POTOMAC-GARRETT STATE FOREST
ANNUAL WORK PLAN

FISCAL YEAR 2021

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Potomac-Garrett State Forest
FY-21
Annual Work Plan

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FY-21 Annual Work Plan

I. State Forest Overview

The Potomac-Garrett State Forests situated in southwestern Garrett County in Western Maryland have the distinction of being the birthplace of forestry conservation in Maryland. The generous donation of 1,917 acres by the Garrett Brothers in 1906 not only serves as the foundation of the Garrett State Forest, but is the root of both Maryland's present Public Lands system and Forest Service. Mountain forests, streams and valleys make up the nearly 19,000 acres of this State Forest. The forest cover is predominantly a second growth mixed hardwood forest dominated by mixed oaks, sugar and red maples, black cherry, basswood, ash and birch. The geography of this area provides for a wide range of growing conditions from the harsh, wind and ice swept ridge tops of Backbone Mountain to the deep rich slopes above the North Branch of the Potomac River. Much of the State Forest lands contain excellent quality hardwoods.

Potomac-Garrett 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, 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-2021 Annual Work Plan for Potomac-Garrett State Forest was formulated in 2019. 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-21 Annual Work Plan for Potomac-Garrett State Forest details seven land management projects that will be the focus of the State Forest management staff for FY-21. 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 Potomac-Garrett State Forest Sustainable Management Plan including:

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

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

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

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

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

A. Special Management Projects Include:

1. Continued Development of the Certified, State Forest Sustainable Forest Management Plan - with special focus on addressing items identified as in need of improvement as a result of the 2018 FSC/SFI Certification Audits.

2. Forest Stand Delineation, Inventory and Monitoring – Completion of the project to re-inventory and redefine stands on the entire forest. This critical project will continue in FY-21. To date, 100% of the forest wide data collection has been completed. 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.

4. Ecologically Significant Area (ESA) Management Plan Development – Wildlife and Heritage staff continue to develop descriptions and management plans for the ESA areas to be included in the Potomac-Garrett State Forest Sustainable Forest Management Plan guidance document. These plans offer a look at the critical habitat elements that make up each of the designated Ecologically Sensitive Areas, and offer insights on management approaches that will assure continued protection of critical habitats, including some of the active management that has taken place to further assure protection of the rare, threatened and endangered species these areas are set up to protect.

B. Land Management Projects Include:

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

2. 1 Wildlife Habitat Enhancement Project that involves the improvement, creation and maintenance of early successional habitat on a 7.7-acre field opening.

3. 6 Silvicultural projects including:
2 Intermediate Harvest on 123 acres, 2 post harvest herbicide treatments on 94 acres and 3 Regeneration Harvests on 79.5 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 we enjoy 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-21 Annual Work Plan outlines 7 silvicultural projects on 304.2 acres, producing a harvest of approximately 582,500 board feet of sawtimber and accounting for an estimated $125,000 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-21 Annual Work Plan are selected to provide significant contributions to the sustainability of forest resources found within Potomac-Garrett State Forest and the ecosystems associated with it.

III. General Location Map for FY-21 Land Management Project Proposals

Approximately 304 Acres

Map Key

1. Compartment 14 Stand 12	*52-Acre Post-Harvest Herbicide Treatment*
2. Compartment 19 Stands 1, 4-6	*13-Acre Conifer Salvage / 119-Acre Hardwood Thinning*
3. Compartment 25 Stand 6	*4-Acre Conifer Thinning*
4. Compartment 34 Stand 1	*42-Acre Post-Harvest Herbicide Treatment*
5. Compartment 41 Stand 5	*6.5-Acre Hardwood Regeneration*
6. Compartment 45 Stand 21	*7.7-Acre Wildlife Enhancement Project*
7. Compartment 46 Stands 1,2	*60-Acre Hardwood Regeneration*

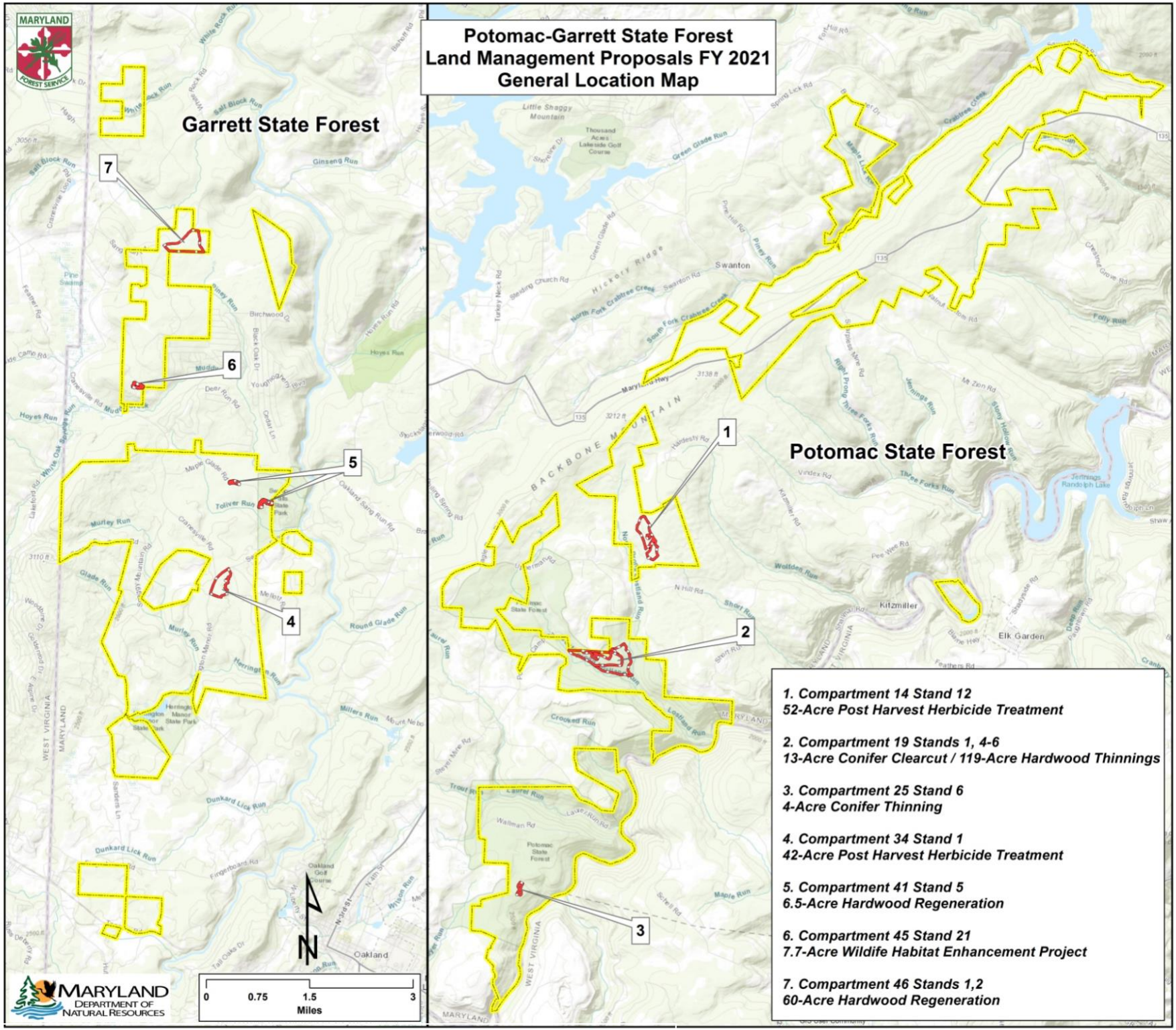


Figure 1. General location map for FY-21 land management proposals.

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 next two years, broad resource assessments were 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 had 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 Corrective Action Reports (CARs) and/or observations identified as needing 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 these items be addressed before the next annual audit, with some needing more immediate attention. A minor CAR was issued by both SFI and FSC 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. A second minor CAR was issued by FSC focused on pesticide reporting for utility right of way herbicide spraying. (See Appendix 4 and Appendix 5 for a summary of audit findings). 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. With the close of the fifth inventory season in 2016, the initial forest wide data collection has been completed on this stage of the forest monitoring program and processing of this data has been completed.

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 79.2 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.

In FY-21 maintenance staff will concentrate on carrying out planned trail maintenance as outlined in the National Recreation Trail Grant (NRT) detailed in the Recreation Section of this plan. This will be carried out in addition to basic maintenance on the segments of multiple-use

and motorized-use trails that have been rehabilitated using National Recreation Trail Grants over the past 5 years, along with routine maintenance of the roads and trails as outlined in the roads maintenance plan.

As a result of the State Forests Certification Audit, State Forest staff has developed a formalized transportation plan in which the entire transportation infrastructure has been inventoried and assessed for management, use and maintenance needs. From this assessment, the State Forest staff develops annual maintenance plans geared toward making the roads and trails system sustainable. Information gathered for this plan is presently being used to prioritize improvements to be made with the access trails grant referenced above, NRT Grant funds, Critical Maintenance Projects, etc. As work is contracted out, plans will be updated with regard to needs. All 79.2 miles of roads and trails have been classified based on desired use and condition. A detailed breakdown of the road management classification is available upon request at the Potomac-Garrett State Forest Headquarters.

B. Boundary Line Maintenance

Potomac-Garrett State Forest currently has 130 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 30 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, all previously unpainted and/or missing boundary lines are to be reestablished until the entire forest boundary is demarcated.

C. Campground Operation and Maintenance

Potomac-Garrett State Forest offers year round, primitive camping in five separate areas of the State Forest; Lostland Run, Laurel Run/Wallman, Snaggy Mountain and Piney Mountain. Within each area is a group site, a rustic trail shelter and several primitive campsites offering a picnic table, lantern post and fire ring. Vault toilets have been installed in each of the five areas to improve sanitary conditions for campers and forest visitors. Campsites and trail shelters are available on a first-come, first-served basis. A self-registration kiosk is available at the entrance to each area.

Major campsite maintenance coincides with major holidays, the end of winter and at the traditional end of the camping season 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. 3-D Archery Range Maintenance and Management

Potomac-Garrett State Forest offers the only 3-D Archery Range in Maryland's Public Lands System. Maintenance and operation of this facility includes: promotion of the facility; maintenance of information / bulletin boards; weekly inspection and cleaning; periodic maintenance and replacement of targets; hazardous tree evaluation and removals; brush removal as needed; site impact monitoring, annual overhaul and patching of targets; seasonal set up and take down for the off season.

The archery range, located behind the state forest headquarters, is open daily from dawn to dusk and offers a 30-target course, with four separate skill levels at each target. Rules and regulations are posted at the range and a $7.00 fee is required before shooting.

E. Interpretation and Education

With limited staffing resources, interpretive efforts have been focused on Sustainable Forest Management Programs for targeted audiences using the interpretive features at the Kindness Demonstration Area located off Fingerboard Road in Compartments 43 and 44. Primary audiences have included leaders in the fields of agricultural and natural resources, extension service personnel, forestry board members, forest land owners and forest land managers. The facility is set up as a self-guided lesson in forestry and wildlife management practices and is available to groups and individuals wishing to learn more about sustainably managing forests.

VI. Recreation

A. **Recreation Opportunities** (See Figures 2-4 p. 12-14)

1. Hiking and Biking Trails

Potomac-Garrett State Forest has over 80 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 patrons should 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

A variety of off road vehicle types are permitted on trail sections that are blazed green. These areas include Snaggy Mountain Road, Burkholder Road and Wallman Road. Riders should consult ORV maps and regulations for each state forest. Riders are required to obtain an annual registration and current Department of Natural Resources ORV permit, available online at www.dnr.maryland.gov.

3. Hunting

Hunting is permitted throughout the forest except where posted with safety zone signs. The

19,000 acres of Potomac-Garrett State Forest includes two state park areas (Herrington Manor and Swallow Falls) 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. 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. Disabled hunter access roads are also available. Brochures are available with more details concerning the disabled hunter accessible roads and their locations.

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 Potomac-Garrett 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 Potomac River including smallmouth bass, rock bass and several trout species. As part of the DNR trout management program, early spring through fall stocking provides excellent fishing. A variety of opportunities for wild brook trout and stocked brown and rainbow trout exist in other designated areas, including Lostland Run and Laurel Run. When fishing, be prepared to negotiate strong currents, large boulders and fallen trees in the water. Fishing is also available at the nearby Jennings Randolph Lake, which is downstream on the Potomac River. A boat ramp is located on the Maryland side accessible from Mt. Zion Road off MD Route 135. 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. Winter Recreation

Cross-country skiers and snowshoers of all abilities can enjoy a winter wonderland across Potomac-Garrett State Forest. The red and blue trails on the South Snaggy Complex are recommended for a backcountry snowshoe experience. Snowshoers must be careful to walk beside and not on cross-country tracks as it disrupts them.

7. Geocaching

Currently, 8 goecaches are located throughout Potomac-Garrett 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.

8. Maps

Brochures and maps are available at the Potomac-Garrett State Forest Headquarters Office located at 1431 Potomac Camp Road, Oakland, Maryland 21550.

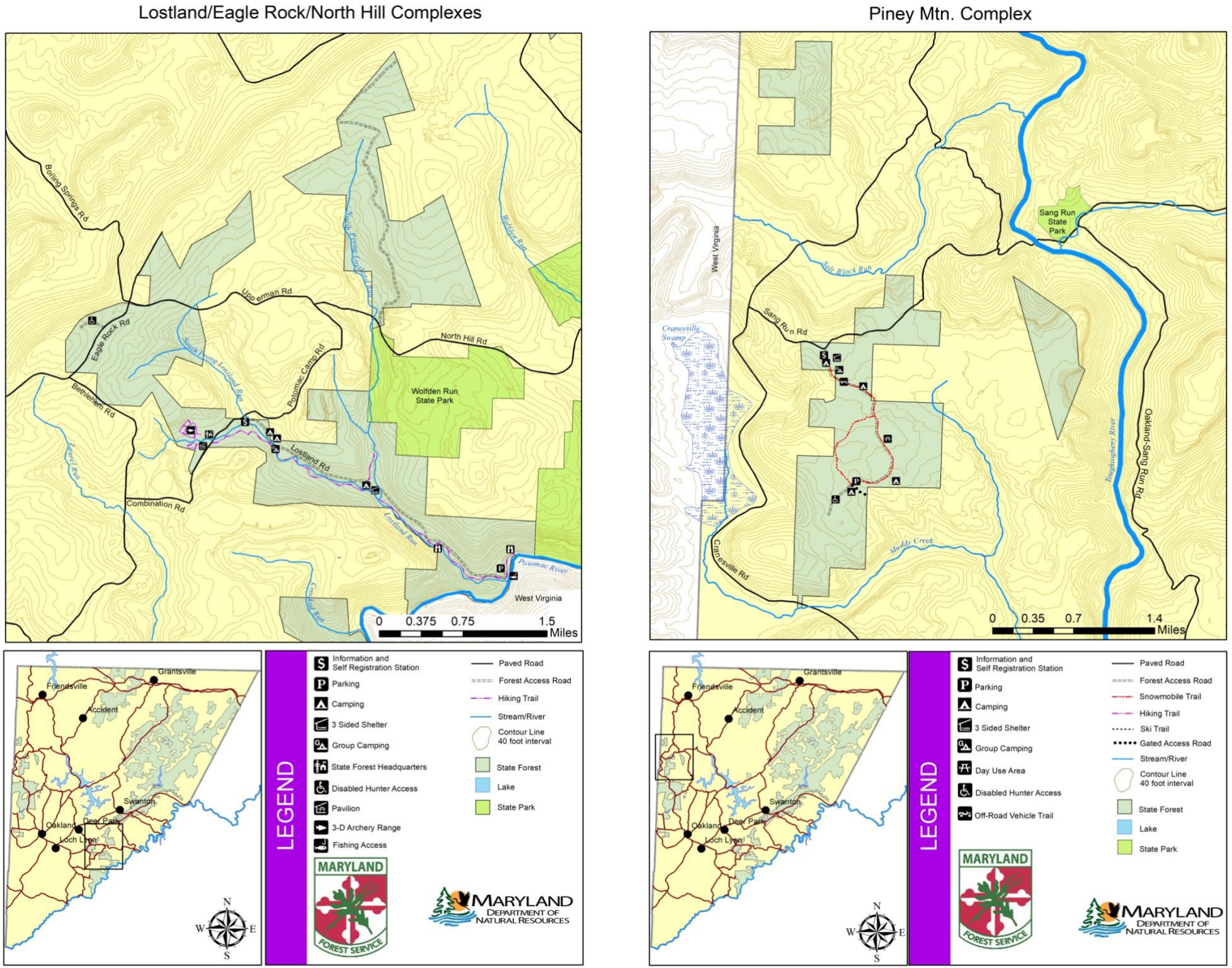


Figure 2. Recreational opportunities on Potomac-Garrett State Forest

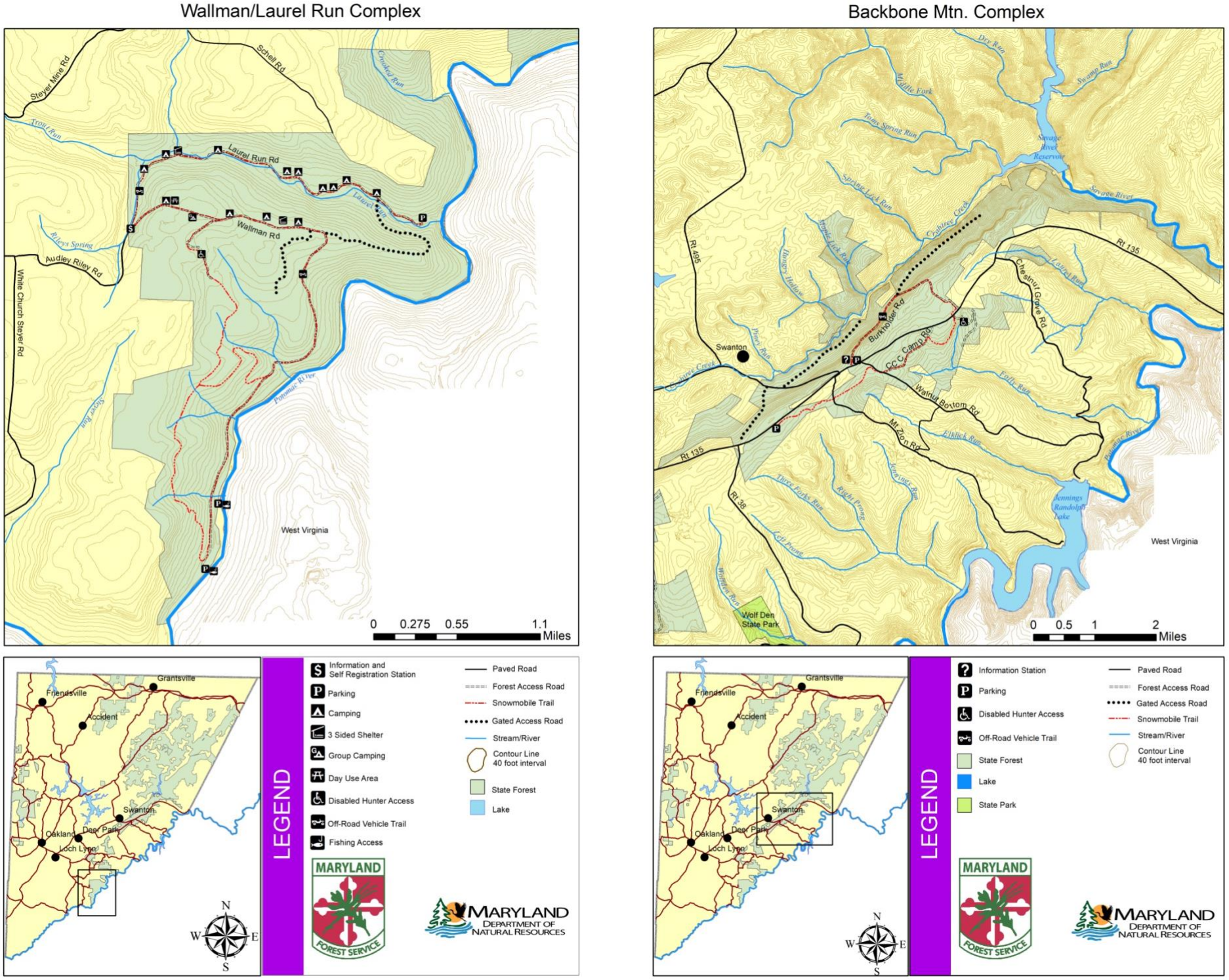


Figure 3. Recreational opportunities on Potomac-Garrett State Forest (cont)

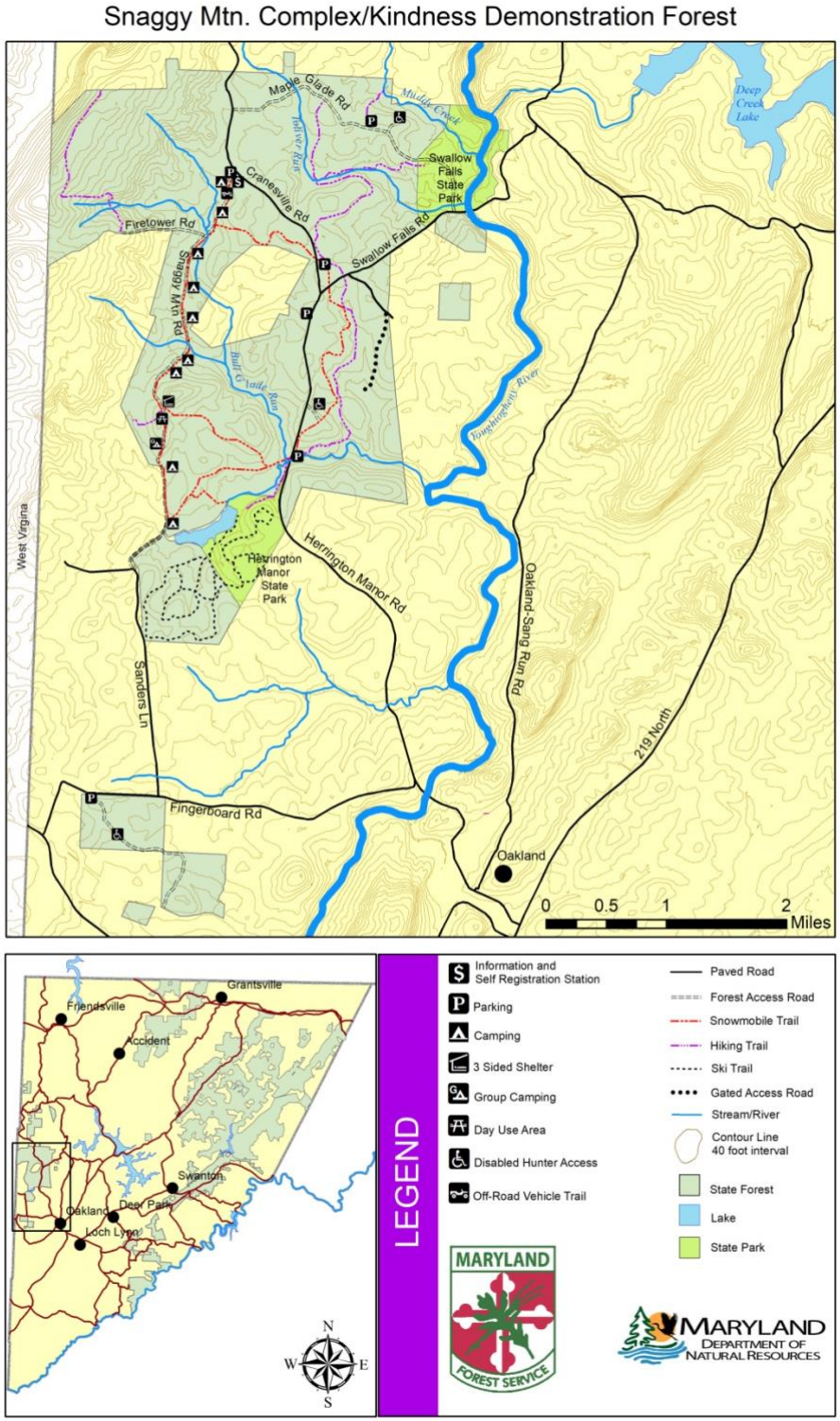


Figure 4. Recreational opportunities on Potomac-Garrett State Forest (cont)

B. Recreation Proposals

I. In the 2018 Legislative Session, SB 606 was passed, which established an Off-Highway Recreational Vehicle Fund that uses the excise titling tax on OHV purchases for the purpose of funding maintenance and construction of ORV trails on DNR owned lands. The Department receives monthly deposits that are split between the Forest Service and Park Service and the Comptroller is required to distribute 25% in FY-19 and 50% in FY-20 and each year thereafter. Potomac-Garrett State Forest has requested the following amount of funding provided by the OHV excise tax to be used for enhancements to various recreation trails on the forest:

1. Wallman/Loop Road, ORV Trail Maintenance – $163,270.00

This priority project will mitigate an ongoing erosion issue that occurred after a storm event led to the breach of existing water controls and considerably damaged a portion of the road surface. Also, the project will address two large failing culverts that will require significant engineering input due to the complex design of the current culvert system.

Operating the ORV trail will require regular maintenance and upkeep. The excise tax funding will fund five elements of trail upkeep including:

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

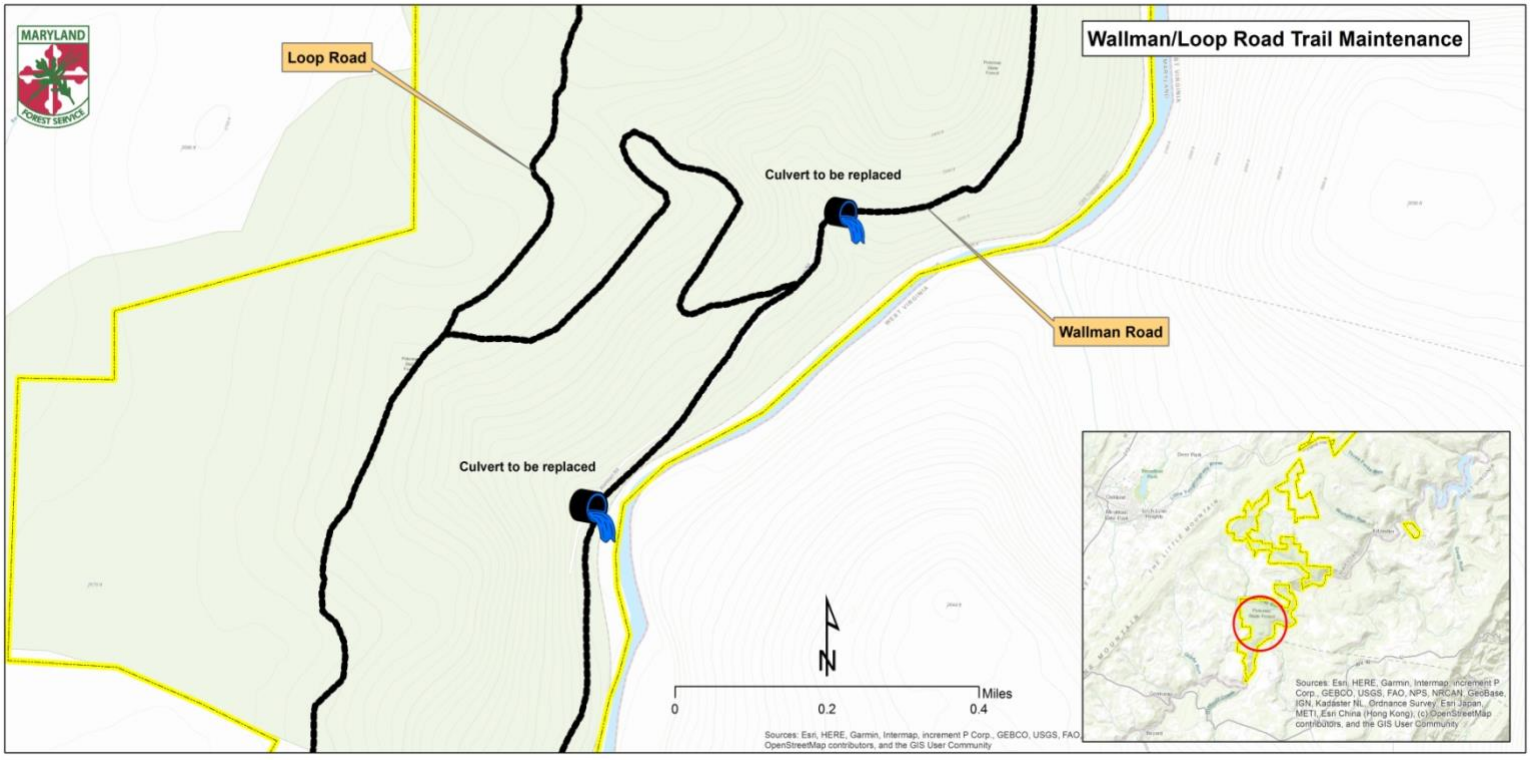


Figure 5. Wallman/Loop Road Maintenance

II. National Recreational Trail Grant Requests

Potomac-Garrett State Forest has submitted 1 National Recreation Trails Grant Request to fund enhancements to multiple use recreation trails on the forests.

1. Maintenance and Operation of State Forest Trail Network (Labor Grant)- $53,648.16 ($42,051.40 Requested Grant Funds + $11,596.76 matching funds)

This project involves 80+ miles of the Potomac-Garrett State Forest Trail system that is designated for multiple recreational activities, including hiking, mountain biking, hunting, bird watching, etc. This work benefits the recreational trail user by keeping the existing public recreation resources of the forest functional, safe, sustainable, clean and beautiful. Maintenance will include pot hole patching, sign painting, gate painting, mowing, tree and brush cutting, stabilization, brush hog mowing, trash cleanup and trail blazing.

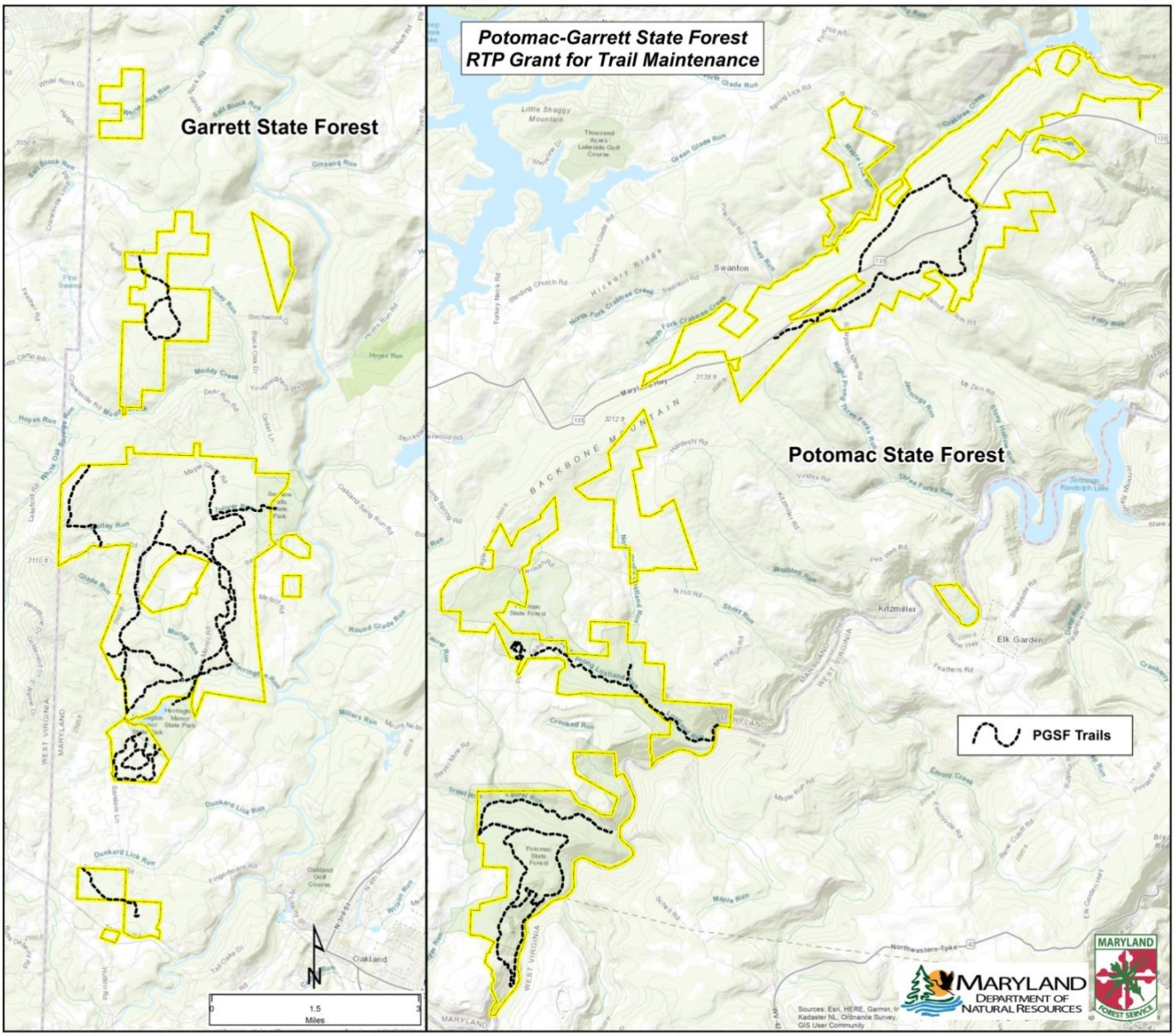
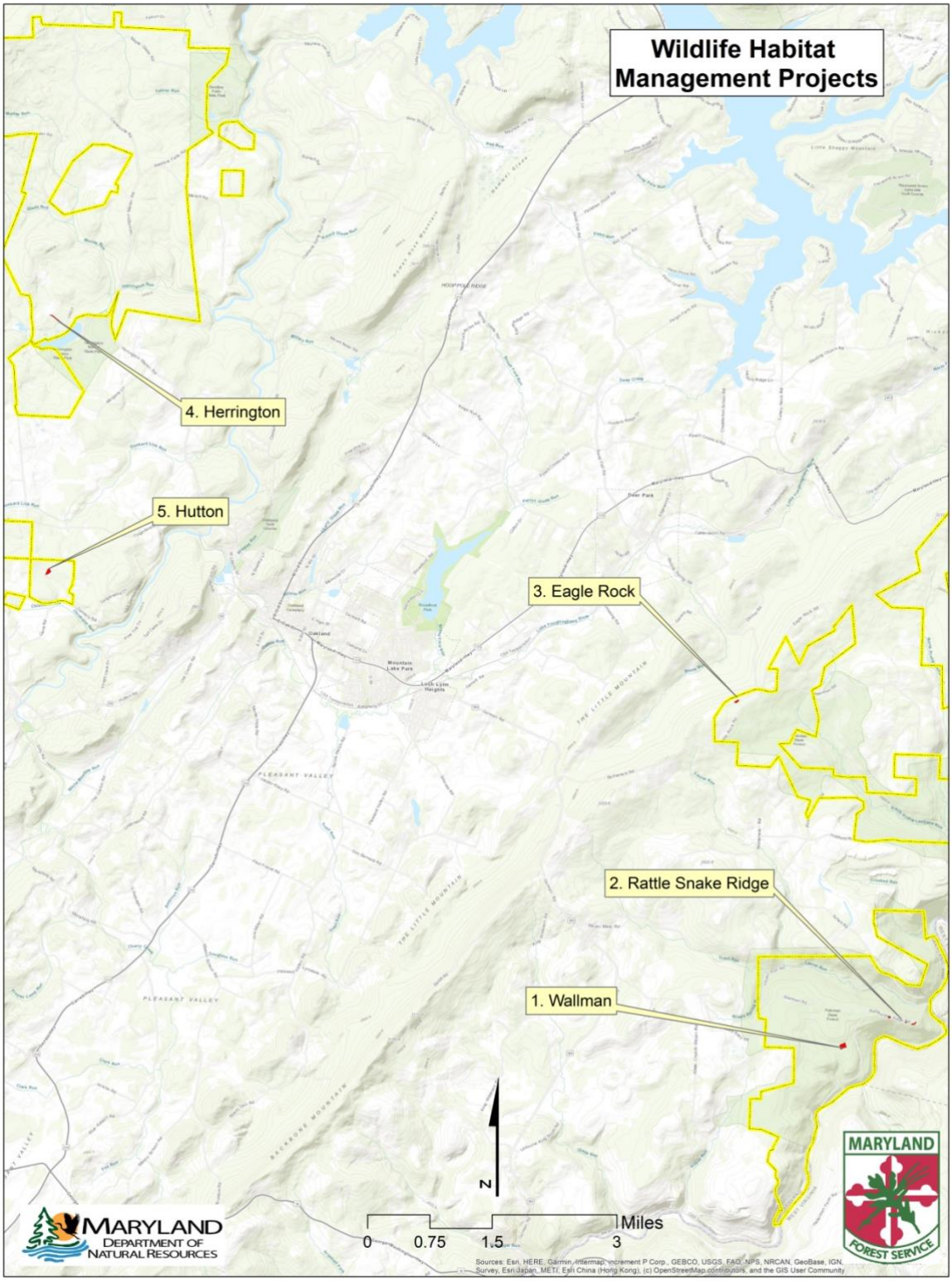


Figure 6. Potomac-Garrett State Forest Rec Trail Grant Maintenance

VII. Wildlife Habitat Management Projects

A. General Wildlife Habitat Maintenance

Approximately 7.6 acres of wildlife specific projects have been implemented throughout the state forest. These projects are located in the Wallman, Rattle Snake Ridge, Eagle Rock, Herrington Manor and Hutton areas. General practices include liming and fertilizing as well as planting of cover and grain crops, where appropriate. Plantings focused on over seeding with clover (See Wildlife Habitat Management Projects map and summary, p. 17).



Area	*Species Planted*	*Acres*	*Fertilizer*
1. Wallman	*Clover mix*	*2.6*	*1200 lbs 10-20-20*
2. Rattle Snake Ridge	*Clover mix*	*1.1*	*500 lbs 10-20-20*
3. Eagle Rock	*Clover mix*	*.70*	*300 lbs 10-20-20*
4. Herrington	*Clover mix*	*1.4*	*4000 lbs lime*
5. Hutton	*Clover mix*	*1.8*	*500 lbs 10-20-20* *4000 lbs lime*

Figure 7. Potomac-Garrett State Forest Wildlife Habitat Management Projects

B. Compartment 45 - Stand 21: 7.7-Acre Wildlife Habitat Management Project

Description/Resource Impact Assessment

Location: This proposal is located approximately 0.5 miles north of Cranesville Road at the terminus of an existing access road in Compartment 45. The access road entrance is located approximately 3 miles north of the intersection of Cranesville Road and Herrington Manor Road.

Forest Community Type and Condition: This 7.7-acre site contains a mixture of grasses and forbs, young forest and scattered mature trees. Dominant herbaceous plants include goldenrod (*Solidago spp*.), milkweed (*Asclepias spp*.) and soft rush (*Juncus effusus).* Woody stemmed forbs and shrubs are represented by St. Johns Wort (*Hypericum spp*.), bristly dewberry (*Rubus hispidus*) and blueberries (*Vaccinium spp*.). Tree species within the field perimeter include eastern hemlock, black birch, red maple, black locust and planted apple trees (*Malus spp*.). Species within the crop tree release perimeter include eastern hemlock, red maple, northern red oak, black birch and cucumber magnolia. Due to the lack of regular maintenance, the field habitat is transitioning from a meadow stage, dominated by native grasses and forbs, to an early woodland habitat stage with woody plants beginning to overtake the open area.

Historic Conditions: This stand was part of a 101.8-acre state forest acquisition conveyed in 2017. No evidence of fire was observed during the inventory of the stand and there are no indications of significant forest pests at this time.

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

Habitats and Species of Management Concern: Early successional habitat is an underrepresented and declining habitat across the state forest landscape. This habitat type supports a large diversity of vegetation and wildlife and provides excellent food and cover for a multitude of species, including a variety of species of the greatest conservation need, but it needs disturbance to be maintained. As the majority of the forest continues to mature, sites that were once dominated by early successional habitat are slowly absorbed into the surrounding environment. The main focus of this project is to keep this habitat type as a part of the forest mosaic. If proven successful, similar management strategies will be implemented across key areas of the forest to expand the extent of this dwindling habitat.

Water Resources: Stand 21 drains east into an unnamed tributary of Muddy Creek within the Youghiogheny River Watershed. The proposed silvicultural treatments and land management efforts 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 Sustainable Forest Management Plan.

Soil Resources: The dominant underlying soil type is Dekalb and Leetonia very stony sandy loams, 15-25 percent slopes (DlD). This soil type is generally well drained and very acid. Equipment limits are moderate for slopes over 15 percent. The site has fair productivity for

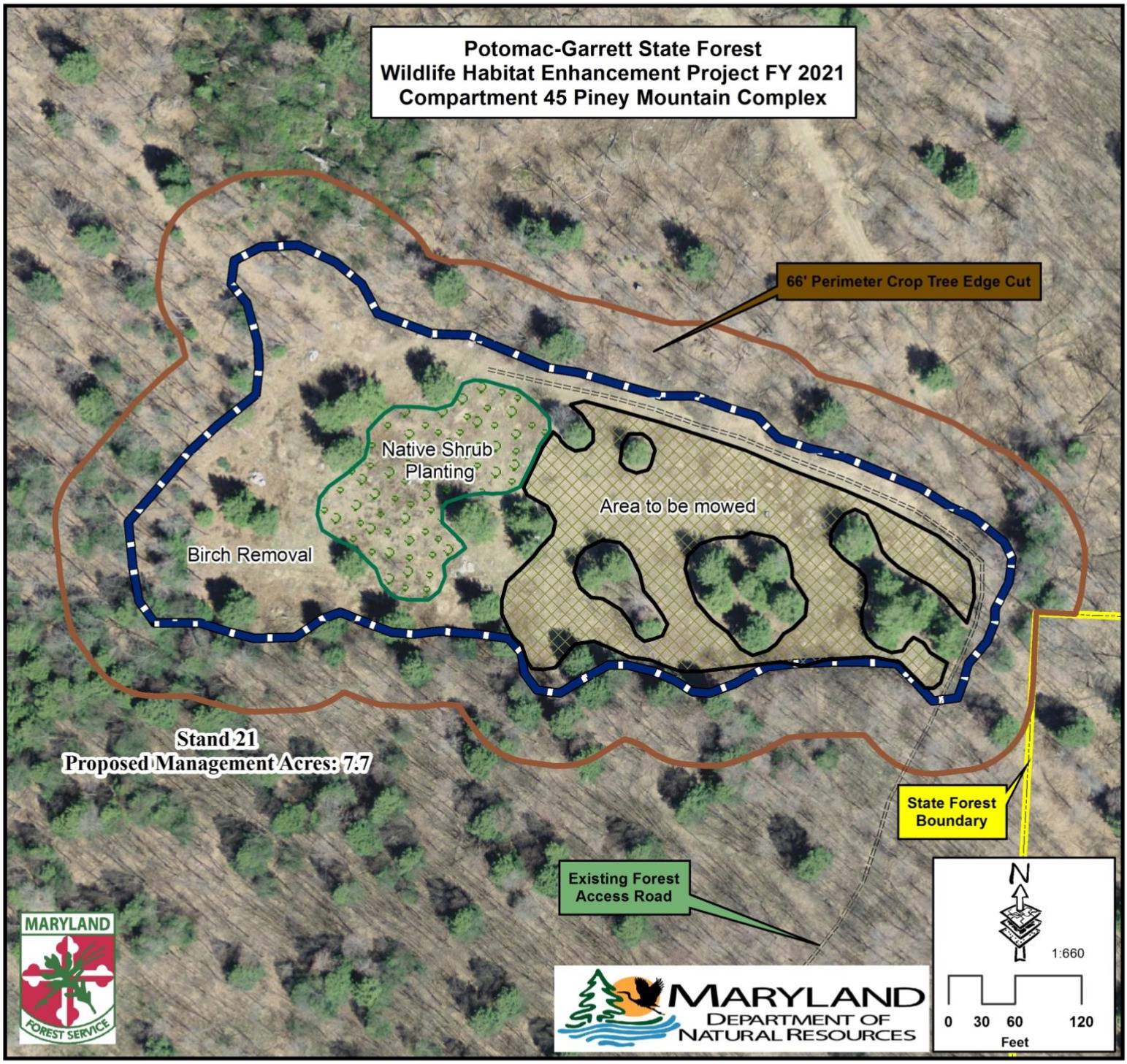
woodland management, with a site index of 55-65 for upland oaks and is suited for the establishment and growth of wild herbaceous upland plants and coniferous woody plants.

Recreation Resources: No developed recreational resources are located within the stand. This area of the forest is primarily utilized for hunting access. Recreational opportunities in the area may be limited or disrupted for the duration of the project.

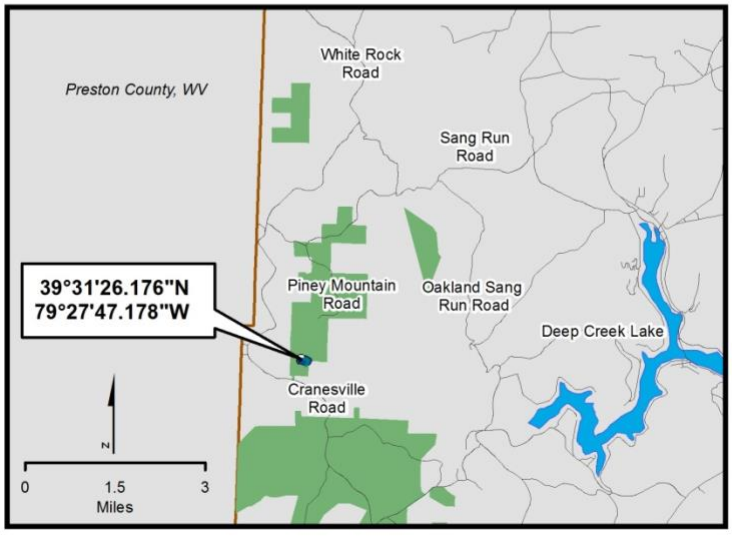
Management and Silvicultural Recommendations

This project will focus on creating, maintaining and improving the early successional habitat found within the field opening. Efforts to maintain the opening will include periodic rotational mowing with the option of planting cover crop(s) along with the removal of the dense birch component that has encroached on the field interior. Mowing will be conducted in early spring prior to nesting season. A portion of the field will be planted as a thicket with native shrubs to provide cover as well as feeding opportunities for a suite of species. These shrubs will include silky dogwood, high bush cranberry, nannyberry and red chokeberry. The native wildflower component will be maintained for pollinator habitat and the removal of the dense birch will allow for the expansion of these populations. The apple trees will be pruned and fenced in an attempt to prevent damage from wildlife.

A chain-wide (66 feet) crop tree release will be conducted on the perimeter of the field in order to favor mast producing species, to provide a soft edge between the field and the surrounding forested areas and to increase the amount of light reaching the outer edges of the field. All felled trees will be left to provide horizontal habitat stratification. Eastern hemlock regeneration is scattered throughout the site and will be released, where practical. The mature hemlock specimens will be assessed for the presence of hemlock wooly adelgid to determine if insecticide treatments will be necessary to preserve the species on the site. Any non-native and invasive plant species will be controlled during the implementation of the project. All described land management activities will be carried out by state forest personnel. Annual monitoring of the site will be conducted to determine appropriate management strategies for preserving the habitat regime.



- Wildlands
- Ecologically Significant Area
- Old Growth
- Old Growth Ecosystem Area
- Wetland of State Concern
- Streams and 50' Buffers



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. A species-specific management plan has been developed for Japanese knotweed (See Appendix 2).

The State Forest staff has treated and/or is monitoring 35 plant colonies or sites including: 18 tree-of-heaven sites, 12 Japanese knotweed sites, 1 mile-a-minute weed site, 2 Japanese barberry sites, 1 Oriental bittersweet site and 1 Japanese spirea site (See corresponding map for locations). Three species of most concern are:

1. Tree-of-Heaven (Ailanthus altissima) Individual stems of the exotic invasive tree-of-heaven have been identified across large 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.

2. Japanese knotweed (*Fallopia japonica*). Several areas of Potomac-Garrett State Forest have become infested with the invasive plant Japanese knotweed (*Fallopia japonica*). Twelve treatment areas have been delineated and 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. As more effective treatment methods become available for large areas, this area will be reevaluated in regard to implementing a control plan.

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.

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 35. Monitoring of the area will continue and the site will be treated as necessary in order to eradicate this plant from the site and prevent it from spreading into the adjacent forest.

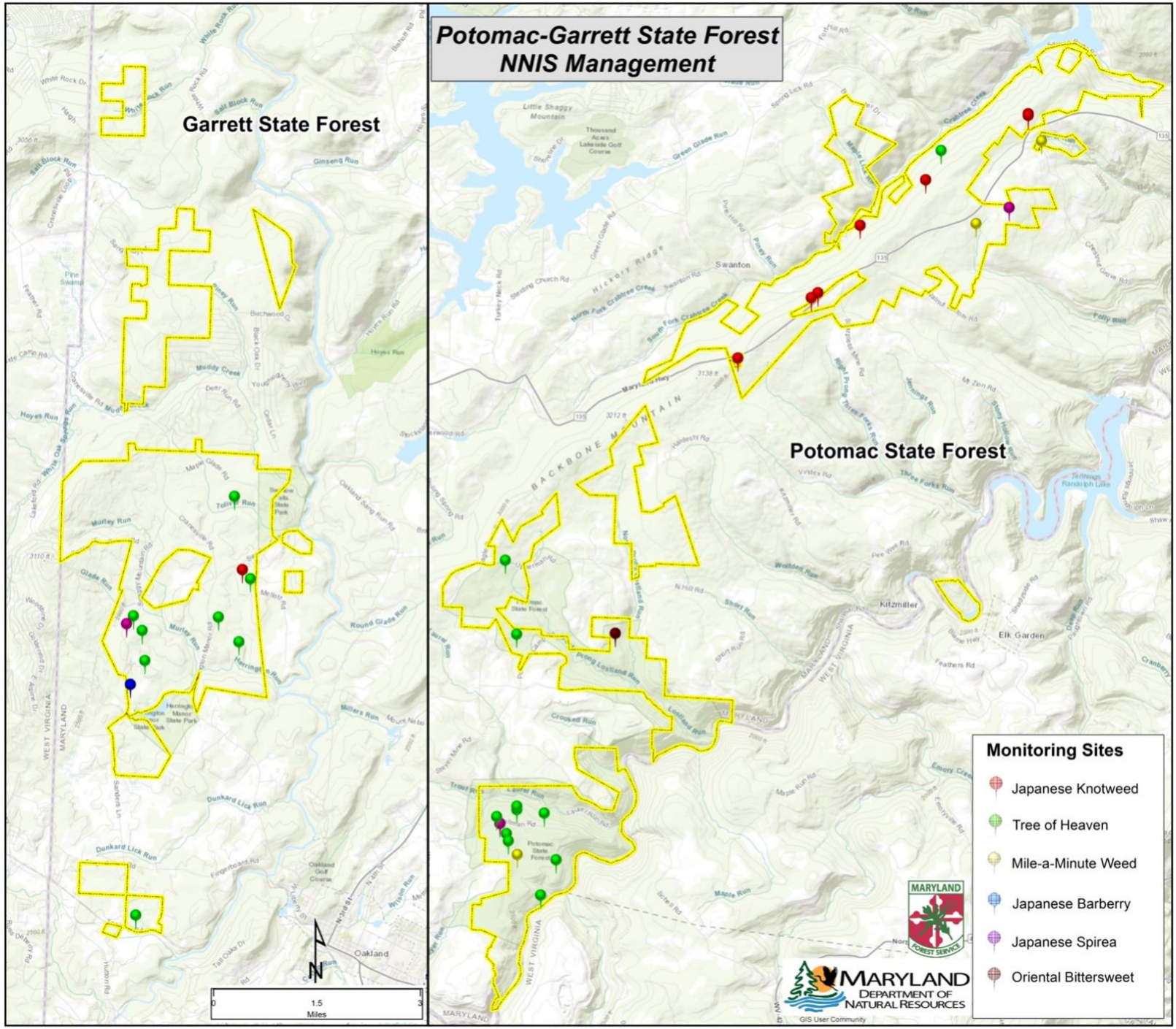


Figure 8. Map of NNIS management areas on Potomac-Garrett State Forest

IX. Monitoring and Research Projects

A. Monitoring

1. Silvicultural Activities

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

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

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

This ongoing project will develop and validate a silvicultural tool that improves the health and sustainability of eastern hemlock, an ecologically keystone species in the southern Appalachians threatened by HWA. Individual or small clusters of "target" trees (i.e., suppressed or intermediate eastern hemlocks with moderate to good crown health) will be released by removing or girdling other stems competing for sunlight directly above and adjacent to the target trees. Increased sunlight is expected to improve hemlock crown health via improved carbon balance, enhanced foliage production, and reduced HWA settlement rates relative to unreleased trees. Treatments will be replicated at a number of southern Appalachian sites and will evaluate release by girdling versus felling and variations on the size of the resulting canopy gap. Operationally, the tool is expected to prolong hemlock health and survival and increase the efficacy of existing HWA management tools (e.g. biological and chemical control) when integrated with them (Jetton, Robert M., Mayfield, Albert E., Keyser, Tara, and Rhea, James 2017). The project will involve fifteen treatment sites; 10 located in the Laurel Run drainage in Compartment 23 and five located along Lostland Run Road in Compartment 19. Post treatment data collection was completed on all sites in March 2018 and again in July 2018 involving hemlock health at one year, adelgid density, vegetation measurements and data analysis. Follow up data collection and analysis will continue through the Fall of 2020.

2. Bobcat: Population Estimate and Structure of Bobcats (Lynx rufus) in Western Maryland. University of Delaware Department of Wildlife Ecology.

Currently, bobcats are the most widely distributed native felid throughout the continental United States. However, this distribution was threatened in the late 19th century. During this time, several states observed a drastically lowered population or full extirpation. Due to forest regeneration and a well-regulated harvest, bobcats have recovered much of their historic range. Currently, bobcats are seen regularly throughout Garrett and Allegany counties and are

becoming more common in counties to the east. However, the estimated population size of the species has not been documented. Preliminary results from a predator camera survey performed in western Maryland estimated bobcat density ranged from 0.08-0.20 bobcats/mi^2. Land managers require a better understanding of the current population of bobcats in the region.

A hair-snare survey will be implemented targeting bobcats in 3 study areas within 2 counties of Maryland. These study areas will be focused on public land in the forms of: Potomac State Forest, Savage River State Forest, and Green Ridge State Forest. Twenty hair snares will be placed at each of the 3 study areas, totaling 60 for the region. Each snare will be active for 60 days from mid-December to mid-February. The snares will be placed at a rate of 1 snare per 3km in habitat most likely to be occupied by a resident bobcat, based on previous literature. At each of the 60 snares we will place a game camera to monitor the snare. The camera data will give researchers a better understanding of the efficiency of the snares. The hair collected during the 60-day survey will be analyzed at the genetics laboratory to determine: species, sex, individual, and relatedness among individuals. Using a capture-mark-recapture model, we will determine a density of bobcats in the region. Additionally, camera data will be analyzed as a separate capture-mark-recapture study to estimate bobcat density. Bobcat density estimates based on camera data will be compared to estimates based on hair-snare data to determine if camera surveys could function as a viable cost-efficient alternative to estimate bobcat density.

The objectives of this research include estimating the bobcat population size, determining the sex ratio of the species and comparing the efficiency of camera surveys to hair-snare surveys to estimate bobcat densities. This research will provide baseline information about the population size and structure of bobcats in western Maryland. Additionally, this study will improve efficiency of field methodologies. The Maryland Department of Natural Resources lacks data on the current population size and structure of bobcats in the region. This research will estimate the abundance and population dynamic of bobcats to aid state managers in understanding the ecology within western Maryland (Ness, 2018).

3. Orchid Collection. Smithsonian Environmental Research Center

The Smithsonian Environmental Research Center's North American Orchid Conservation Center (NAOCC) has initiated a large-scale (U.S. and Canada) effort to conserve native orchids. We request to collect orchid samples from the DNR properties for our ongoing national orchid conservation program. NAOCC's approach to conservation is ecological, involving the collection of materials from native orchids (seeds, leaves, roots) for research purposes. The seeds are placed into seed banks to conserve the genetic diversity of native orchids and for conducting germination and propagation experiments both for research and restoration. Leaves are used to isolate DNA in order to determine the level and patterns of genetic diversity of species across the US and Canada. Roots are sampled to isolate, culture and identify the orchid mycorrhizal fungi required by all native orchids to complete their life cycles in nature. The fungi are a source of carbon and other resources for the orchids. All native orchids have a non-photosynthetic stage (protocorm) that can only survive and grow by digesting fungi. The fungi that we are able to culture are identified using molecular techniques (thus far almost all that we have worked with are new to science). Fungi are stored in a fungal-bank and used in germination and propagation studies. Seeds from Maryland native orchids will be stored at SERC and the Mid-Atlantic Seed Bank (MARSB) in New York. Fungi and leaves will be stored at SERC. There are no special considerations related to this project. Fruits and roots will only be collected when the populations

are sufficiently large and robust enough to support such collections without damage to the sustainability of the population (Wigham, 2019).

Three sites have been identified on the Garrett State Forest within the Snaggy Mountain Complex that contain Roundleaved orchid (*Platanthera orbiculata*) and Pink Lady's Slipper (*Cypripedium acaule*). Both species are considered demonstrably widespread, abundant and secure in terms of global rank indicators.

4. Crayfish Collection. Carnegie Museum of Natural History Section of Invertebrate Zoology.

Collections of freshwater crayfish are planned during the week of September 23-27, 2019. Collections will target two species of crayfish, including *Cambarus bartonii* and *Cambarus carinirostris* as part of an ongoing project of the Section of Invertebrate Zoology at the Carnegie Museum of Natural History. Collections will take place in Laurel Run in the Wallman Complex.

Sampling of crayfish is requested to study the broad-scale genetic and morphological variability of these species across their respective geographic ranges to assess their taxonomy, systematics, and species status. *Cambarus bartonii* is thought to represent a species complex made up of multiple, as yet undescribed, species. Complicated morphological characters, and confusing geographic patterns associated with these characters, have hindered the study and resolution of this complex for many years. However, recently gathered genetic data applied to this group has proven useful in detecting geographic patterns and have helped elucidate differences among populations. *Cambarus carinirostris* is a very closely related species to *C. bartonii,* and until recently, was considered one of its subspecies, but questions remain as to whether they are indeed separate species. A closer examination of these species is needed to help resolve lingering questions about this species complex.

Cambarus bartonii has a broad range in the eastern US, ranging from southern Canada (southeastern Ontario to New Brunswick) southward through the Appalachian Mountains from Maine to northeastern Georgia. *Cambarus carinirostris* has a smaller geographic distribution, ranging from the western pan-handle of New York south through western Pennsylvania, extreme western Maryland and eastern West Virginia.

Major genetic differences in freshwater crayfish are often detected within, and definitely between, watersheds, which makes a dense sampling scheme necessary, so that variation can be detected at an appropriate geographic scale to elucidate genetic patterns of variation across the landscape and help identify any unique populations. To detect rare genetic variants, 20+ individuals should be collected to reduce the effects of sampling error, which may adversely impact estimates of relationships. These larger samples also aid studies using morphological characters by bolstering levels of statistical significance.

Populations in Maryland currently represent a huge hole in the sampling of these species ranges, and existing data from Pennsylvania suggests that Maryland populations would be informative and helpful in delimiting geographic ranges of potential new species.

Crayfish will be sampled from throughout Maryland to broadly cover the geographic ranges of the two species within the state to account for geographic variation that may be present within each species. Both species are common throughout their ranges and are not currently of conservation concern. Indeed, these are some of the most commonly encountered crayfish species seen in Eastern US streams. Samples collected in Maryland will be added to a broader dataset for these species, which includes a number of sites sampled throughout Pennsylvania, West Virginia, Virginia, North Carolina, and Georgia.

Impacts of sampling at a local scale will be minimal. Specimens are usually collected with a seine after moving or flipping larger rocks in streams and directing crayfish into the seine using a kicking motion and the flow of the stream. Large rocks are then returned to their original positions. Sampling usually takes anywhere from 30 to 60 minutes, depending on ease of access and other variables. Only a single trip to each site will be made (i.e., a one-time sampling event). Other incidental species of crayfish (non-listed species) and aquatic insects are generally also collected in the process, but numbers retained are usually quite minimal and should not place an undue strain on local populations. All specimens of crayfish (and incidental insects) will be deposited into the collections of the Carnegie Museum of Natural History in Pittsburgh, PA where they will be available for current and future research projects (Fetzner, 2019).

X. Silvicultural Proposals

COMPARTMENT 14 - Stand 12 **FY-21**

Description/Resource Impact Assessment

Location: This proposal is located along the east side of the North Hill forest access road, approximately 0.4 miles north of the intersection with North Hill Road. The access road entrance is located approximately ½ mile east of the intersection of North Hill Road and Potomac Camp Road.

Forest Community Type and Condition: This 52-acre site contains a mixed oak stand that is approximately 79 years old with an average merchantable diameter of 14.2 inches. The stand is dominated by red maple (40%) and northern red oak (28%) with smaller proportions of white oak (13%) and chestnut oak (7%). The stocking in this stand is at 61% relative density with an average basal area of 93 ft^2/acre. Desirable regeneration and overall plant diversity in the understory is scarce due to the presence of the interfering elements that are listed below.

Interfering Elements: Interfering understory plant competition is sufficient to cause significant interference with regeneration efforts with 80% of the site containing some form of significant interference. Problematic levels of grasses and ferns are found on 60% of the site, with the non-native invasive species (NNIS) Japanese stiltgrass dominating the forest floor. Tall woody interference is found throughout 10% of the stand and is composed of sweet birch and witch hazel. Low woody interference levels are minimal, with witch hazel and black birch as the principal species found on 10% of the site.

Historic Conditions: This stand was treated for gypsy moth control in 1990 and a thinning was conducted in this stand in 2015. No evidence of fire was observed during the inventory of the stand and there are no indications of significant forest pests at this time.

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

Habitats and Species of Management Concern: There are no known habitats or species of management concern within Stand 12. However, the stand is bordered to the east by the North Hill ESA and to the west by the North Prong Lostland ESA. These areas have been designated as high conservation value forest in order to identify and protect habitat for a State Endangered small mammal that was first discovered in Maryland in 1987. The rocky habitat also supports an occurrence of a small mammal listed as In Need of Conservation. The general habitat description consists of forested rock bars or boulder fields with deep recesses, often with underground flowing water. Springs that feed this section of the North Prong of Lostland Run are an important component of the cool micro-habitat required by this species. This section of stream and several of the springs that feed it also support a State listed sensitive fish species. All management activities will occur beyond the designated ESA boundaries and will not affect the integrity of

the areas. Heritage staff will be consulted on the layout of the project to ensure that appropriate steps are implemented to adequately protect the unique habitats and species of the area.

Water Resources: Stand 12 drains west into the North Prong of Lostland Run and its headwater tributaries flowing 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 Sustainable Forest Management Plan.

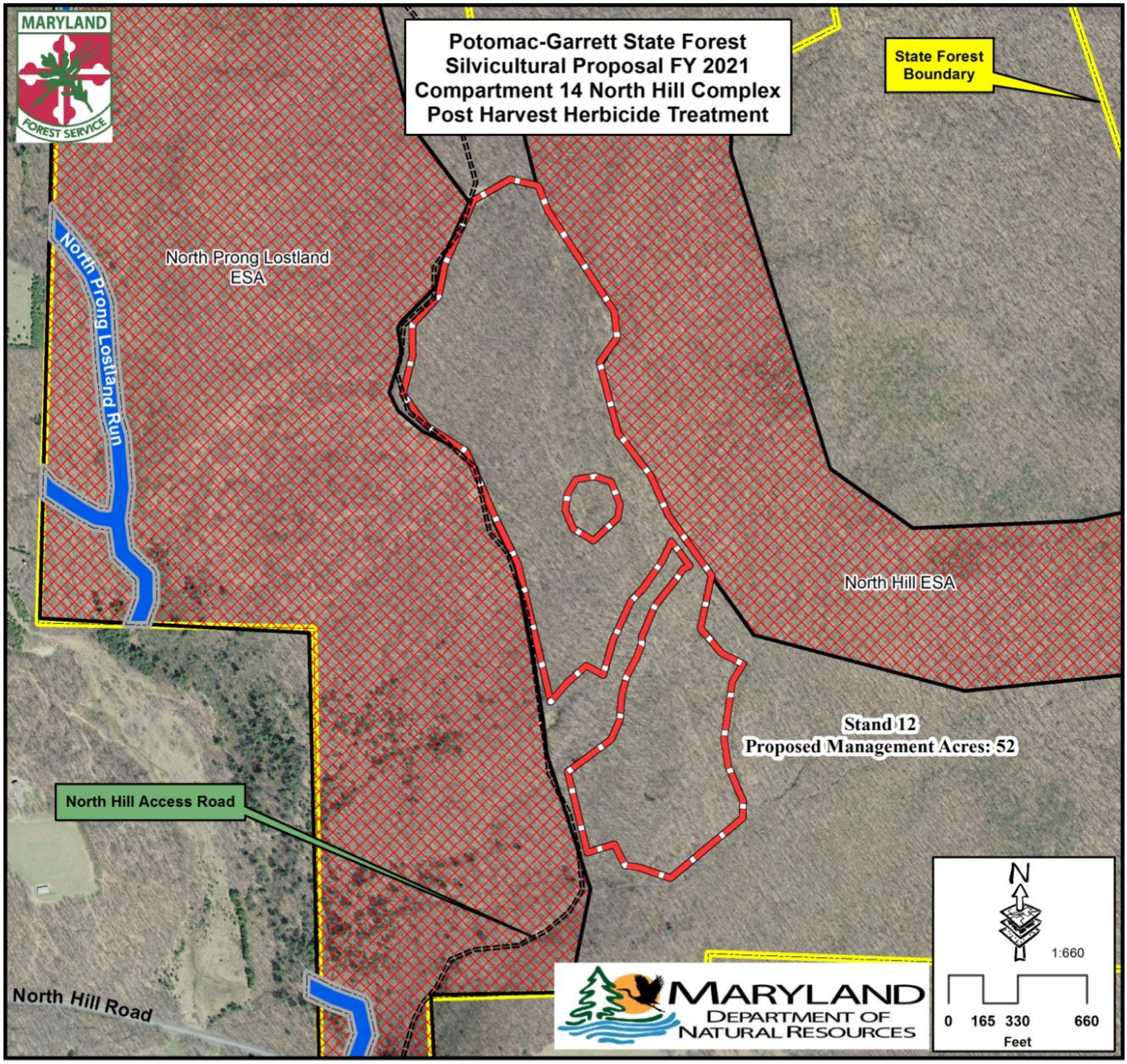
Soil Resources: The dominant underlying soil type is Dekalb and Gilpin very stony loams, 0-15 percent slopes (DgC). This soil type is generally moderately deep over bedrock and well drained with some inclusions of poorly drained soils. Equipment limits are moderate due to the water table being close to the surface in late winter and early spring. The site has good productivity for woodland management, with a site index of 65-75 for upland oaks.

Recreation Resources: No developed recreational resources are located within the stand. The access road for the stand is primarily utilized for hunting access. The recommended prescription for this stand does not include any mechanical harvesting of any wood products, but may involve the use of machinery for the application of herbicides. Recreational opportunities in the area may be limited or disrupted for the duration of the project.

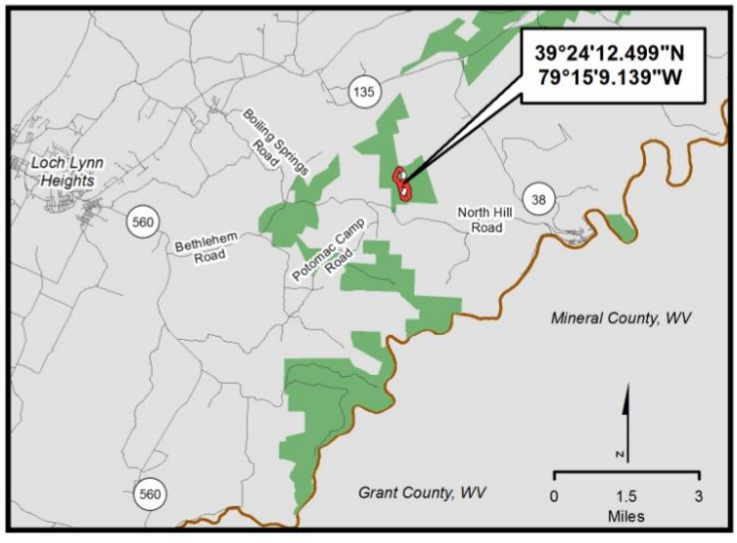
Management and Silvicultural Recommendations

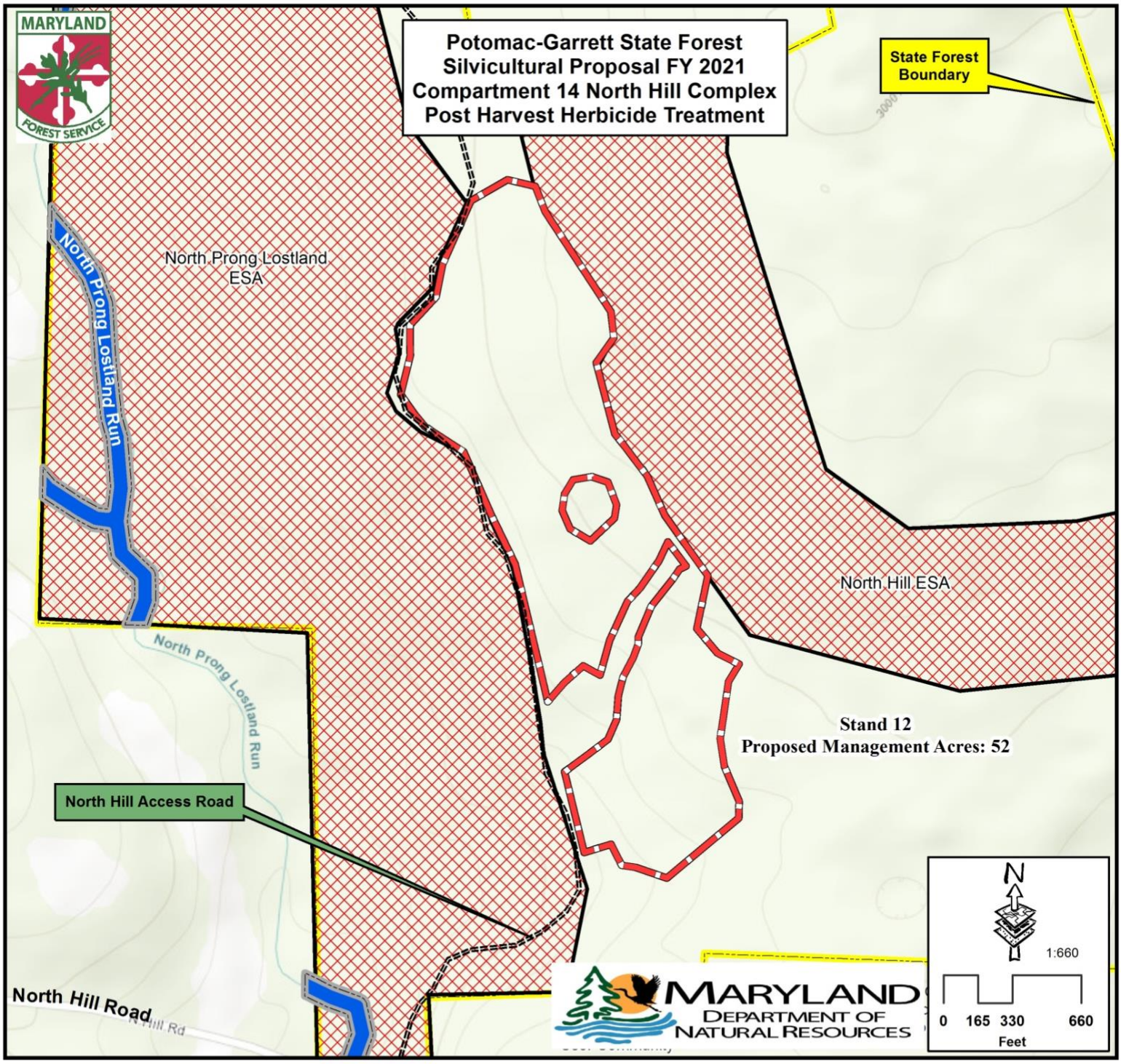
The stand was thinned in 2015 and the influx of light on the forest floor resulted in a proliferation of undesirable vegetative growth, specifically Japanese stiltgrass and rhizomatous fern populations. Due to the lack of established desirable regeneration and the overabundance of interfering vegetation in this stand, the planned silvicultural treatment is to control the interfering understory vegetation with appropriate herbicides using foliar spray applications. Any remnant NNIS populations that are identified will also be treated at the time of application. The objective of these treatments is to open the forest floor to increased levels of diffuse sunlight necessary for desired seedling establishment and height growth development necessary to provide a fully stocked stand.

The site will be monitored for treatment efficacy and the establishment of desirable regeneration. The stand will then be reevaluated to determine the appropriate harvest technique(s) to be implemented in order to allow the regeneration to fully occupy the site and provide a fully stocked stand.



- Wildlands
- Ecologically Significant Area
- Old Growth
- Old Growth Ecosystem Area
- Wetland of State Concern
- Streams and 50' Buffers





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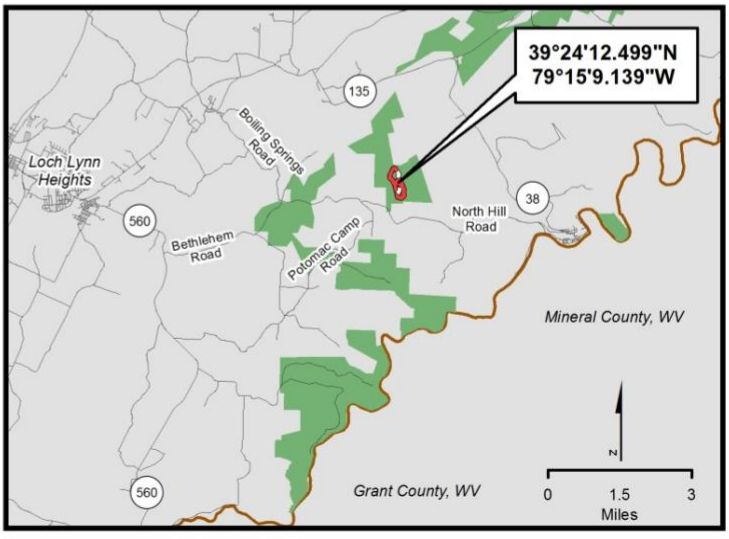


COMPARTMENT 19 - Stands 1, 4, 5, 6 **FY-21**

Description/Resource Impact Assessment

Location: This site is located along the northern side of Lostland Run Road, approximately 1 mile south of the intersection with Potomac Camp Road.

Forest Community Type and Condition: This proposal involves four stands within a single 132-acre management unit that will be harvested collectively. Stand 1 covers 13 acres and is primarily composed of mature white pine (58%) and red pine (23%) with a small component of Scotch pine (1%). The 73-year old stand is overstocked at 92% relative density with an average basal area of 165 ft^2/acre and an average merchantable diameter of 15.4 inches. Typical of such overstocked plantations, there is very little desirable regeneration present in the understory and the surrounding hardwood stands are encroaching on the periphery of the conifer where light gaps have developed.

Stand 4 occupies approximately 58 acres of the management unit and represents a mixed oak forest type with an average merchantable diameter of 16.5 inches. This medium sawtimber stand is nearly 115 years old with an overstory dominated by white oak (32%), northern red oak (17%) and equal proportions of hickory spp. and sugar maple (14%). The site is overstocked at 89% relative density with an average basal area of 121 ft^2/acre. Desirable regeneration, represented by established oak, established desirables and competitive desirables, is found across 8% of the stand.

Stands 5 and 6 represent large sawtimber mixed oak stands with similar compositions and characteristics that will be treated as a single stand, 5/6. This stand, at 114-years old, is approximately 61 acres in size with an average basal area of 124 ft^2/acre and an average merchantable diameter of 18.3 inches. The overstory is comprised of northern red oak (27%), white oak (17%), sugar maple (15%) and basswood (9%). The stand is overstocked with a relative density at 83% of the average maximum stocking. Desirable competitive regeneration, represented by saplings, is found on 15% of the harvest proposal area. This lack of desirable regeneration, within this stand as well as in Stand 4, is in part due to the presence of the interfering elements explained in the following section.

Interfering Elements: The lack of any desirable regeneration as well as interfering understory plant competition within Stand 1 illustrates the effects of highly overstocked conifer plantations on understory establishment and growth due to limited light resources and thick duff layers. Overall interfering understory competition was found across 20% of Stand 4 and 15% of Stand 5/6. Tall woody interference occupies approximately 12% of both sites and is comprised of witch hazel and hawthorn. Low woody interference is not sufficient to cause significant problems with regeneration establishment in these stands. Stand 5/6 has 53% of the understory plots stocked with grapevines, which can cause extensive damage to tree crowns and interfere with seed production. Monitoring of these plants will be ongoing and control measures will be implemented, if necessary. Three species of non-native invasive species were found within these stands including multiflora rose, Japanese barberry and Japanese stiltgrass. Herbicide application will be administered, where practical, to prevent the potential spread of these deleterious species within the stand and into the adjacent forestland.

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 a shift in species composition dominated by undesirable tree species. Field evaluation of the management unit estimated deer browse impact to be moderate. Monitoring of deer browse impacts will coincide with regeneration surveys 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 conifer plantation was completed by the Civilian Conservation Corps in the 1940s and a portion of Stand 4 had been previously thinned in 1981. Silvicultural practices have not been implemented in Stand 5/6 since the acquisition of the property. The entire area was sprayed in 1990 to facilitate gypsy moth control. No evidence of fire or forest disease was observed during the inventory process.

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

Habitats and Species of Management Concern: The conifer plantation component of the forest landscape was implemented in an effort to rehabilitate overused and misused tracts of agricultural and mine land by serving as a nurse crop that would foster the reestablishment of native species and would subsequently be harvested in its entirety. Forest management priorities have not adhered to this strategy allowing the conifer stands to reach maturity and in the process, creating a unique habitat niche for a suite of species. However, in the absence of any silvicultural work being implemented, the planted conifer stands persist in a severely overstocked condition, some to the point of stagnation and decline. Where appropriate, as in Stand 1, final harvests will be applied to stands in accelerated states of decline followed by occupation of the site by native hardwoods or artificial regeneration with suitable species.

Water Resources: Stands 1, 4 and 5 drain south into the South Prong of Lostland Run, while Stand 6 drains east into the North Prong of Lostland Run, both 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 Forest Sustainable Forest Management Plan.

Soil Resources: The dominant soil types of the management unit are categorized as Dekalb and Gilpin very stony silt loams, 0 to 25 percent slopes (DgC and DgD). These soils are moderately deep and well drained. Equipment limitations are slight to moderate where slopes are more than 15%. 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 as per the Department's Best Management Practices and rutting guidelines.

Recreation Resources: No developed recreational resources are located within the stands, except for a short section of the CCC Fish Pond Trail, which is located at the southeastern tip of Stand 5. Access to this section of the trail may be limited and/or suspended for the duration of the harvest. The forest road within Stand 4 is primarily utilized for hunting access. Hunting

opportunities may be disrupted for the duration of the harvest activities and access to the site may be limited depending on the timing of the operations.

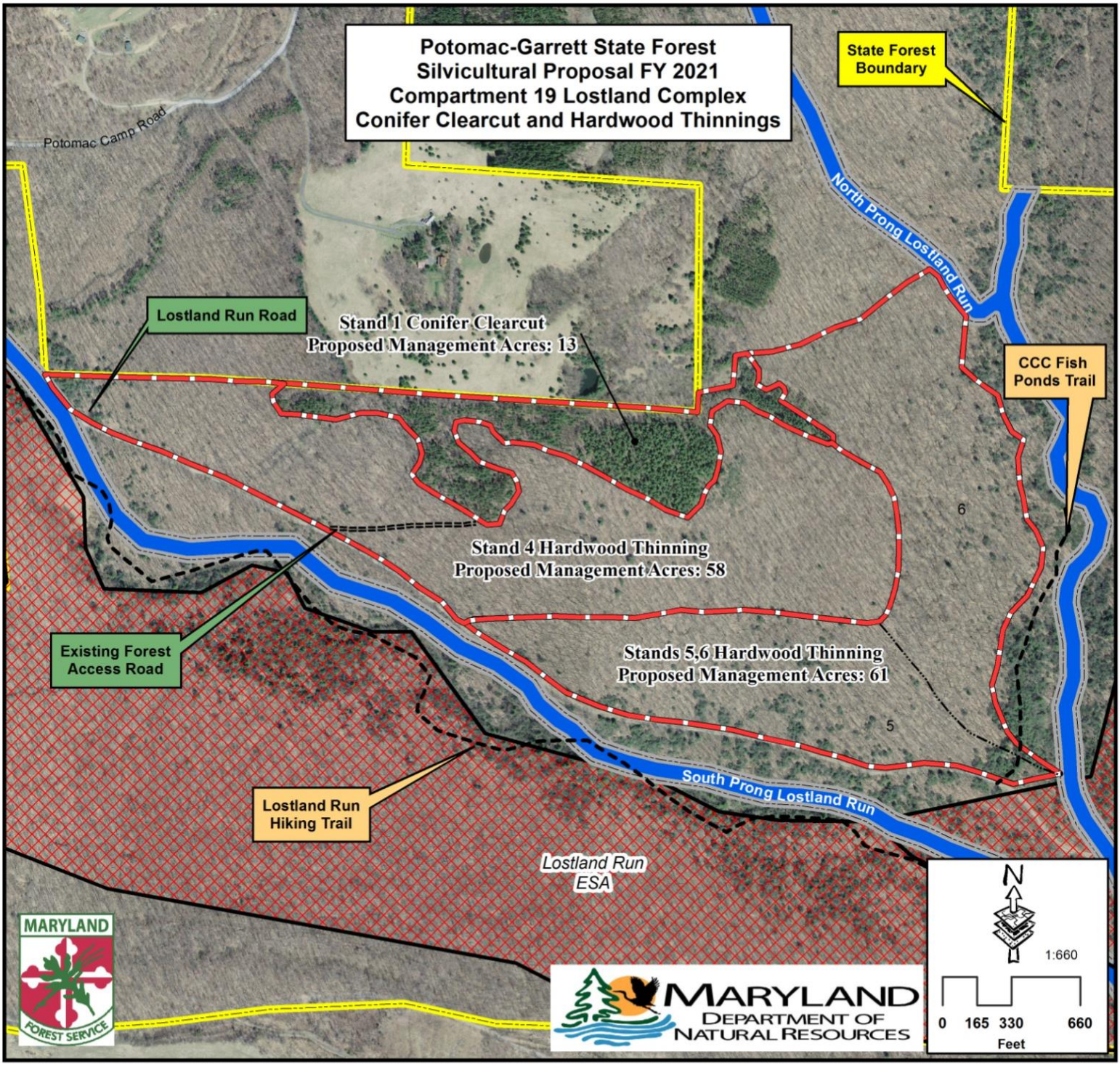
Management and Silvicultural Recommendations

Stand 1 is severely overstocked and the overall structure is degrading as a result. The percentage of acceptable growing stock in the stand is not adequate to provide a future stand of desirable quality. Due to the poor form of the stand, thinning treatments would not be effective and would most likely result in large scale windthrow. Therefore, in order to maximize the value of the remaining trees, the entire stand will be clearcut, with acceptable hardwood inclusions serving as necessary retention. Harvest yields will be approximately 14,400 board feet/acre.

Stand 4 contains insufficient desirable regeneration and is overstocked; therefore the recommended prescription is a commercial thinning. This initial thinning will be light and will reduce the stocking levels thereby reducing competition and will provide more growing space for the higher quality trees. Removals will focus on unacceptable growing stock and the crown thinning will reduce the average basal area to 80 ft^2/acre and the relative density to 60%, yielding approximately 2,000 – 2,500 board feet/acre.

Stand 5/6 has reached maturity, but desirable regeneration is not sufficient enough to warrant a regeneration harvest. Therefore, the recommended prescription for this stand is a commercial thinning. Free thinning the stand will reduce the stocking levels thereby reducing competition and will provide more growing space for the higher quality trees. Removals will focus on unacceptable growing stock, including a select proportion of the mature trees. The crown thinning will reduce the average basal area to 70-80 ft^2/acre and the relative density to 60%, yielding approximately 2,500 – 3,500 board feet/acre.

Post-harvest monitoring will be conducted in 5-8 years to determine if acceptable levels of desirable regeneration have naturally established within the stand or if further silvicultural activities including herbicide treatment of interfering vegetation or multi-stage shelterwood implementations will be necessary to ensure that a desirable regeneration cohort will fully occupy the sites when final removal harvests are conducted.



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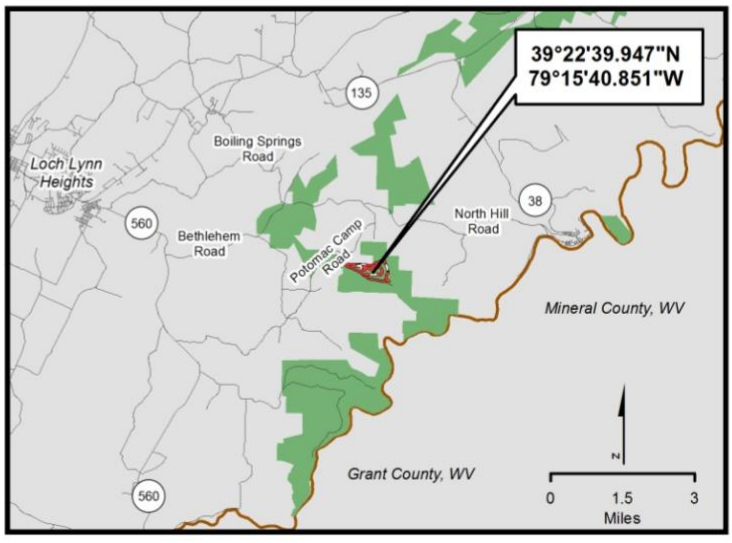

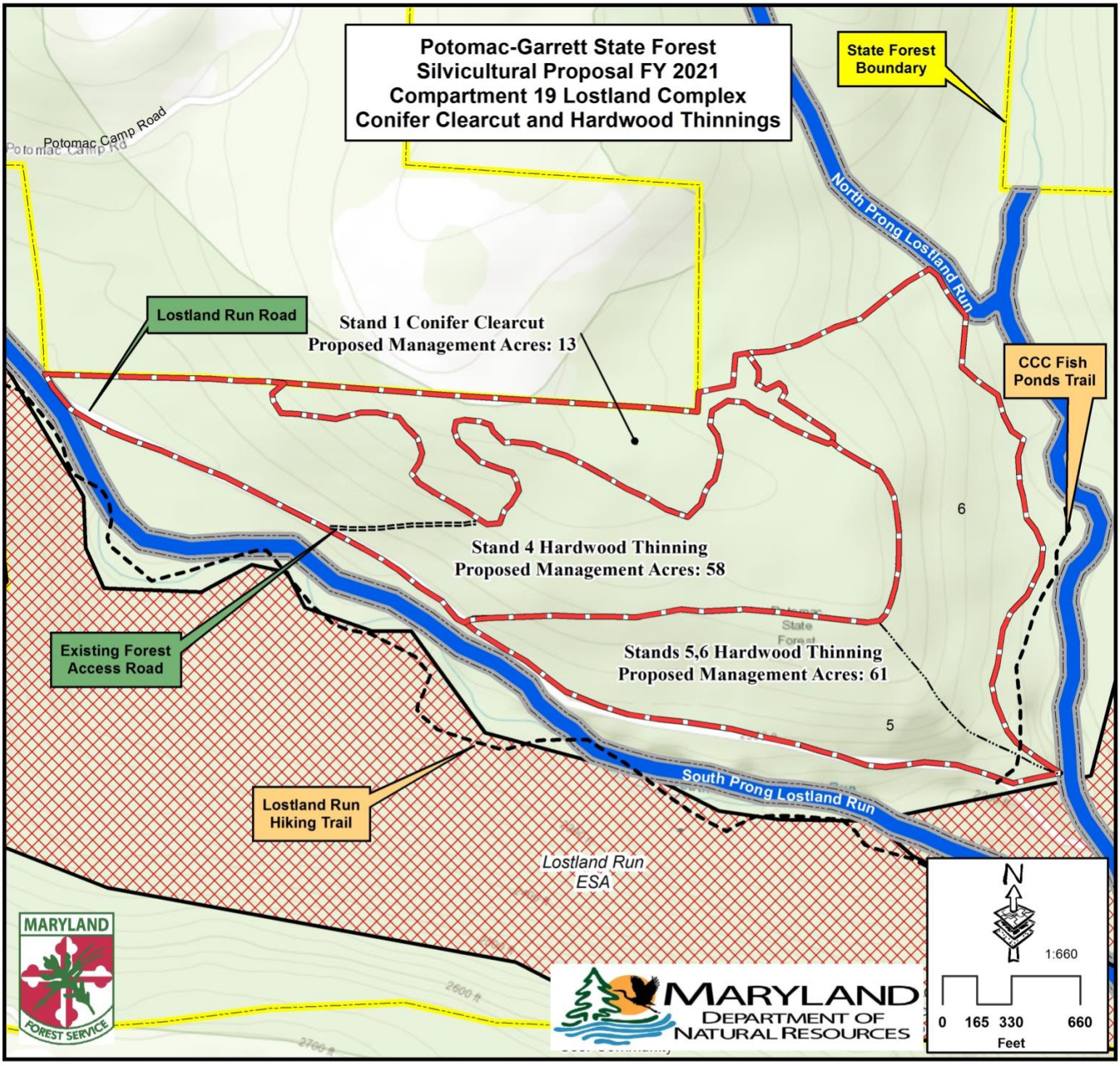

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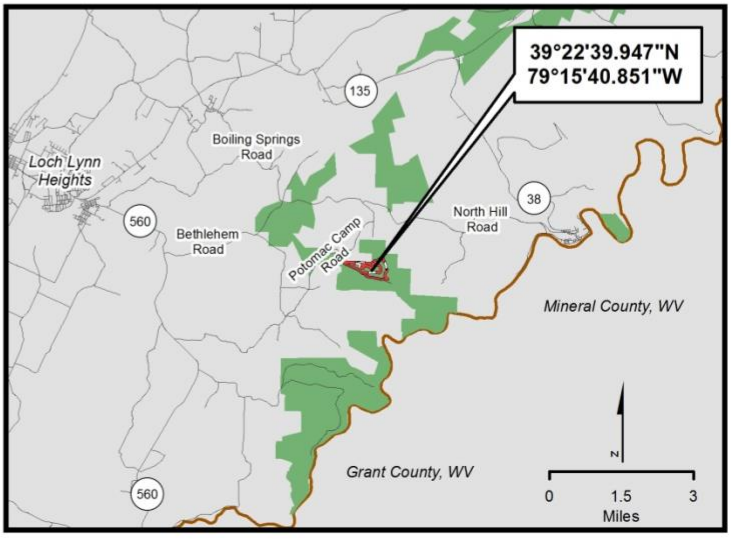


COMPARTMENT 25 – Stand 6 **FY-21**

Description/Resource Impact Assessment

Location: This 4-acre harvest proposal is located in the Wallman Complex approximately 0.4 miles west of Wallman Road and is bisected by the Loop Road Snowmobile Trail.

Forest Community Type and Condition: This management unit is composed of a medium sawtimber Norway spruce (93%) stand intermixed with white pine (5%) and red pine (3%). The stand has an average basal area of 272 ft^2/acre and an average merchantable diameter of 14.1 inches. This unmanaged stand is overstocked with a relative density at 161% of the average maximum stocking. Desirable regeneration and overall plant diversity is scarce in the understory due to the thick duff layer and the dense overcrowded canopy.

Interfering Elements: This stand has not reached maturity and therefore, regenerating the stand is not the primary silvicultural focus and no efforts will be initiated to control any interfering vegetation at this time. No non-native and invasive species were identified during the stand inventory.

Historic Conditions: Records indicate that no silvicultural activities have occurred within the management unit since its establishment 85 years ago. The hardwood stand adjacent to the west was thinned in 2003 and several patch clearcuts along the periphery of the stand were completed in 2007. Neither evidence of fire nor any signs of significant insect infestations were observed during the inventory of the 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 conifer plantation component of the forest landscape was implemented in an effort to rehabilitate overused and misused tracts of agricultural and mine land by serving as a nurse crop that would foster the reestablishment of native species and would subsequently be harvested in its entirety. Forest management priorities have not adhered to this strategy allowing the conifer stands to reach maturity and in the process, creating a unique habitat niche for a suite of species. However, in the absence of any silvicultural work being implemented, the planted conifer stands persist in a severely overstocked condition, some to the point of stagnation and decline. In an ongoing effort to maintain the conifer component of the forest, commercial thinnings will be implemented in order to reduce high stocking densities leading to increased health, vigor and growth in residual stands.

Water Resources: This stand drains eastward toward Bradshaw Run, a small headwater tributary 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 Forest Sustainable Forest Management Plan.

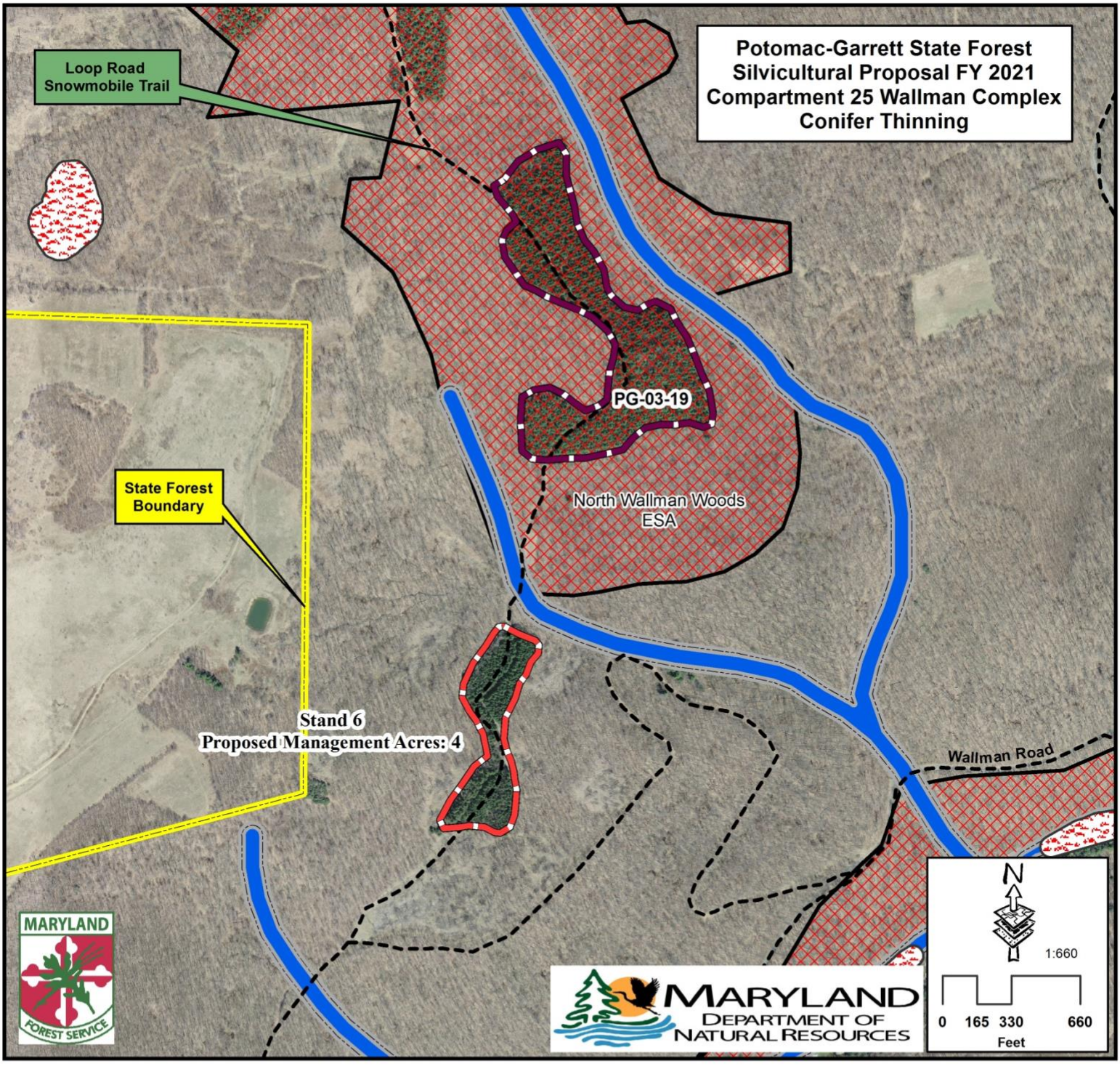
Soil Resources: Underlying soil type is mapped as Dekalb and Gilpin very stony loams, 0 to 15% slopes (DgC). These soils are moderately deep and well drained. Equipment limitations are slight to moderate where slopes are more than 15%. The site has good productivity for woodland management, with a site index of 65-75 for upland oaks. The productivity of the site will be protected by minimizing the haul roads and skid trails as per the Department's Best Management Practices and rutting guidelines.

Recreational Resources: The access road to and through this stand serves as a Disabled Hunter Road as well as part of the Loop Road Snowmobile Trail. Access to the trail may be limited and/or suspended for the duration of the harvest and any recreational opportunities within the stand may be disrupted.

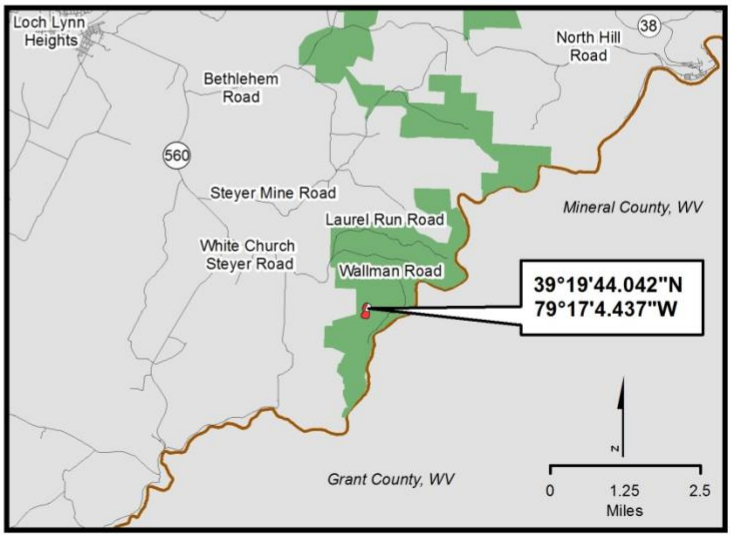
Management and Silvicultural Recommendations

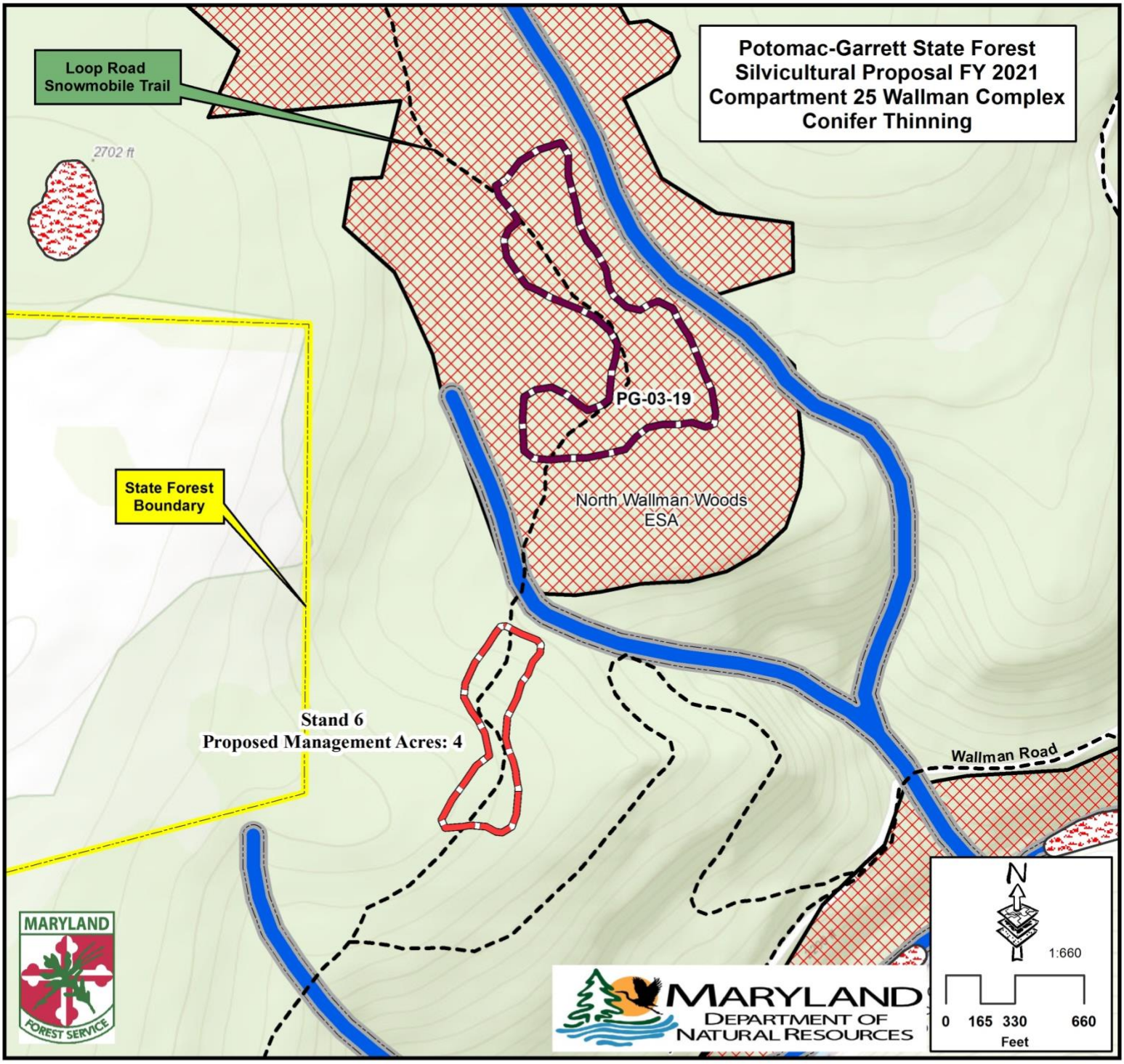
The planned silvicultural treatment for this stand is a commercial thinning to remove approximately 1/3 of the basal area via a free thinning. The objective of this thinning is simply to reduce stocking levels in order to lessen competition among the remaining trees, thereby increasing the health, vigor and growth rate of the residual stand as well as maintaining the conifer component on the forest landscape. Harvest yields will be approximately 8,500 board feet/acre.

Due to the small size of the stand and its remote location, it would not be economically feasible to sell as a stand-alone harvest. However, the stand is located 0.2 miles south of PG-03-19; the conifer thinning that was sold in February 2019, which has not been harvested yet. Given the close proximity of the two stands, this proposal will be pulled forward into FY-20 and added as an addendum to PG-03-19 in order to take advantage of the opportunity to harvest the wood and efficiently utilize the resource that otherwise would not constitute a marketable harvest.



- Wildlands
- Ecologically Significant Area
- Old Growth
- Old Growth Ecosystem Area
- Wetland of State Concern
- Streams and 50' Buffers





- Wildlands
- Ecologically Significant Area
- Old Growth
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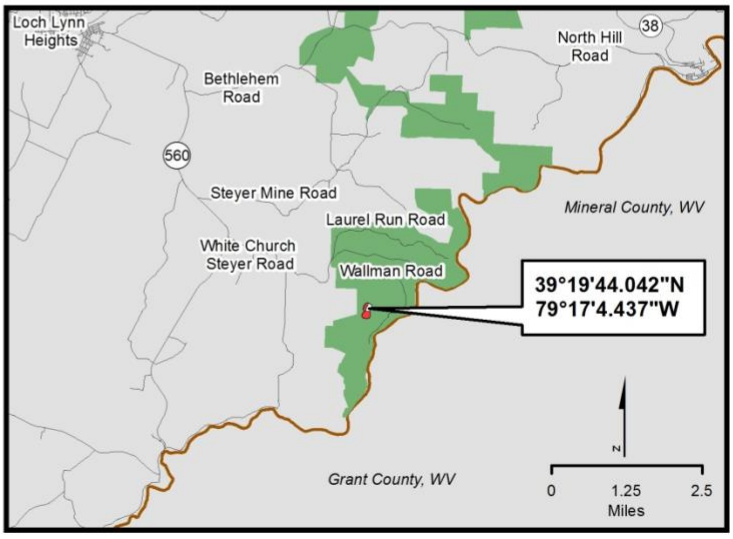
- Wetland of State Concern
- Streams and 50' Buffers



COMPARTMENT 34 – Stand 1 **FY-21**

Description/Resource Impact Assessment

Location: This 42-acre proposal is located on the east side of Herrington Manor Road/Swallow Falls Road across from the intersection with Cranesville Road.

Forest Community Type and Condition: This site contains a large sawtimber mixed oak stand that is approximately 95 years old, with an average merchantable diameter of 17.0 inches and an estimated net live growing stock of 7,915 board feet/acre. The overstory consists of white oak (49%), red maple (26%), black cherry (19%) and northern red oak (3%). The stand stocking is optimum for tree growth with a relative density of 59% and an average basal area of 84 ft^2/acre. Desirable regeneration at any stage is absent in this stand due to the interfering elements described in the next section.

Interfering Elements: Interfering understory plant competition is sufficient to cause considerable setbacks in regeneration efforts with 100% of the site containing some form of significant interference. Problematic levels of grasses and ferns are found on 70% of the site, with the non-native invasive species (NNIS) Japanese stiltgrass dominating the forest floor. Low woody interference, in the form of bristly dewberry, occupies 90% of the stand. Other NNIS species were found throughout the site including Japanese barberry and multiflora rose.

This stand is located in close proximity to agricultural lands, which attract significant numbers of white-tailed deer to area leading to browsing of desirable regeneration. Such overbrowsing can facilitate failure of desirable seedling establishment and in extreme cases a shift in species composition dominated by undesirable tree species. Field evaluation of the site estimated deer browse impact to be moderate. Monitoring of deer browse impacts will coincide with regeneration surveys 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: A commercial thinning was conducted in this stand in 2018. The hardwood stand adjacent to the proposal to north was last thinned in 2015 and the stand to the south was thinned in 2013. No evidence of fire was observed and no signs of significant insect infestations or diseases were recorded at the time of data collection.

Rare, Threatened and Endangered Species: No rare, threatened or endangered species were discovered within the management unit that would be impacted by the silvicultural proposal.

Habitats and Species of Management Concern: Stand 1 is abutted by the Fork Springs ESA to the west and the Herrington Springs ESA to the east. The Fork Springs ESA is home to various rare, threatened and endangered plant species, rare salamander species and mammal den sites. Globally rare amphipods as well as rare, threatened and endangered plants are found within the Herrington Springs ESA. Heritage staff will be consulted on the layout of the project to ensure that appropriate measures are implemented to protect the unique qualities of these sites. All management activities will occur beyond the designated ESA boundaries and will not affect the integrity of the areas.

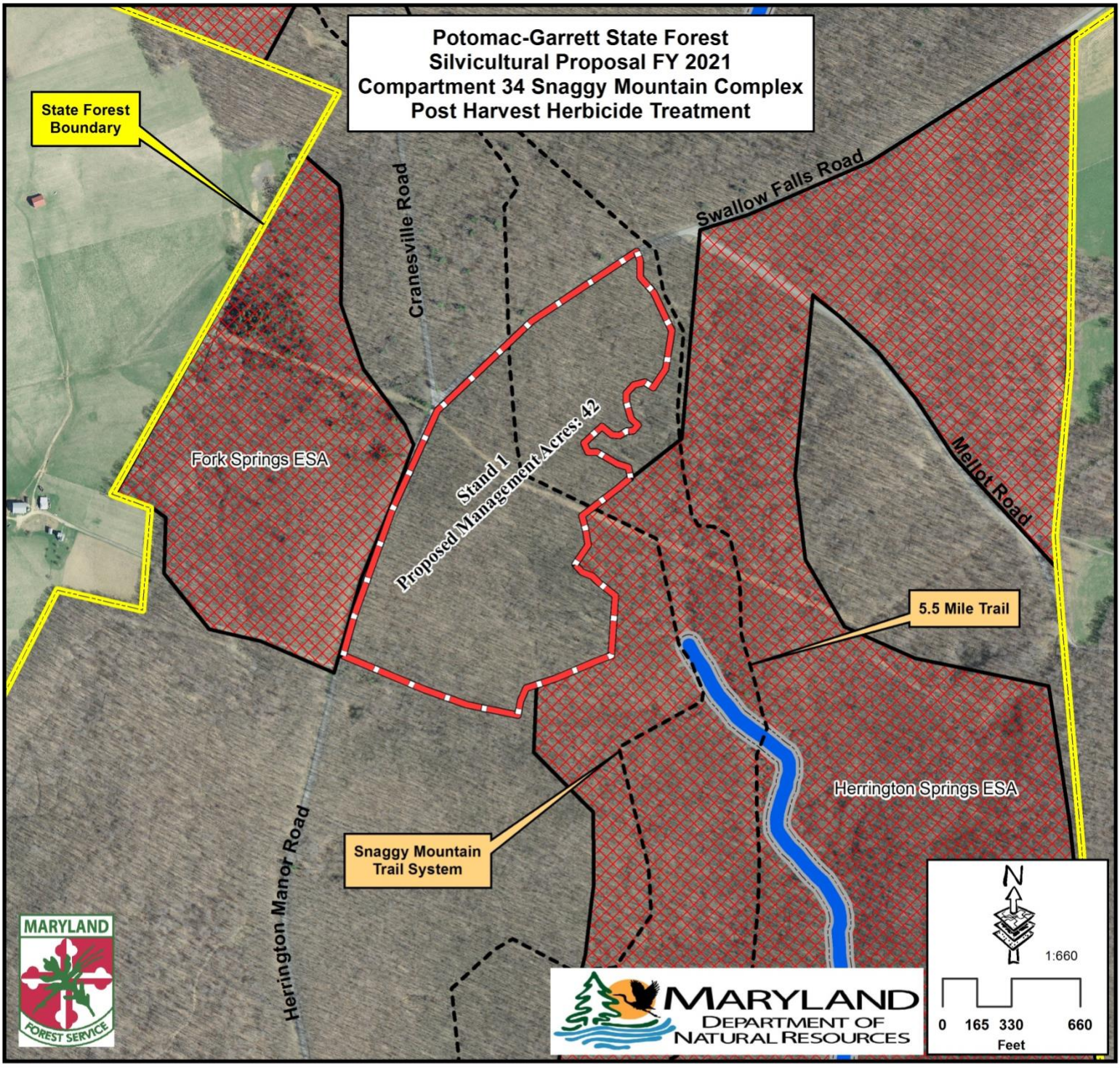
Water Resources: This stand drains south into an unnamed tributary of Herrington Creek within the Youghiogheny River Watershed. The proposed silvicultural treatments will be outside of all HCVF and stream buffer areas. No heavy equipment will be permitted within the protective riparian buffers of any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

Soil Resources: The dominant soil types of the management unit are categorized as Dekalb and Gilpin very stony silt loams, 0 to 25 percent slopes (DgC and DgD). These soils are moderately deep and well drained. Equipment limitations are slight to moderate where slopes are more than 15%. 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 as per the Department's Best Management Practices and rutting guidelines.

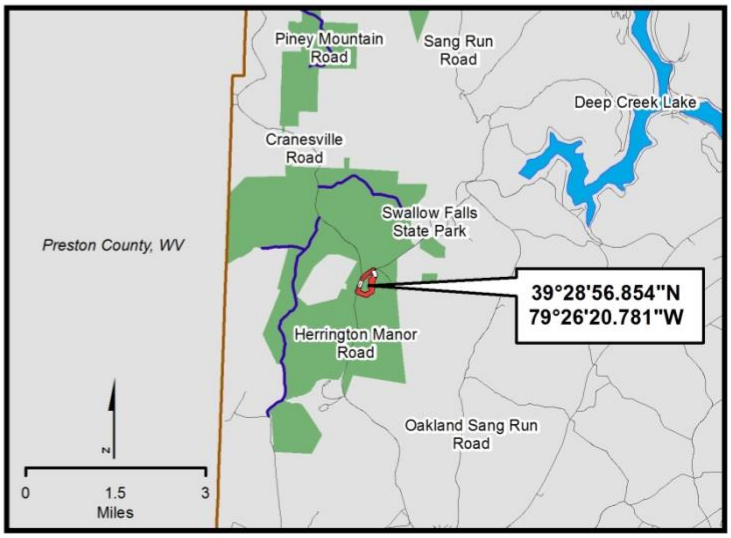
Recreational Resources: A 1,000'section of the Snaggy Mountain Trail System crosses through the proposal area. The recommended prescription for this stand does not include any mechanical harvesting of any wood products but may involve the use of machinery for the application of herbicides. Recreational opportunities in the area may be limited or disrupted for the duration of the project.

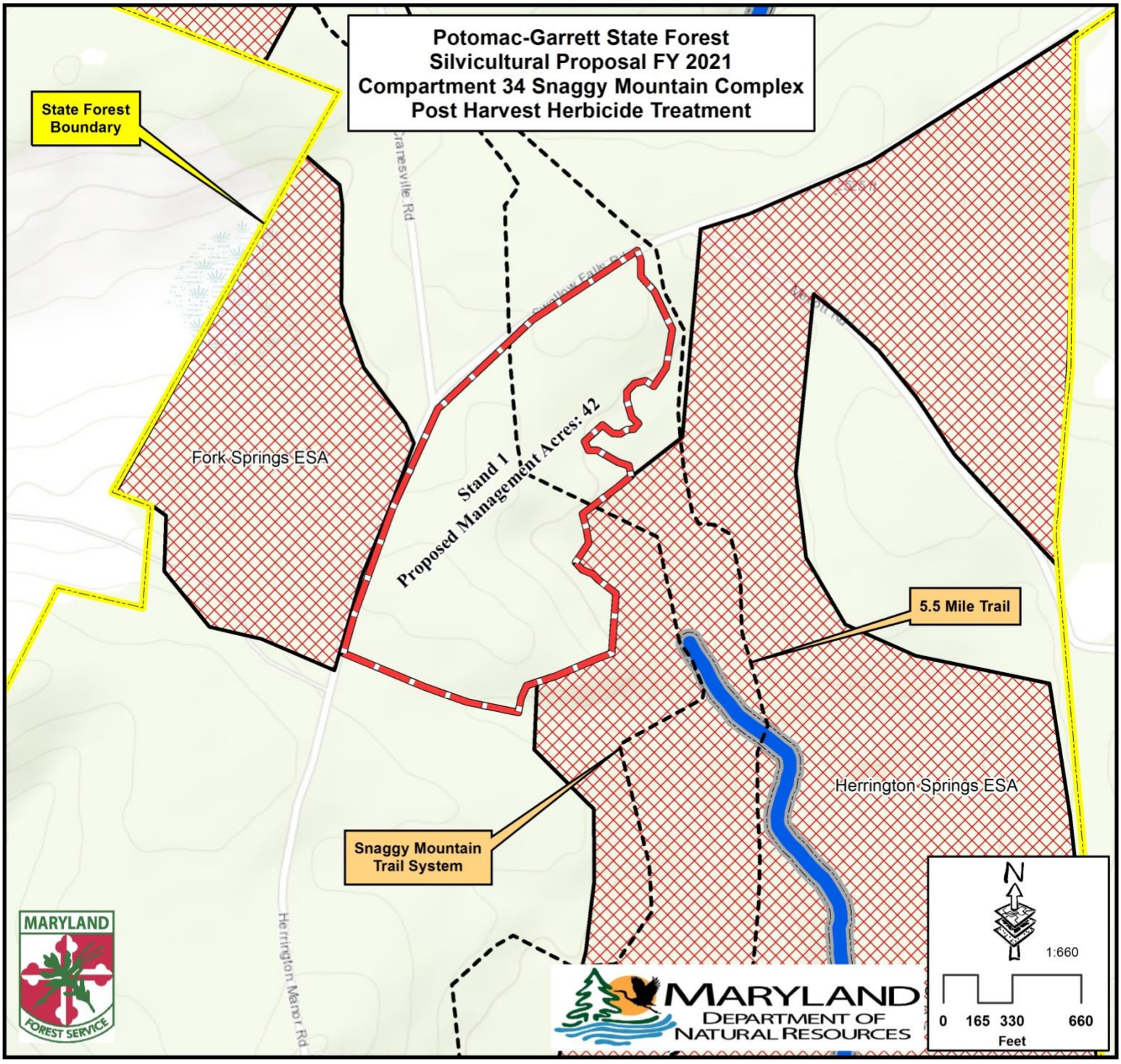
Management and Silvicultural Recommendations

This stand was thinned in March 2018, resulting in a proliferation of bristly dewberry, grasses, ferns and a suite of non-native invasive species including Japanese stiltgrass, Japanese barberry and multiflora rose that have suppressed desirable regeneration establishment. The proposed silvicultural prescription for this site is to apply appropriate herbicides to reduce and/or control the percentage of interfering vegetation within the stand allowing desirable vegetation to occupy the site. The site will be monitored for treatment efficacy and adequate desirable regeneration establishment. The stand will be reevaluated to determine the appropriate harvest technique(s) to allow the regeneration to fully occupy the site and provide a fully stocked stand.



- Wildlands
- Ecologically Significant Area
- Old Growth
- Old Growth Ecosystem Area
- Wetland of State Concern
- Streams and 50' Buffers





- Wildlands
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- Old Growth Ecosystem Area
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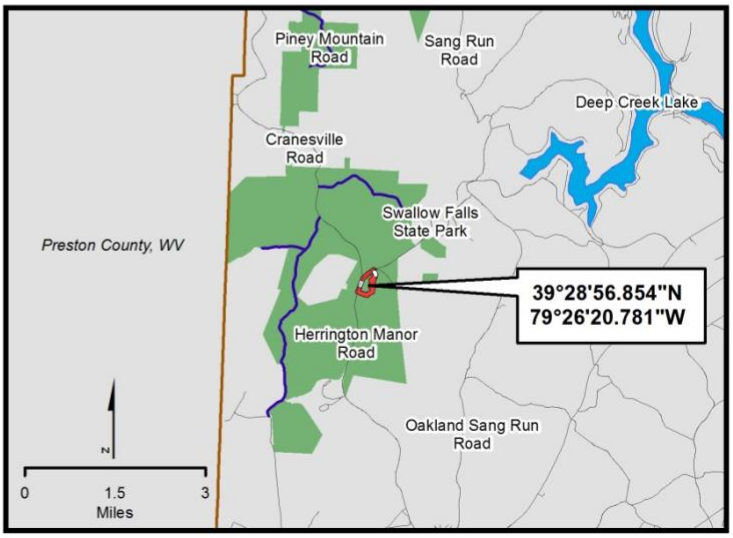
- Streams and 50' Buffers



COMPARTMENT 41 Stands 5 East/West **FY-21**

Description/Resource Impact Assessment

Location: This harvest proposal is located on two sites off Maple Glade Road, with Stand 5 East abutting the Swallow Falls State Park boundary and Stand 5 West being situated ½ mile west of the state park boundary and 1.1 mile east of the intersection with Cranesville Road.

Forest Community Type and Condition: These two sites cover approximately 6.5 acres, with Stand 5 East at 4.5 acres and Stand 5 West making up the remaining two acres. Both stands are comprised of medium sawtimber mixed oak that is approximately 103 years old with an average merchantable diameter of 15.6 and 13.8 inches respectively. The main overstory in the eastern stand is composed of white oak (80%), red maple (9%) and black cherry (7%) while the western stand contains white oak (50%), scarlet oak (30%) and northern red oak (10%). The stands are overstocked at 102% and 89% relative densities with average basal area measurements of 115 ft^2/acre and 100 ft^2/acre. Adequate competitive oak regeneration is present in both stands, with 30% stocked plots in the eastern stand and 25% in the western stand. Established desirable regeneration covers 80% of the eastern stand with established oak occupying 60% of the site.

Interfering Elements: Interfering understory plant competition is not sufficient enough to cause problems with desirable regeneration establishment. Tall woody interference occupies 15% of both stands and low woody interference is found on only 5% of the proposed areas. One non-native species, Japanese barberry, was identified during the data collection. Herbicide applications will be administered, where practical, to prevent the potential spread of this deleterious species within the stand and into adjacent forestland.

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 a shift in species composition dominated by undesirable tree species. Field evaluation of the site estimated deer browse impact to be moderate. Contract specifications will require high slash and tops to remain on the harvest site in order to deter from deer browsing on developing seedlings and stump sprouts. Monitoring of deer browse impacts will coincide with regeneration surveys 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 neither stand has undergone any form of management. The areas surrounding the stands have been managed extensively with thinning operations occurring in 1987, 1995 and 2011. A regeneration harvest was conducted in and a deer exclosure was built around the stand south of Stand 5 West. In FY-20, the stand between the proposed areas was marked and sold as PG-01-20 that will involve a regeneration harvest of the residual stand from a thinning implemented in 2011. The area was sprayed in 1989 for gypsy moth control. No evidence of fire or forest disease was observed in the proposed harvest area.

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

Habitats and Species of Management Concern: No habitats or species of management concern will be affected by the silvicultural prescription recommended for these stands.

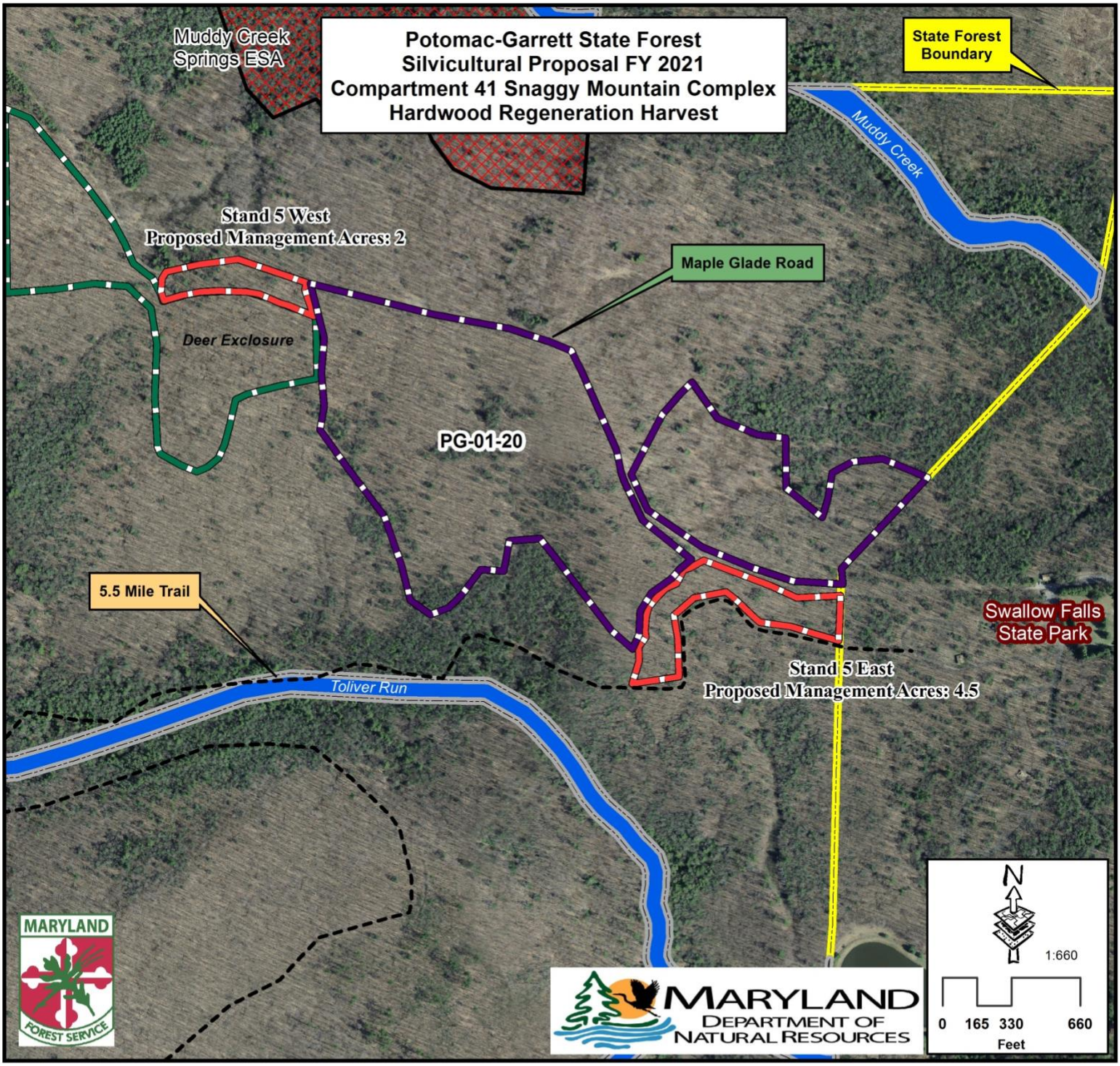
Water Resources: Stand 5 East drains south into Toliver Run and Stand 5 West drains east into Muddy Creek, both within the Youghiogheny River Watershed. The proposed silvicultural treatments will be outside of all HCVF stream buffers and designated wetland areas. No heavy equipment will be permitted 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 dominant soil types of the management units are categorized as Dekalb and Gilpin very stony silt loams, 15 to 25 percent slopes (DgD). These soils are moderately deep and well drained. Equipment limitations are slight to moderate where slopes are more than 15%. 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 as per the Department's Best Management Practices and rutting guidelines.

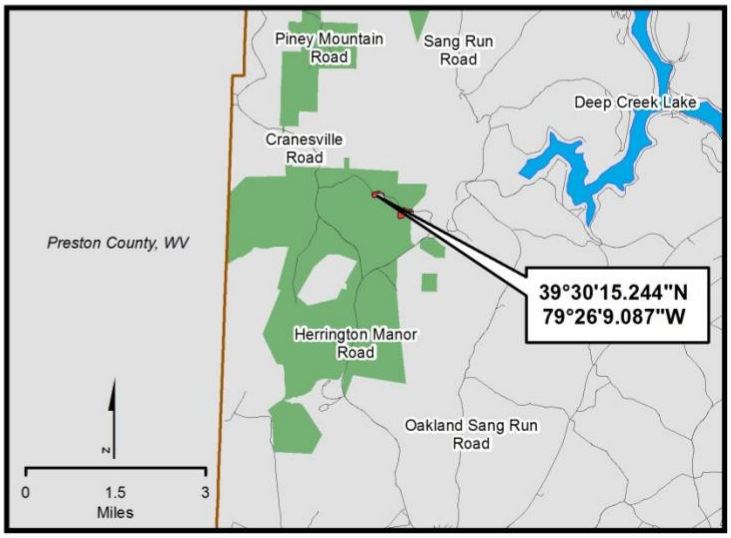
Recreation Resources: The eastern stand is bordered to the south by the 5 ½ Mile Trail**.** Access to the trail may be limited and/or suspended for the duration of the harvest depending on the timing of the cutting. Contract stipulations will require that all logging debris will be removed from the trail surface prior to harvest close out. Hunting is also a popular activity in this area as the forest road provides a multitude of access points into the state forest. Opportunities to hunt the area may also be limited or disrupted as log trucks and heavy equipment enter/exit the area.

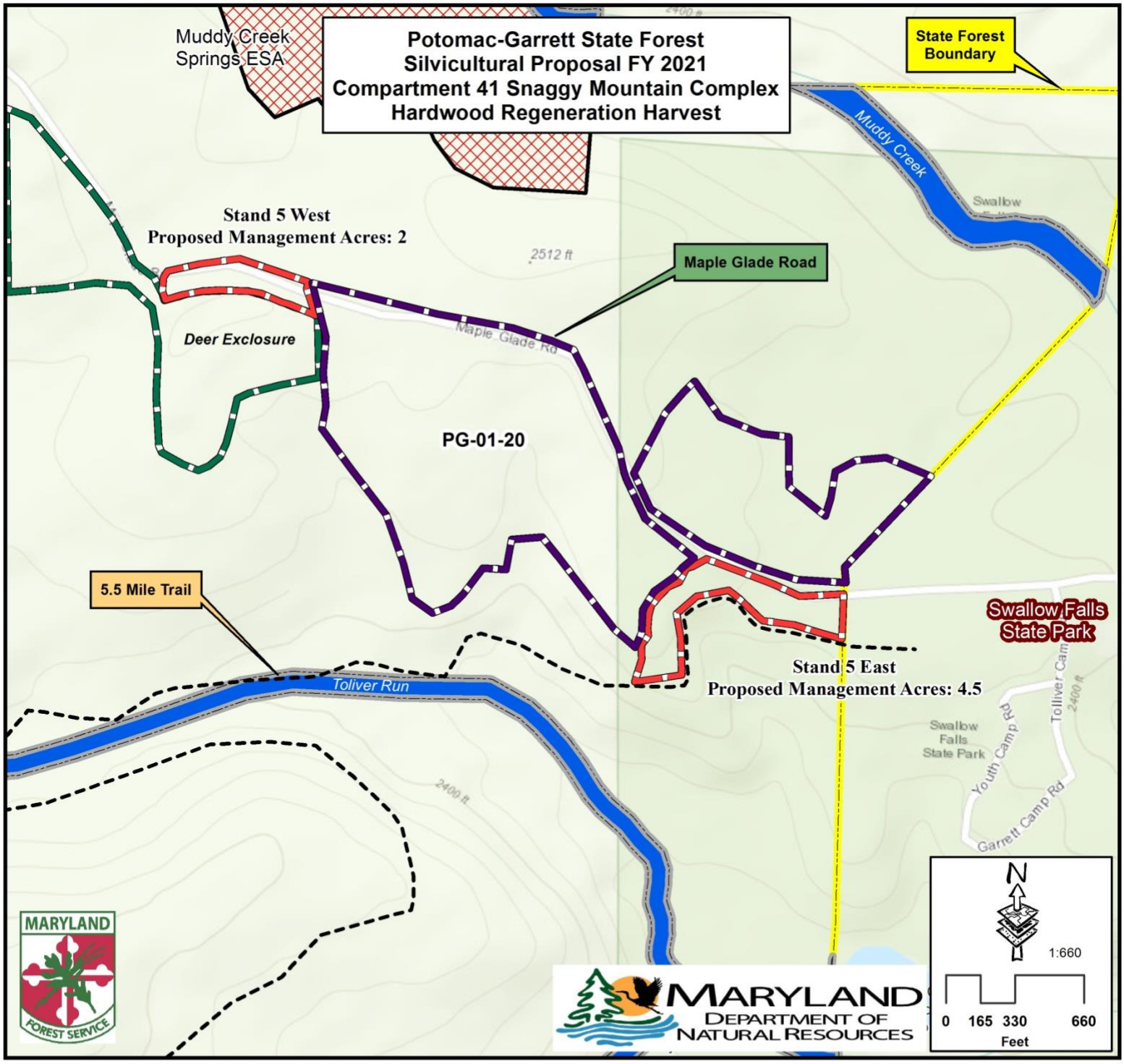
Management and Silvicultural Recommendations

These two stands adjoin PG-01-20, a hardwood harvest that was bid on August 22, 2019. The composition of the proposed stands is similar to the recently sold timber in regard to both overstory composition and more importantly, the presence of substantial established regeneration, particularly oak. In order to protect this developing cohort, the two stands will be pulled into FY-20 as regeneration harvests and offered as an amendment to PG-01-20. The limited sizes of both stands precludes selling them as stand-alone harvests and adding them to the existing harvest will ensure that the established regeneration is released in a timely manner in order to fully occupy the future stand. All trees greater than two inches DBH will be harvested on both sites in order to contribute desirable stump sprout regeneration toward the overall stocking of the new stands. Retention will focus on four to eight dominant or co-dominant trees per acre selected for mast production/seed sources or wildlife habitat elements including cavities, den trees and nesting sites. Combined harvest yields will average approximately 13,000 board feet/acre.

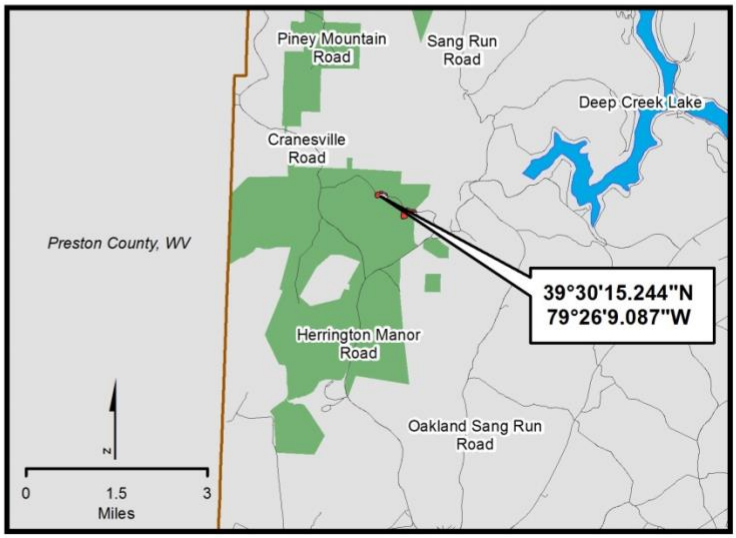


- Wildlands
- Ecologically Significant Area
- Old Growth
- Old Growth Ecosystem Area
- Wetland of State Concern
- Streams and 50' Buffers





- Wildlands
- Ecologically Significant Area
- Old Growth
- Old Growth Ecosystem Area
- Wetland of State Concern
- Streams and 50' Buffers



COMPARTMENT 46 Stands 1, 2 **FY-21**

Description/Resource Impact Assessment

Location: This harvest proposal is located on the south side of Sang Run Road, approximately 1.5 miles east of the intersection with Cranesville Road.

Forest Community Type and Condition: This silvicultural proposal is composed of two mixed oak stands covering approximately 60 acres. Stand 1 spans 25 acres with an overstory comprised of northern red oak (50%), red maple (36%) and white oak (7%). The stocking in this 100-year-old stand is at 62% relative density with an average basal area of 100 ft^2/acre and an average merchantable diameter of 14.9 inches. Established oak regeneration is found on 13% of the site. Ongoing inventory of the site has shown a considerable decline in the proportion of desirable regeneration within the stand. Encompassing 35 acres, Stand 2 has a similar canopy composition with northern red oak (43%), red maple (36%) and chestnut oak (13%) representing the dominant species. The stand is 80 years old with an average basal area of 90 ft^2/acre and an average merchantable diameter of 13.0 inches. Stocking is optimum for tree growth at 61% relative density with 4,800 board feet/acre live growing stock. Overall oak regeneration occupies 22% of the site with 10% considered competitive and 12% identified as established. Total desirable regeneration is found on 28% of the site.

Interfering Elements: Interfering understory plant competition is not problematic within the two stands. Minimal levels of tall and low woody interference as well as grass/fern cover were recorded in both stands. 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 a shift in species composition dominated by undesirable tree species. Field evaluation of the site estimated deer browse impact to be moderate. High tops and slash will be utilized to deter browsing on stump sprouts and developing seedlings. Monitoring of deer browse impacts will coincide with regeneration surveys 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: Stand 1 was thinned in 1993 and Stand 2 was thinned in 2004. No evidence of fire was observed within the stand. No signs of significant insect infestations or diseases were observed during the assessment of the stand.

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

Habitats and Species of Management Concern: The proposed harvest area lies between two sections of the Piney Mountain North ESA. This area contains critical habitat for a state endangered amphibian and state endangered mammal. All proposed silvicultural activities will occur outside the designated boundaries of this particular HCVF and will have no impact upon the integrity of the site.

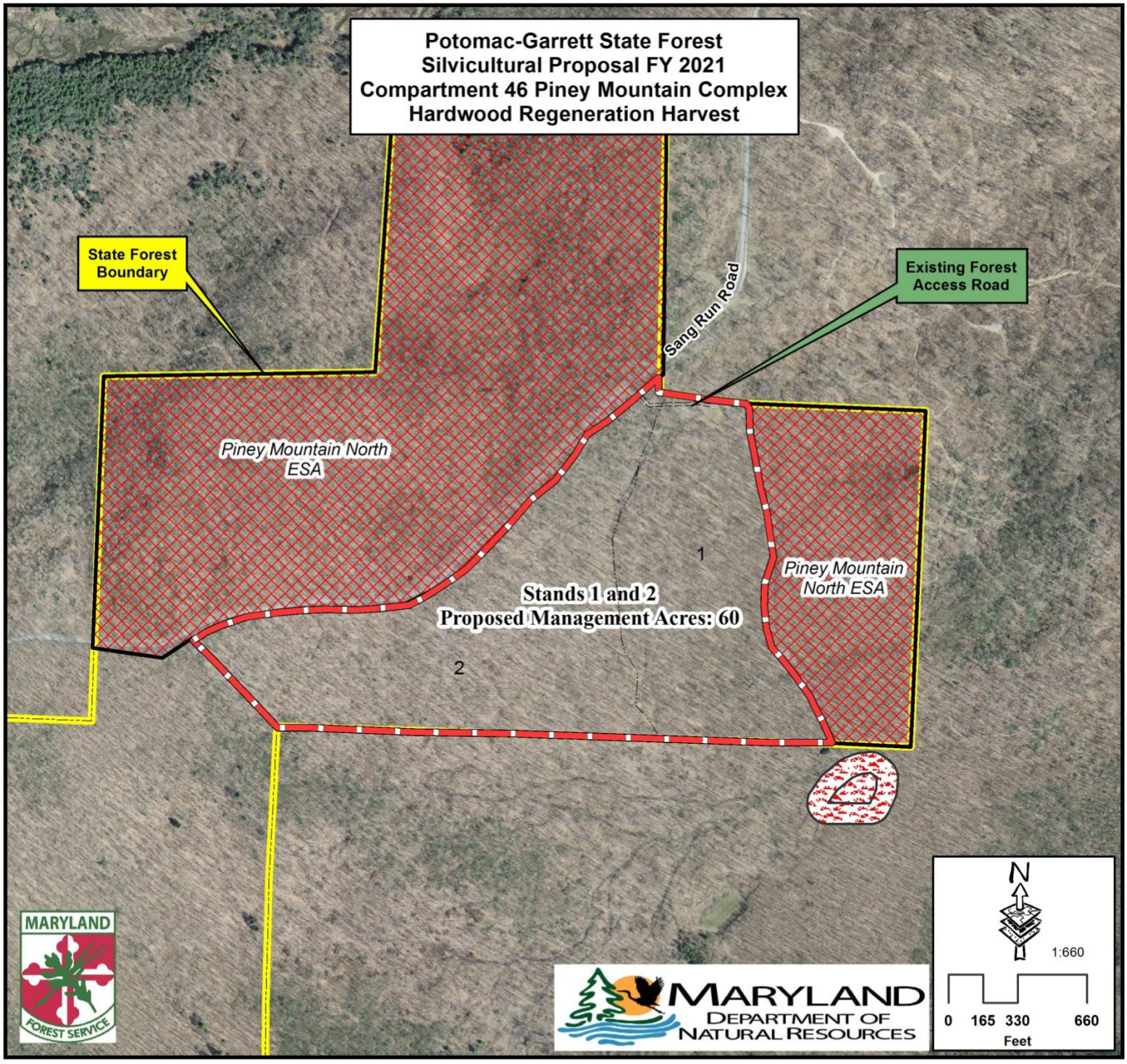
Water Resources: Both stands drain northward into the Youghiogheny River. The proposed silvicultural treatments will be outside of all HCVF and stream buffer areas. No heavy equipment will be permitted within the protective riparian buffers of any streams or associated wetlands per the requirements set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

Soil Resources: Dominant underlying soils are mapped as Dekalb and Leetonia very stony loams, 0 to 15 percent slopes (DlC). This soil is moderately deep over bedrock, well drained and very acid. Equipment limitations are slight. The site has fair productivity for woodland management with a site index range of 55-65 for upland oaks. 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.

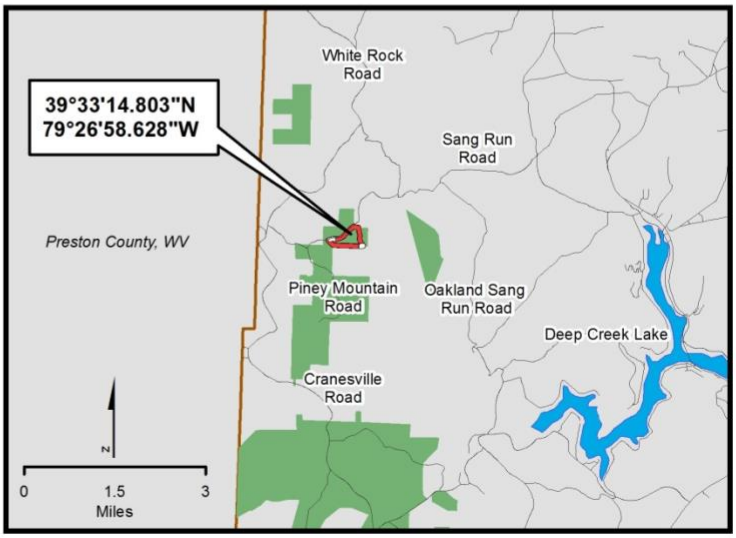
Recreation Resources: This particular area of the forest offers no developed recreational resources. The primary recreational activity performed within this area is hunting. Recreational opportunities may be disrupted for the duration of the harvest activities and access to the site may be limited depending on the timing of the harvest.

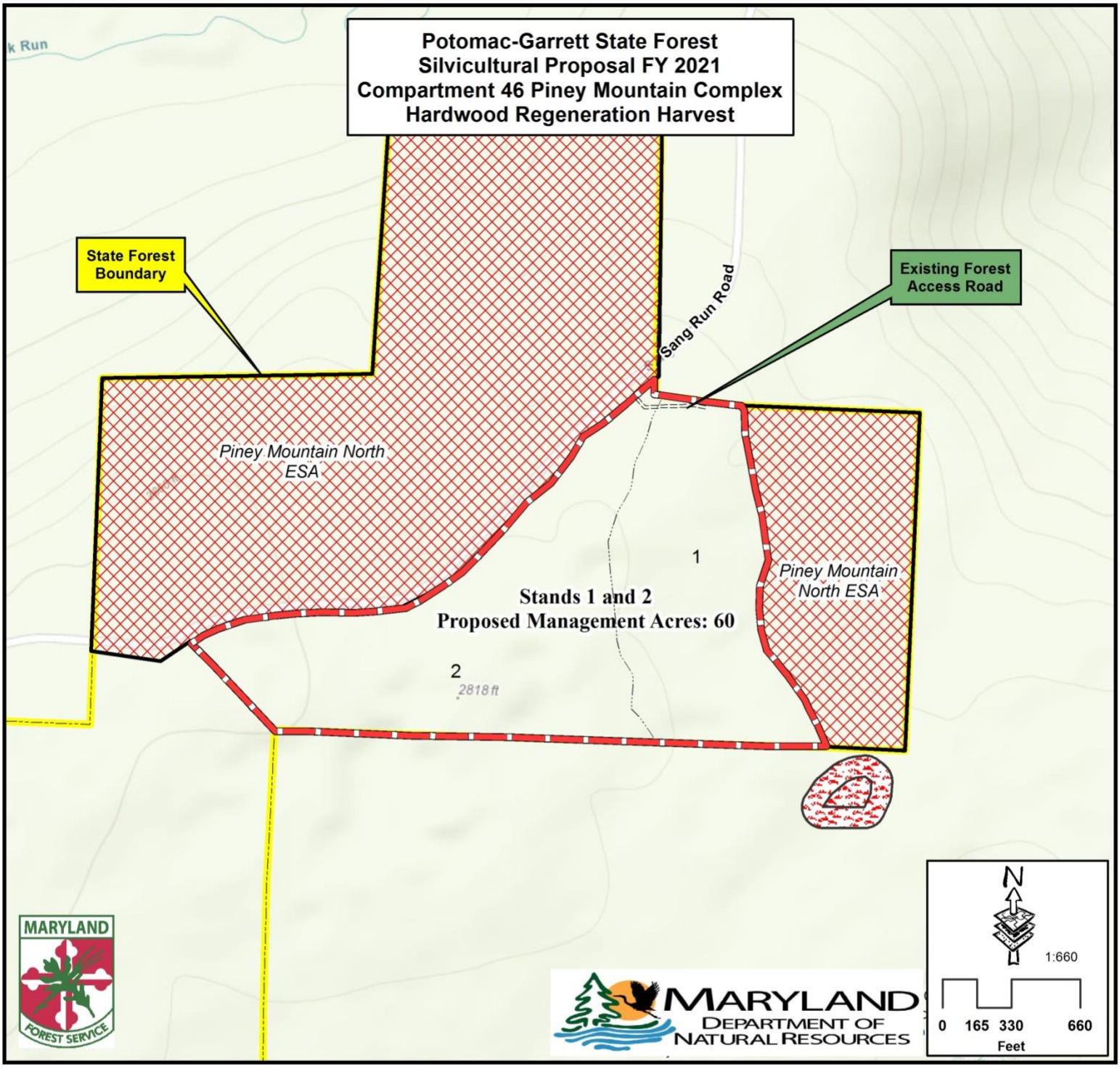
Management and Silvicultural Recommendations

The planned silvicultural treatment for both sites is a regeneration harvest. Stand 1 was thinned in 1993, leaving optimum stocking levels for tree growth, but the majority of the residual stand had been classified as unacceptable growing stock or is of an undesirable species. Given the lack of adequate acceptable growing stock, further management of the stand is not warranted and the stand will be regenerated via the clearcut method. Stand 2 was thinned in 2004, resulting in the establishment of sufficient desirable competitive regeneration on 28% of the stand. This stand will also be regenerated using the clearcut method to release the competitive regeneration and allow it to fully occupy the future stand. All trees greater than two inches DBH will be harvested on both sites in order to contribute desirable stump sprout regeneration toward the overall stocking of the new stands. Retention will focus on four to eight dominant or co-dominant trees per acre selected for mast production/seed sources or wildlife habitat elements including cavities, den trees and nesting sites. Harvest volumes will total approximately 5,600 board feet/acre in Stand 1 and 4,800 board feet/acre in Stand 2. Contract specifications will require high slash to remain on the harvest sites in order to deter deer browsing on developing seedlings and stump sprouts.



- Wildlands
- Ecologically Significant Area
- Old Growth
- Old Growth Ecosystem Area
- Wetland of State Concern
- Streams and 50' Buffers




Potomac-Garrett State Forest
Silvicultural Proposal FY 2021
Compartment 46 Piney Mountain Complex
Hardwood Regeneration Harvest
State Forest Boundary
Existing Forest Access Road
Sang Run Road
Piney Mountain North ESA
Piney Mountain North ESA
1
2
Stands 1 and 2
Proposed Management Acres: 60
2818 ft
MARYLAND FOREST SERVICE
MARYLAND DEPARTMENT OF NATURAL RESOURCES
N
1:660
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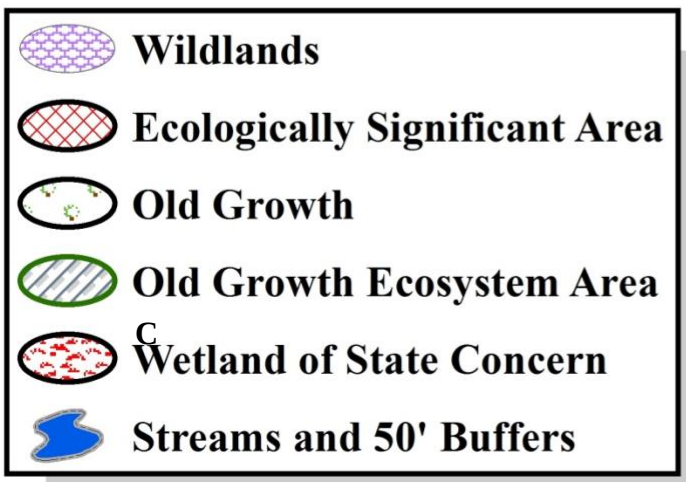
Feet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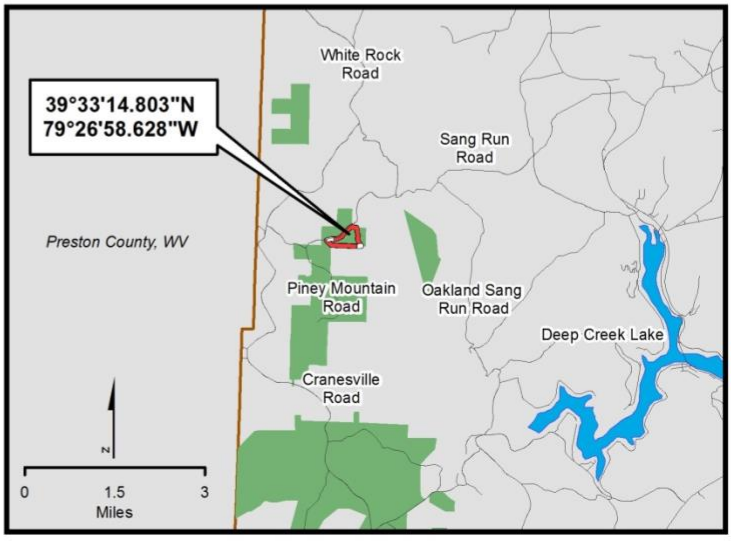
39°33'14.803"N
79°26'58.628"W
White Rock Road
Sang Run Road
Preston County, WV
Piney Mountain Road
Oakland Sang Run Road
Deep Creek Lake
Cranesville Road
N
0 1.5 3
Miles

XI. Operational Management and Budget Summary

A. Introduction
B. Funding Sources
C. Operational Cost

Operational Management

A. Introduction

This section of the plan is designed to cover the annual cost and revenues associated with the operational management of Potomac-Garrett State Forest. It is the Department's intent that all revenues generated from the forest will be used to pay for the management and operation of the forest. 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. 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 Potomac-Garrett State Forest. 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-2020. Currently, budget trends are flat, meaning that the appropriation that was available in FY-20 will be same for FY-21.

B. PGSF Funding Sources

State Forests in Maryland are funded from several sources. The first source is the revenue generated by the forests. These funds are deposited in the Department of Natural Resources Forest or Park Reserve Fund and must be appropriated by the General Assembly through the annual budgeting process before being spent. The state forest budget is prepared approximately one year before the beginning of the fiscal year in which it will be spent. The budget then goes through the legislative approval/review process along with all other state operating budgets. Once adopted, the budget goes into effect July 1st, the first day of the fiscal year. Revenue generated by the state forest is designated special fund revenue. There may be special funds provided from the Department of Natural Resources Forest or Park Reserve Fund that are not generated by this particular forest or there may be a lesser amount of special funds shown in the budget than was generated on this specific forest.

Another source of funding for the state forest is Recreational Trail Grants. These grants are competitive and are generally limited to $80,000 per year per grant. The source of this funding is the Federal Department of Transportation administered through the Maryland Department of Transportation, State Highway Administration. These funds are designated as reimbursable funds and are applied to various trail related projects as detailed in specific grant

requests. Potomac-Garrett State Forest has secured Recreational Trail Grant funds in the amount of $92,472.00 for personnel to repair and maintain the Snaggy Mountain Road.

With the passage of SB 606 in the 2018 Legislative Session, which established an Excise Titling Tax on OHV purchases for the purpose of funding maintenance and construction of ORV Trails on DNR lands, the Department has been receiving monthly deposits of approximately $40K in funding which must be used for this specific purpose. These funds will be split evenly between the Forest Service and Park Service, amounting to approximately $20K per month, or $240K (*projected*) for the current fiscal year. Potomac-Garrett State Forest has requested $163,270.00 from the fund in order to repair two large culverts on Wallman/Loop Road that are failing as well as mitigating ongoing erosion issues on the road that resulted from a storm event that breached the existing water control devices.

C. Operational Cost: Estimated Annual Expenses - *$543,112.00*

Operational expenses are those costs paid directly out of the Potomac-Garrett 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-2021 budget proposal was prepared in August of 2019.

▪ *Classified Salaries, Wages and Benefits: $340,625.00*

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.

▪ *Contractual Staffing: $63,203.00*
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, overlooks, wildlife habitat areas and implementing all maintenance, recreational, silvicultural and ecosystem restoration projects.

▪ *Land Operation Costs: $90,248.00*
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 Potomac-Garrett 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 the Annual Work Plan and as operating budgets are approved.

XII. Appendices

Appendix 1: Potomac-Garrett State Forest 10-Year Timber Harvest Summary Table

Fiscal Year	*Planned Harvest*	*Bd. Ft. Vol. Harvested*	*Gross value*
2011	**550,000 BD FT**	**465,653**	**$411,485.00**
2012	**550,000 BD FT**	**534,679**	**$241,781.00**
2013	**550,000 BD FT**	**331,052**	**$176,000.00**
2014	**300,000 BD FT**	**298,221**	**$26,834.50**
2015	**552,000 BD FT**	**492,401**	**$161,910.00**
2016	**634,000 BD FT**	**542,534**	**$72,689.77**
2017	**533,000 BD FT**	**520,937**	**$275,126.44**
2018	**544,000 BD FT**	**456,517**	**$225,796.59**
2019	**488,000 BD FT**	**458,052**	**$248,487.50**
2020	**400,000 BD FT**	**226,257***	**$87,898.36***

**Volume harvested and total gross value as of November 5, 2019.*

Appendix 2: 2019 FSC Audit Action Plan

Maryland Department of Natural Resources Forest Service

2017.05.15

Forest Stewardship Council Audit 2019

2019 Audit Summary
2019.04.30

2019.01 – Observation
FSC Indicator: 7.2.a
Non-Conformity (or Background/ Justification in the case of Observations):
Although the Chesapeake/Pocomoke Forest Citizens Advisory Committee member has been recently established, there is an opportunity to continue efforts and seek input from indigenous people, including all MD State Forest regions, as the last formal outreach efforts were completed 5-6 years ago. The ecologist representative position on the Forest Citizens Advisory Committee recently became vacant. At the time of the audit the ecologist position remained open. This position represents conservation science representation.

Corrective Action Request (or Observation):
The forest owner or manager last had formal consultation with tribal representatives in identifying sites of current or traditional cultural, archeological, ecological, economic or religious significance approximately 5-6 years ago. Per interview, there is not a regularly scheduled interval to reevaluate the MD DNR SF outreach efforts. There is an opportunity to continue efforts and seek input from indigenous people, including all MD State Forest regions. The management objectives found in regional and/or site-specific plans for conservation, protection, and restoration, proposed by agencies, scientists, and/or stakeholders, are addressed in the forest management plan or supporting documents.
Issue: Indigenous people outreach

2019.02 - Observation
FSC Indicator: FSC FM US 6.3.e
Non-Conformity (or Background/ Justification in the case of Observations):
The current seed mix used for landings and roads has been previously chosen for its ability to quickly germinate and establish, however the mix used has been previously approved by State Wildlife staff for food plots and elsewhere at the State level for the Erosion and Sediment Control plan process.

Corrective Action Request (or Observation):
While the seed mix used on landings and roads has been previously approved by State Wildlife staff for food plots and elsewhere at the State level for the Erosion and Sediment Control plan, there is an opportunity to improve the seed mixture species and ratios to include other native species, as the current mix being applied on landings and roads, is comprised of only non-native, naturalized species.

Issue: Site seed mix

2019.3 – Minor CAR

FSC FM US 6.6.e
Non-Conformity (or Background/ Justification in the case of Observations):
Power line ROWs over the SF system are typically maintained by the power companies, who do apply pesticides as a regular management activity. These areas have not been excised from the FMU and so management activities such as pesticide use must be reported. The quantity of pesticides used is not currently being reported to the MD DNR SF for the power line ROW areas.

Corrective Action Request (or Observation):
Reporting of the volumes of pesticide use on power lines by the power company is not currently being completed.
Issue: Pesticide reporting

2019.4 – Minor CAR

FSC Indicator: 6.7.c
Indicator 6.7.c Hazardous materials and fuels are stored in leak-proof containers in designated storage areas, that are outside of riparian management zones and away from other ecological sensitive features, until they are used or transported to an approved off-site location for disposal. There is no evidence of persistent fluid leaks from equipment or of recent groundwater or surface water contamination.

Non-Conformity (or Background/ Justification in the case of Observations):
Dozer was leaking on site onto the soil below the equipment, some oil was observed on the soil below the Skidder. Logger was not on site. No apparent safety equipment (no fire extinguishers & spill kits observed on all 3 machines on an active site), however, later forester-logger interview stated that the fire extinguishers were behind the seats of the skidder and harvester out of view. Recent BMP inspection conducted by forester noted no issues.

Corrective Action Request (or Observation):
There is evidence of fluid leaks from equipment; while this did not contaminate groundwater or surface water, these leaks from equipment on unattended machinery need to be corrected in order to not cause future problems.
Issue: Fluid leaks from equipment

2019.05 – Observation

FSC Indicator: 8.1.a
Non-Conformity (or Background/ Justification in the case of Observations):
The organization currently conducts BMP monitoring with checklists. Different BMP monitoring checklists are used in the Eastern Shore and the Western SFs, one form uses an evaluation systemwith a ranking of 1-5 (1 = poor conformance, 5 = excellent conformance), the other form uses a "Yes/No/NA" to evaluate the Forest Harvest Operation.

Corrective Action Request (or Observation):
FME is using written BMP checklists for monitoring BMP effectiveness. 2 separate forms are used; one form notes BMP conformance with a ranking of 1-5, however per interview and

document review, the ranking criteria is not clearly defined. FME could review the difference in criteria used in the West vs the Eastern Shore) in efforts to help improve consistency for monitoring of BMP effectiveness.
Issue: BMP monitoring with checklists

Appendix 3: 2019 SFI Audit Action Plan

Maryland Department of Natural Resources Forest Service

Sustainable Forestry Initiative
2019 Audit Summary
2019.04.30

Minor Nonconformance

SFI 11.1.4: Contractor education and training sufficient to their roles and responsibilities.
Minor: This process is not fully effective.
Evidence: Contract logger is a MD Master Logger, however there were issues with the equipment on-site. Dozer was persistently leaking on site onto the soil below the equipment, some oil was observed on the soil below the Skidder. Logger was not on site. No apparent safety equipment (no fire extinguishers & spill kits observed on all 3 machines on an active site), however, later interview stated that the fire extinguishers were behind the seats of the skidder and harvester out of view. Recent BMP inspection conducted by forester noted no issues.
Issue: Fuel leaks and safety equipment

Opportunity For Improvement

SFI 2.1.1: Documented *reforestation* plans, including designation of all harvest areas for either natural, planted or direct seeded regeneration and prompt *reforestation*, unless delayed for site-specific environmental or *forest health* considerations or legal requirements, through *planting* within two years or two *planting* seasons, or by planned *natural regeneration* methods within five years.
OFI: Regeneration criteria are forest-type specific. Confirmed that Western SFs use Oak-SILVAH for criteria and for protocols for regeneration surveys. No regeneration delays were observed in the field. Although planting is rarely done, there is an opportunity for improvement in the regeneration criteria in order to achieve acceptable species and stocking levels for naturally regenerating stands in the Eastern Region.
Issue: regeneration criteria

SFI 2.2.5: Use of Pesticides banned under the Stockholm convention and Persistent Organic pollutants.
OFI: Although Pesticides are currently checked to the FSC checklist, there is an opportunity to improve the chemical review process, both internally and with external contractors, to ensure that current and future uses of pesticides and to ensure that pesticides banned under the Stockholm convention and Persistent Organic pollutants are not being used.

Issue: Pesticide use reporting

SFI 3.1.3: Monitoring of overall best management practices implementation.
OFI: The organization currently conducts BMP monitoring with written checklists. Different checklists are used in the Eastern Shore and the Western SFs. There is an opportunity to improve the difference in criteria used in the West vs the Eastern Shore (example with the criteria for 1-5 versus Yes NO and NA noted) in efforts to help improve consistency for evaluation of BMP effectiveness.
Issue: BMP checklist criteria

SFI 8.2.1 *Program Participants* with forest *management responsibilities on public lands* shall confer with affected *Indigenous Peoples* with respect to sustainable forest management practices.
Indicator:
8.2.1 *Program* that includes communicating with affected *Indigenous Peoples*
to enable *Program Participants* to:
a. a) understand and respect traditional forest-related knowledge;
b. b) identify and protect spiritually, historically, or culturally important
sites;
c. c) address the use of non-timber forest products of value to
Indigenous Peoples in areas where Program Participants have management responsibilities on public lands; and
d. d) respond to Indigenous Peoples' inquiries and concerns received.
OFI: Although the Chesapeake/Pocomoke Forest Citizens Advisory Committee member has been recently established, there is an opportunity to continue efforts and seek input from indigenous people, including all MD State Forest regions, as the last formal outreach efforts were completed 5-6 years ago and per interview, there is not a regularly scheduled interval to re-evaluate the MD DNR SF outreach efforts.
Issue: Indigenous people outreach

SFI 11.1.2 Assignment and understanding of roles and responsibilities for achieving *SFI 2015-2019 Forest Management Standard objectives*.
OFI: There is an opportunity to improve the assignment and understanding of roles and responsibilities as it relates to contract requirements, per review of the Stone Mountain Road contract #0217. Internal contractual documents were incomplete on one page of the contract; per interview with multiple DNR staff, there were differing thoughts as to who was responsible for noting the official date and signature on the contract, i.e.: State Forest Staff vs. Central Office staff in Annapolis.
Issue: Contract coordination

SFI 11.1.3 Staff education and training sufficient to their roles and responsibilities.
OFI: While the seed mix used on landings and roads has been previously approved by State Wildlife staff for food plots and for the Erosion and Sediment Control plan, there is an opportunity to improve staff education and training as it relates to the seed mixture (species and ratios) currently being applied on landings and roads, as only non-native, naturalized species are being used.
Issue: Site seed mix

SFI 15.1.2: System for collecting, reviewing, and reporting information to management regarding progress in achieving *SFI 2015-2019 Forest Management Standard objectives* and *performance measures*.
OFI: Currently the document "Internal Review-ISA-FIELD-CHECKLIST-ALL-SF- is used; there is an opportunity to consider using other foresters from different regions to help strengthen and improve current auditing processes.
Issue: Internal Silvicultural Audit integration

Appendix 4: Interdisciplinary Team Review and Comments

Maryland Department of Natural Resources - State Forests

Potomac-Garrett State Forest
FY-21 Annual Work Plan
ID Team Review
Wednesday, September 25, 2019

ID Team Members: Kenny Wampler (Fisheries), Scott Campbell (PGSF), Noah Rawe (PGSF), Jason Savage (PGSF), Rick Latshaw (Wildlife), Donnie Oates (MPS), George Eberling (MFS), Mike Friend (NRP), Walt May (NRP), Jack Perdue (MFS) and Leonard Cage (MDE). Dan Feller (Wildlife/Heritage) submitted written comments prior to the meeting.

Overview / Discussion of FY 2021 Work Plan:

Agenda

9:00	Arrive at PGSF Headquarters
9:00 — 10:00	Overview of FY 2021 Work Plan; Travel logistics
10:00 — 3:00	FY 2021 AWP field review
3:30 - 4:00	Return to PGSF Headquarters
4:30	Adjourn

Notes

- Potomac Garrett State Forest manager Scott Campbell presented an introduction for the day and an update to the status of the forest.

- There were seven (7) acres, known as the Weeden Property, added to the state forest, four (4) of which are open and PGSF will work to maintain those acres as early successional habitat. They will use native shrubs to plant the area and incorporate an annual mowing schedule on portions of the site to prevent further hardwood intrusions.

- Tree of Heaven – has been noticed to be increasing in population. This has been noted in both disturbed and undisturbed areas.

- Lost Land – At Lost Land the staff will use sandstone to stabilize the roadway rather than limestone so not to encourage garlic mustard invading the area.

- Mixed pine area (planted) will be harvested without retention due to expected blow down of residuals. Wildlife staff added that the reduction of perch trees will reduce predation of small mammals.

- The Maze – the Maze is a special geologic feature which has become a very popular recreation site via social media. However, the site has quickly become abused by visitors and actions must be taken to reduce access and the abusive nature of those visitors. It was thought that by making the site more accessible that the additional visitation would discourage vandalism but that has been proven not to be the case.

- Verso Paper Mill – the closing of the Verso paper mill in nearby Allegany County in June 2019, has greatly reduced local markets for low grade hardwood and the silviculture that benefited from those markets. However, Verso will be selling their forest land holdings. One site in particular would add 3,399 acres to Potomac Garrett. The outcome is to be determined.

- Parks Trails – a nearby State Park has plans to develop bike trails onto the state forest. Problems in the design have become apparent with the planned locations entering into Ecologically Significant Areas. The Potomac-Garrett staff believes these trails should not be allowed at the proposed site.

- Super Storm Sandy (October 2012) – This storm caused massive and extensive openings in the forest canopy in Garrett County which has allowed ferns to take over much of the forest floor and become troublesome for forest regeneration.

- Site visits were conducted at the Piney Mountain Regeneration harvest proposal in Compartment 46 Stands 1 and 2 and the Lostland hardwood thinnings and conifer regeneration harvest in Compartment 19. ID Team members also toured the “Rock Maze” to assess the ongoing impacts of intensive visitor usage.

Appendix 5: Citizens Advisory Committee Review and Comments

Potomac-Garrett State Forest
Citizens Advisory Committee AWP FY-21 Review
Tuesday, November 19, 2019

Attendance
Scott Campbell, Noah Rawe, Jason Savage, Nikki Brown, George Eberling, Carl Lee, Sull McCartney, Michael Kozier, Michael Logsdon, Cheryl DeBerry and Joseph Hughes.

The Citizens Advisory Committee was welcomed to Potomac-Garrett State Forest at approximately 11:00 am and presented with the following agenda:

11:00	Introductions/Informal Discussion
11:30 – 12:00	Lunch
12:00 – 1:30	Review FY-21 Draft Annual Work Plan
1:30 – 2:00	Economic Impact of Western Maryland State Forests Analysis/Review
2:00	Wrap up / Final comments

Discussions noted include:

1. **Review of FY21 Annual Work Plan**

   Michael Kozier suggested adding a season pass for the 3-D Archery Range, extending the time it is open by one month (thru October), and having the Boy Scouts perform a service-learning project to build frames holding mining belts behind the targets to catch low arrows. Mr. Kozier then asked about stiltgrass treatment, and Scott Campbell explained that the work would be done by an herbicide contractor. A short discussion ensued regarding the closure of The Maze trail. Mr. Kozier asked about the timber harvest by the fish ponds at Lostland as he said a sign still needs installed to recognize the Eagle Scout spring restoration project. Cheryl DeBerry offered that the Scouts may want to apply for a Heritage Area Signage grant. The grants are up to $2,000 and do require a 50% cash match. Sull McCartney noted that research data collection projects would include bobcats, crayfish, and orchids. Mr. Kozier then asked about timber prices with the closing of Verso. It was noted that there has been a decline in some markets. Mr. Kozier also asked about the seed mix being used, and George Eberling explained that there had been a misunderstanding in the label interpretation that led to the audit finding. Mr. Kozier also asked about the chestnut planting at Savage River State Forest, and Mr. Campbell stated it was doing well. Carl Lee asked if/what can be done to combat Japanese knotweed and Mile-a-Minute Weed. It was noted that there has been some success controlling the Mile-a-Minute Weed with weevils. Mr. Kozier asked if there is any trail maintenance that the Scouts could do on State Forest lands. Ms. DeBerry asked if there is any trash collection Fourth Grade Be The Change Students could do along the forest roadways. It was noted that trash always needs collected along the roadways.

Joseph Hughes asked if the Lostland Trail is passable and needs any clean-up. It was noted that many positive comments are received about the Lostland Trail. Mr. McCartney asked if there had been any mining activity near the North Prong of the Potomac River as he saw seepage. No one was aware that there had been any mining activity there. Mr. Campbell directed the group to Page 15 regarding the off-road vehicle (ORV) projects. It was noted that Potomac-Garrett State Forest will be acquiring a tractor/brush hog and improving Wallman Road with these funds. Mr. McCartney asked how the gravel on Wallman had held up, and it was noted that it had done well but that the culverts needed to be revamped. These ORV funds will be used for the engineering for that work. Mr. McCartney asked if there were any brook trout as if so, additional funding might be able to be obtained from Trout Unlimited. Seth Mossinger is the local contact for Trout Unlimited. Mr. Kozier advised that is anyone sees native Chestnut to let the Forestry Board know so that pollen can be obtained. Mr. McCartney stated that he is good with the FY21 plan as there is no fisheries impact. Ms. DeBerry complimented the improved maps in the FY21 plan. It was noted that the shrub planting will include dogwood, chokeberry and winterberry. It was also noted that Potomac-Garrett State Forest would like to acquire the Verso property which is approximately 3,300 acres and does contain mineral rights. Lastly, it was noted that they are awaiting comments from Dan Feller but otherwise the plan is approved by the interdisciplinary team and will get posted to the website in January.

2. Visitation and Economics of Recreation/Tourism in Western Maryland State Forests

Mr. Campbell advised that there was a new draft of the Visitation and Economics of Recreation/Tourism in Western Maryland State Forests Technical Report. The report indicates on page 4 that the impact of non-resident visitation to Potomac-Garrett State Forest produces a total output of $1,296,354. Cheryl DeBerry noted that there are two other interesting studies: 1) The Garrett County Chamber of Commerce is in the process of updating their tourism plan via West Virginia University and 2) Salisbury State University BEACON Economic Impact Studies. Several members requested copies of the technical report, so Mr. Campbell will email everyone a copy.

3. Adjournment

It was noted that the committee does need new members, and it is the committee's responsibility to find those members. It was also noted that they would enjoy doing field tours at least every other year, so next year's review will try to be scheduled so that a field tour can be included. The committee was thanked for their continuing commitment and support for the sustainable management of Potomac-Garrett State Forest and the meeting was adjourned at approximately 2:00 pm.

Appendix 6: Public Comments

There were no comments received from the state forests annual work plan 30-day public comment period that was closed on February 28, 2020.

XII. Literature Cited

Fetzner, James W. 2019. *Crayfish Collection.* Carnegie Museum of Natural History Section of Invertebrate Zoology Research Proposal.

Jetton, Robert M., Mayfield, Albert E., Keyser, Tara, and Rhea, James 2017. *Target-tree Release to Improve the Sustainability of Eastern Hemlock (Tsuga canadensis) in the Southern Appalachian Mountains.* US Forest Service Southern Research Station and North Carolina State University.

Ness, Eric. 2018. *Population Estimate and Structure of Bobcats in Western Maryland.* University of Delaware College of Agriculture and Natural Resources Department of Wildlife Ecology.

Wigham, Dennis. 2019. *Orchid Collection – Multiple State Lands*. Research Proposal. North American Orchid Conservation Center and Smithsonian Environmental Research Center.