Non-Conformity Evidence

For the Savage River State Forest (SRSF) and Potomac-Garrett State Forest (PGSF) Management Plans, the sections that describe forest modeling are not consistent with descriptions by field staff on how those are being implemented in operational planning. See SRSF 2019, Section 5.12, page 70 and PGSF 2019, Section 5.12, page 71.

Non-Conformity Corrective Action Request

DNR must ensure that FMPs are accurate and correspond to what is being implemented by forest managers such that species selections and harvest rate calculations are developed and documented. (See also C5.6).

2021.3 – FSC Indicator: FSC FM US 7.3.a

Non-Conformity Evidence

Regarding the use of DNR Forest Service templates – Forest Managers did not use the correct template when producing contracts for timber sales. When using DNR/FS-310 there is no master logger clause which is required under Operation Order 2015-601, 5. Policy: (g) Maryland Master Logger, which provides assurance DNR uses qualified loggers to implement forest management planned activities.

Non-Conformity Corrective Action Request

MD DNR must ensure that Forest Managers have sufficient guidance and supervision to implement contracts using correct versions in accordance with administrative requirements.

2021 Observations

2021.4 – FSC Indicator: FSC FM US 7.4.b

Observation Justification and/or Explanation

Although various “pieces” of the forest management plans are provided there may be opportunity to improve identification of individual forest stand across these management plan pieces. Specifically, it could be improved how Compartment and Stand Silvicultural proposals in the Annual Work Plan (AWP) link to the corresponding Timber Sale Contract #s (TS#) that are enacted.

MD DNR should improve how planned and implemented stand management treatments are linked in publicly available documents.

Observation Justification and/or Explanation

Consultation with stakeholders was done and identified issues related to proposing new High Conservation Values (HCVs), specifically old growth and “potential” old growth for considerations as Representative Sample Areas (RSAs). Interviews with forestry staff confirm there are specific programmatic steps required to nominate new HCVs or RSAs within Maryland State Forests, which include vetting by an interdisciplinary team who together make determinations regarding State Forest HCVs and RSAs.

For example, for FSC Representative Sample Areas, which Maryland DNR terms “Ecologically Sensitive Areas (ESAs)”, are identified by the **Wildlife & Heritage Service (WHS) ecologists** and flagged in the DNR GIS database. Management activities within these areas are planned in consultation with WHS ecologists to recognize, protect and, where possible, enhance the ecological resources present in each site. Similarly, HCVFs undergo this type of review process by WHS staff.

However, the process for nominating new HCVs or RSAs could be clarified so that roles and responsibilities are better defined for the general public. Stakeholders appear to have mistakenly understood that DNR forestry staff alone make these determinations and were apparently not aware of a prescribed process for nominating HCVs (See also 6.4, RSAs).

Appendix 5: 2021 SFI Audit Summary



Printed: October 26, 2021

Maryland DNR Forest Service 2020 SFI® Forest Management Summary Report

Introduction

The SFI Program of the Maryland DNR Forest Service of Annapolis, Maryland has achieved continuing conformance with the SFI® 2015-2019 Forest Management Standard, including the sustainable harvest level requirement (Performance Measure 1.1), according to the NSF SFI-FS Certification Audit Process.

The Maryland DNR Forest Service initially obtained SFI Certification from NSF on July 24, 2003 and the program was re-certified in July 2006. Initially only the Chesapeake Forest Lands were certified, with the Pocomoke State Forest added in 2009 as part of an expansion of scope that included other recently acquired lands. In 2011 the organization sought and was granted recertification to the current scope based on an audit of the six largest state forests against the SFI 2010-2014 Standard. The state forests included in the current scope were re-certified to the SFI 2015-2019 Standards in April of 2014 and again in April 2019. The most recent audit was a partial surveillance audit conducted July 2021.

The multi-site certificate covers 6 different State Forests (Chesapeake Forest, Pocomoke State Forest, Green Ridge State Forest, Garrett State Forest, Potomac State Forest, and Savage River State Forests) also including the central office located in Annapolis MD. The 2019 audit included office reviews in the following Chesapeake Forest, Pocomoke State Forest, Green Ridge State Forest, and the central office located in Annapolis, MD. Field visits were conducted in 2 out of a total of 6 State Forests. This sample size was determined using the guidelines set forth in IAF-MD1. The State Foresters were selected based on a date rotation of total 6 different Forests. Approximately half of the field sites visited were randomly sampled. Within the 2 selected forests, NSF's lead auditor selected field sites for inspection based upon the risk of environmental impact, likelihood of occurrence, special features, and other criteria outlined in NSF's protocols and procedures. 2 field offices, 1 central office and 14 field sites were visited.

The 14 field sites consisting of the 2 active timber harvest, 2 recently closed sale with wildlife considerations, 2 with herbicide application, 2 High Conservation Forest, 1 planting site, and 2 research sites (some sites met multiple considerations and are noted for each of those above). Both thinnings and final harvests were viewed for multiple sites. There were also several roads, several smaller road-trail/stream crossings with cross drains and BMPs being applied. Harvest levels are documented in Annual Work Plans and have been at or below levels identified in plans for MD DNR associated inventory and growth data as well as harvest-related planning documents are used to ensure that plans include long term harvest level and consistent with the growth and yield model generated by the PGSF and SRSF. Data from the 5-year stand-level inventory project was used to develop a volume-control target based allowable harvest levels for western forests.

Maryland DNR Forest Service has an extensive program for harvest planning and approval. A Sustainable Forest Management Plan has been developed for each forest, and these plans are regularly updated. Harvests levels have been modeled by forest type for sustainability by area control for a 50-year planning horizon. Based on the Sustainable Forest Management Plan an Annual Work Plan is developed for each forest including planned harvests and other management activities. The Annual Work Plan is reviewed by various agencies in the Maryland DNR, and a Citizen's Advisory Team. It is also posted on the Maryland DNR Forest Service website for public comment for a period of 30 days. Following review of comments, the finalized plan is approved and posted on the Maryland DNR Forest Service website.

This report describes the results of the 2021 Surveillance Audit which considered changes in operations, the management review system, and efforts at continuous improvement. A sample of the SFI requirements were selected for detailed review.

Maryland's State Forests

Maryland DNR Forest Service is responsible for the management of the 209,207 acres of Maryland State Forests through a variety of designations. The Forest Service is supported by other agencies within the Department of Natural Resources including Wildlife, Fisheries, Heritage, and the Natural Resources Police. Various management plans provide a useful summary of the importance of these forestlands and the broad policy goals:

Excerpted from the Savage River State Forest Management Plan:

"The resources and values provided from state forests reach people throughout the State and beyond. These resources and values range from economic too aesthetic and from scientific too inspirational. The Department of Natural Resources is mandated by law to consider a wide variety of issues and uses when pursuing a management strategy for these forests. The importance of considering these factors is acknowledged in the Annotated Code, which establishes the following policy pertaining to state forests and parks:



"Forests, streams, valleys, wetlands, parks, scenic, historic and recreation areas of the state are basic assets. Their proper use, development, and preservation are necessary to protect and promote the health, safety, economy and general welfare of the people of the state. It is the policy of the state to encourage the economic development and the use of its natural resources for the improvement of the local economy, preservation of natural beauty, and promotion of the recreational and leisure interest throughout the state." (Annotated Code of Maryland, Natural Resources Article §5-102)

The Department recognizes the many benefits provided by state forests and has established a corresponding management policy in regulation.

"The state forests are managed to promote the coordinated uses of their varied resources and values for the benefit of all people, for all time. Water, wildlife, wood, natural beauty and opportunities for natural environmental recreation, wildlands experience, research demonstration areas, and outdoor education are major forest benefits." (Code of Maryland Regulations 08.07.01.01)

The 2021 Surveillance Audit was performed by NSF on July 20-22, 2021 by an audit team headed by Michelle Matteo Sr. Lead Auditor. Beth Jacqumain was the FSC Lead Auditor and supported the NSF lead auditor for SFI. Audit team members fulfill the qualification criteria for conducting audits contained in SFI 2015-2019 Standards and Rules, Section 9 - Procedures and Auditor Qualifications and Accreditation.

The objective of the audit was to assess conformance of the firm's SFI Program to the requirements of the SFI 2015-2019 Standard and Rules, Section 2 – Forest Management.

The scope of the audit included forest management operations. Forest practices that were the focus of field inspections included those that have been under active management over the planning period of the past 2 years. In addition, practices conducted earlier were also reviewed as appropriate (regeneration and BMP issues, for example); SFI obligations to promote sustainable forestry practices, to seek legal compliance, and to incorporate continual improvement systems were also within the scope of the audit.

The SFI Standard was used without modifying any requirements. SFI requirements that are outside of the scope of Maryland's SFI program were excluded from the scope of the SFI Certification Audit as follows:

- Indicator 10.1.2. Research on genetically engineered trees via forest tree biotechnology shall adhere to all applicable federal, state, and provincial regulations and international protocols ratified by the United States and/or Canada depending on jurisdiction of management. Maryland DNR Forest Service does not participate in research on genetically engineered trees.

Audit Process

NSF initiated the SFI audit process with a series of planning phone calls and emails to reconfirm the scope of the audit, review the SFI Indicators and evidence to be used to assess conformance, verify that Maryland DNR Forest Service was prepared to proceed to the SFI Audit, and to prepare a detailed audit plan.

The audit was governed by a detailed audit plan designed to enable the audit team to efficiently determine conformance with the applicable requirements. The plan provided for the assembly and review of audit evidence consisting of documents, interviews, and on-site inspections of ongoing or completed forest practices.

During the audit NSF reviewed a sample of the written documentation assembled to provide objective evidence of conformance. NSF also selected field sites for inspection based upon the risk of environmental impact, likelihood of occurrence, special features, and other criteria outlined in the NSF protocols. NSF selected and interviewed stakeholders such as contract loggers, landowners and other interested parties, and interviewed employees within the organization to confirm that the SFI Standard was understood and actively implemented. The activities of the central office were reviewed against the multi-site requirements as well.

The possible findings of the audit included conformance, major non-conformance, minor non-conformance, opportunities for improvement, and practices that exceeded the requirements of the standard.

A report was prepared and final approval was done by an independent Certification Board Member assigned by NSF. Follow-up or Surveillance Audits are required by the Sustainable Forestry Initiative Standard ®. The next Surveillance Audit is scheduled for the third week of July 2022.



Overview of Audit Findings

Maryland's SFI Program demonstrated conformance against the SFI 2015-2019 Standard. There was one major non-conformance, two minor non-conformances, and one "Opportunity for Improvement" in 2021. As such, the program has earned continuing certification with the plans in place to address the non-conformances.

OFIs identified in the 2020 audit have been resolved:

- 1. OFI SFI 11.1.3:** Staff education and training sufficient to their roles and responsibilities. OFI was originally issued in 2019. While the seed mix used on landings and roads has been previously approved by State Wildlife staff for food plots and for the Erosion and Sediment Control plan, there is an opportunity to improve staff education and training as it relates to the seed mixture (species and ratios) currently being applied on landings and roads, as only non-native, naturalized species are being used. 2020 audit note: Communications with other DNR staff confirm that native seed mixes are available as an option and are worth discussing with Forestry – this OFI remains open for the 2020 audit.
MD-DNR 2020 response: The primary purpose for these seed mix is to provide a quick, reliable covering for disturbed soils and it provides that. It has been used for many years without an incident of being invasive. This seed mix was suggested by our Wildlife & Heritage Service as a good mix for wildlife benefits. It is preferred by our State Forest managers since it is readily available for purchase by logging contractors from local sources and based on its quality, price and productivity. It has been our experience that this planting falls out (diminishes) after about 5-years and must be disked and replanted to maintain these open areas that also serve as wildlife food plots. One of these re-establishment sites was visited during the 2019 audit at Green Ridge State Forest. **Closed:** Interviews with multiple DNR staff, including the State Botanist and Southern Region Ecologist, as well as the Nature Conservancy Conservation Ecologist show that multiple options have been discussed, and the MD DNR BOF is aware of the current seed mix and others that could be used.

One Minor CAR identified in the 2020 audit has been resolved:

Minor CAR 2020.1: SFI 14.1.1: A Program Participant shall provide a summary audit report, prepared by the certification body, to SFI Inc. after the successful completion of a certification, recertification or surveillance audit to the SFI 2015-2019 Forest Management Standard. The April 2019 Recertification Audit is not present on the SFI website, no confirmation was provided that it has been submitted. Progress in implementing this corrective action plan will be reviewed in subsequent surveillance audits. **Closed:** 2019 and 2020 Audit reports are currently posted on the SFI website.

There was 1 Opportunity For Improvement (OFI) identified in the 2021 audit:

- 1. SFI FM Std, Section 13.1.2: OFI -** There is an opportunity to improve the contact with local stakeholders, to clarify how the Compartment and Stand Silvicultural proposals noted in the Annual Work Plan (AWP) link to the corresponding Timber Sale Contract #s (TS#) that are enacted.
This finding does not indicate a current deficiency but served to alert Maryland DNR Forest Service to areas that could be strengthened, or which could merit future attention.

There were three new Non-Conformances identified in the 2021 audit, two Minor corrective actions (CARs) and one Major corrective action:

Minors:

- 1. SFI FM Std, Section 1.1.1: MINOR CAR –** For the Pokomoke-Garrett SF (PGSF) and Savage River SF (SRSF) Forest Management Plans (FMP), the sections that describe forest modeling are not consistent with descriptions by field staff on how those are being implemented in operational planning. See SRSF – Section 5.12 - Forest Modeling, pg. 70, and PGSF – Section 5.12 - Forest Modeling, pg. 70.
- 2. SFI FM Std, Section 11.1.3: MINOR CAR –** Staff education and training sufficient to their roles and responsibilities. During the document review, it was found that Forest managers had multiple instances of not using the most recent template for contract documents. They did not follow the system documentation / procedures as prescribed by the MD Forest Service.

Major:

- 1. SFI Multi-site Standard, Sec. 4.1.1: MAJOR CAR, repeat issue -** Templates used for Harvests are maintained by the Central Office – multiple templates available for download contained errors or omissions. 352D – Special Conditions

NSF also identified the following area where forestry practices and operations of Maryland DNR Forest Service exceed the basic requirements of the standard:

- 1. SFI 11.1.2 Assignment and understanding of roles and responsibilities for achieving SFI 2015-2019 Forest Management Standard objectives.**
Excellent communication exists between the MD-DNR Forest Service staff and loggers. On the ground practices looked good and were consistently above average, in part resulting from the clear communications.



General Description of Evidence of Conformity

NSF's audit team used a variety of evidence to determine conformance. The 2021 audit included State Forest reviews in the following by the NSF audit team, Savage River State Forest, Potomac-Garret State Forest, and the central office located in Annapolis, MD; the Central Office audit was completed off-site. Field visits were conducted in 2 out of a total of 6 State Forests. 2 field offices, 1 central office and 15 field sites were visited. The 15 field sites consisted of the 2 active timber harvests, 4 recently closed sale with wildlife considerations, 2 with herbicide application, 3 High Conservation Forests, 1 planting sites, 4 thinning sites, 3 regeneration/final harvests, 1 restoration site, and 1 deer enclosure site (some sites met multiple considerations and are noted for each of those above). Both thinnings and final harvests were viewed for multiple sites. There were also several roads, several smaller road-trail/stream crossings with cross drains and BMPs being applied. A further description of the audit evidence is provided below, organized by SFI Objective. NSF's audit team used a variety of evidence to determine conformance.

Objective 1 Forest Management Planning

To ensure forest management plans include long-term sustainable harvest levels and measures to avoid forest conversion.

Summary of Evidence: *While this Objective was not audited in 2021, in the past evidence included field observations of a range of sites. The forest management plans for both the Savage River State Forest and Potomac-Garret State Forest and supporting documentation and the associated inventory data and growth analyses were the key evidence of conformance for eastern forests.*

Objective 2 Forest Health and Productivity

To ensure long-term forest productivity, carbon storage and conservation of forest resources through prompt reforestation, afforestation, minimized chemical use, soil conservation, and protecting forests from damaging agents.

Summary of Evidence: *Field observations and associated records including annual work plans and "State Forest Database" reports were used to confirm practices. Maryland DNR Forest Service has programs for reforestation, for protection against insects, diseases, and wildfire, and for careful management of activities which could potentially impact soil and long-term productivity.*

Objective 3 Protection and Maintenance of Water Resources

To protect the water quality of rivers, streams, lakes, wetlands and other water bodies through meeting or exceeding best management practices.

Summary of Evidence: *Field observations of a range of sites were the key evidence. Auditors visited the portions of field sites that were close to water various types of water resources, (primary waterways, secondary streams and drains) generally riparian buffers, and confirmed that these buffers were flagged during planning, painted prior to harvests and noted for input into GIS.*

Objective 4 Conservation of Biological Diversity

To manage the quality and distribution of wildlife habitats and contribute to the conservation of biological diversity by developing and implementing stand- and landscape-level measures that promote a diversity of types of habitat and successional stages, and the conservation of forest plants and animals, including aquatic species, as well as threatened and endangered species, Forests with Exceptional Conservation Value, old-growth forests and ecologically important sites.

Summary of Evidence: *Evidence included field observations, written plans and policies for the protection of old growth, High Conservation Value Forests sites.*

Objective 5 Management of Visual Quality and Recreational Benefits

To manage the visual impact of forest operations and provide recreational opportunities for the public.

Summary of Evidence: *While this Objective was not audited in 2021, in the past evidence included field observations of active and completed harvesting operations and policies/procedures for visual quality. Visits to recreation sites and contacting various stakeholder seeking input and obtaining feedback on how the DNR balances public interests while providing various recreational opportunities.*

Objective 6 Protection of Special Sites

To manage lands that are geologically or culturally important in a manner that takes into account their unique qualities.

Summary of Evidence: *Evidence included field observations of completed operations, assessments of GIS maps and other records of special sites, training records, and written protection plans. Partners within the DNR and outside stakeholders participate in identification of special sites and participate during audits.*



Objective 7 Efficient Use of Fiber Resources

To minimize waste and ensure the efficient use of fiber resources.

Summary of Evidence: While this Objective was not audited in 2021, in the past evidence included field observations of recently completed operations, contract clauses, and discussions with supervising field foresters and interviews with loggers.

Objective 8 Recognize and Respect Indigenous Peoples' Rights

To recognize and respect Indigenous Peoples' rights and traditional knowledge.

Summary of Evidence: While this Objective was not audited in 2021, in the past evidence included review of the management plans to confirm the policy statement developed to recognize and respect Indigenous Peoples' rights and interviews with MD-DNR staff.

Objective 9 Legal and Regulatory Compliance

To comply with applicable federal, provincial, state and local laws and regulations.

Summary of Evidence: Field and office reviews of ongoing and completed operations were the most critical evidence. Foresters are licensed and have access to legal and regulatory listing electronic and hard copy.

Objective 10 Forestry Research, Science and Technology

To invest in forestry research, science and technology, upon which sustainable forest management decisions are based and broaden the awareness of climate change impacts on forests, wildlife and biological diversity.

Summary of Evidence: While this Objective was not audited in 2021, in the past evidence included discussions with stakeholders and support for research on state forest lands. Forests are used for several ongoing research projects such as research projects involving, pollinators and prescribed burning, which are visited.

Objective 11 Training and Education

To improve the implementation of sustainable forestry practices through appropriate training and education programs.

Summary of Evidence: While this Objective was not audited in 2021, in the past evidence included review of training records, and the records of support for the Maryland Master Logger Program.

Objective 12 Community Involvement and Landowner Outreach

To broaden the practice of sustainable forestry through public outreach, education, and involvement, and to support the efforts of SFI Implementation Committees.

Summary of Evidence: While this Objective was not audited in 2021, in the past evidence included records provided by the audited organization and interviews.

Objective 13 Public Land Management Responsibilities

To participate and implement sustainable forest management on public lands.

Summary of Evidence: The Citizen Advisory Committee confirms the involvement with the public inputs does occur.

Objective 14 Communications and Public Reporting

To increase transparency and to annually report progress on conformance with the SFI Forest Management Standard.

Summary of Evidence: Reports filed with SFI Inc. and the SFI Inc. website provided the key evidence. The state forests web site includes the complete certification reports from the past years.

Objective 15 Management Review and Continual Improvement

To promote continual improvement in the practice of sustainable forestry by conducting a management review and monitoring performance.

Summary of Evidence: The state forests web site includes the organization's Sustainable Forestry Initiative Management Reviews for the past 10 years. The most recent of these program reviews, agendas and notes from field reviews, and interviews with personnel from all involved levels in the organization were assessed.



Relevance of Forestry Certification

Third-party certification provides assurance that forests are being managed under the principles of sustainable forestry, which are described in the Sustainable Forestry Initiative Standard as:

1. Sustainable Forestry

To practice sustainable forestry to meet the needs of the present without compromising the ability of future generations to meet their own needs by practicing a land stewardship ethic that integrates reforestation and the managing, growing, nurturing and harvesting of trees for useful products and ecosystem services such as the conservation of soil, air and water quality, carbon, biological diversity, wildlife and aquatic habitats, recreation and aesthetics.

2. Forest Productivity and Health

To provide for regeneration after harvest and maintain the productive capacity of the forest land base, and to protect and maintain long-term forest and soil productivity. In addition, to protect forests from economically or environmentally undesirable levels of wildfire, pests, diseases, invasive exotic plants and animals and other damaging agents and thus maintain and improve long-term forest health and productivity.

3. Protection of Water Resources

To protect water bodies and riparian areas, and to conform with forestry best management practices to protect water quality.

4. Protection of Biological Diversity

To manage forests in ways that protect and promote biological diversity, including animal and plant species, wildlife habitats, and ecological or natural community types.

5. Aesthetics and Recreation

To manage the visual impacts of forest operations, and to provide recreational opportunities for the public.

6. Protection of Special Sites

To manage lands that are ecologically, geologically or culturally important in a manner that takes into account their unique qualities.

7. Responsible Fiber Sourcing Practices in North America

To use and promote among other forest landowners sustainable forestry practices that are both scientifically credible and economically, environmentally and socially responsible.

8. Legal Compliance

To comply with applicable federal, provincial, state, and local forestry and related environmental laws, statutes, and regulations.

9. Research

To support advances in sustainable forest management through forestry research, science and technology.

10. Training and Education

To improve the practice of sustainable forestry through training and education programs.

11. Community Involvement and Social Responsibility

To broaden the practice of sustainable forestry on all lands through community involvement, socially responsible practices, and through recognition and respect of Indigenous Peoples' rights and traditional forest-related knowledge.

12. Transparency

To broaden the understanding of forest certification to the SFI Standard by documenting certification audits and making the findings publicly available.

13. Continual Improvement

To continually improve the practice of forest management, and to monitor, measure and report performance in achieving the commitment to sustainable forestry.



Appendix 6: Interdisciplinary Team Review and Comments

Maryland Department of Natural Resources State Forests

Savage River State Forest

FY-23 Annual Work Plan

ID Team Review

In-person meeting not applicable – members provided electronic copy for review

ID Team Members: Paul Busam (MDE), Scott Boylan (MDE), Jody Johnson (Fisheries), Sean Nolan (SRSF), Erin Thomas (Parks), Dan Feller (WHS), George Eberling (MFS), Rick Latshaw (Wildlife), Mike Friend (NRP), Jack Perdue (MFS)

Overview / Discussion of FY 2023 Work Plan:

One request for site visit was received from Heritage Service. Dan Feller and Sean Nolan completed field visit and assessment of Laurel Run Hardwood Thinning on 11/1/21.

Heritage: Dan Feller

Laurel Run Hardwood Thinning: The site contains several small rock outcrops that pose potential habitat for the Allegheny Wood Rat. All outcrops were examined for wood rat activity and nothing substantial was observed. The no-cut buffer along Laurel Run was also discussed and it was affirmed that terrain and surface rock would limit the sale boundaries to substantially further than the required 50 foot buffer. Many large wolf trees were observed in the sale area and it was discussed to reserve some of these large trees to serve as den trees and wildlife habitat. The field visit ended with an agreement to proceed with the timber sale as planned.

Appendix 7: Citizens Advisory Committee Review and Comments

Maryland Department of Natural Resources State Forests

Savage River State Forest
FY-23 Annual Work Plan
Citizen's Advisory Committee
In-person scheduled December 6, 2021 @ 6:00 PM



Advisory Committee Members: Mark Diehl, Kevin Dodge, Mike Dreisbach, Steve Green, Rusty Leonard, Michael Minnick, Jim Minogue

Meeting Attendees:

Sean Nolan
Michael Johnson
George Eberling
Kevin Dodge
Steve Green
Jim Minogue
Mike Dreisbach

All silviculture proposals, recreation projects and research projects were discussed and approved to proceed as planned. One silviculture proposal along the Meadow Mountain Trail was discussed in depth and plans are to try to keep the disturbance to the usage of the area and the trail itself at a minimum. It was also discussed that some educational signage / materials may be helpful in instances such as this when we are operating close to a recreational area. Improved signage has been purchased and an attempt will be made to provide some educational information regarding forest management when this harvest is active.

Appendix 8: Public Comments

**Maryland Department of Natural Resources
Forest Service
State Forests Annual Work Plan FY 2023**

Public Comments for Savage River State Forest

(Names, addresses, and email addresses have been removed to maintain personal privacy. Superfluous text such as greetings and closures have been redacted. Otherwise, the comments are complete and unedited. Dashes separate individual comments.)

DRAFT