FOREST STEWARDSHIP PLAN

FOR

Collington Episcopal Life Care Community, Inc.
c/o Liz Barbehenn
10450 Lottsford Road
Bowie, MD 20721
Phone: 301-541-5123
E-mail: lizkbarbehenn@gmail.com

LOCATION

North side of Lottsford Road, approximately 0.15 miles east of Campus Way
Bowie, MD

ON

Account#	Tax Map	Subdivision	Forest Acres	Residential Acres	Pond Acres	Total Acres
13-3308939 & 13-3308962	61	2410	52.8	66.94	4.1	123.84

Sub-watershed: Western Branch (#02131103)

IN

Prince George's County

PREPARED BY:

Brian J. Stupak, Project Manager
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MD DNR Forest Service
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Initial Plan: 9/20/2021

INTRODUCTION

Collington Episcopal Life Care Community, Inc. owns 123.84 acres of land, 52.8 acres of which are wooded, in Bowie, MD. The landowner wishes to manage the property for soil erosion control, water quality improvement, invasive species control, recreation, wildlife habitat and forest health. These goals correspond to the stewardship objectives of **Soil & Water** (primary objective) and **Natural Heritage & Recreation** (secondary objective). The overall goal of this Forest Stewardship Plan is to ensure the long-term health and sustainability of the forest.

PROPERTY OVERVIEW

The property consists of a retirement community located in the center of the property surrounded by woods. The topography varies between rolling upland and flat bottomlands. There are four blue line streams (including Bald Hill Branch and Western Branch), five non-blue line streams and eight non-tidal wetland types (PFO1A, PFO1Ah, PFO1C, PFO1Ch, PSS1Ch, PSS1E, PUB/ABHh & PUBHh) on the property. The forest is made up primarily of upland and bottomland hardwoods. A well-defined trail system (mix of paved and dirt surface) is located around the edge of the woods.

NATURAL HERITAGE RECOMMENDATIONS

The term ”Natural Heritage” is used to describe the plants, animals, and natural ecosystems that make up the landscapes of Maryland. Thus, Natural Heritage Stewardship is concerned with preserving the plants, animals, and ecosystems of the state for the many benefits they provide us, especially those determined to be threatened, endangered, or in need of conservation. A survey of the property for rare, threatened and endangered species has been completed. According to the current Natural Heritage Program database, several threatened or endangered species may be located on the property.

ECOLOGICAL SIGNIFICANCE:

The property lies along Bald Hill Branch just above the confluence with Western Branch and supports three rare fish species that have been documented on a tributary to Bald Hill Branch on this property as well as downstream of the property in Western Branch: the Stripeback Darter (*Percina notogramma*, state-listed as Endangered), American Brook Lamprey (*Lethenteron appendix*, state-listed as Threatened), and Glassy Darter (*Etheostoma vitreum,* state-listed as Threatened.

The stripeback darter has a very limited distribution. This fish is endemic to the mid-Atlantic, and in Maryland occurs only in the Western Branch watershed. It occurs south to the James River in Virginia and in the upper James River in West Virginia. Just 3 inches long, this small fish in the perch family is distinguished from other darters by a series of black circles that extends along its side.

The American brook lamprey occurs in the Mississippi River Drainage and along the Atlantic Coast, but its distribution is highly fragmented. Adults of the non-parasitic American brook lamprey are very short-lived, dying after spawning in riffles over sandy or gravelly stream bottoms. Most of the life cycle of this eel-like fish is spent in the larval stage (4-7.5 years); larvae are referred to as ammocetes. After hatching, ammocetes swim to pools of slower moving water and burrow into the soft stream bottom.

The glassy darter is known only from the mid-Atlantic states from Maryland to North Carolina. Its translucent body is marked with black specks. At 2-3 inches long, it has large fins for its slender size. Glassy darters spawn as a group, referred to as communal spawning, an unusual behavior among darters.

All three species lay eggs in sandy or gravelly, silt-free substrate. Data from stream surveys conducted by DNR and cooperating academic institutions reveal that all three rare species are vulnerable to changes in hydrology and degradation in water quality, particularly to sedimentation. Maintaining a stable stream temperature regime and relatively cool stream temperatures is also important. Providing shaded conditions over intermittent and perennial streams and seepage wetlands and maintaining canopy cover in adjacent wetlands will help to maintain the natural stream temperature regime.

The forested area on this property provides potential Forest Interior Dwelling Birds (FIDS) habitat. These species require large, contiguous blocks of forest to successfully reproduce, and they are declining in the mid-Atlantic region. Most FIDS are neotropical migrants, traveling long distances to breed in North America and winter in Central and South America. These species include some of our most brilliantly colored songbirds such as the scarlet tanager and prothonotary warbler. These birds and others play many important roles in our forests such as insect control, seed dispersal and providing food to other predators. The declines in FIDS have been attributed largely to the loss and fragmentation of forests in the eastern United States by urbanization, agriculture and some forest management practices. Deforestation of tropical wintering grounds also is an important factor. The key to maintaining breeding habitat for FIDS and halting their decline is to protect extensive, unbroken forested areas throughout the region.

MANAGEMENT RECOMMENDATIONS:

As the forest on the property ages it provides better habitat for a variety of reptiles, amphibians, birds, and small mammals that nest in tree cavities and in the well-developed leaf litter and woody debris of the forest floor, and that forage for insects or fungi on the snags and dead branches of standing trees as well as in the leaf litter and woody debris. The well-stratified canopy of the older forest provides excellent habitat for a variety of birds, including forest interior dwelling species. The forest also helps to maintain the quality of the rare species' aquatic habitat in Bald Hill Branch and Western Branch. Activities on this property influence the water quality and hydrology of the aquatic habitat that supports the rare fish. In order to maintain the habitat quality of both the forest and the stream, the Natural Heritage Program has the following recommendations.

- Retain dead and downed woody debris on the forest floor. In addition to its habitat value, this material absorbs water, and as it decays it increases the water holding capacity of the soil.
- Retain snags to provide wildlife habitat as described above. Creation of snags is not necessary.
- Monitor and control invasive species. Vines such as Japanese honeysuckle, Oriental bittersweet, English ivy, Porcelain berry and Climbing Euonymus are of particular concern. These vines can inhibit the growth of saplings and slow the process of forest regeneration as they grow over and around saplings, shading them and causing branches to break off under their added weight. Also pursue control of invasive ground cover, such as English ivy and periwinkle, which reduces the quality of nesting habitat for ground-nesting species, including several species of FIDS. A list of invasive species that degrade our natural habitats is available at: http://mdinvasives.org/species-of-concern. The Invasive Plant Atlas of the United States website provides species-specific guidance on the control of many invasive plants of concern: https://www.invasive.org/weedcd/html/wgw.htm.

In addition to these recommendations, if the owners pursue logging or other activities that involve clearing vegetation and soil disturbance, please follow the guidelines below:

- Retain a minimum of 150 ft. undisturbed buffer on each side of perennial streams or a minimum of 100 ft. buffer to the floodplain of these streams, whichever is greater.
- Retain a minimum of 50 ft. undisturbed buffer on each side of intermittent streams.
- Avoid crossing perennial and intermittent streams with equipment.
- Avoid disturbing wetlands.
- Log when soils are dry.
- Follow the guidelines for conserving habitat for forest interior dwelling birds.
- Avoid disturbing steep slopes (15 % or greater).

Any questions concerning these comments or if the landowner would like additional information about the rare species and wildlife habitat in the Western Branch watershed, please feel free to call Katharine McCarthy (410-260-8569; katharine.mccarthy@maryland.gov) with the DNR Wildlife & Heritage Service.

SOILS

Collington Series: The Collington series consists of well drained soils. Runoff in these soils is low to high. Slope ranges from 0 to 80 percent. Mean annual temperature ranges from 52 to 57 degrees F. Mean annual precipitation ranges from 40 to 50 inches.

Issue Series: The Issue series consists of somewhat poorly drained soils. Runoff in these soils is low to very high. Slope ranges from 0 to 5 percent. Mean annual temperature ranges from 52 to 57 degrees F. Mean annual precipitation ranges from 40 to 50 inches.

Widewater Series: The Widewater series consists of poorly drained soils. Runoff in these soils is very high. Slope ranges from 0 to 2 percent. Mean annual temperature ranges from 52 to 57 degrees F. Mean annual precipitation ranges from 40 to 50 inches.

Wist Series: The Wist series consists of well drained soils. Runoff in these soils is very low to medium. Slope ranges from 0 to 80 percent. Mean annual temperature ranges from 52 to 57 degrees F. Mean annual precipitation ranges from 40 to 50 inches.

PROPERTY-WIDE RECOMMENDATIONS

FOREST HEALTH

Maintaining the health of your forest is important to help prevent damaging problems from interfering with the benefits received from the forest. In order to maintain forest health you should consider the following general guidelines:

1. Remove excessive numbers of over mature, weakened or damaged trees.
2. Encourage a mixture of tree species to minimize damage from problems that attack specific tree species.
3. Discourage tree species that are not well suited to the climate or site conditions.
4. Maintain a density of trees that provide adequate growing space.
5. Avoid wounding your trees and compacting soil during silvicultural treatments and recreational activities.
6. Stay informed of pest alerts and current pest outbreaks in your area.
7. Monitor your forest at least annually for symptoms of forest pest.
8. Prevent livestock from grazing in the woods

INTEGRATED PEST MANAGEMENT

Insects and disease damage or destroy trees of all ages. Being observant of changes and unusual conditions during the growing season helps to detect these agents before they become hazardous. Insects and disease can attack the roots, trunk, branches and leaves of a tree. Forest pests include, but are not limited to: anthracnose, galls, fungi, root rot, borers, leaf miners, sawflies, mites, scales, aphids and caterpillars. The project forester can be contacted for assistance in diagnosis and control.

EMERALD ASH BORER

The emerald ash borer (EAB) is a small metallic green insect that specifically infests and kills ash trees. This pest was first discovered in Prince George's County in September 2003 and has since spread to every county in the state. EAB is also found in a majority of the states in the Northeast and Mid-West and is spreading to the South. In response to this forest threat, a federal quarantine has been placed on the movement of any and all ash products (logs, stumps, branches, etc.) out of the quarantine zone and to a non-infested state. However, ash products can be moved within the quarantine zone. This is especially important if you harvest timber off the land. For more information about EAB and the latest quarantine map, please visit the MD Dept. of Agriculture website (www.mda.maryland.gov/plants-pests/Pages/eab.aspx).

GYPSY MOTH

The Gypsy Moth has been a major problem in the Northeastern U. S. since 1869. Over the years they have become a defoliator of hardwood trees in Southern Maryland. Defoliation by the Gypsy Moth will weaken a tree, reduce growth, and often kill the tree. Several factors determine the likelihood of a woodlot being infested by the Gypsy Moth. The type of tree present is one factor, oaks are among the most preferred species, and also favorable are sweetgum, blackgum, dogwood, hickory, maple and pine. Least preferred species include American holly, American sycamore, ash, black locust, and tulip poplar.

The condition of the woodland is also important. Areas with a considerable percentage of cull, damaged and deformed trees are highly susceptible. These conditions provide structural refuges and hiding places for larvae, pupae, and eggs. If a stand is attacked by Gypsy Moth, its vulnerability will determine the amount of mortality. Trees in stressed conditions (overcrowded, over mature, overtopped, or damaged), are highly vulnerable. Good forest management can reduce the susceptibility of woodland to attacks by Gypsy Moth. Thinning can be used to reduce the amount of structural refuges and the percentage of preferred food species present. Maintaining a healthy, vigorous forest is the best tool in controlling susceptibility and reducing vulnerability.

INVASIVE SPECIES CONTROL

Generally, invasive species are considered destructive since they outcompete the native species for space, water and sunlight. Left unchecked, these invasive species can spread throughout the property and on to adjacent properties. The following invasive species are found on the property, all in Stand #1:

- **Japanese stiltgrass** - an annual grass that spreads across disturbed areas, open fields and semi-open forests. One stiltgrass stem can produce 100 to 1,000 seeds that are capable of germinating for at least 5 years. Seeds remain viable in the soil for up to 5 years and can easily be transported to other areas on the property or to other non-infested areas. Control is through mowing or herbicides such as glyphosate (e.g. Roundup® Pro) and Fluazifop-P-Butyl (e.g. Fusilade® DX). Since Japanese stiltgrass

is an annual grass, a foliar spray during the growing season is the most common herbicide application.

- **Mile-a-minute (Devil's tearthumb)** – an annual, trailing vine introduced from India, East Asia and the Philippines. The vine grows very quickly, smothering small plants and shrubs. The vine can be controlled by mowing, hand pulling and herbicides. The most commonly used herbicides are glyphosate (e.g. Roundup Pro®, Glyphomate 41® and Rodeo®), triclopyr (e.g. Garlon® 3A) and imazapyr (Arsenal AC®). Herbicides can be applied to the leaves. https://www.invasive.org/alien/pubs/midatlantic/pepe.htm
- **Multiflora rose** – a thorny shrub native to eastern Asia, it was introduced to the U.S. in the 1930's and was promoted as a "living fence". Multiflora rose spreads by seed and stem sprouts. Control is through hand pulling/root grubbing, mowing, grazing and/or herbicides. The most commonly used herbicides for controlling multiflora rose include glyphosate (e.g. Accord® XRT), triclopyr (e.g. Garlon® 4), and imazapyr (e.g. Arsenal® AC). Herbicides can be applied to the vine stem, a cut stem or to the leaves. https://www.invasive.org/weedcd/pdfs/wgw/multiflorarose.pdf
- **Wineberry** – a spiny shrub introduced into the U.S. from Japan, Korea and China. Common in Maryland, it forms dense thickets and displaces native vegetation. Wineberry can be controlled by cutting, mowing or herbicides. The most commonly used herbicides for controlling multiflora rose include glyphosate (e.g. Round-up, Accord® XRT) or triclopyr (e.g. Garlon® 4). https://www.invasive.org/weedcd/pdfs/wgw/wineberry.pdf

There are two possible goals for invasive species control: eradication or containment. Eradication focuses on the complete elimination of the invasives from a particular area (stand, property, etc.). If the affected area is relatively small (0-10 acres) eradication may be a viable option. However, as the affected area gets bigger, total eradication may not be feasible due to costs or equipment limitations. Containment focuses on limiting the spread of invasives from their current area. Containment is a more feasible option when dealing with a large affected area (10+ acres). Regardless of which goal is selected, removal of some or all invasives are required.

Removal Options

There are two options for removing invasives, chemical and mechanical. Both require time, effort and funding. Chemical control consists of the application of various types of herbicides to the invasives. Herbicide control is generally a cost-effective way to control invasive species as it doesn't require a lot of manual labor or use of heavy machinery. However, special care must be taken when mixing herbicides to the correct ratio, applying the herbicides when weather conditions are favorable and using appropriate personal protective equipment (PPE, gloves, respirators, coveralls, etc.). Drawbacks also include possible removal of nearby desired species (i.e. spray drift).

Mechanical control consists of cutting or removing the invasive species either by hand, equipment or by animal. Frequent cuttings will exhaust the energy reserves of the plant and will eventually lead to the plant's death. Removal of the entire plant and its root system will ensure that the plant will not re-grow. Use of grazing animals (goats, etc.) can be done with very little human labor. Drawbacks to mechanical control include time spent repeatedly mowing or cutting

the invasives, limited accessibility of the affected area for the equipment, possible loss of desired native plants due to equipment or animal grazing.

Often a combination of chemical and mechanical control methods are used to remove invasive species, depending on the landowner's financial and labor resources. Regardless of which eradication option is chosen, it may take multiple applications of mowing, herbicides, grazing or a combination of all three before the invasives are truly dead. Government cost-sharing programs may be available to help defray the cost of controlling invasives. Contact your local forester for more information.
Completion date: Continuous.

PROPERTY BOUNDARY LINES

One of the first steps in becoming a good land steward is locating your property boundary lines and corners. Property boundary lines should be well marked and maintained. Landowners can post their property as "No Trespassing" by using signs or by marking boundary trees or posts with bright blue oil-based paint, creating a vertical line (at least 2 inches wide by 8 inches in length), centered at least 3 feet, but not more than 6 feet above the ground. The distance between paint marks should be approximately 100 feet. When standing in front of a paint mark, the observer should be able to see paint marks off to each side. Posting your property has the effect of making it illegal for anyone to enter your property without your permission, and it can reduce property damage and illegal hunting. Freshen up your property boundary line markings periodically to ensure visibility.

WILDFIRES

Wildfires endanger homes, cause potential soil erosion by removing the litter on the forest floor and destroy wildlife, young plants and trees. The main causes of wildfire in Maryland are debris burning, arson and children playing with fire. The Maryland Forest Service enforces the "Forest Fire Regulations" in Maryland. Forest fire danger is most severe during the spring (March, April, May) and fall (October, November, December) forest fire seasons. Landowners can further reduce the risks of wildfire by maintaining access of forest roads and trails for forest fire suppression vehicles. All open-air burning activities require a permit from the local County Health Department. If a wildfire occurs, contact 911 immediately.

FOREST CARBON MANAGEMENT

In recent years, increased interest has developed in regards to managing woodlands to increase carbon storage for climate change mitigation. Atmospheric carbon dioxide can be stored as carbon in trees through normal growth processes, which can help to offset other sources of carbon dioxide entering the atmosphere from various other sources, such as fuel emissions. When forests are harvested, long-term carbon storage can also be achieved through wood products made from the harvested trees. Sustainable forestry practices that promote a healthy and vigorous growing woodland can increase the ability of your woodland to capture atmospheric carbon dioxide. By following the management recommendations provided in your Stewardship Plan your woodland can store more carbon and capture it at a faster rate. Further

information on woodland carbon management can be found by visiting the USDA Forest Service website: http://www.fs.fed.us/ecosystemservices/carbon.shtml.

TRAIL SYSTEM

Recreational opportunities can be enhanced by maintaining the existing trail system throughout the property and expanding it as necessary. Not only will the trails allow the landowner to enjoy the beauty of the property, but they will also facilitate implementing the management practices and allow access to the property for wildland fire suppression. The trail should be 2-4 feet wide, enough to allow hikers to safely walk the path. Overhanging branches should be properly pruned and removed. Branches should be cut flush with the remaining branch or tree bole just above the branch collar. Switchbacks should be made on hillsides to reduce the amount of erosion that may occur (i.e., do not create paths that go straight up and down the slope; rather, lay out the trail along the slope contours and keep trail slopes less than 10%). The majority of the trail should be located along the flat, upland portion of the stand to reduce the potential for erosion. Foot bridges should be constructed if any large stream is crossed. Small to mid-sized streams can be traversed by placing large, flat stepping stones in the creek bed.
Completion date: Continuous.

STAND DESCRIPTION & RECOMMENDED PRACTICES

Stand: 1

Acres: 26.5

Large Tree Species: tulip poplar, black cherry, black locust

Small Tree Species: hickory, flowering dogwood, black cherry

Shrub Species: paw-paw, spicebush

Herbaceous Species: Japanese stiltgrass, false nettle, grass

Vine Species: grapevine, mile-a-minute, wineberry

Development Stage: sawtimber: 70%, poletimber: 19%, small tree: 11%

Age: Even (30-50 years)

Stocking: High (Overstocked at 110%)

Density: 168 trees/acre

Basal Area: 133 ft^2/ac

Site Growth Potential: Excellent

Soil Types: CnC - Collington-Wist Complex, 5 to 10 percent slopes
CnD - Collington-Wist Complex, 10 to 15 percent slopes
CnE - Collington-Wist Complex, 15 to 25 percent slopes
CoB - Collington-Wist-Urban Land Complex, 0 to 5 percent slopes
CoD - Collington-Wist-Urban Land Complex, 5 to 15 percent slopes
WE - Widewater and Issue Soils, frequently flooded

Additional Notes: A Forest Of Recognized Importance (FORI) is found throughout this stand. See the Additional Comments section for more information about FORIs. A small cemetery is also found in the western part of the stand and a trail system is located around the perimeter of the stand.

Stand Description:

This 26.5 ac stand consists primarily of tulip poplar (43%), black cherry (11%) and black locust (8%) with boxelder, tree-of-heaven, black walnut, hickory, red maple, white pine, sweetgum, sassafras, northern red oak, pin oak, persimmon & blackgum scattered throughout the stand. Current growth rates are excellent to good, taking 5-9 years to grow 2.0 inches in

diameter, and the stand has an excellent growth potential with a site index range of 84-132 feet for tulip poplar.

The stand is located throughout most of the property and the terrain consists primarily of uplands. Three non-blue line streams are located throughout the stand; there are no wetlands. The understory density is moderate to high and includes species such as hickory, flowering dogwood, black cherry, boxelder, tree-of-heaven, sassafras, Bradford pear, American holly, sweetgum, American beech, green ash, tulip poplar, red maple, paw-paw, spicebush, Japanese stiltgrass, false nettle, grass, grapevine, mile-a-minute, wineberry, greenbriar and Virginia creeper.

To meet your management objectives, implement the following practices:

Non-Commercial Timber Stand Improvement

Improving the health and vigor of the forest can have several benefits, such as improved growth rates, resistance to attack from insects and disease and improving wildlife habitat. To accomplish these goals, a Non-Commercial Timber Stand Improvement Operation should be implemented in the form of a basal area thinning. This practice will also reduce the stocking in the stand and provide a source of firewood. The goal of this operation is to reduce the basal area from 153 ft^2/ac to 100 ft^2/ac.

The thinning can be accomplished by either girdling or felling the trees. Girdling entails making 2-4 parallel cuts into the cambium layer (inner bark) with an ax or saw completely around the circumference of the tree. The cuts should be at least 1" deep and go through the bark and well into the cambium. This will cease the flow of water and nutrients to the crown and the tree will eventually die over a few years' time. It is recommended to make 2-4 parallel cuts in each tree as some species are known to heal over the cuts (tulip poplar, sweetgum, American beech). Removing the wood between the cuts can also be done to ensure the tree's mortality. By leaving the standing dead trees on the stump, den and nest habitat will be created for small mammals and birds. Felling is also an acceptable method of thinning, however two trees per acre should be girdled to serve as wildlife den trees. Tree species such as oak, hickory and beech should also be retained as much as possible as a source of food for wildlife. Upon request, the Project Forestry Office is available to mark the trees that should be removed. There is a nominal fee for treemarking ($12/ac); contact the forestry office for further assistance.
Completion date: April 2030.

Invasive Species Control

As mention in the Property Description, several invasive species are found throughout the stand, in particular, mile-a-minute and wineberry. Mile-a-minute (Devil's tearthumb) is an annual, trailing vine introduced from India, East Asia and the Philippines. The vine grows very quickly, smothering small plants and shrubs. Wineberry is a spiny shrub introduced into the U.S. from Japan, Korea and China. Common in Maryland, it forms dense thickets and displaces native vegetation. Both species can be controlled by cutting, mowing or herbicides. A mechanical operation to cut and remove the plant material, followed by an application of herbicide, is necessary to eradicate the invasives.

In addition to mechanical and chemical control of invasives, new alternatives are becoming available. The use of goats and other grazing animals has been pioneered as a way to remove the invasives species with reduced use of herbicides and less soil disturbance than mechanical equipment. Keep in mind that goats will eat **all** the vegetation that they can reach and should be used with care. The landowner should consider all options for invasive vine control. Regardless of which eradication option is chosen, it may take multiple applications of mowing, herbicides, grazing or a combination of all three before the invasives are truly eradicated. If complete eradication is not feasible, the landowner should strive to prevent further spread of the invasives from its current location. Federal & state government cost-sharing programs may be available to help defray the cost of eradication. Contact your local forester for more information.

After the eradication work has been completed, monitoring for re-growth should be performed continuously throughout the property.
Completion date: Continuous.

STAND DESCRIPTION & RECOMMENDED PRACTICES

Stand: 2

Acres: 26.3

Large Tree Species: red maple, tulip poplar, black cherry

Small Tree Species: boxelder, hickory, red maple

Shrub Species: spicebush, paw-paw

Herbaceous Species: Japanese stiltgrass, woodferns, false nettle

Vine Species: grapevine, mile-a-minute, wineberry

Development Stage: sawtimber: 76%, poletimber: 18%, small tree: 6%

Age: Uneven (45-85 years)

Stocking: Low (Understocked at 55%)

Density: 63 trees/acre

Basal Area: 69 ft^2/ac

Site Growth Potential: Good

Soil Types: CnC - Collington-Wist Complex, 5 to 10 percent slopes
CnE - Collington-Wist Complex, 15 to 25 percent slopes
WE - Widewater and Issue Soils, frequently flooded

Additional Notes: A Forest Of Recognized Importance (FORI) is found throughout this stand. See the Additional Comments section for more information about FORIs. Some trails are found throughout the stand.

Stand Description:

This 26.3 ac stand consists primarily of red maple (25%), tulip poplar (24%) and black cherry (11%) with boxelder, American beech, elm, pin oak, swamp chestnut oak, black walnut, sycamore, hackberry and hickory scattered throughout the stand. Current growth rates are excellent to good, taking 6-8 years to grow 2.0 inches in diameter, and the stand has a good growth potential with a site index of 82 feet for hickory and 79 feet for tulip poplar.

The stand is located in the southern and eastern sections of the property and the terrain is flat. Four blue line streams (including Bald Hill Branch and Western Branch), four non-blue line streams and eight non-tidal wetland types (PFO1A, PFO1Ah, PFO1C, PFO1Ch, PSS1Ch,

PSS1E, PUB/ABHh & PUBHh) are located in the stand. The understory density is moderate and includes species such as boxelder, hickory, red maple, blackgum, black walnut, flowering dogwood, musclewood, sycamore, pin oak, green ash, spicebush, paw-paw, Japanese stiltgrass, woodferns, false nettle, grapevine, mile-a-minute, wineberry, multiflora rose and greenbriar. Lottsford Branch and Western Branch are also located outside the stand boundary.

To meet your management objectives, implement the following practices:

Riparian Forest Buffer

This stand serves as a riparian forest buffer, absorbing runoff, sediments and nutrients before they reach the streams. Trees within 50 feet of a stream or wetland should be retained as a riparian forest buffer. The duff layer on the forest floor, composed of dead and decomposing leaves, slows the overland flow of water and reduces erosion. The tree roots serve as anchors, holding the soil in place along the stream bank. It is recommended that the stand continue to serve as a buffer.

Invasive Species Control

As mention in the Property Description, several invasive species are found throughout the stand, in particular, mile-a-minute, Japanese stiltgrass and multiflora rose. Mile-a-minute (Devil's tearthumb) is an annual, trailing vine introduced from India, East Asia and the Philippines. The vine grows very quickly, smothering small plants and shrubs. Japanese stiltgrass is an annual grass that spreads across disturbed areas, open fields and semi-open forests. One stiltgrass stem can produce 100 to 1,000 seeds that are capable of germinating for at least 5 years. Seeds remain viable in the soil for up to 5 years and can easily be transported to other areas on the property or to other non-infested areas. Multiflora rose is a thorny shrub native to eastern Asia, it was introduced to the U.S. in the 1930's and was promoted as a "living fence". Multiflora rose spreads by seed and stem sprouts. All three species can be controlled by cutting, mowing or herbicides. A mechanical operation to cut and remove the plant material, followed by an application of herbicide, is necessary to eradicate the invasives.

In addition to mechanical and chemical control of invasives, new alternatives are becoming available. The use of goats and other grazing animals have been pioneered as a way to remove the invasives species with reduced use of herbicides and less soil disturbance than mechanical equipment. Keep in mind that goats will eat **all** the vegetation that they can reach and should be used with care. The landowner should consider all options for invasive vine control. Regardless of which eradication option is chosen, it may take multiple applications of mowing, herbicides, grazing or a combination of all three before the invasives are truly eradicated. If complete eradication is not feasible, the landowner should strive to prevent further spread of the invasives from its current location. Federal & state government cost-sharing programs may be available to help defray the cost of eradication. Contact your local forester for more information.

After the eradication work has been completed, monitoring for re-growth should be performed continuously throughout the property.
Completion date: Continuous.

MANAGEMENT PRACTICE SCHEDULE

End Date	Frequency	Description	EQIP	WIP	Stands	Acres
September 2030		Non-commercial timber stand improvement	666	407	1	26.5
September 2036		Invasive species control	314, 315	410, 411	1, 2	~35.0
September 2036	As Needed	Mark and maintain property boundary lines.			All	123.84
September 2036	Annually	Protect FORI and special sites.			All	52.8
September 2036	Annually	Protect woodland from wildfire, insects and disease.			All	52.8
September 2036	Annually	Stabilize and maintain all roads and trails.			All	52.8
September 2036		Update forest stewardship plan.			All	52.8

To provide you with further assistance in carrying out the recommended practices please contact Brian Stupak, Project Manager, Maryland DNR-Forest Service, P.O. Box 3109, Prince Frederick, MD 20678. Phone: (410) 535-1303. E-mail: brian.stupak@maryland.gov

ADDITIONAL COMMENTS

1. The Project Forester is available to help the landowner initiate the recommended practices. Contact must be made at least six months before the scheduled practice is to be completed.

2. It is the landowner's responsibility to file this plan with the local State Department of Assessments office in order to receive a reduced tax assessment to an agricultural/woodland level. This plan must be filed before September 1 of the taxable year. In order to maintain the reduced assessment the landowner must participate in the recommended practices.

3. For any future commercial harvesting activities that may be recommended, you should consider retaining a consultant forester to assist you. Nationwide, statistics show that landowners who retain a consulting forester receive about double the income from a forest harvest than landowners who do not retain a consulting forester. Additionally, hiring a consultant forester relieves you of handling all the details of a harvest, such as contracts, inspections, legal permits required, etc., which can be handled by the consultant forester. Most importantly, by hiring a forester to administer a harvest according to a management plan, you can be assured the condition of the woodland following the harvest will continue to be productive and valuable. To get more information about consulting foresters and loggers, contact "Call Before You Cut" at the University of Maryland Extension Service (301-432-2767 ext. 315 or http://callb4ucut.com/maryland) or contact your local Forest Service office.

4. A Sediment and Erosion Control Plan is required prior to beginning a commercial timber harvest operation.

5. Upon request, the Maryland Forest Service will lay out a logging road system, mark trees to be removed during non-commercial Timber Stand Improvement operations and provide technical assistance for the best management of the property. There is a nominal fee for marking the trees ($12.00/acre).

6. Boundary location and marking is essential in order to eliminate the potential threat of timber trespass during active timber cutting operations, and will deter unwanted intruders. Boundary lines should be clearly marked with blue paint at eye level facing away from the property. A law passed several years ago makes posting land much easier and cheaper by allowing the use of vertical strips of blue paint as an alternative to signs. Article 27, Section 576-576A states that paint marks must be at least 2 inches in width and 8 inches in length, and centered from 3 to 6 feet from the ground or water surface.

7. Tree seedlings are available at cost to landowners for reforesting cut over areas, afforesting old fields or improving wildlife habitat. Contact the project forester for ordering and planting details.

8. Cost-share assistance may be available through state cost-share programs to help pay for a portion of the expenses associated with implementing the forestry or wildlife management activities in this plan. Contact the forestry office for further information.

9. ***Branching Out*** is published quarterly by the University of Maryland Extension's Woodland Stewardship Education program. The newsletter covers a wide range of stewardship-related topics, including preserving healthy woodlands, managing for invasive species, and creating and maintaining wildlife habitats. To subscribe, go to https://extension.umd.edu/woodland/subscribe-branching-out or email Editor Andrew A. Kling at akling1@umd.edu. The Woodland Stewardship Education (WSE) program helps connect woodland property owners to their land. Through a variety of Extension offerings, WSE brings together professionals from such fields as forestry, wildlife ecology, and natural resource management to enable woodland property owners to make sound and informed decisions about managing their land. Additional information about forestry can be found at https://extension.umd.edu/topics/environment.

10. This property was checked for cultural and historic resources as part of the Forest Stewardship Planning process using data provided by the Maryland Historical Trust, and no resources were noted as being located on the property.

11. This property was checked for the presence of Forests of Recognized Importance (FORI) as part of the Forest Stewardship Planning process. FORI areas are defined as riparian forest areas within a 100-foot buffer of identified high quality streams. High quality streams are identified using specific data sets from the Maryland Biological Stream Survey, the Maryland Department of the Environment, and the Maryland Fisheries Service. After a review of these data sets, an FORI area was identified on the property. The FORI area is identified on the map included in your Plan. When planning any forest management activities within this FORI area, you should work with a professional forester to ensure that the planned forest management activity does not harm or diminish the high quality stream resource that *designates this as an FORI.*

12. Special sites are those areas in your woodland that offer unique historical, archeological, cultural, geological, biological or ecological value. From this definition, it can be noted that special sites include a wide variety of features. Based on a review of the relevant information, one special site – a small cemetery area – is located on your property. This area is shown on the map included with this plan. When planning any forest management activities near this special site, you should work with a professional forester to ensure that the planned forest management activity does not negatively impact this area.