

# SAVAGE RIVER STATE FOREST ANNUAL WORK PLAN

## FISCAL YEAR 2027



Prepared: \_\_\_\_\_ Date \_\_\_\_\_  
(Forest Manager)

Reviewed: \_\_\_\_\_ Date \_\_\_\_\_  
(Regional Forester)

Approved: \_\_\_\_\_ Date \_\_\_\_\_  
(Environmental Specialist)

**Savage River State Forest**  
**FY-27**  
**Annual Work Plan**



**Savage River State Forest  
FY-27 Annual Work Plan**

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## **I. State Forest Overview**

Savage River State Forest is approximately 55,535 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-2027 Annual Work Plan for Savage River State Forest was formulated in 2025. 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-27 Annual Work Plan for Savage River State Forest details eight land management projects that will be the focus of the State Forest management staff for FY-27. 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** – the Sustainable Forest Management Plan for Savage River State Forest was updated in March of 2025 in preparation for the 2025 dual party surveillance audit. The plan will be updated as needed before the 2026 certification audit.

**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-27. To date, 100% of the data collection in harvestable stands is completed. Areas of HC VF 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. 4** Silvicultural projects including:

4 Intermediate Harvests - 1 containing a regeneration component on 431 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-27 Annual Work Plan outlines 4 harvests on 431 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-27 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-27 Land Management Project Proposals

Approximately 431 Acres

#### Map Key

- |   |                                     |
|---|-------------------------------------|
| <i>1. Compartment 7 Stands 1,21,25,28,30,31,32&amp;40</i> | <i>102-Acre Hardwood Thinning</i>   |
| <i>2. Compartment 9 Stands 32-35,59,70&amp;72</i>         | <i>99-Acre Hardwood Combination</i> |
| <i>3. Compartment 38 Stands 1,28,34,36-38</i>             | <i>112-Acre Hardwood Thinning</i>   |
| <i>4. Compartment 47 Stands 31,46-49,105,113-115</i>      | <i>118-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 342 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 81 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](http://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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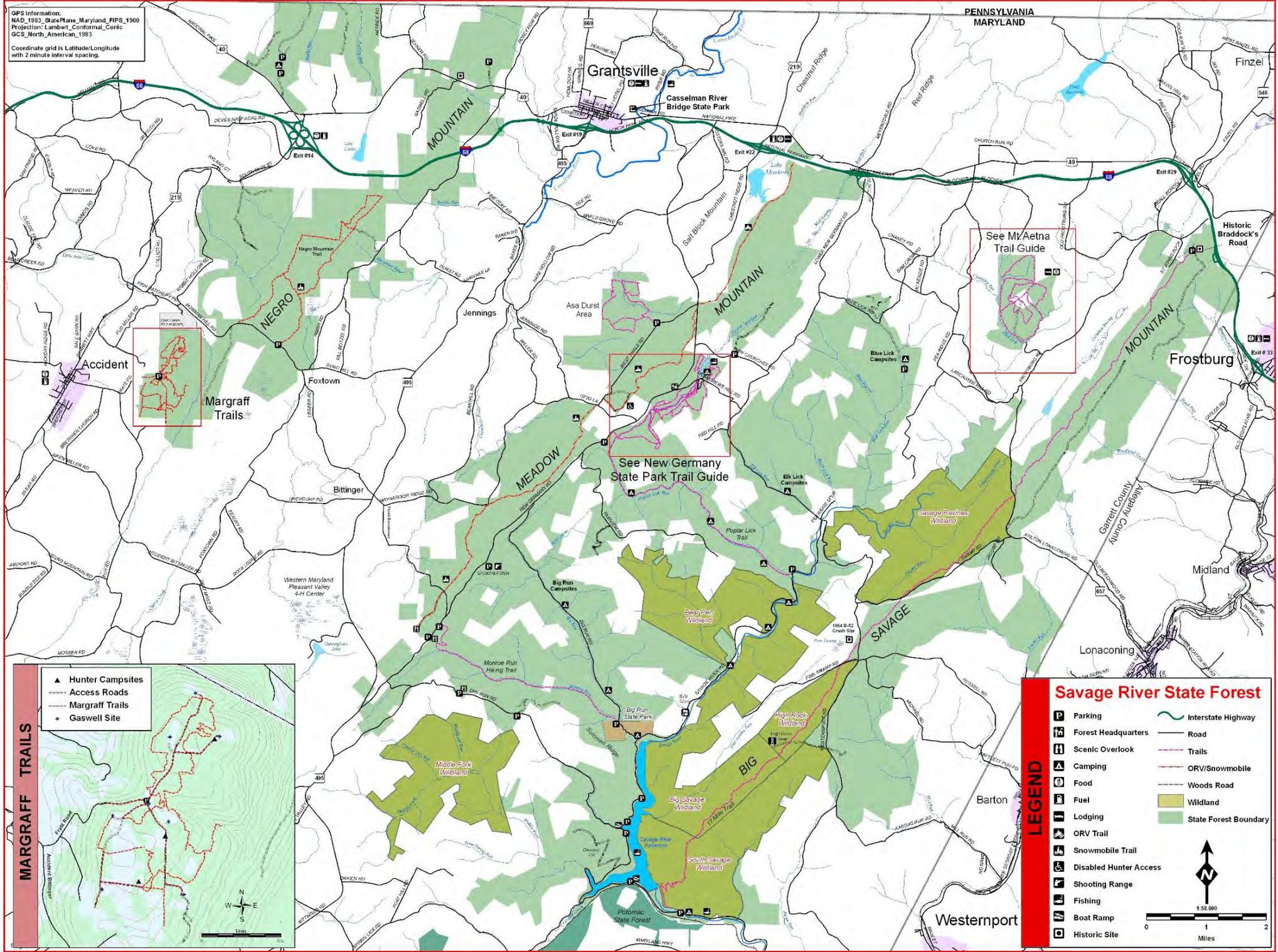


Figure 2. Recreational Opportunities on Savage River State Forest

## B. Recreation Proposals

### 1. Margraff Plantation Trail Expansion

Construction work commenced in Spring 2025 on the addition of 5+ miles of bicycle trails at the Margraff Plantation near Accident, MD. The project was coordinated with IMBA planning staff and completed by Appalachian Dirt, a trail-building contractor based out of Parsons, WV. Several crews worked on the trail system through the Spring and early Summer months with completion and final punch -out inspections completed in early July. A Grand Opening event was held at the trail head on July 18, 2025 and all feedback received to date has been positive with a noticeable increase in visitation to the Margraff area of the state forest.

## ASSESSMENT AND PLANNING

The shared-use and multi-purpose nature of the Margraff property is an essential component of the Savage River State Forest. This planning effort outlines a concept for developing ten miles of trails that work harmoniously with the existing trails, access roads, and infrastructure of the state forest. Utilizing datasets from the Maryland Department of Natural Resources, special consideration was taken to avoid sensitive resources such as wet drainages while maximizing opportunities for quality recreation experiences.

### Existing Trails

The existing trail network on the Margraff property includes 5.1 miles of shared-use trails that span most of the site. The trail tread is undeveloped, giving way to grassy paths and seasonal vegetation overgrowth. Sections of fall line trail reach 15% or more, which is restrictive for inexperienced hikers, mountain bikers, and other users. About 1.9 miles of these existing trail segments are recommended to be decommissioned and replaced by trails with more sustainable trail grades. The remaining 3.2 miles of existing trails are expected to be maintained as part of the shared-use trail system. Establishment of mineral soil trail tread would decrease maintenance intervals and significantly improve the user experience.

### Conceptual Trails

The conceptual trails on the Margraff property will be bidirectional, shared-use singletrack. Some segments may incorporate technical trail features, but overall, the trails aim to accentuate the natural environment of the state forest. Details on trail development principles are discussed in detail in the resources found on IMBA's website and various IMBA publications. Additional detail on sustainable trail design and sustainable trail construction practices can also be found in the Maryland Department of Environment and Maryland Department of Natural Resources General Permit documentation that is in place for the construction of natural surface trails on property owned by the Department.



*Liz Grades (IMBA Trail Solutions) and Jeff Simcoe (Maryland Department of Natural Resources) assess the existing trails near the southern extent of the Margraff trail network.*

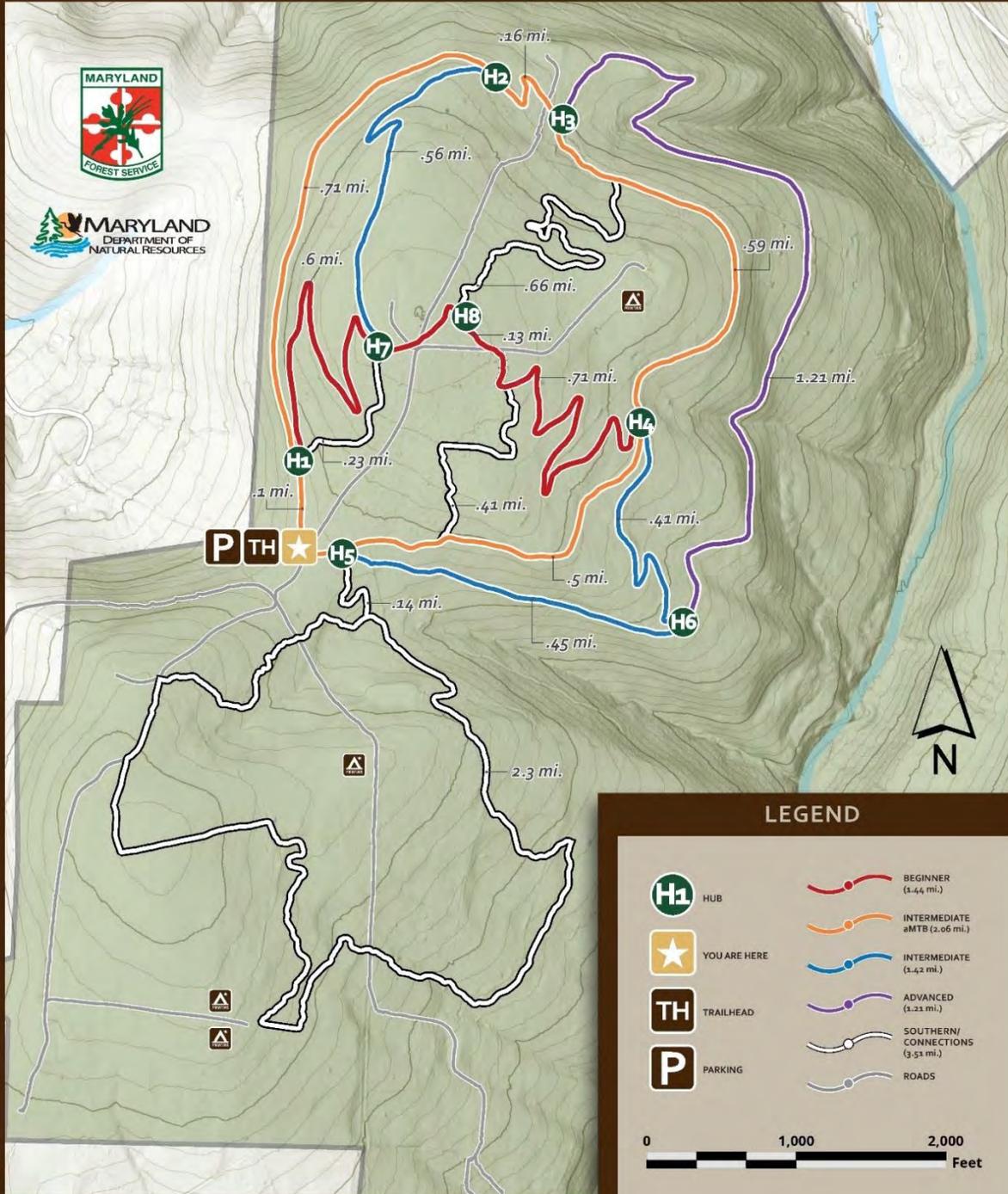


*Machine-built, adaptive-accessible beginner trails in Prescott National Forest, Arizona.*

# Margraff Trail System



Savage River State Forest  
Garrett County, MD



## **2. Trail Maintenance Grant – Appalachian Conservation Corps**

A trail maintenance specific grant has been awarded to the Maryland Forest Service through Recreation Trail Program (RTP) funding. These funds, administered by the Maryland Department of Transportation (MDOT) State Highways Administration (SHA), will be used to deploy a multi-year (3) programmatic approach to non-motorized trail maintenance in the Western Region State Forests (Green Ridge, Savage River, Potomac Garrett).

The trail maintenance tasks will be accomplished by a 6-8 person AmeriCorps certified saw crew and/or a trail crew. We anticipate logging 1,280 - 1600 labor hours per year in each State Forest and a total of approximately 4,480 labor hours within the Western Region over the term of this grant. No new trails will be constructed as part of this project. All of the work will be conducted on existing trails and on land owned and managed by the Maryland Department of Natural Resources.

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### 3. Savage Highlands State Park Backcountry Campsites

#### Project Description:

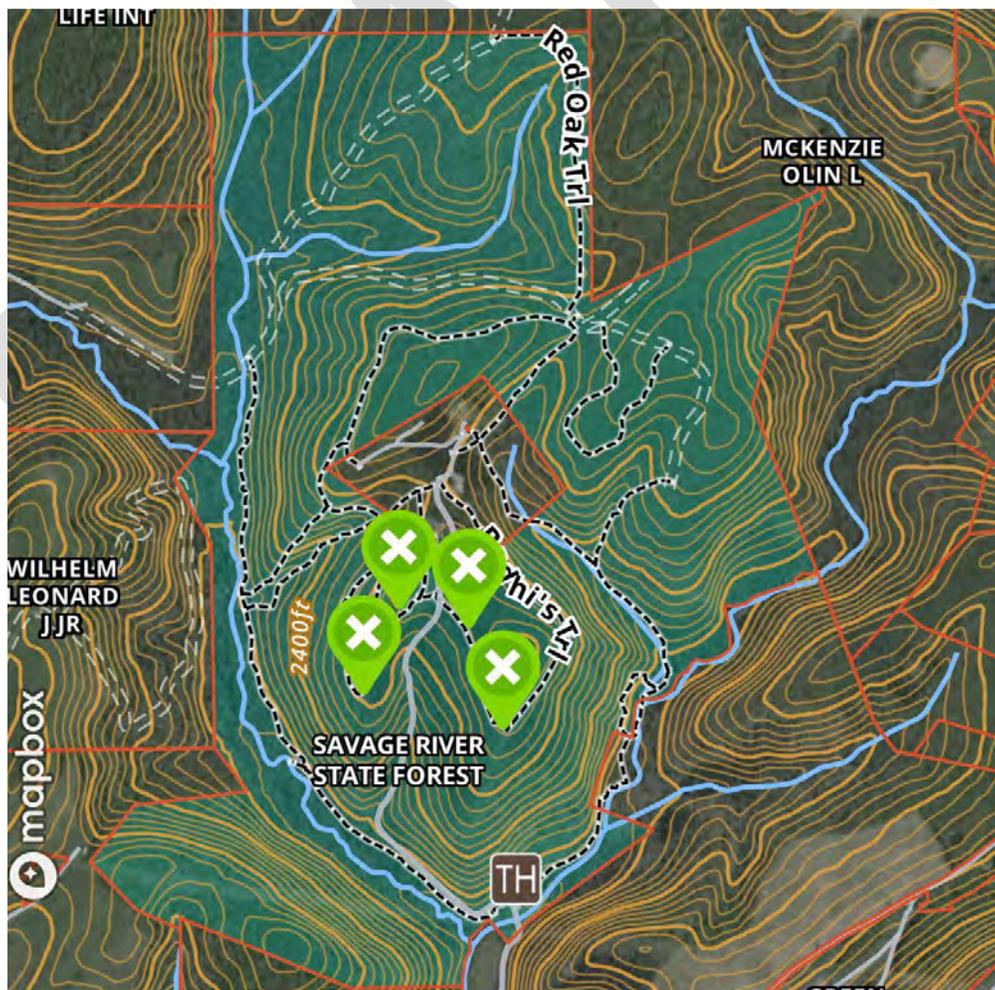
The Maryland Park Service proposes to install four designated backcountry campsites located just outside of Savage Highlands State Park on land located within the Savage River State Forest, as identified on the attached map.

- Campsite 1A: ~140 yards from trailhead parking (east side of Mt. Aetna Rd, Bohdi/Green Trail)
- Campsite 1B: ~480 yards from trailhead parking (east side)
- Campsite 1C: ~142 yards from trailhead parking (west side)
- Campsite 1D: ~421 yards from trailhead parking (west side)

The sites are level, require minimal clearing of downed debris and very little removal of smaller live vegetation. Each site will include:

#### General Site Conditions:

The proposed campsites are located on gently sloping, wooded State Forest land, just outside Savage Highlands State Park. The area is primarily forested with minimal undergrowth, consisting of a mix of deciduous hardwoods and conifers (site 1A is mostly open with large conifers). Soils are well-drained, and no known wetlands, floodplains, or riparian areas are present at the sites. Each site is easily accessible from the existing trailhead and Bohdi/Green Trail.



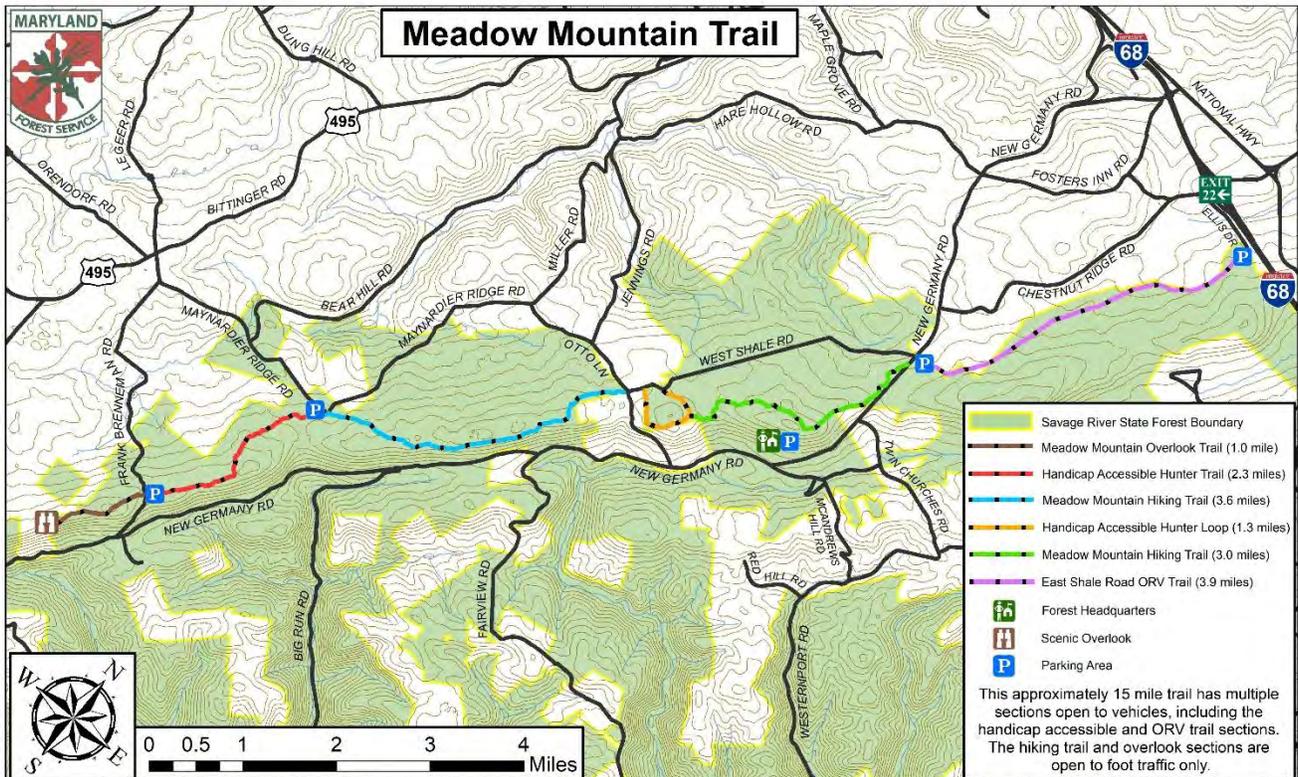
#### 4. Meadow Mountain Trail Upgrades – Garrett County Planning

##### *Project Description:*

Garrett County Planning Dept. in cooperation with Garrett Trails has been awarded Rec Trail Grant funding for Meadow Mountain Trail upgrades in FY26/FY27. The county is currently preparing a request for proposals to complete an assessment of the current trail conditions and to recommend sourcing of the funding for repairs and upgrades. The project scope has not been fully developed and this initial assessment will serve as a starting point to address current issues and incorporate additional trail features to enhance the user experience and sustainability of the Meadow Mountain Trail.

Possible projects include:

- New “rider friendly” gates
- Updated signage
- Interpretive / Educational signage
- Additional / Improved Parking
- Drainage work
- Resurfacing with stone dust
- Restroom pads
- Additional trail surface

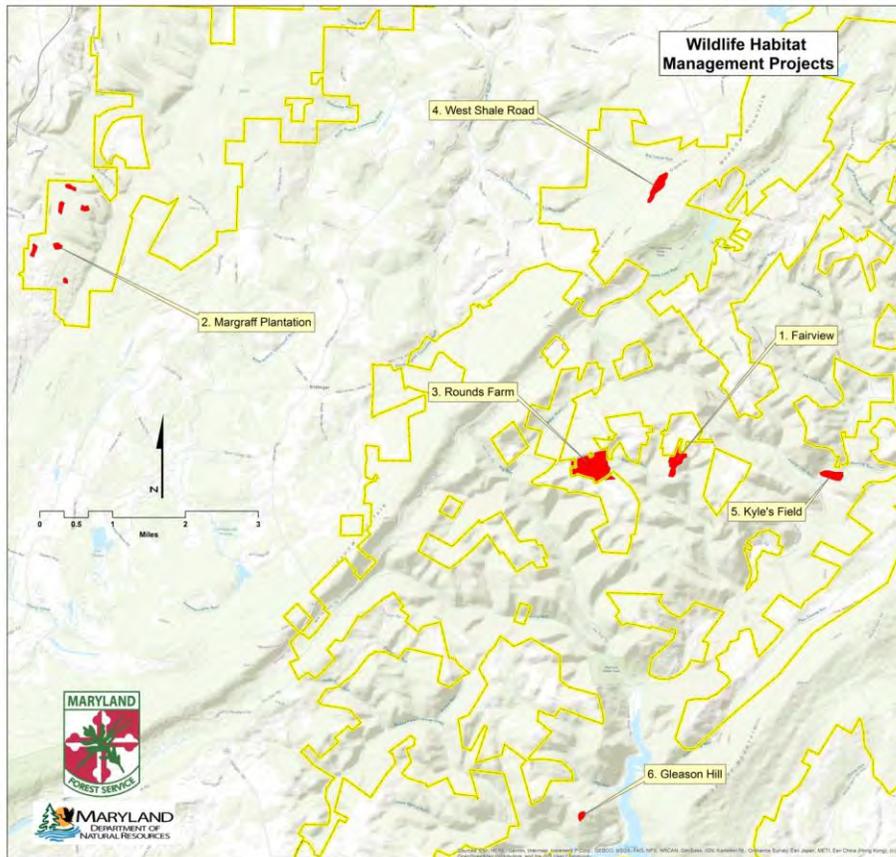


## VII. Wildlife Habitat Management Projects

### 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](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.

# Savage River State Forest NNIS Plant Species Management

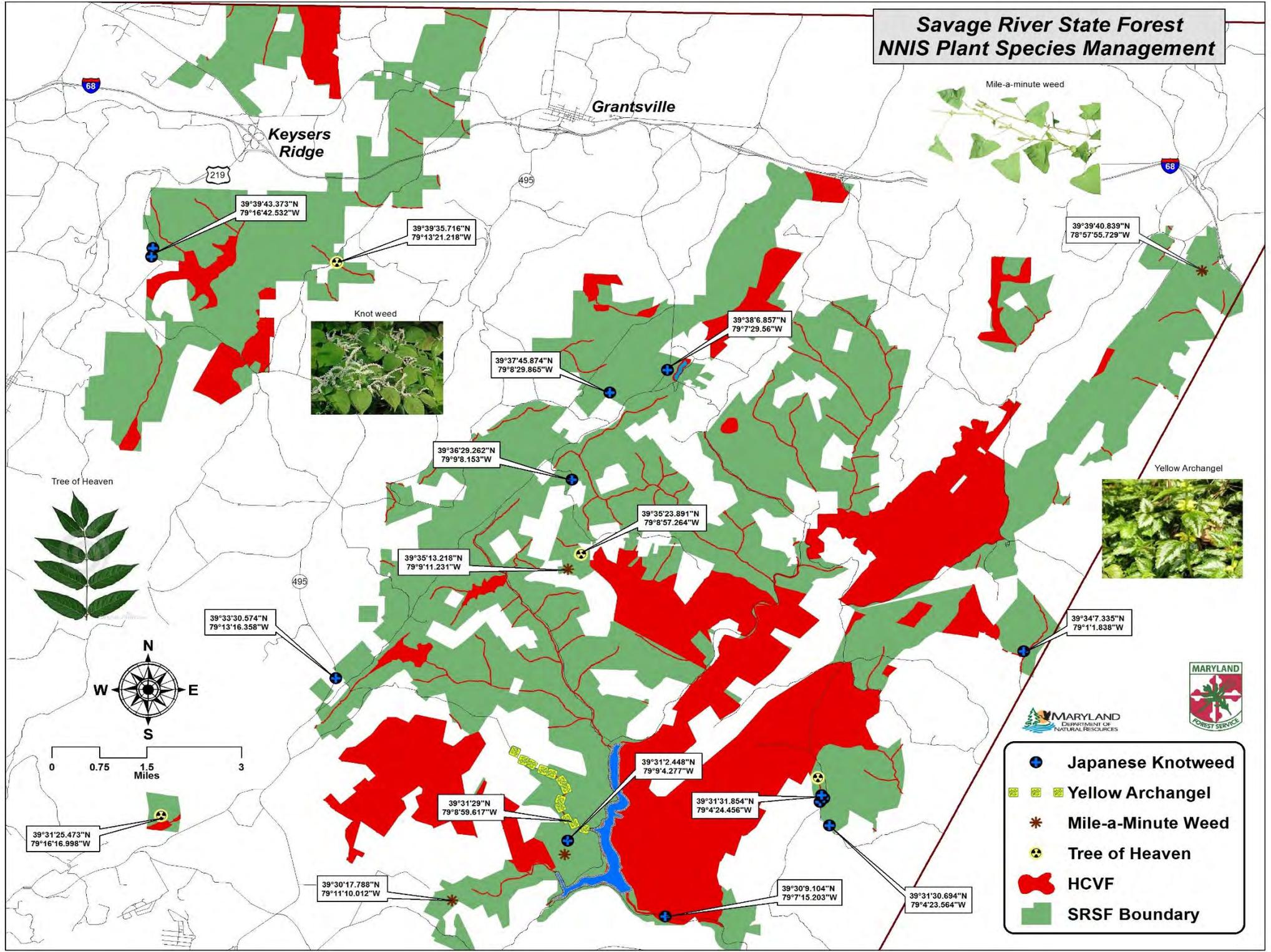
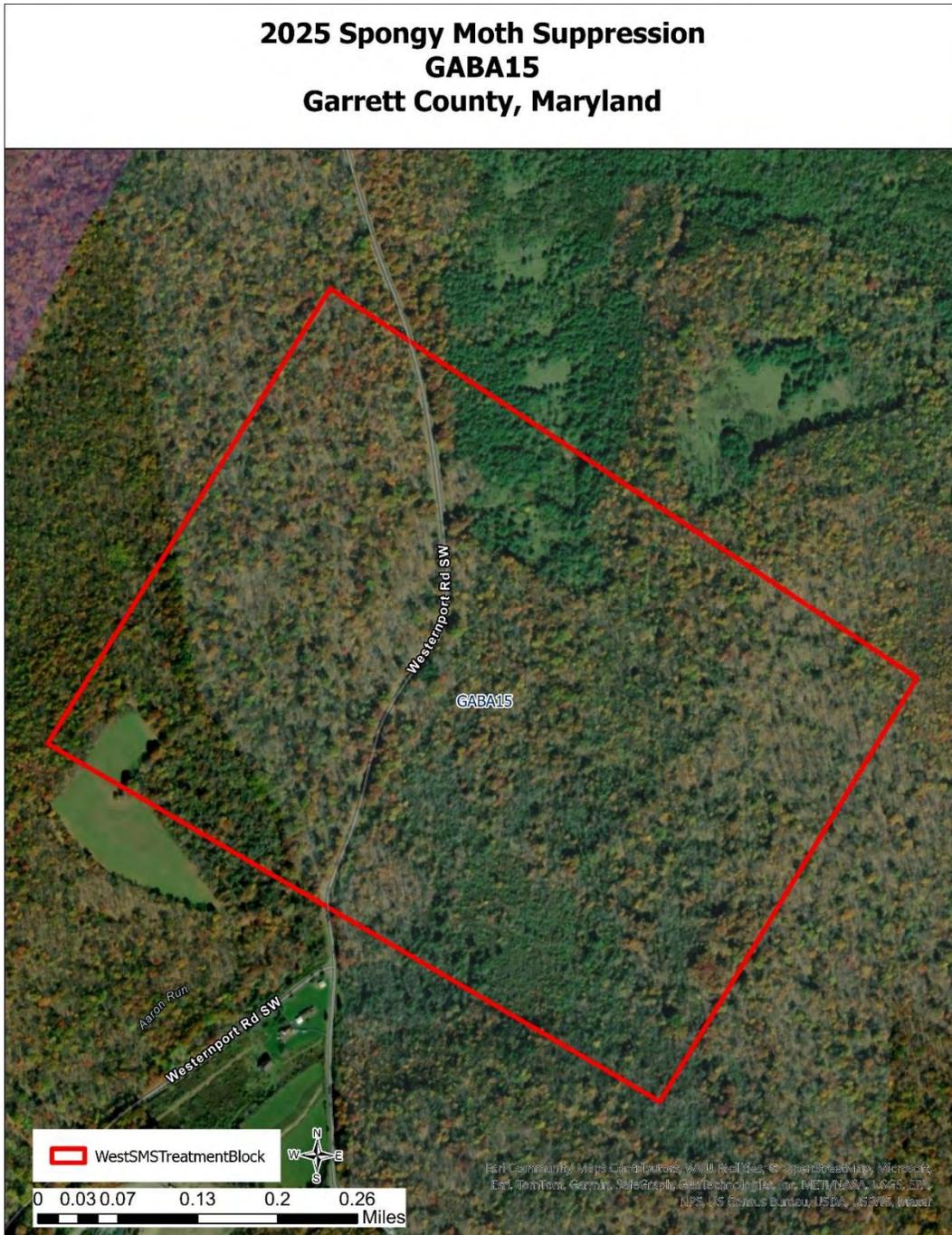


Figure 6. Map of NNIS treatment areas on Savage River State Forest

## Spongy Moth Suppression 2025

One block along Westernport Road, just north of the intersection of Aaron's Run Road was identified for Spongy Moth (formerly Gypsy Moth) control in the Spring of 2025. In coordination with Maryland Department of Agriculture, the block received aerial treatment of Foray 48B (OMR# ABB-0522) which is an organic certified pesticide with active ingredient Bt (a naturally occurring soil bacteria that only targets caterpillars).



## **IX. Monitoring and Research Projects**

### ***1. Hemlock Woolly Adelgid Treatment and Suppression Plan***

#### **Maryland Department of Agriculture – Forest Pest Management**

##### **MARYLAND HEMLOCK WOOLLY ADELGID MANAGEMENT AND SUPPRESSION PLAN**

###### ***PURPOSE:***

This plan was developed in an effort to slow or control the damage to Maryland's eastern hemlock forests caused by an invasive insect called the hemlock woolly adelgid (*Adelges tsugae*). It is also the intent of this plan to serve as a request for project review and the preapproval

of a series of treatment options that can slow the spread of the adelgid in Maryland, for the period of 2024 through 2027. This will allow MDA Forest Pest Management to react quickly when new infestations are found or new treatment options are appropriate. The plan will also allow us to direct our efforts to timely treatments of sites with damaging levels of HWA.

###### ***INTRODUCTION:***

The hemlock forests of Maryland are part of a unique and often fragile habitat.

Eastern hemlock (*Tsuga canadensis*) is the most shade-tolerant of all North American tree species, requiring as little as 5 percent full sunlight (Silvics of North America – Agricultural Handbook #654). The slow growing conifer, which can take 250 to 300 years to reach maturity, can exceed 800 years of age. Because of its shade tolerance and intolerance of fire it is usually found growing in riparian areas or in steep cove forests in the northern and western tier counties of Maryland. It is estimated that more than 42,000 acres of such forests exist in Maryland.

Eastern hemlock is not a particularly valuable timber species. At one time the tree was sought after for its bark which was important for tannins in the leather making industry. Today, hemlock is used by the pulp and paper industry and its lumber is used for barn siding and other specialty uses. Although its value as a timber species is minimal, it occupies an important ecological niche, and has significant aesthetic and recreational value.

The health of Maryland's hemlocks, and their associated ecosystems, are being threatened by the hemlock woolly adelgid (HWA). This small, exotic insect is native to Asia, and was first found in North America in British Columbia in the 1920's. It was reported in Richmond, Virginia in 1951, and spread northward into Maryland by the 1980's.

Heavy infestations of HWA may result in decline of tree health and eventual mortality. The severity of decline and mortality is often hastened by drought or other pests, such as elongate hemlock scale and hemlock borer.

Tree mortality and decline have been most severe in Virginia, New Jersey, Pennsylvania, and Connecticut. In New Jersey, 55 percent of the state's 26,000 acres of hemlock have been severely impacted. Several stands in Maryland, which have been infested with HWA for more than 10 years, have had extensive decline and some mortality.

Landscape hemlocks in the Baltimore – Washington area were infested in the late 1980's and natural stands in the area became infested by 1990. The infestation steadily moved westward and native stands of hemlock in Frederick and Washington Counties became infested in the early to mid-1990's. Infested hemlocks in Allegany County were found in 1999, and the first infested hemlock in Garrett County was found in December of 2001.

When adelgid populations first moved into much of Maryland there were very few management tools available to stop its spread. Native stands of hemlock, especially in Harford and Frederick Counties, were heavily infested with adelgids and elongate hemlock scale, and were already stressed by several years of drought. By the late 1990's, these areas showed significant decline and mortality. In 2003, the Hunting Creek Hemlock Woolly Adelgid Management Team was assembled to address the dead and dying hemlocks along Hunting Creek in Frederick County, especially in Cunningham Falls State Park. A management plan was developed to remove hazard trees near the high use trails in the park and treat hemlocks that were still healthy enough to benefit from management. Treatments took place in late 2003 and follow-up assessments took place in subsequent years.

The development of new tools for the treatment of HWA, along with the movement of HWA into high value hemlock stands in Western Maryland, necessitated development and implementation of this statewide HWA management plan.

#### ***HEMLOCK WOOLLY ADELGID BIOLOGY:***

Hemlock woolly adelgids are most easily recognized by the white "woolly" wax they produce on young hemlock twigs. The "wool" is present all year but is most abundant and conspicuous during the spring and fall when egg masses are present. Most other stages in the life cycle are much harder to see. Fully grown adults are only about the size of a period on a printed page.

The life cycle of the hemlock woolly adelgid, like most members of the adelgid family, is very complex. There are two forms of the insect, with each form going through six life stages (egg, four nymphal stages and adult). The following is a simplified version of their life cycle: There are two generations of hemlock woolly adelgid per year. This cool weather species completes most of its development from October through May. Overwintering adults lay eggs in April and May under the white woolly mass. Nymphs (crawlers) hatch and settle at the base of a hemlock needle. They will feed and remain attached to the twig through their maturation into 1st generation adults in late May. Wingless adults then lay eggs which hatch by July. The new crawlers settle on the new growth and become dormant until October. They then resume feeding and develop during the winter, maturing by spring.

Adelgids feed by inserting their tube-like mouthparts into the underside of the base of hemlock needles. As feeding progresses, needles desiccate, turn pale green and drop from the tree. Buds may also die, and in heavy infestations, dieback of major limbs and tree mortality may occur.

In eastern North America, eastern hemlock (*Tsuga canadensis*) and Carolina hemlock (*T. caroliniana*) are highly susceptible to damage by adelgid and often succumb within 6-10 years. HWA is rapidly spreading throughout the range of eastern hemlocks. It is estimated that in the past decade it has spread at a rate of 20-30 km per year. Wind, birds, deer, and humans are factors in both short and long-distance dispersal. Hemlock woolly adelgids (HWA) can now be found in all Maryland counties where hemlocks occur. Throughout much of the State landscape trees as well as natural forest stands have become infested.

### ***ASSESSMENT AND RANKING PROCESS:***

In July 2003, a task force was created to assess and prioritize vulnerable hemlock forest stands across Maryland. This multidisciplinary task force was made up of members of the Maryland Department of Agriculture, Maryland Department of Natural Resources, USDA Forest Service, USDI Park Service and other partners. Task force disciplines included entomology, forestry, wildlife management, park and recreational management, fisheries management, agricultural inspectors, geographers and ecologists. The group met to agree on process and to begin assessing vulnerability and value of hemlock stands statewide. A list of approximately 75 priority stands were identified and rated, and later further refined to the original “top 50” list of priority hemlock stands throughout the state on which this management plan will concentrate its efforts. This list has been updated and finalized to include only public owned and public use sites which are eligible for treatment under this plan. Additions to this list must be public owned lands or public use lands and be approved by MD DNR and MDAFPM. See Table 1 in the full Hemlock Conservation Plan document.

### ***FUNDING:***

The Maryland Department of Agriculture, Forest Pest Management Section has received special funding from the US Forest Service to develop and implement a statewide hemlock woolly adelgid suppression plan. This funding has helped support HWA control efforts including soil and trunk injections from July, 2004 to the present. The US Forest Service has also supported MDA’s HWA monitoring and evaluation activities. The use of biological control agents (as discussed in the Treatment Options below) has increased and is promising, although still in the research evaluation stage. Predatory beetles that are part of this biocontrol effort are currently supplied by the US Forest Service at no cost to the State, and their availability is dependent upon production facilities under contract with the US Forest Service.

### ***MONITORING:***

Evaluating the health of hemlocks and the level of HWA infestations is integral to the successful implementation of a management plan. Since the late-1980’s, MDA’s Forest Pest Management Section has been conducting HWA detection and impact surveys across the State. This Management Plan will/has identify (ied) priority stands, and FPM staff will concentrate HWA and hemlock health surveys on the priority stands as discussed above.

Detection and monitoring are critical components of an Integrated Pest Management plan. Treatment decisions begin with knowing the location and density of the pest. Priority hemlock stands identified in the plan will be annually surveyed to assess HWA populations. These surveys will begin as soon as summer aestivation ends and the white, woolly masses are evident, usually in early October.

Surveys will classify HWA densities into the following four categories:

None: no adelgids observed.

Light: less than 25% of the trees are infested and most often individual trees have less than 25% of the branches infested.

Moderate: 26-50% of the trees appear to be infested and most often individual trees have less than 50% of the branches infested.

Heavy: more than 50% of the trees are infested and most often the majority of the branches on individual trees are infested.

An assessment of hemlock health in these stands will be conducted simultaneously with the assessment of HWA densities. Tree health information will be reported on a stand level basis in the following categories:

Healthy: trees appear to be in reasonably good health with less than 10% of the trees showing signs of stress such as: defoliation, needle discoloration, and/or branch tip dieback. Hemlock mortality less than 10% throughout the stand.

Light Decline: trees appear minimally stressed with many trees showing 11-25% defoliation, needle discoloration and/or branch tip dieback. Larger branch mortality may be present but not frequent on trees within the stand. Hemlock mortality less than 10% throughout the stand.

Moderate Decline: trees generally appear under stress with most trees showing 26-50% defoliation, needle discoloration and/or tip dieback. Larger branch mortality is relatively common throughout the stand. Hemlock mortality 11-25% throughout the stand.

Severe Decline: trees appear obviously stressed with most trees showing >50% defoliation, needle discoloration and/or branch tip dieback. Larger branch mortality is common throughout the stand. Hemlock mortality may be more than 25% throughout the stand.

Information from HWA and hemlock health surveys will be entered annually into a stand database. This information will be used to direct additional surveys, public information, and treatment and restoration efforts.

**Efficacy Surveys:** To determine the efficacy of treatments, surveys will be conducted to determine pre and post HWA levels at a sampling of currently treated hemlock stands each year. A small sample of control and treated trees at these sites will be checked at time of treatment and again one year later. The data collected will be entered into an efficacy database.

#### ***TREATMENT OPTIONS:***

The selection of treatment options for landscape or forest areas will be based upon HWA population levels, hemlock health, access to the trees/stand and proximity to sensitive riparian areas. The decision to treat a stand and its inclusion in this plan is based upon management objectives and the aesthetic, wildlife, recreation, fishery, forestry, and natural heritage values of the stand.

There are currently no proven methods available to suppress HWA in a large scale forest setting. However, MDA has been able to treat significant sized areas or parts of stands over the years by efficiently using methods which are available for individual tree treatment or treatment of groups of trees. Current insecticide treatment options include the use of foliar sprays or systemic insecticides. Foliar sprays involve the application of horticultural oil or insecticidal soap via hydraulic sprayers and are limited to trees where access is possible by truck mounted equipment and areas where insecticide drift would not contaminate streams and lakes. Systemic insecticides can be applied either through soil injections, soil applied tablets, soil drenches, trunk sprays, or stem injections. Although the various types of soil treatments have proven to be the most effective method of systemic applications, stem injections are

recommended for hemlocks growing within 50 feet of open waterways. Research is currently underway for the application of aerial fungal pathogens to suppress hemlock woolly adelgid populations. Should this prove effective, aerial fungal spraying may be incorporated into this plan.

Treatment options for hemlocks in the landscape are much different than those available for forest situations. Easier access for application equipment and lack of sensitive riparian areas allow for a wider range of treatments in the landscape environment.

The most widely used systemic insecticide for HWA is imidacloprid. Various formulations of imidacloprid are available depending on the method of application and equipment to be used to deliver the product. Treatments with imidacloprid are normally done in the early spring or late fall when there is adequate soil moisture present. Systemic insecticides are translocated by the tree up to the crown where the pest is feeding and control usually occurs within 2-6 months. Systemic insecticides can be injected into the soil around the base of the tree, injected into the trunk of the infested hemlock, or sprayed on to the trunk of an infested tree. Trunk injections are not recommended on trees less than 4" in diameter. Soil injections and trunk sprays should only be used around trees that are a safe distance from water sources.

HWA population densities often fluctuate normally as a result of two generations per year, declining tree vigor caused by heavy adelgid infestations and/or other variables such as drought and other insects. Extreme cold winter temperature will also impact adelgid survival. As such, final treatment decisions must be made near the time of treatment to identify the need and specific trees to be treated.

Ultimately, treatment decisions will be made considering numerous factors including rank, infestation level, tree health, available treatments options, funding and likelihood of success.

#### ***LANDSCAPE TREE TREATMENT OPTIONS:***

Options for trees or parts of stands that are easily accessible AND do not have environmentally sensitive areas (such as streams) nearby:

- Cover sprays with insecticidal soap, dormant oil or horticultural oil.
- Cover sprays with contact or foliar absorbed insecticides.
- Trunk injection with imidacloprid.
- Soil injection with imidacloprid.
- Soil drench with imidacloprid.

#### ***FOREST STAND TREE TREATMENT OPTIONS:***

Options for stands that are inaccessible or have environmentally sensitive areas nearby:

- Trunk injection with imidacloprid (when environmentally sensitive areas are an issue).
- Soil injection with imidacloprid.
- Soil drench with imidacloprid.
- Imidacloprid tablets applied in soil
- Trunk sprays with Safari

- Biological control: release of predatory beetles or other natural enemies as they become available.

### ***TREATMENT OPTION DETAILS:***

*Cover Sprays:* Individual hemlocks or small groups of landscape trees greater than 50' from sensitive areas or streams can be treated with insecticides using ground equipment, such as mist blowers or hydraulic sprayers. The use of this ground equipment limits the selection of this option to areas with good road access adjacent to the trees needing treatment. The insecticide, as well as the equipment, used will be site specific and dependent upon tree size, location and health, HWA population levels and time of year. Dormant oil, horticultural oil, insecticidal soap or foliar absorbed insecticides can be used as cover sprays. The application of any of these insecticides will follow EPA- approved label guidelines.

*Dormant Oil:* This option will be used on individual trees or small groups of trees <30' in height. Dormant oils suffocate adelgids, so must be applied directly to the insect when they are immobile. Dormant oils are applied during the 'dormant' season for most insects, from November to March, although HWA are active during this time, it is still the appropriate time for dormant oil treatment of HWA. An example of a site where dormant oil cover sprays may be used is the parking lot areas of some State Parks, such as Rocky Gap or Deep Creek Lake.

*Horticultural Oil and Insecticidal Soap:* The selection and application of horticultural oil will follow the same guidelines as dormant oil, with the exception of time of year for application. These oils are used when temperatures are warmer, and will be used from April through June, and September.

*Foliar Absorbed Insecticides:* The use of foliar absorbed insecticides is restricted by the proximity of the hemlocks to open water. While cover sprays using registered insecticides such as abamectin and imidacloprid are very effective in reducing HWA populations, they will be used only when there is sufficient distance from water, and will closely follow label restrictions. The timing for use of cover sprays with insecticides is during the season when there are immature or unprotected life stages; usually from July through October.

### ***SOIL TREATMENTS:***

Soil treatments eliminate the concern for drift of insecticides from mist blowers or hydraulic sprayers. However, insecticides injected into the soil can move short distances and will not be used within 50ft of waterways. Soil treatments have many advantages: they can be used on large trees with canopies beyond the reach of ground application equipment, the chemical is absorbed through the roots, and control may extend 5 to 7 years after application. The distribution and transport of the insecticide within a tree is affected by its health; trees under drought stress, with needle loss and dieback may not effectively transport the chemical. As compared to trunk injections, soil treatments have the advantage of not wounding the tree.

*Soil Injection:* A liquid flowable insecticide formulation of imidacloprid (e.g. Imidacloprid 2F) applied using a kioritz injector, EZ-Ject soil injector, or backpack soil injector around the base of infested hemlocks will be the treatment option of choice for stands of hemlocks at least 50ft away from water. Individual trees or small groups of trees that are 50ft or more away from streams will be treated using soil injection. Larger stands will be treated in increments over time using this method.

*Tablets:* Imidacloprid tablets (i.e. CoreTect) will be applied into the soil around the base

of trees at a rate of 2 tablets per inch DBH. These can be used in the same areas as soil injections but have the advantage of ease of application and less equipment to carry, which is useful in hard to reach or long hike areas. Tablets will be used at a rate of one tablet/seedling during restoration plantings to give newly planted seedlings protection against HWA.

*Soil Drench:* A liquid flowable insecticide formulation of imidacloprid (e.g. Imidacloprid 2F) may also be applied using a soil drench method to treat hemlock shrubs or saplings. These treatments consist of uniformly applying the dosage in no less than 10 gallons of water per 1000 square feet as a drench and targeting the root zone. Soil drench methods would be used in areas where protecting hemlock regeneration is important.

#### **TRUNK INJECTION:**

Direct tree trunk injections will be the treatment of choice for trees or groups of trees less than 50ft from water. Treatments will be conducted in the spring and fall. Treatments will utilize a formulation of imidacloprid (i.e. IMA-jet) in conjunction with the Arborjet Tree IV or F12 series systems.

#### **TRUNK SPRAY:**

Dinotefuran (i.e. Safari) can be used as soil drench, a soil injection, or as a trunk spray. It can be used for its quick knockdown effect against HWA and is also effective against the elongate hemlock scale. However, dinotefuran does not have the same long-lasting effect of Imidacloprid; treatments are only effective for two years. A mixture of imidacloprid and dinotefuran has been used as a basal trunk spray in NY, and dinotefuran is currently being incorporated into treatments in MD in areas where elongate hemlock scale is damaging trees in conjunction with HWA.

#### **BIOLOGICAL CONTROL:**

The ultimate control and management of HWA will involve the long-term regulation of populations utilizing biological control agents. University and federal researchers have investigated several species of predatory beetles for biocontrol, and since the late 1990's there have been numerous experimental releases. These releases are still experimental, and Maryland has participated in evaluating the effectiveness of using these biocontrol agents at several locations over the past 20+ years.

As part of this plan, several biological control agents approved for release by APHIS, including species of lady beetles (Coccinellidae), species of Derodontid beetles, and species of *Leucotaraxis* flies will be considered for release. It should be noted that these releases are still in the evaluation stage and although there is hope that they eventually play an important role in the regulation of HWA populations, they should not be looked at as a short-term control measure.

*Sasajiscymnus tsugae:* Over 3 million *S. tsugae* have been released across the east coast. This species, native to Japan, had been released in several locations in Maryland since 1999. While cooperators in New England have seen some success with this beetle, MDA has seen minimal establishment. No additional releases are proposed.

*Laricobius nigrinus:* This Derodontid beetle, native to northwest US and British Columbia, is one of the most important species being evaluated for HWA biocontrol. MDA is cooperating with the USFS and Virginia Tech University to evaluate the ability of this beetle to become established and reduce HWA populations. In 2003, MDA and Virginia Tech released *L. nigrinus* near Frostburg, and since then it has been released at many sites in the state. Established

reproducing populations are now found at several locations in Maryland. Additional releases, monitoring efforts, and efficacy surveys will be proposed as part of this plan.

***Laricobius osakensis***: In 2010 this Derodontid beetle, native to Japan, was approved for HWA biocontrol in the United States. In predation studies, *L. osakensis* was shown to feed on more HWA ovisacs than *L. nigrinus*, and hybridization experiments suggest *L. osakensis* is far less likely than *L. nigrinus* to hybridize with native *L. rubidus*. MDA is cooperating with the USFS and Virginia Tech University to evaluate the ability of this beetle to become established and reduce HWA populations. Beetles have been released at multiple sites in the state, with hopes of continued releases. Recoveries of *L. osakensis* have been observed. Releases, monitoring, and efficacy surveys are proposed for this plan.

***Leucotaraxis argenticollis*** and ***Leucotaraxis piniperda*** are two species of predatory Chamaemyiid silver flies native to the west coast of the US. *Le. argenticollis* and *Le. piniperda* are important predators of HWA on the west coast and have shown potential in unique biological control of HWA; unlike other predators who do much of their feeding on the winter sistens generation, *Leucotaraxis* flies may be able to target both yearly generations of HWA, especially the spring progrediens generation. Experimental releases in partnership with USFS and VA Tech were conducted in 2022. Additional releases, monitoring efforts, and efficacy surveys will be proposed as part of this plan.

***Scymnus sinuanodulus***: This Coccinellid beetle from China was approved for release in the eastern US. To date, two releases have been made in Maryland with no recovery. No additional releases are proposed.

***Scymnus camptodromus***: This Coccinellid beetle from China is undergoing evaluation and is not yet approved for release.

***Scymnus coniferarum***: This Coccinellid beetle is native to the western US and has been approved for release in the eastern US. Releases have taken place in Maryland, but no recovery has been recorded. This species was deemed unsuitable for HWA biocontrol because it prefers to feed on pine adelgids. No additional releases are proposed.

### ***ESTABLISHMENT OF VIABLE INSECTARIES***

Part of MDA's biological control plan includes establishment of insectaries to supplement out-of-state collections and reared releases of biological control organisms. In 2004, MDA established its first insectary at Rocky Gap State Park, using *L. nigrinus* beetles gathered in situ from the Pacific Northwest and lab-reared beetles from Virginia Tech State University. Since 2004, the Rocky Gap insectary has produced thousands of *L. nigrinus* beetles that have been released across the state of Maryland and Mid-Atlantic partner states.

In 2016 a new insectary was established at Big Run State Park by planting 100 hemlock seedlings received from PA DCNR Penn Nursery near a row of established hemlocks. In 2018, 275 *L. nigrinus* from the Rocky Gap insectary were introduced to this new plot. Supplemental augmentation of *L. nigrinus* populations in the insectary began in Fall of 2019, and recovery of beetles had been observed in 2024.

MDA FPM will continue to establish healthy populations of *L. nigrinus* from these founding insectaries and will supply insects to surrounding states for their own biological control efforts. In addition to increasing the viability of *L. nigrinus* populations, this work will liberate resources for rearing laboratories, allowing them to focus research and development on new

biocontrol organisms.

### ***SILVICULTURE AND GENETIC RESISTANCE***

Of the eight extant species in genus *Tsuga* the eastern hemlock is the most susceptible to HWA and the least genetically diverse. Phylogenetic analyses have shown that eastern hemlock is unique among its genus; even the Carolina hemlock (*Tsuga caroliniana*), which completely overlaps the southern range of eastern hemlock, is more closely related to Asian *Tsuga* species. While the Carolina hemlock is also being seriously threatened by HWA, its genetic lineage allows for resistant hybrids crossed with Asian species to be bred. Research at USDA's South Farm in Beltsville, Maryland suggests that some of these natural hybrids between *T. chinensis* and *T. caroliniana* show good survival and resistance to HWA. Eastern hemlock, however, cannot currently be crossed with resistant members of its genus. The western species, *T. heterophylla* and *T. mertensiana*, show some resistance to HWA but they do not grow well on the east coast, suggesting that much of their success against HWA comes from the assemblage of associated native predators.

While this bodes well for the eventual success of establishing a host of classical biological controls, the fact remains that hybridization of eastern hemlock to protect against HWA is highly unlikely. However, isolated instances of naturally HWA-resistant eastern hemlock have been found among dead and dying trees in Connecticut, New Jersey, Pennsylvania, and Maryland. These "Bulletproof" stands offer another avenue for management of HWA.

In 2015, a restoration plot at Cunningham Falls State Park included plantings of eastern hemlocks from the "bulletproof" stand in New Jersey. This plot was inoculated with HWA in 2017, and research into the health of these trees is ongoing. Current research indicates that these trees are resistant to both HWA and elongate hemlock scale. MDA will continue monitoring this plot for HWA resistance.

Light availability plays a major role in HWA mortality and hemlock decline, with increased light availability improving hemlock growth and tolerance to HWA infestation. Selective cutting to create canopy gaps may be a potential strategy to preserve individual high value trees or produce high-quality hedges for biocontrol establishment. MDA FPM receives seedlings of eastern hemlock from PA DCNR Penn Nursery using Maryland seed stock. In partnership with MD Department of Natural Resources, these seedlings are used in hemlock restoration projects at critical areas throughout the state. Future restoration plots are chosen in close partnership with MDNR. Areas with significant loss of hemlock resource are identified by MDNR and MDA FPM staff for potential restoration projects.

### ***PRESERVATION OF GENETIC MATERIAL***

In light of the real threat of extirpation and extinction of eastern and Carolina hemlock, the US Forest Service has partnered with Camcore, a non-profit international tree breeding organization, to preserve hemlock genetic material. Seeds of eastern and Carolina hemlock have been collected throughout the plants' native ranges to be stored in long-term seed banks. In addition, plantings of seeds from North American eastern and Carolina hemlock across 78 native populations have been established in Chile, southern Brazil, and Arkansas to act as seed reserves

that are geographically protected from HWA. If HWA is ever thoroughly controlled, these banks of genetic information will be invaluable for healthy and diverse restoration plantings. MDA FPM conducts yearly surveys of treated hemlock sites for viable hemlock cones. This supply of Maryland hemlock genetic information is provided to PA DCNR Penn Nursery for continued seedling production so that state restoration projects can continue with Maryland native seedlings. MDA also provides collected seed for Camcore's seed bank project, to ensure the state's hemlock genetic material is preserved.

***RESEARCH AND PARTNERSHIPS:***

MDA-FPM will continue its longstanding commitments with its cooperators to assist with research on efficacy, winter mortality, hemlock resistance, regeneration, new biological control agents, and explore new treatment options as they become available.

MDA FPM collaborates with the MD Department of Natural Resources (DNR) and the Maryland Conservation Corps on fall and spring projects where hemlock trees on state park lands are treated. MD DNR Forest Service & Park Service also collaborate on other treatments and in restoration plantings. MDA FPM has collaborated with The Nature Conservancy and Maryland Ornithological Society to treat hemlocks on their properties and ensure larger corridors of hemlocks and their habitat are conserved.

## **2. Black Bear Hair Snare Survey**

### **University of Maryland**

#### **Project Description:**

##### ***Project Personnel:***

Principal Investigator:

Jennifer M. Mullinax, Associate Professor of Wildlife Ecology, Department of Environmental Sciences and Technology, University of Maryland

Students:

Jane Burgess (MS Student)

Daylan Sears (MS Student)

Abigail Theimkey (PhD Student)

##### ***Project Objectives Description:***

In cooperation with the Maryland Department of Natural Resources, Wildlife and Heritage Service, Dr. Jennifer Mullinax and the Applied Spatial Wildlife Ecology Lab at the University of Maryland are conducting a four-year study on Maryland's black bear (*Ursus americanus*) population (see Appendix 1 for original proposal). This study aims to estimate black bear population densities and spatial movements across Maryland's known and unknown bear range. This project will extend across eight Maryland counties (Fig. 2), where we will set up barbed wire hair snares baited with scent lure. Black bear hair is caught on barbed wire when bears pass through to access bait. Then, field teams will collect the hair, and DNA will be extracted and genotyped (Fig. 1). Additionally, GPS collars will be placed on adult females and a subset of dispersing males. During the summer of 2025, we will set up hair snares in Garrett and Allegany Counties. University of Maryland researchers will conduct site construction, data collection, takedown, and cleanup.

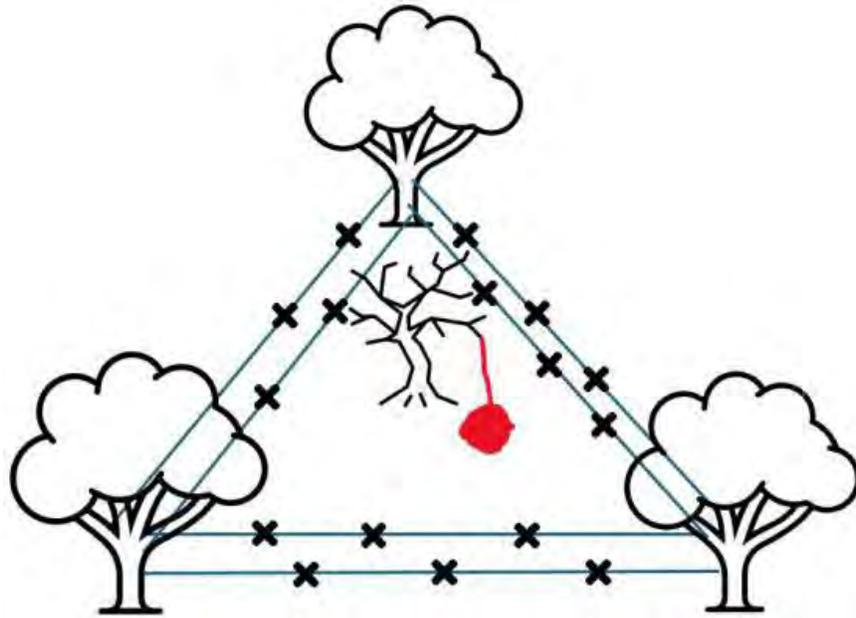
##### **General Site Conditions:**

##### ***Fieldwork Description:***

Hair Snares - Hair snares will be placed on the landscape in clusters of 9. Hair snares within a cluster will be approximately 1 mile apart (2000m) from one another, and each cluster will be approximately 6 miles apart (10,000m). We aim to set up a total of 155 hair snares in 2025, with 59 on public state land (see Table 1 for a complete list; Fig. 4-15).

Each hair snare site will consist of two barbed wire hair snares wrapped around 3-5 trees and baited with lure in the middle, either on the ground or hanging from string rope, to attract bears in the vicinity of the hair snare (Fig. 3). The typical lure consists of one or more of the following: pastries, molasses, anise oil, and/or fish products. Barbed wire will be stapled to trees using fence staples. A sign will be placed on a tree or post near the hair snare indicating the equipment is part of the University of Maryland Black Bear Project. Each hair snare will have the project's website, phone number, and lab information. Flagging will be placed on the trees directly around the snare and to the barbed wire. Barbed wire has to be parallel to the ground, and the ground has to be flat. If necessary, shrub-like vegetation will be removed if it obstructs a bear's ability to crawl under or climb under the snares. If cameras are placed at the site, vegetation will be cleared with gardening tools to reduce any obstructions to photographing wild animals that could come across the site. Once the sampling is completed, all equipment and materials will be removed.

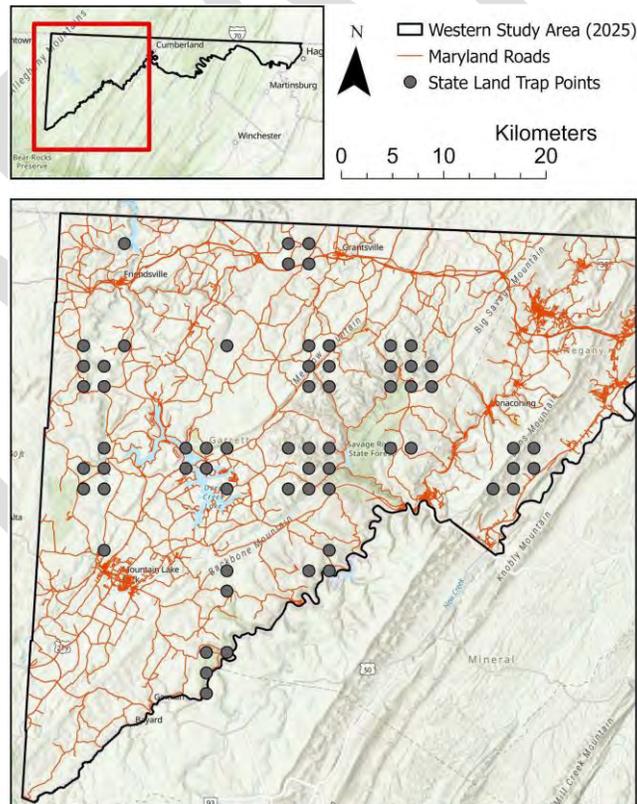
A portion of sites will have camera traps set up on a tree, with enough distance to capture the entirety of the hair snare. Cameras are motion-activated and capture any movement within a 70 to 120-degree field of view angle. Photos will be taken in bursts, with a select few having motion-activated video recordings.



**Figure 1.** (a) The example above is of what a bear hair snare would look like. Two barbed wires wrapped around three trees, with bait in the middle. (b) The photo above is black bear hair snagged on a barbed wire. Image credit: FWC Fish and Wildlife Research Institute.



**Figure 3.** Baited hair snare site with female black bear and cub. Two barbed wires are wrapped around trees with bait in the middle. A female is crawling over barbed wire, depositing hair samples.  
*Image Credit: Mississippi State University Carnivore Ecology Lab*



**Figure 4.** Map of requested state public land snare locations for the summer 2025 field season in western Maryland. Gray circles are snares overlaid on Maryland's main roads (orange lines) within the western study area (black outline).

### **3. MDE Tier II Biological Stream Survey**

#### **Maryland Department of Environment**

#### **Project Description:**

Maryland Dept. of the Environment is requesting permission to conduct a DNR MBSS-style survey<sup>2</sup> of the following five sites on State Lands in 2026:

1. Dry Run in Savage River State Forest at a site located off Dry Run Rd., approximately 0.70 miles from the junction with Savage River Rd. The site to be sampled will be 75 meters of the creek with the midpoint of the 75 meters at approximately these coordinates: 39.52845N/-79.15366W. We will park our state vehicles on the shoulder of Dry Run Rd. near the site and hike down to the creek.
2. Bear Pen Run in Savage River State Forest located approximately 1000 feet northwest of the Savage River Rd. crossing of Bear Pen Run. The site to be sampled will be 75 meters of the creek with the midpoint of the 75 meters at approximately these coordinates: 39.56473N/-79.11376W. We will park on the shoulder of Savage River Rd. or if possible on a gated forest road located off Savage River Rd. just south of the crossing of Bear Pen Run.
3. Piney Branch at a site in the 371 acre Patapsco Valley State Park lot located off Hoods Mill Rd. near Eldersburg, MD. The site to be sampled will be 75 meters of the creek with the midpoint of the 75 meters at approximately these coordinates: 39.35912N/-76.99766W, which is approximately 1,145 meters east of Hoods Mill Rd. We will likely park our state vehicles at a private residence located on the east side of the creek (39.35973N/-76.99609W) because it provides a shorter hike to the creek.
4. Beetree Run on a 1 acre State of Maryland parcel located adjacent to the TCB parking lot on Bentley Rd. The site to be sampled will be 75 meters of the creek with the midpoint of the 75 meters at approximately these coordinates: 39.67514N/-76.67122W, which is a short hike from the TCB parking lot.
5. Wolf Den Branch in Cedarville State Forest at some location along the "White Trail". The site to be sampled will be 75 meters of the creek with the midpoint of the 75 meters at approximately these coordinates: 38.63852N/-76.82005W. We will park at the Charcoal Kiln parking lot, which is an approximately 750 meter hike from the designated site location.

This work will consist of sampling of aquatic invertebrates on one day in the spring sampling period (March 1<sup>st</sup> – April 30<sup>th</sup>) collected from 20 jabs of a standard D-frame net (20 ft<sup>2</sup> total sampled area) and a fish electroshocker survey conducted on one day in the summer sampling period (June 1<sup>st</sup> – September 30<sup>th</sup>). Fish are identified and enumerated in the field and released back to the creek alive. Aquatic invertebrates are preserved in alcohol and sorted and identified in the lab. The spring sampling will be conducted by approximately 2 -3 MDE employees and the summer fish survey will be conducted by approximately 4 - 6 MDE staff. On the day of sampling, MDE staff will arrive in two to four state vehicles and park in safe roadside locations on the roads mentioned above for each site. From these parking locations we will hike to the site coordinates using electronic GPS units. These stream sites have been identified as Tier II, a site classification for streams of high quality based on previous biological sampling results. The objective of the current proposed work is to obtain new data (targeted sampling) to re-assess the site's Tier II designations. These results are reported to the EPA as part of the state's mandate to assess state waters as required by the Clean Water Act. The project is limited to the flowing channel and will involve minor disturbance of the stream bottom from walking the channel while sampling, and from moving of cobble, woody debris and other habitat constituents to facilitate invertebrate or fish capture. The 75 meters of the sampling site will be marked with flagging tape at 0, 25, 50 and 75 meters. The flagging will be removed after completion of the summer fish survey. Minimal disturbance of the stream buffer will occur and be limited to walking along the banks to access the stream site. There will be no infrastructure

construction or installation and no soil boring, grading or tree removal. Shrub and small tree branches that extend into the wetted portion of the creek may be pruned to facilitate collection of aquatic invertebrates and fish.

**General Site Conditions:**

The existing physical features at the proposed site location includes the site stream channels, the bottom habitat of the creek (boulder, cobble, pebbles, silt, clay, sand and gravel) and associated in-stream habitat like woody debris, root wads, submerged vegetation, leaf packs and undercut banks. The land surrounding the Dry Run and Bear Pen Run sites are all rich forested buffer typical of Western Maryland montane forests. The land surrounding Piney Branch is a diverse Piedmont forest, the Beetree Run site is primarily forested along the north bank and shrub and grass habitat along the south bank and the Wolf Den Branch site is in rich southern coastal plain pine forest.

**Project Considerations:**

The spring sampling must be completed on one day sometime between March 1<sup>st</sup> and April 30<sup>th</sup> and the summer sampling on one day sometime between June 1<sup>st</sup> and September 30<sup>th</sup>.<sup>3</sup> If approved, these sites will be five of 22 Tier II sites MDE will schedule in 2026. The schedule for the spring sampling will be made up sometime in late February and the schedule for the summer sampling in May. We notify property owners several days in advance of the date of the scheduled sampling. Heavy rains can result in high stream flows and turbidity that create unsampleable conditions, and would cause a cancellation of sampling. If we have to cancel on the original date specified, we will notify you of the cancellation and of the new sampling date.

# Dry Run in Savage River State Forest - Site Plan Map



# Bear Pen Run in Savage River State Forest – Site Plan Map



#### **4. Western Region Bat Surveys**

##### **Project Description:**

Surveys are needed to better understand bat distributions and ecology in Maryland, particularly for federal and state-listed bats in areas where data gaps in occurrence exist. We will be conducting acoustic surveys, trapping (mist nets and/or harp traps), and potentially tracking individuals. All surveys will be done by NHP staff, with the potential for assistance from local universities such as Garrett College, Frostburg State, Allegany College, Appalachian Lab, and vetted volunteers. Work may occur at any time of the year but will be heaviest April through October. This work will occur over the next 5 years (2026-2031).

**Acoustic Surveys:** We will conduct broadscale acoustic surveys for bats using detectors with microphones capable of detecting the echolocation calls of bats. These recordings can then be analyzed to species or to species groups later in the office. Figure 1 (below) depicts a typical acoustic recorder from the Eastern Shore. Depending on the specific target species, recorders will be deployed at rock habitat, along old forested logging roads and trails, or along waterways. Equipment will be kept out of the main roadway if deployed on logging roads or trails. Bat detectors will be in place for a minimum of two weeks at potential summer habitat locations, which meets FWS protocols to determine presence/probable absence, and for several months at hibernacula.

**Camera Trapping:** Camera traps may be deployed in tandem or by themselves to supplement acoustic recordings (at potential hibernacula) and to document bat emergence periods (during the spring) and usage (over the summer).

**Trapping and Tagging:** At hibernacula and at sites identified through acoustic surveys, we will conduct targeted trapping to gain demographic information on bat populations. Harp traps will typically be used at cave and mine entrances or in tight trail corridors, while mist nets will be deployed in larger corridors such as old forest roads or streams. Specific work depends on funding, but may include tracking, banding, and obtaining samples. As the opportunity arises, a subset of bats will be fitted with radio tags, like those used for traditional radiotelemetry or the newer MOTUS or BlūBat tags, depending on each project's particular goals. Tags will be glued to the back of the bats. Bats may be banded to aid in identification of captured bats in hibernacula. Additional samples such as wing punches or swabs may be obtained for genetic analysis or to document the presence of *Pseudogymnoascus destructans*, the fungus that causes White-nose Syndrome.

##### **General Site Conditions:**

The detectors will be set up in areas likely to be used by bat conservation targets. Typical sites for work will be rock habitats (cliff lines, talus slopes, rock outcrops, shale barrens), old forest roads and trails, and riparian corridors.



Figure 1: Typical acoustic detector deployment.

## X. Silvicultural Proposals

Compartment 7 – Stands 21, 25, 31, 40

FY-27

### Proposed Platter Road Hardwood Thinning Stand A

#### Description / Resource Impact Assessment

**Location:** This proposal is located west of Platter Road and comprises the northernmost portion of the Bowman Hill Snowmobile Trail. An existing haul road will be utilized for this harvest its entrance onto Platter Road is approximately 0.54 miles north from the intersection of Platter Road at Amish Road. Improvements to the existing haul road will be part of the contract and involve approximately 0.2 miles of road improvements over the existing roadbed.

**Forest Community Type and Condition:** This 44-acre site contains a medium sawtimber mesic hardwood stand that is approximately 75 years old with an average merchantable diameter of 14.3 inches. The overstory consists of red maple (70%), northern red oak (18%), black cherry (5%), white oak (5%) and sweet birch (2%). The stocking in this stand is at 79% relative density with a basal area of 130 ft<sup>2</sup>/acre and 305 trees per acre. The stand is currently fully stocked with unacceptable growing stock (UGS) accounting for approximately 41% of the basal area. Desirable regeneration is currently lacking due to a heavy sapling layer of undesirable stems and the tight canopy of the midstory and overstory trees limiting adequate sunlight for seedling development.

**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 interference. This interference coupled with the tight canopy of the overstory trees and well developed midstory is significantly hindering regeneration establishment on the site. Tall woody interference occupies approximately 75% of the stand, consisting primarily of sweet birch. Low woody interference is moderate and occupies approximately 45% of the site, consisting primarily of greenbrier. Rhizomatous fern interference was found to occupy 36% of 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 was thinned in 1983. The adjacent 67-acre stand to the west was regeneration harvested in 1998, an 18-acre stand to the south was regeneration harvested in 2001, and a 30-acre stand to the north was regeneration harvested in 2007. Regeneration harvests adjacent to this stand were in response to forest health stressors such as spongy moth defoliations and associated mortality events. Evidence of past spongy moth mortality in oaks is evident throughout this stand, but it was likely not as severe as adjacent stands due to the large red maple component of the stand. No evidence of 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 contains no established HCVF areas.

**Water Resources:** This stand drains east into Tarkiln Run a tributary of the north branch of the Cassleman River flowing into the Cassellman 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 Forests Sustainable Forest Management Plan.

**Soil Resources:** The predominant soil types of this site are Dekalb and Gilpin Very Stony Sandy Loams, 0-15% slopes (DgC) and Cookport and Ernst Very Stony Silt Loams, 0 to 8% slopes (CuB). The soils are composed mainly of sandstone. These soils are moderately deep and well to moderately well drained with slight limitations for woodland management. 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 northernmost portion of the Bowman Hill Snowmobile Trail run through this stand for 0.36 miles. The trail is utilized for snowmobiling, hiking and hunter access. Active harvest operations will have a temporary impact to these recreation activities limited to the portion of the trail that passes through this proposed harvest. The majority of the trail will remain open for hiking and snowmobile users as conditions permit.

#### **Management and Silvicultural Recommendations:**

The proposed silvicultural treatment for this site is a commercial thinning given that competitive regeneration is hindered and the stand is fully stocked. A shelterwood seed cut thinning will be implemented, removing approximately 50 ft<sup>2</sup> of basal area per acre and reducing the residual basal area to 70-80 ft<sup>2</sup>. Removals will be concentrated on undesirable growing stock in all size classes to allow enough sunlight to reach the forest floor for regeneration establishment and development while leaving high quality trees at a uniform spacing for seed production. Estimated yield for the thinning is approximately 2,500 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. The process of the timber harvest should break the mid-story canopy of undesirable tall-woody interference and afford additional sunlight to the understory and established regeneration which is currently suppressed. Post-harvest monitoring will be conducted to determine if the present regeneration has responded to the thinning and if additional regeneration has established on the site. 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.

**Proposed Platter Road Hardwood Thinning Stand B**

**Description / Resource Impact Assessment**

**Location:** This proposal is located west of Platter Road and comprises the northernmost portion of the Bowman Hill Snowmobile Trail. An existing haul road will be utilized for this harvest its entrance onto Platter Road is approximately 0.54 miles north from the intersection of Platter Road at Amish Road. Improvements to the existing haul road will be part of the contract and involve approximately 0.2 miles of road improvements over the existing roadbed.

**Forest Community Type and Condition:** This 58-acre site contains a medium sawtimber mixed hardwood stand that is approximately 79 years old with an average merchantable diameter of 15.2 inches. The overstory consists of red maple (48%), northern red oak (43%), white oak (4%) and chestnut oak (3%). The stocking in this stand is at 86% relative density with a basal area of 136 ft<sup>2</sup>/acre and 385 trees per acre. The stand is currently overstocked with unacceptable growing stock (UGS), accounting for approximately 52% of the basal area. Desirable regeneration is currently lacking in number and size due to a heavy sapling layer of undesirable stems and the tight canopy of the midstory and overstory trees limiting adequate sunlight for seedling development.

**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 interference. This interference coupled with the tight canopy of the overstory trees and well developed midstory is significantly hindering regeneration establishment on the site. Tall woody interference occupies approximately 78% of the stand, consisting primarily of sweet birch. Low woody interference is moderate and occupies approximately 46% of the site, consisting primarily of greenbrier. Rhizomatous fern interference was minor and found to occupy 10% of 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 was thinned in 1983. The 93-acre stand to the east was commercially thinned in 1998. Evidence of past spongy moth mortality in oaks is evident throughout this stand. No evidence of 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 contains no established HCVF areas. The INA associated with Tarkiln Run is adjacent to the proposed harvest boundary.

**Water Resources:** This stand drains east into Tarkiln Run a tributary of the north branch of the Cassleman River flowing into 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 Forests Sustainable Forest Management Plan.

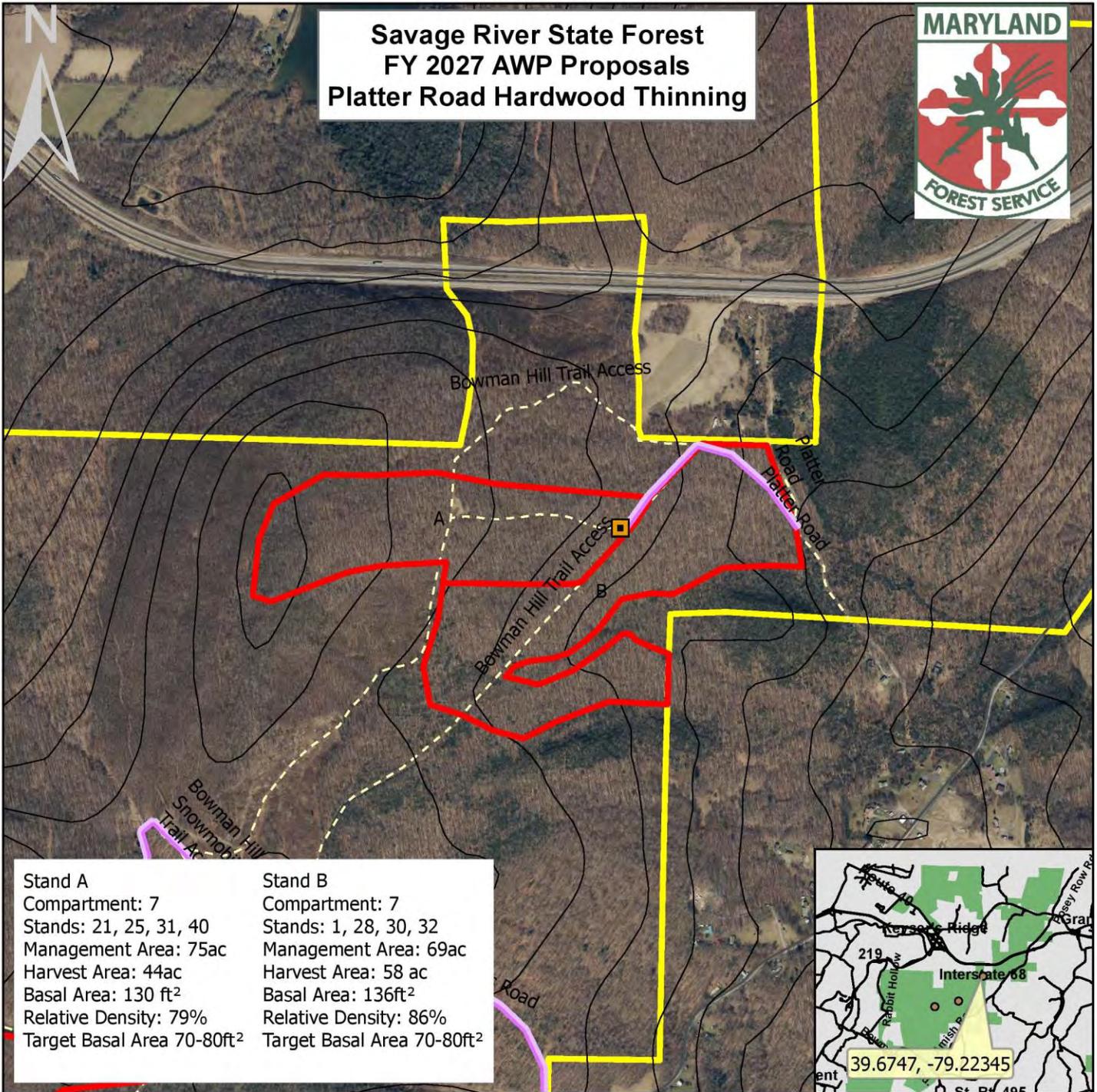
**Soil Resources:** The predominant soil types of this site are Dekalb and Gilpin Very Stony Sandy Loams, 15-25% slopes (DgC), Cookport, Ernst Very Stony Silt Loams, 0 to 8% slopes (CuB) and Cookport and Ernst Very Stony Silt Loams, 8 to 25% slopes (CuD). The soils are composed mainly of sandstone. These soils are moderately deep and well to moderately well drained with slight limitations for woodland management. 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 northernmost portion of the Bowman Hill Snowmobile Trail run through this proposed harvest for 0.36 miles. The trail is utilized for snowmobiling, hiking and hunter access. Active harvest operations will have a temporary impact to these recreation activities limited to the portion of the trail that passes through this proposed harvest. The majority of the trail will remain open for hiking and snowmobile users as conditions permit.

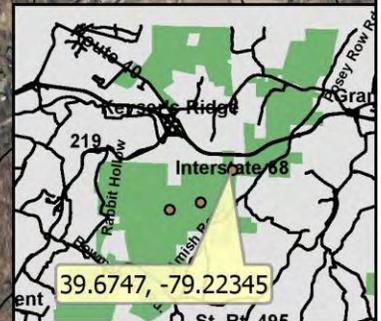
#### **Management and Silvicultural Recommendations:**

The proposed silvicultural treatment for this site is a commercial thinning given that competitive regeneration is hindered and the stand is fully stocked. A shelterwood seed cut thinning will be implemented, removing approximately 60 ft<sup>2</sup> of basal area per acre and reducing the residual basal area to 70-80 ft<sup>2</sup>. Removals will be concentrated on undesirable growing stock in all size classes to allow enough sunlight to reach the forest floor for regeneration establishment and development while leaving high quality trees at a uniform spacing for seed production. 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. The process of the timber harvest should break the mid-story canopy of undesirable tall-woody interference and afford additional sunlight to the understory and established regeneration which is currently suppressed. Post-harvest monitoring will be conducted to determine if the present regeneration has responded to the thinning and if additional regeneration has established on the site. 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.

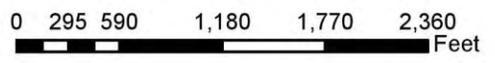
# Savage River State Forest FY 2027 AWP Proposals Platter Road Hardwood Thinning



Stand A	Stand B
Compartment: 7	Compartment: 7
Stands: 21, 25, 31, 40	Stands: 1, 28, 30, 32
Management Area: 75ac	Management Area: 69ac
Harvest Area: 44ac	Harvest Area: 58 ac
Basal Area: 130 ft <sup>2</sup>	Basal Area: 136ft <sup>2</sup>
Relative Density: 79%	Relative Density: 86%
Target Basal Area 70-80ft <sup>2</sup>	Target Basal Area 70-80ft <sup>2</sup>



1:12,000



**Legend**

- ▬ FY27 Proposed Harvest
- garrett roads
- Forest Roads
- ▭ BoundaryLine\_02182025
- SAV\_Contour
- ▣ Landing
- Haul Road
- Skid Road



**Proposed Bowman Hill North Regeneration Stand A****Description / Resource Impact Assessment**

**Location:** This proposal is located approximately 2 miles north of Bowman Hill Road in Compartment 11 of Savage River State Forest. The harvest area is accessed by an established haul road known as Bowman Hill North. The haul road entrance is approximately 1.25 miles east of the intersection of Bowman Hill Road with Rabbit Hollow Road. This proposal is located east of Bowman Hill North Access Road and south of the large transmission powerline that crosses the state forest at Amish Road and Little Bear Creek. The haul road for this sale will be the 1.6-mile segment of Bowman Hill North Forest Service Road starting at its intersection with Rabbit Hollow Road and then heading north.

**Forest Community Type and Condition:** This 21-acre site contains a two aged stand of small sawtimber and pole sized mesic hardwoods 70 years old with an average merchantable diameter of 12.6 inches. The overstory consists of red maple (47%), northern red oak (24%), sugar maple (19%), and yellow poplar (3%). The stocking in this stand is at 93% relative density with a basal area of 127 ft<sup>2</sup>/acre and 335 trees per acre. The stand was thinned in 2001 leaving a residual overstory of red maple, sugar maple and red oak. Desirable regeneration is present but is lacking in development due to a dense pole and midstory canopy layer of vigorously growing trees as a result of the 2001 thinning. The young cohort of pole and sapling sized trees are primarily composed of yellow poplar, red maple, sugar maple, black cherry, pin cherry and sweet birch are vigorously growing and ready for a release.

**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. Tall woody interference occupies approximately 96% of the stand, consisting primarily of witch hazel. Low woody interference is not an issue in this stand, due to the limited amount of sunlight reaching the forest floor from the extensive midstory. Rhizomatous fern interference was noted on approximately 68% of 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.

**Historic Conditions:** State Forest records indicate that the proposal area was thinned in 2001 along with two stands that were regeneration harvested at the same time in a combination thinning and regeneration harvest. The adjacent 14-acre stand to the north was regenerated in 2001. The 9-acre stand across the power line to the north was regenerated in 2001. The 20-acre stand across the haul road was regenerated in 2009 and the 24-acre stand was thinned in 2019. 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.

**Water Resources:** This stand drains west into Little Bear Creek, a tributary of Bear Creek within the Youghiogheny River Watershed. The eastern portion of this stand drains east into Alexander Run, a tributary of the North Branch Casselman river which flows into the Casselman River located 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 Forests Sustainable Forest Management Plan.

**Soil Resources:** The predominant soil types within this proposal are Meckesville very stony silt loam 8-25% Slopes (MdB) and Dekalb and Gilpin very stony loams, 15 to 25 % slopes (DdD). These soils are moderately deep to deep and well drained. The site has good to excellent productivity for woodland management, with a site index of 75-85 for upland oaks on the lower half of the stand and 65-75 for upland oaks on the side-slope portions of this stand. The productivity of the site will be protected by minimizing the haul roads and skid trails as 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 but also serves as part of the Bowman Hill Snowmobile Trail. It is unlikely the sale will be active in conjunction with snowmobile activities due to the distance to the county road. 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 older cohort of trees which are primarily in the overstory and at the same time removing undesirable species within the midstory such as sweet birch. The harvest should remove 3,750 board feet per acre. This harvest will release the younger cohort of desirable stems in the sapling and pole size classes to advance as the next stand and will consist of approximately 250-300 trees per acre. All undesirable merchantable trees within this stand will be identified for removal during this harvest to maximize quality of the new cohort of trees. Harvest operations will create disturbance and increased sunlight to the forest floor for additional seedling development and establishment. The harvesting process should bust up much of the undesirable stems in the midstory that are not merchantable such as witch hazel and striped maple.

**Proposed Bowman Hill North Hardwood Thinning Stand B****Description / Resource Impact Assessment**

**Location:** This proposal is located east of Bowman Hill North Access Road and south of the large transmission powerline that crosses the state forest at Amish Road and Little Bear Creek. The haul road for this sale will be the 1.6-mile segment of Bowman Hill North Forest Service Road starting at its intersection with Rabbit Hollow Road and then heading north. Additionally, timber can be transported from a portion of the Bowman Hill Snowmobile Trail, which borders the eastern part of this proposed harvest, and the Hambone Forest Service Access Road. This additional haul road would start at the intersection of Hambone Access Road and Amish Road and run West for 0.65 miles to the intersection with the Bowman Hill Snowmobile Trail where the haul road would then continue south for 0.32 miles. The contractor will have the option to use both haul routes as needed and haul road improvements will be included in the contract.

**Forest Community Type and Condition:** This 50-acre site contains a medium sawtimber mesic hardwood stand that is approximately 76 years old with an average merchantable diameter of 14.7 inches. The overstory consists of red maple (58%), northern red oak (23%), sweet birch (3%) and black cherry (1%). The stocking in this stand is at 74% relative density with a basal area of 124 ft<sup>2</sup>/acre and 216 trees per acre. The stand is currently fully stocked with unacceptable growing stock (UGS) accounting for approximately 40% of the basal area. Desirable regeneration is currently lacking in number and size due to a heavy sapling layer of undesirable stems and tight canopy of midstory and overstory trees limiting adequate sunlight for seedling development.

**Interfering Elements:** Interfering understory plant competition is sufficient to cause complications in desirable regeneration efforts with most of the site containing some form of interference. This interference coupled with the tight canopy of the overstory trees and well developed midstory is significantly hindering regeneration establishment on the site. Tall woody interference occupies approximately 89% of the stand, consisting primarily of witch hazel. Low woody interference is moderate and occupies approximately 19% of the site, consisting primarily of witch hazel. Rhizomatous fern interference was found to occupy 61% of 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. Over browsing 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 state acquisition except for a 5-acre portion of this stand that appears to have had a salvage-style harvest of primarily pole timber removed either through a pulpwood thinning or firewood harvest that likely occurred in the 1980s-1990s. Forest records show several of these small harvests took place, but maps or ample detail were not maintained for those few harvests due to

the size. The 14-acre stand to the west was regenerated in 2001. The 30-acre stand to the southwest was commercially thinned in 2001. The 61-acre stand to the south was commercially thinned in 2020. Evidence of past spongy moth mortality in oaks is evident throughout this stand and is the reason this unthinned stand has a lower basal area than normal for this area. Native cankerworm outbreaks have occurred in this stand for 2 consecutive years resulting in defoliation of approximately half of the vegetation in this stand. Trees experiencing decline from canker worm defoliations will be prioritized for removal during harvest. No evidence of 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 contains no established HCVF areas.

**Water Resources:** The western portion of this stand drains west into Little Bear Creek, a tributary of Bear Creek within the Youghiogheny River Watershed. The eastern portion of this stand drains east into Alexander Run, a tributary of the North Branch Casselman river which flows into the Casselman River located 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 Forests Sustainable Forest Management Plan.

**Soil Resources:** The Predominant soil types of this site are Dekalb and Leetonia very stony sandy loams, 0 to 15% slopes (DIC) and Cookport and Ernest very stony silt loams, 8 to 25% slopes (CuD). These soil types are composed mainly of sandstone. The soils are moderately deep and well to moderately well drained with slight limitations for woodland management. This site has good productivity for woodland management, with a site index of 55-65 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 haul road for this timber harvest is also used as a hiking trail and snowmobile trail. Active harvest operations will have a temporary impact on these recreation activities due to increased traffic from log trucks entering and exiting the harvest. It is unlikely this harvest will be active during snowmobiling season due to haul road length. The majority of the trail will remain open and unimpacted for hiking and snowmobile users.

### **Management and Silvicultural Recommendations:**

The proposed silvicultural treatment for this site is a commercial thinning given that competitive regeneration is hindered and the stand is fully stocked. A crown thinning will be implemented, removing approximately 50 ft<sup>2</sup> of basal area per acre and reducing the residual basal area to 70-80 ft<sup>2</sup>. Removals will be concentrated on undesirable growing stock in all size classes and on trees exhibiting signs of decline from cankerworm defoliation events. Removing these trees will allow sunlight to reach the forest floor for regeneration establishment and development while leaving high quality trees for seed production with an increase in growth as a response to the thinning. This thinning will increase the overall growth and vigor of the residual trees within the

stand which will increase the stands climate resiliency and reduce its susceptibility to insect and disease outbreaks. Estimated yield for the thinning is approximately 2,500 board feet per acre. Retention will favor small and medium sawtimber trees of superior form and health to facilitate seedling establishment of the future stand. The process of the timber harvest should break the mid-story canopy of undesirable tall-woody interference and afford additional sunlight to the understory for seedling establishment and development. Post-harvest monitoring will be conducted to determine if the present regeneration has responded to the thinning and if additional regeneration has established on the site. The long-term goal for the site is to have a fast growing and healthy forest that is resilient to future climate and insect and disease events with a desirable cohort of regeneration occupying the site to be released through future stand entries.

DRAFT

**Proposed Bowman Hill North Hardwood Thinning Stand C****Description / Resource Impact Assessment**

**Location:** This proposal is located east of Bowman Hill North Access Road and directly south of the large transmission powerline that crosses the state forest at Amish Road and Little Bear Creek. The haul road for this sale will be the 1.6-mile segment of Bowman Hill North Forest Service Road starting at its intersection with Rabbit Hollow Road and then heading north. Additionally, timber can be transported from a portion of the Bowman Hill Snowmobile Trail, which borders the eastern part of this proposed harvest, and the Hambone Forest Service Access Road. This additional haul road would start at the intersection of Hambone Access Road and Amish Road and run West for 0.65 miles to the intersection with the Bowman Hill Snowmobile Trail where the haul road would then continue south for 0.32 miles. The contractor will have the option to use both haul routes as needed and haul road improvements will be included in the contract.

**Forest Community Type and Condition:** This 28-acre site contains a Large sawtimber mesic hardwood stand that is approximately 95 years old with an average merchantable diameter of 18 inches. The overstory consists of northern red oak (53%), red maple (30%), white oak (11%) and sweet birch (3%). The stocking in this stand is at 77% relative density with a basal area of 139 ft<sup>2</sup>/acre and 160 trees per acre. The stand is currently overstocked with unacceptable growing stock (UGS) accounting for approximately 56% of the basal area. Desirable regeneration is currently lacking in number and size due to a heavy sapling layer of undesirable stems and tight canopy of midstory and overstory trees limiting adequate sunlight for seedling development.

**Interfering Elements:** Interfering understory plant competition is sufficient to cause complications in desirable regeneration efforts with most of the site containing some form of interference. This interference coupled with the tight canopy of the overstory trees and well developed midstory is significantly hindering regeneration establishment on the site. Tall woody interference occupies approximately 96% of the stand, consisting primarily of witch hazel. Low woody interference is moderate and occupies approximately 43% of the site, consisting primarily of witch hazel. Rhizomatous fern interference was minor and found to occupy 29% of 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. Over browsing 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 state acquisition. The 14-acre stand to the west was regenerated in 2001. The 30-acre

stand to the southwest was commercially thinned in 2001. No evidence of 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 contains no established HCVF areas.

**Water Resources:** This stand drains east into Alexander Run, a tributary of the North Branch Casselman river which flows into the Casselman River located 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 Forests Sustainable Forest Management Plan.

**Soil Resources:** The Predominant soil types of this site are Dekalb and Gilpin very stony sandy loams, 0 to 25% slopes (DIC) and Cookport and Ernest very stony silt loams, 0 to 25% slopes (CuD). These soil types are composed mainly of sandstone. These soils are moderately deep and well to moderately well drained with slight limitations for woodland management. This 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 haul road for this timber harvest is also used as a hiking trail and snowmobile trail. Active harvest operations will have a temporary impact on these recreation activities due to increased traffic from log trucks entering and exiting the harvest. It is unlikely this harvest will be active during snowmobiling season due to haul road length. The majority of the trail will remain open and unimpacted for hiking and snowmobile users.

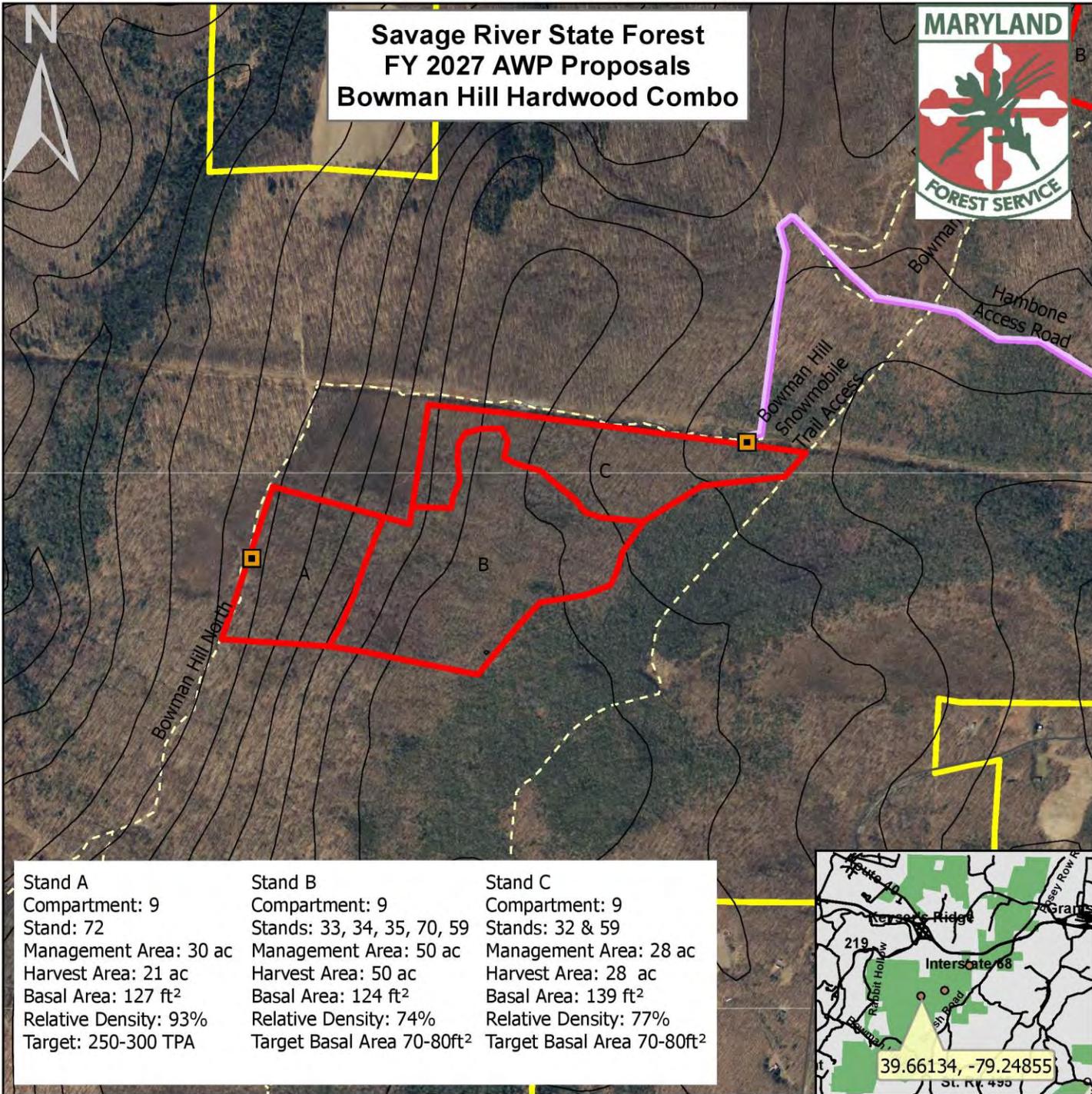
### **Management and Silvicultural Recommendations:**

The proposed silvicultural treatment for this site is a commercial thinning given that competitive regeneration is hindered and the stand is over stocked. A crown thinning will be implemented, removing approximately 70 ft<sup>2</sup> of basal area per acre and reducing the residual basal area to 70-80 ft<sup>2</sup>. Removals will focus on undesirable growing stock in all size classes while ensuring uniform spacing of residual trees. Removing these trees will allow sunlight to reach the forest floor for regeneration establishment and development while leaving healthy, high quality trees for seed production with an increase in growth as a response of the thinning. This thinning will increase the overall growth and vigor of the residual trees within the stand which will increase the stands climate resiliency and reduce its susceptibility to insect and disease outbreaks. Estimated yield for the thinning is approximately 4,000 board feet per acre. Retention will favor small and medium sawtimber trees of superior form and health to maximize stand health and facilitate seedling establishment of the future stand. The process of the timber harvest should break the mid-story canopy of undesirable tall-woody interference and afford additional sunlight to the understory for seedling establishment and development. Post-harvest monitoring will be conducted to determine if the present regeneration has responded to

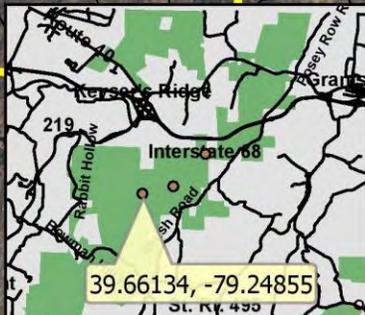
the thinning and if additional regeneration has established on the site. The long-term goal for the site is to have a fast growing and healthy forest that is resilient to future climate and insect and disease events with a desirable cohort of regeneration occupying the site to be released through future stand entries.

DRAFT

# Savage River State Forest FY 2027 AWP Proposals Bowman Hill Hardwood Combo



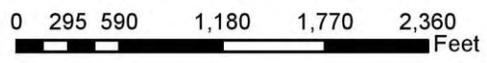
Stand A	Stand B	Stand C
Compartment: 9	Compartment: 9	Compartment: 9
Stand: 72	Stands: 33, 34, 35, 70, 59	Stands: 32 & 59
Management Area: 30 ac	Management Area: 50 ac	Management Area: 28 ac
Harvest Area: 21 ac	Harvest Area: 50 ac	Harvest Area: 28 ac
Basal Area: 127 ft <sup>2</sup>	Basal Area: 124 ft <sup>2</sup>	Basal Area: 139 ft <sup>2</sup>
Relative Density: 93%	Relative Density: 74%	Relative Density: 77%
Target: 250-300 TPA	Target Basal Area 70-80ft <sup>2</sup>	Target Basal Area 70-80ft <sup>2</sup>



1:12,000

**Legend**

- ▬ FY27 Proposed Harvest
- garrett roads
- Forest Roads
- ▬ BoundaryLine\_02182025
- SAV\_Contour
- Landing
- Haul Road
- Skid Road



**Proposed Weigh Station Hardwood Thinning Stand A****Description / Resource Impact Assessment**

**Location:** This proposal is located east of St. Johns Rock Road and south of interstate 68 on the east side of big savage mountain. This timbersale will utilize an existing landing and skid roads from an existing timber harvest and use existing Maryland forest service haul road named St. Johns Rock Road. The harvest will utilize St. Johns Rock haul road for approximately 2.6 miles until its intersection with the county road also named St. Johns Rock Road. Improvements to the existing haul road will be part of the contract and involve approximately 2.6 miles of road improvements over the existing roadbed.

**Forest Community Type and Condition:** This 13-acre site contains a medium sawtimber mesic oak stand that is approximately 78 years old with an average merchantable diameter of 14.7 inches. The overstory consists of northern red oak (52%), red maple (30%), black cherry (7%), chestnut oak (5%), black oak (2%), hickory (2%) and white oak (2%). The stocking in this stand is at 71% relative density with a basal area of 120 ft<sup>2</sup>/acre and 335 trees per acre. The stand is currently fully stocked with unacceptable growing stock (UGS) accounting for approximately 30% of the basal area. Desirable regeneration is present but some stems are lacking in development due to a dense pole and midstory canopy layer of vigorously growing trees as a result of the commercial thinning this stand received in 2000. The young cohort of pole and sapling sized trees are primarily composed of sweet birch, red maple, black cherry, northern red oak, sugar maple and cucumber. These young stems are vigorously growing, and desirable species are ready for a release to allow for advancement in size and canopy class.

**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 interference. This interference coupled with the tight canopy of the overstory trees and well developed midstory is significantly hindering regeneration establishment on the site. Tall woody interference occupies approximately 79% of the stand, consisting primarily of witch hazel. Low woody interference occupies approximately 93% of the site, consisting primarily of witch hazel. Grass interference was minor only occupying 7% of 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 increase the likelihood of regeneration establishment on the site.

**Historic Conditions:** This stand was commercially thinned in 2000. The 86-acre stand to the west was deferment harvested in 2004. No evidence of 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 contains no established HCVF areas.

**Water Resources:** This stand drains east into an unnamed tributary of Sand Spring Run flowing into Georges Creek within the Potomac 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 Forests Sustainable Forest Management Plan.

**Soil Resources:** The predominant soil types of this site are Wharton channery silt loam, 8 to 15% slopes, very stony (WtC) and Dekalb and Gilpin very stony loams, 15 to 25% slopes (DgD). These soils are moderately deep and well to moderately well drained. The site has good productivity for woodland management, with a site index of 65-75 for northern red oak. 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 Braddock Road Historical Hiking Trail passes through a small portion of this site. This trail has historical significance and was maintained as a hiking trail in the past even equipped with small interpretive signs throughout the course. The trail has not been maintained for many years and some of the interpretive signs are in poor condition. This trail may be encountering light foot traffic but regular use is not apparent. Harvest activities will have a minimum impact to this trail as skid roads will only cross the trail when necessary and will cross the trail in designated areas. Timber mats will be temporarily placed over trail crossings to minimize disturbance to the trail. After the harvest is concluded, forest service personnel will create new signs for the trail and install them to replace the deteriorating signs currently present. In addition to replacing existing signs, a new large interpretive sign will be made and placed where the trail meets St. Johns Rock Road just to the northeast of this proposed thinning. This sign will be used to briefly educate the public on the trail's history and hopefully increase recreational users to this trail. All damage to trail will be remediated upon completion of the timber harvest activities. Active harvest operations will have a temporary impact on hiking activities limited to the portion of the trail that passes through this proposed harvest.

### **Management and Silvicultural Recommendations:**

The proposed silvicultural treatment for this site is a commercial thinning given that competitive regeneration is hindered and the stand is fully stocked. A crown thinning will be implemented, removing approximately 60 ft<sup>2</sup> of basal area per acre and reducing the residual basal area to 60-70 ft<sup>2</sup>. Removals will concentrate on undesirable growing stock in all size classes and focus on releasing advanced regeneration that has established from the previous thinning in 2000. Sufficient canopy gaps will be created as needed to ensure advanced regeneration is released and allowed to develop into larger size and canopy classes. This thinning will increase the overall growth and vigor of the residual trees within the stand which will increase the stand's climate resiliency and reduce its susceptibility to insect and disease outbreaks. Estimated yield for the thinning is approximately 2,000 board feet per acre. Retention will favor small to

medium sawtimber trees of superior form and health to maximize stand health and facilitate seedling establishment of the future stand. The process of the timber harvest should break the mid-story canopy of undesirable tall-woody interference and afford additional sunlight to the understory and established regeneration which is currently suppressed. Post-harvest monitoring will be conducted to determine if the present regeneration has responded to the thinning and if additional regeneration has established on the site. The long-term goal for the site is to have a structurally diverse and healthy forest that is resilient to future climate and insect and disease events with a desirable cohort of regeneration occupying the site to be released through future stand entries or stand replacing events.

DRAFT

**Proposed Weigh Station Hardwood Thinning Stand B****Description / Resource Impact Assessment**

**Location:** This proposal is located east of St. Johns Rock Road and south of interstate 68 on the east side of big savage mountain. This timbersale will utilize an existing landing and skid roads from an existing timber harvest and use existing Maryland forest service haul road named St. Johns Rock Road. The harvest will utilize St. Johns Rock haul road for approximately 2.6 miles until its intersection with the county road also named St. Johns Rock Road. Improvements to the existing haul road will be part of the contract and involve approximately 2.6 miles of road improvements over the existing roadbed.

**Forest Community Type and Condition:** This 84-acre site contains a large sawtimber mesic hardwood stand that is approximately 91 years old with an average merchantable diameter of 17.2 inches. The overstory consists of black cherry (37%), northern red oak (30%), red maple (19%), chestnut oak (3%), white oak (3%) and sugar maple (3%). The stocking in this stand is at 78% relative density with a basal area of 155 ft<sup>2</sup>/acre and 323 trees per acre. The stand is currently overstocked with unacceptable growing stock (UGS), accounting for approximately 42% of the basal area. Desirable regeneration is currently lacking in number and size due to a heavy sapling layer of undesirable stems and the tight canopy of the midstory and overstory trees limiting adequate sunlight for seedling development.

**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 interference. This interference coupled with the tight canopy of the overstory trees and well developed midstory is significantly hindering regeneration establishment on the site. Tall woody interference occupies approximately 53% of the stand, consisting primarily of witch hazel. Low woody interference is moderate and occupies approximately 47% of the site, consisting primarily of striped maple. Rhizomatous fern interference was found to occupy 17% of the stand and grass interference was found to occupy 21% of 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 state acquisition. The adjacent 64-acre stand to the northwest was commercially thinned in 2000. An 86-acre stand to the west was deferment harvested in 2004. No evidence of 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 contains no established HCVF areas. The INA associated with Georges Creek Tributaries is adjacent to the proposed harvest boundary.

**Water Resources:** This stand primarily drains southwest into Winebrenner Run a tributary of the Georges Creek flowing into the North Branch of the Potomac River within the Potomac 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 Forests Sustainable Forest Management Plan.

**Soil Resources:** The predominant soil types of this site are Wharton channery silt loams, 3 to 15 % slopes, very stony (WtB & WtC) and Rayne silt loam, 15 to 25 % slopes, extremely stony (ReD). These soils are moderately deep and well to moderately well drained with moderate to high potential for runoff with increased slopes. 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 Braddock Road Historical Hiking Trail passes through a small portion of this site. This trail has historical significance and was maintained as a hiking trail in the past even equipped with small interpretive signs throughout the course. The trail has not been maintained for many years and some of the interpretive signs are in poor condition. This trail may be encountering light foot traffic but regular use is not apparent. Harvest activities will have a minimum impact to this trail as skid roads will only cross the trail when necessary and will cross the trail in designated areas. Timber mats will be temporarily placed over trail crossings to minimize disturbance to the trail. After the harvest is concluded, forest service personnel will create new signs for the trail and install them to replace the deteriorating signs currently present. In addition to replacing existing signs, a new large interpretive sign will be made and placed where the trail meets St. Johns Rock Road just to the northeast of this proposed thinning. This sign will be used to briefly educate the public on the trail's history and hopefully increase recreational users to this trail. All damage to trail will be remediated upon completion of the timber harvest activities. Active harvest operations will have a temporary impact on hiking activities limited to the portion of the trail that passes through this proposed harvest.

### **Management and Silvicultural Recommendations:**

The proposed silvicultural treatment for this site is a commercial thinning given that competitive regeneration is hindered and the stand is over stocked. A shelterwood seed cut thinning will be implemented, removing approximately 65 ft<sup>2</sup> of basal area per acre and reducing the residual basal area to 80-90 ft<sup>2</sup>. Removals will concentrate on undesirable growing stock in all size classes to allow enough sunlight to reach the forest floor for regeneration establishment and development while leaving healthy, high-quality trees with uniform spacing for seed production with an increase in growth as a response of the thinning. This thinning will increase the overall growth and vigor of the residual trees within the stand which will increase the stand's climate resiliency and reduce its susceptibility to insect and disease outbreaks. Estimated yield for the thinning is approximately 4,500 board feet per acre. Retention will favor medium sawtimber

trees of superior form and health to maximize stand health and facilitate seedling establishment/development of the future stand. The process of the timber harvest should break the mid-story canopy of undesirable tall-woody interference and afford additional sunlight to the understory and established regeneration which is currently suppressed. Post-harvest monitoring will be conducted to determine if the present regeneration has responded to the thinning and if additional regeneration has established on the site. The long-term goal for the site is to have a fast growing and healthy forest that is resilient to future climate and insect and disease events with a desirable cohort of regeneration occupying the site to be released through future stand entries or stand replacing events.

DRAFT

**Proposed Weigh Station Hardwood Thinning Stand C****Description / Resource Impact Assessment**

**Location:** This proposal is located east of St. Johns Rock Road and south of interstate 68 on the east side of big savage mountain. This timbersale will utilize an existing landing and skid roads from an existing timber harvest and use existing Maryland forest service haul road named St. Johns Rock Road. The harvest will utilize St. Johns Rock haul road for approximately 2.6 miles until its intersection with the county road also named St. Johns Rock Road. Improvements to the existing haul road will be part of the contract and involve approximately 2.6 miles of road improvements over the existing roadbed.

**Forest Community Type and Condition:** This 15-acre site contains a medium sawtimber mixed oak stand that is approximately 95 years old with an average merchantable diameter of 16.8 inches. The overstory consists of northern red oak (38%), chestnut oak (26%), red maple (13%), sweet birch (7%), black cherry (7%), white oak (5%) and sugar maple (4%). The stocking in this stand is at 93% relative density with a basal area of 156 ft<sup>2</sup>/acre and 373 trees per acre. The stand is currently overstocked with unacceptable growing stock (UGS), accounting for approximately 42% of the basal area. Oak and other competitive regen is currently stocked at approximately 5,777 stems per acre but is lacking in size due to a heavy sapling layer of undesirable stems and the tight canopy of the midstory and overstory trees limiting adequate sunlight for seedling development.

**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 interference. This interference coupled with the tight canopy of the overstory trees and well developed midstory is significantly hindering regeneration development on the site. Tall woody interference occupies approximately 70% of the stand, consisting primarily of sweet birch. Low woody interference is moderate and occupies approximately 41% of the site, consisting primarily of lowbush blueberry.

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 state acquisition. The adjacent 64-acre stand to the northwest was commercially thinned in 2000. The 86-acre stand to the west was deferment harvested in 2004. No evidence of 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 contains no established HCVF areas. The INA associated with Georges Creek Tributaries is adjacent to the proposed harvest boundary.

**Water Resources:** This stand drains west into Winebrenner Run a tributary of the Georges Creek flowing into the North Branch of the Potomac River within the Potomac 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 Forests Sustainable Forest Management Plan.

**Soil Resources:** The predominant soil types of this site are Gilpin channery silt loam, 15 to 25 % slopes, very stony (GcD) and Rayne silt loam, 15 to 25 % slopes, extremely stony (ReD). These soils are deep and well drained with high potential for runoff. The site has good productivity for woodland management, with a site index of 70-80 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 Braddock Road Historical Hiking Trail passes through a small portion of this site. This trail has historical significance and was maintained as a hiking trail in the past even equipped with small interpretive signs throughout the course. The trail has not been maintained for many years and some of the interpretive signs are in poor condition. This trail may be encountering light foot traffic but regular use is not apparent. Harvest activities will have a minimum impact to this trail as skid roads will only cross the trail when necessary and will cross the trail in designated areas. Timber mats will be temporarily placed over trail crossings to minimize disturbance to the trail. After the harvest is concluded, forest service personnel will create new signs for the trail and install them to replace the deteriorating signs currently present. In addition to replacing existing signs, a new large interpretive sign will be made and placed where the trail meets St. Johns Rock Road just to the northeast of this proposed thinning. This sign will be used to briefly educate the public on the trail's history and hopefully increase recreational users to this trail. All damage to trail will be remediated upon completion of the timber harvest activities. Active harvest operations will have a temporary impact on hiking activities limited to the portion of the trail that passes through this proposed harvest.

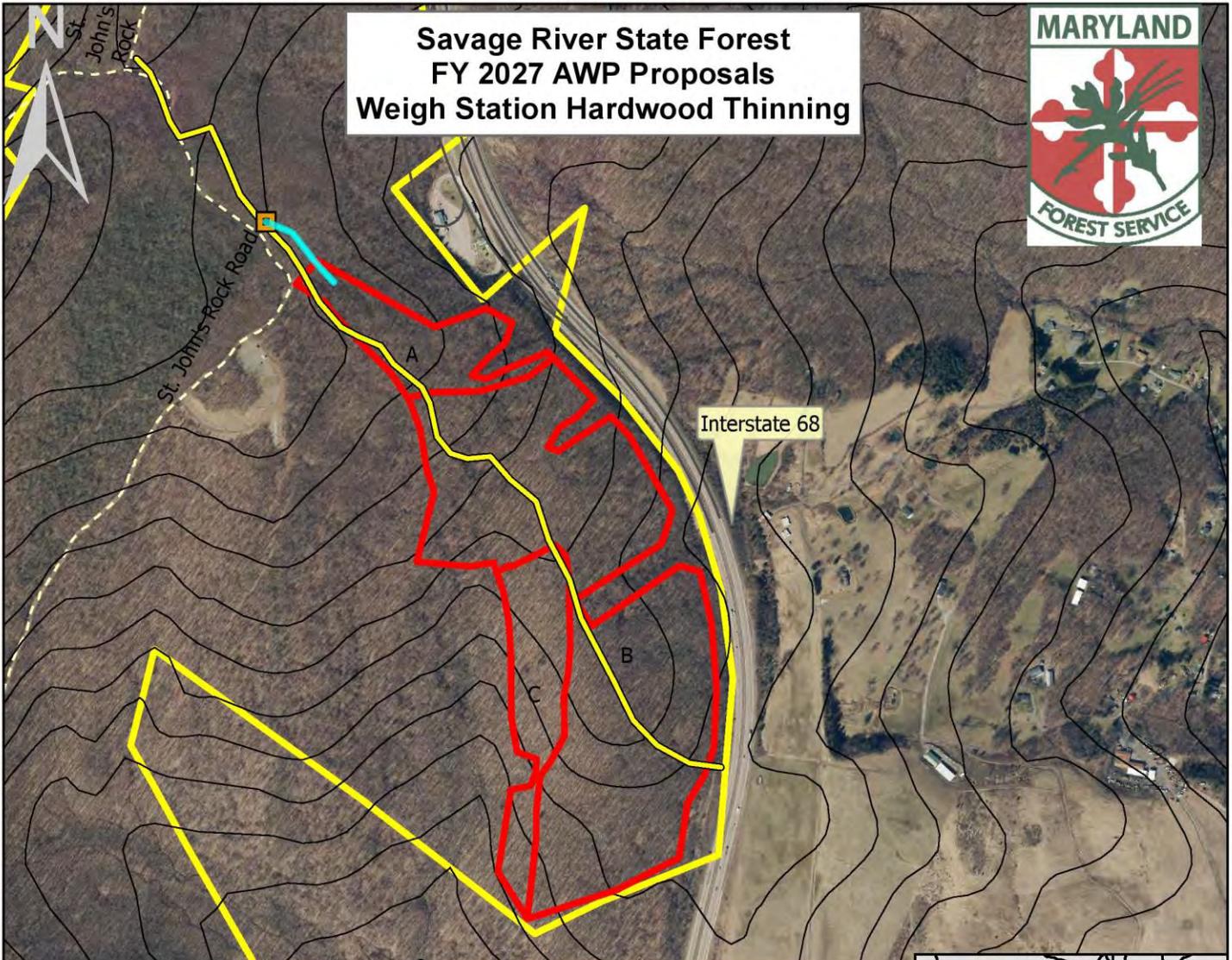
### **Management and Silvicultural Recommendations:**

The proposed silvicultural treatment for this site is a commercial thinning given that competitive regeneration is hindered and the stand is over stocked. A shelterwood seed cut thinning will be implemented, removing approximately 70 ft<sup>2</sup> of basal area per acre and reducing the residual basal area to 70-80 ft<sup>2</sup>. Removals will concentrate on undesirable growing stock in all size classes to allow enough sunlight to reach the forest floor for regeneration establishment and development. The residual stand will consist of healthy, high-quality trees with uniform spacing for seed production with an increase in growth as a response to the thinning. This thinning will increase the overall growth and vigor of the residual trees within the stand which will increase the stand's climate resiliency and reduce its susceptibility to insect and disease outbreaks. Estimated yield for the thinning is approximately 4,000 board feet per acre. Retention will favor medium sawtimber trees of superior form and health to maximize

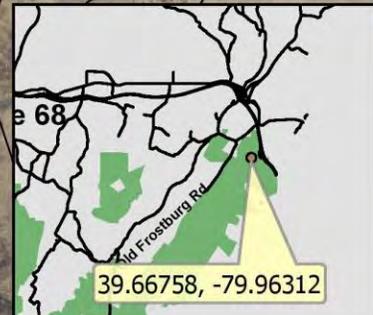
stand health and facilitate seedling establishment of the future stand. The process of the timber harvest should break the mid-story canopy of undesirable tall-woody interference and afford additional sunlight to the understory and established regeneration which is currently suppressed. Post-harvest monitoring will be conducted to determine if the present regeneration has responded to the thinning and if additional regeneration has established on the site. The long-term goal for the site is to have a fast growing and healthy forest that is resilient to future climate and insect and disease events with a desirable cohort of regeneration occupying the site to be released through future stand entries or stand replacing events.

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# Savage River State Forest FY 2027 AWP Proposals Weigh Station Hardwood Thinning



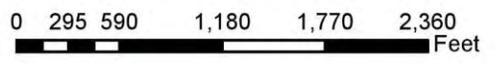
Stand A	Stand B	Stand C
Compartment: 38	Compartment: 38	Compartment: 38
Stand: 1	Stands: 34, 36, 37, 38	Stand: 28
Management Area: 13 ac	Management Area: 103 ac	Management Area: 18 ac
Harvest Area: 13 ac	Harvest Area: 84 ac	Harvest Area: 25 ac
Basal Area: 120 ft <sup>2</sup>	Basal Area: 155 ft <sup>2</sup>	Basal Area: 156 ft <sup>2</sup>
Relative Density: 71%	Relative Density: 78%	Relative Density: 93%
Target Basal Area 60-70 ft <sup>2</sup>	Target Basal Area 80-90ft <sup>2</sup>	Target Basal Area 70-80ft <sup>2</sup>



### Legend

- Braddock's Road
- FY27 Proposed Harvest
- garrett roads
- Forest Roads
- BoundaryLine\_02182025
- SAV\_Contour
- Landing
- Haul Road
- Skid Road

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## Compartment 47 – Stands 31, 46-49, 105, 113-115,

### Proposed Mill Run Hardwood Thinning

FY-27

#### Description / Resource Impact Assessment

**Location:** This harvest proposal is located north of Westernport Road in compartment 47 of Savage River State Forest. Access will be by way of an existing Maryland Forest Service haul road called Mill Run Access Road. The haul road entrance is approximately 0.95 miles northwest of the intersection of Westernport Road with Aaron Run Road. The harvest will utilize the first 0.25 miles of Mill Run Access Road from its intersection with Westernport Road. Improvements to the existing haul road will be part of the contract and involve approximately 0.25 miles of road improvements over the existing roadbed.

**Forest Community Type and Condition:** This 126-acre site contains a medium sawtimber northern hardwood stand that is approximately 102 years old with an average merchantable diameter of 16.7 inches. The overstory consists of sugar maple (59%), red maple (10%), American Basswood (8%), cucumber tree (5%), hickory (5%), black cherry (4%) and northern red oak (3%). The stocking in this stand is at 84% relative density with a basal area of 118ft<sup>2</sup>/acre and 221 trees per acre. The stand is currently fully stocked with unacceptable growing stock (UGS) accounting for over 33% of the basal area. Desirable regeneration is currently present with an estimated 3388 stems per acre primarily composed of black cherry red maple and sugar maple. Regeneration is suppressed by the dense mid-story and overstory layer of shade tolerant trees comprised of both desirable and undesirable species. An estimated 135 trees per acre of acceptable stems, comprised mainly of sugar maple, in the sapling and pole size classes are present in this northern hardwood stand and are a result of the thinning that occurred nearly 30 years ago.

**Interfering Elements:** Interfering understory plant competition is sufficient to cause complications in desirable regeneration efforts with 2/3rds 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 within the stand. Tall woody interference occupies approximately 46% of the stand consisting primarily of witch hazel, beech and sweet birch. Low woody interference occupies approximately 45% of the site, consisting primarily of striped maple. Rhizomatous fern interference was found to occupy 14% of the stand and grass interference was found to occupy 6% of 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 site was thinned in 1990. Several pine plantations to the southeast of this site were regenerated in 2001. A stand to the north was salvaged harvested in 1997 and a stand to the northeast was deferment harvested in

2004. A reclaimed coal strip mine borders this stand to the south and northeast, the strip mine was reclaimed with grass and dense contour strips of planted red pine and white pine. This landscape has a history of spongy moth outbreaks and associated defoliation events that led to mortality events of trees primarily oaks on this site and adjacent stands. Weathered evidence of spongy moth mortality is present in this stand.

**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 contain any HCVF areas, but the northern boundary of the proposal borders the Mill Run Rocks-INA&ESA and the northwestern boundary borders an Old Growth Ecosystem Management Area. The proposed harvest will take place outside of these high conservation value forest areas. A portion of the proposed haul road which is the existing haul road called Mill Run Access road is located within the Old Growth Ecosystem Management area.

**Water Resources:** This stand drains northeast into Mill Run within the Savage River Watershed. The proposed silvicultural treatments will be outside of all HCVF stream buffers and designated wetland 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 predominant soil types of this site are Dekalb and Gilpin very stony loams, 15 to 25 % (DgD) and Stony land, steep (SrF). These soils are generally moderately deep and well drained. Degree of slope ranges from 10-45% throughout the site. Equipment limits range from moderate to severe due to slope. Erosion potential is high on the steeper slopes. 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 and utilizing existing haul roads as per the Department's Best Management Practices and rutting guidelines.

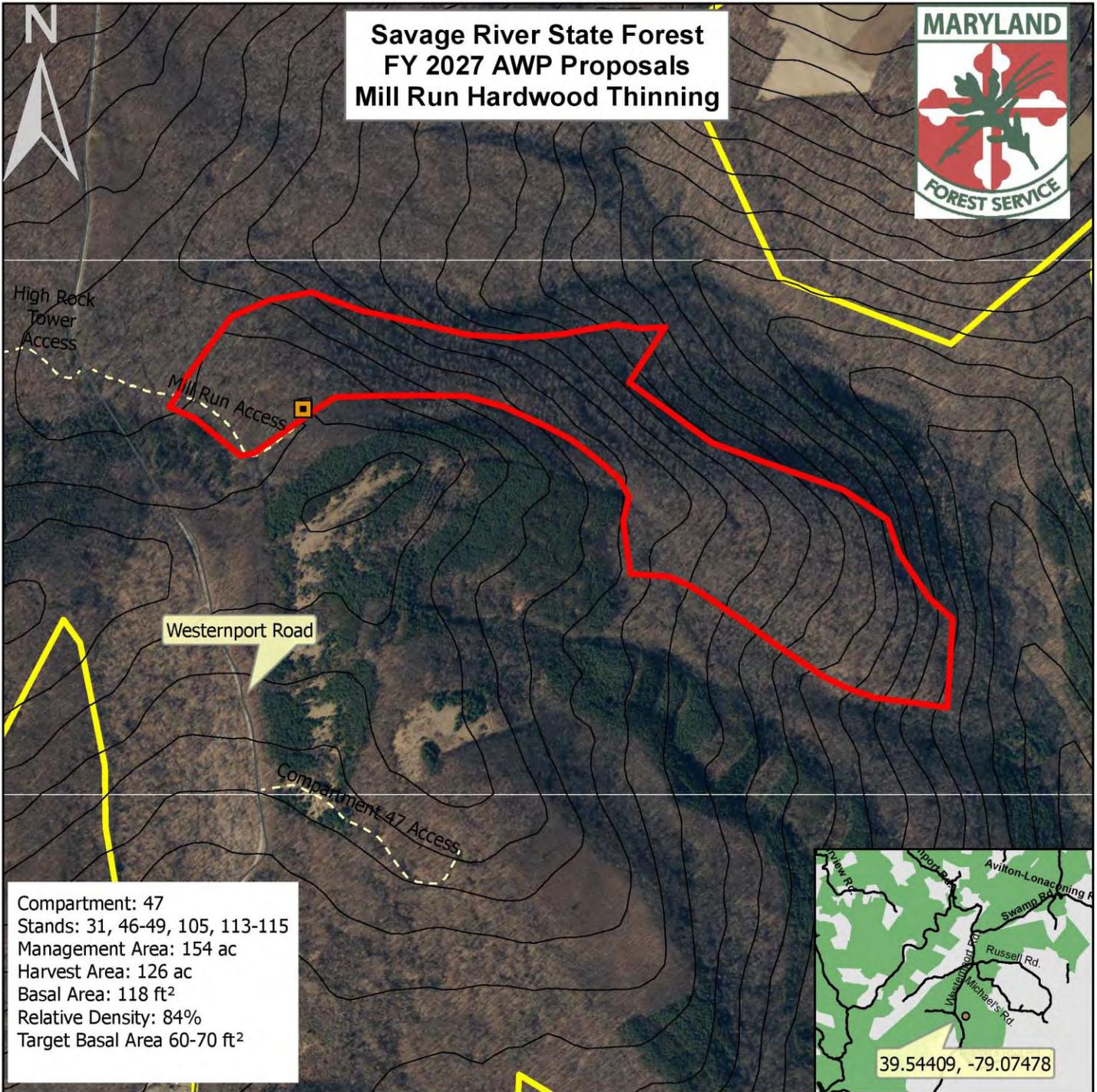
**Recreation Resources:** No developed recreational resources are located within the stand. The access road for the stand is primarily utilized for hunting access. Hunting opportunities may be disrupted for the duration of the harvest and access to the site may be limited depending on the timing of the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

### **Management and Silvicultural Recommendations:**

The proposed silvicultural treatment for this site is a commercial thinning given that competitive regeneration is present but suppressed. Overstory and midstory layers consist of shade tolerant trees that are blocking most of the sunlight reaching the forest floor necessary for regeneration development. A crown thinning will be implemented, removing approximately 50 ft<sup>2</sup> of basal area per acre and reducing the residual basal area to 60-70 ft<sup>2</sup>. Determination of removal trees will primarily focus on undesirable growing stock (UGS) across all size classes and secondarily remove trees to release high quality pole and sapling sized sugar maple and other desirable stems. This thinning will result the removal of 20% of poles, 30% of small sawtimber, 25% of medium sawtimber, and 90% of large sawtimber trees that will afford large canopy gaps and

facilitate regeneration establishment in the understory. Estimated yield for the thinning is approximately 2,750 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 poles, small and medium sawtimber trees of superior form and health to facilitate seedling establishment of the future stand. Shade tolerant sapling and pole sized sugar maples will benefit from this thinning and advance in size and canopy classes taking advantage of the light gaps created by this thinning. The process of the timber harvest should break the mid-story canopy of undesirable tall-woody interference and afford additional sunlight to the understory and established regeneration which is currently suppressed. Post-harvest monitoring will be conducted to determine if the present regeneration has responded to the thinning and if additional regeneration has established on the site. The long-term goal for the site is to have a structurally diverse and healthy uneven aged northern hardwoods forest that is resilient to future climate and insect and disease events with adequate regeneration occupying the site to be released/developed through future stand entries or stand replacing events.

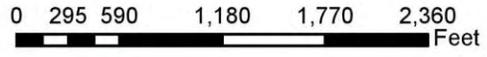
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**Legend**

- ▬ FY27 Proposed Harvest
- garrett roads
- Forest Roads
- ▬ BoundaryLine\_02182025
- SAV\_Contour
- Landing
- Haul Road
- Skid Road

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## **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 \$704,076.00. Of that amount, \$435,717 goes to fund classified salaries and benefits for five employees; \$176,820.00 funds four contractual employees and \$91,539 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-2024.

#### **B. SRSF Funding Sources: Estimated - \$704,076**

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 1<sup>st</sup>, 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 no active / open Recreational Trail Grant requests for FY25.

#### C. Operational Cost: Estimated Annual Expenses - \$704,076

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-2025 budget proposal was prepared in August of 2023.

- *Classified Salaries, Wages and Benefits: \$435,717*

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: \$176,820*

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: \$91,539*

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: 10-Year Timber Harvest Summary Table**

<i>Fiscal Year</i>	<i>Planned Harvest</i>	<i>Bd. Ft. Vol. Harvested</i>	<i>Gross value</i>
<b>2016</b>	<b>1,020,000 BD FT</b>	<b>941,285</b>	<b>\$225,796.59</b>
<b>2017</b>	<b>1,000,000 BD FT</b>	<b>853,347</b>	<b>\$248,487.50</b>
<b>2018</b>	<b>1,200,000 BD FT</b>	<b>1,152,074</b>	<b>\$205,100.00</b>
<b>2019</b>	<b>1,200,000 BD FT</b>	<b>1,406,680</b>	<b>\$401,481.00</b>
<b>2020</b>	<b>1,200,000 BD FT</b>	<b>1,161,591</b>	<b>\$304,172.62</b>
<b>2021</b>	<b>1,200,000 BD FT</b>	<b>784,520</b>	<b>\$289,280.00</b>
<b>2022</b>	<b>1,200,000 BD FT</b>	<b>1,354,237</b>	<b>\$526,109.00</b>
<b>2023</b>	<b>1,200,000 BD FT</b>	<b>867,013</b>	<b>\$271,150.00</b>
<b>2024</b>	<b>1,200,000 BD FT</b>	<b>1,484,455</b>	<b>\$463,918.73</b>
<b>2025</b>	<b>1,200,000 BD FT</b>	<b>644,949</b>	<b>\$249,892.60</b>

## Appendix 2: 2025 SFI / FSC Audit Summary



The 2025 SFI/FSC Dual Certification audit was completed on the four Western Region State Forests in March of 2025. The week-long audit turned up no significant findings and no opportunities for improvement (OFI) or corrective action requests (CAR) were generated for our western region operations. Auditors praised the MD Forest Service attention to detail regarding our silviculture program and land management techniques. The 2026 audit has been scheduled for March 2026 and will be focused entirely on the Eastern Shore of Maryland with Chesapeake Forest Lands and Pocomoke State Forest.

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**Appendix 3: Interdisciplinary Team Review and Comments**



## Appendix 4: Citizens Advisory Committee Review and Comments

Maryland Department of Natural Resources Forest Service

Savage River State Forest  
FY-27 Annual Work Plan  
Citizen's Advisory Committee  
In-person scheduled



**Advisory Committee Members:** Mark Diehl, Kevin Dodge, Mike Dreisbach, Steve Green, Rusty Leonard, Will Williams, Donnie Kamp

**Meeting Attendees:**

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**Appendix 5: Public Comments**

**Maryland Department of Natural Resources  
Forest Service  
State Forests Annual Work Plan FY 2026**



**Public Comments for Savage River State Forest**

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