FOREST STEWARDSHIP PLAN

FOR

Bay Ridge Civic Association
c/o Greg Kenefick
80 East Lake Drive
Annapolis, MD 21403
Phone: 410-263-9495
E-mail: greg.kenefick@gmail.com

LOCATION

Various tracts of land off of Farragut Road,
Herndon Ave, Hull Ave, West Lake Drive,
East Lake Drive & Lawrence Ave.
Annapolis, MD

MD Grid 141,400N X 446,100E (NAD83, Meters)
Tax Map 57, Parcel 26, 27, 28, 29 (Multiple Lots)
Watershed: Severn River (02131002)

IN

Anne Arundel County

ON

91.0 Acres Woods
1.4 Acres Recreational Fields
1.1 Acres Marsh
93.5 Acres Total

PREPARED BY:

Brian J. Stupak, Project Manager
Rick Long, Forest Technician

MD DNR Forest Service
6904 Hallowing Lane
Prince Frederick, MD 20678
Phone: 410-535-1303
E-mail: bstupak@dnr.state.md.us

September 30, 2013

INTRODUCTION

The Bay Ridge Civic Association owns 93.5 acres of land, 91.0 acres of which are wooded, off of Farragut Road, Herndon Ave, Hull Ave, West Lake Drive, East Lake Drive & Lawrence Ave in Annapolis, Maryland. The landowners wish to manage the property to provide wildlife habitat, control invasive species and protect special plant & wildlife habitat. These goals correspond to the Stewardship objectives of **fish & wildlife management** (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 15 tracts, located primarily on the western side of the community. The tracts range in size from thirty-five to one-tenth (35.0 – 0.1) acres and serve as open spaces for the community. The terrain is mostly flat with some slight slopes. The community of Bay Ridge is located at the confluence of the Severn River and the Chesapeake Bay. There are no streams running through any of the tracts, however three tracts border Lake Ogleton and one tract borders Blackwalnut Creek. Three tidal wetlands (E1OWL, E2EM5P, E2EM5/FLN) and one non-tidal wetland (POWZ) are located on the property. Additionally, the entire property lies within the Chesapeake Bay Critical Area. See the individual Stand Descriptions and the Additional Comments section for more information regarding Critical Area laws and regulations. The forest is comprised of predominantly mixed upland and bottomland hardwoods, with some pine scattered throughout.

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. The DNR-Natural Heritage Program maintains a database that has indicated that there are no rare and/or endangered species found on the property.

STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND NUMBER: 1

AREA ACRES: 63.8

DOMINANT OVERSTORY SPECIES: tulip poplar, sweetgum, chestnut oak

DOMINANT UNDERSTORY SPECIES: spicebush, American holly, greenbriar

TIMBER SIZE: sawtimber (84%), poletimber (9%), small tree (7%)

AGE: even (40-50 years)

STOCKING: overstocked (105%)

BASAL AREA: 134.5 ft^2/ac

GROWTH POTENTIAL: excellent

SOIL: Annapolis Loamy Sand (AoB, AoC), Annapolis Fine Sandy Loam (AsA, AsB), Annapolis-Urban Land Complex (AuB), Colemantown Silt Loam (CmA), Collington & Annapolis Soils (CRD), Patapsco-Fort Mott-Urban Land Complex (PgB)

RECOMMENDATIONS/PRACTICES:

This 63.8 acre stand is comprised mainly of tulip poplar (77%), sweetgum (11%) and chestnut oak (3%) with red oak, white oak, hickory, red maple, red mulberry, boxelder and black cherry scattered throughout. The stand has an excellent growth potential, with a site index average of 124 feet for tulip poplar. The tree density (or stocking) in this stand is high in relation to maintaining the optimum growing space per tree. As trees in the stand continue to grow larger, growing space per tree will continue to decrease. This creates an "overstocked" condition where the stand will become less vigorous due to competition for limited resources such as soil nutrients, water, and sunlight.

This stand is located in the southern and central portions of the property and the terrain is mostly flat with some slight slopes. One tidal wetland (E2EM5P) and one non-tidal wetland (POWZ) are located in the southern portion of the stand. The understory is moderate with spicebush, American holly, greenbriar, grapevine, English ivy, ferns, dogwoods, wineberry, Japanese honeysuckle, wisteria, mulberry, boxelder and mile-a-minute. The stand is overstocked, yet current growth rates range from good to excellent (5-13 years to grow 2.0 inches in diameter). The entire stand is located within the Critical Area. The Critical Area is defined as all land and water within 1000 feet of the mean high waterline. Forestry operations are regulated by law in this area. In an effort to meet the landowner's goals (wildlife habitat, etc.) the following management practices are recommended:

Invasive Species

This stand has pockets of English ivy, wisteria, mile-a-minute, grapevine and other miscellaneous vines scattered throughout the stand, mostly along forest edges, roadsides, right-of-ways and other areas of disturbance. Some of these species are considered non-native and invasive, imported from outside of the U.S.

English ivy is an invasive, evergreen climbing vine native to Europe, western Asia and northern Africa. The vine climbs trees and other vegetation, killing competing vegetation by either girdling the tree or shading out the foliage. Eradication can be done through hand pulling, mechanical mowing, herbicides, or a combination of all three. Removing or killing the root system is the most important aspect of the control process. Any living root can resprout and grow again. See the enclosed Forest Pest fact sheet for more detailed information on controlling and eradicating English ivy.

Wisteria is an invasive climbing vine native to China, Japan and the United States. The Chinese and Japanese varieties are much more invasive than the American variety and can kill competing vegetation by either girdling the tree or shading out the foliage, similar to English Ivy. Control options are the same as English ivy.

Mile-a-minute is an invasive, thorny shrub native to eastern Asia. It produces dense thickets which are difficult to penetrate. It spreads through both seed and stem sprouts. These dense thickets, while a habitat for some small birds and mammals, replace native vegetation. Control methods include mechanical and chemical means. See the enclosed Forest Pest fact sheet for more information on control options for this species.

The landowner has had considerable success in eradicating a large majority of these invasive plants throughout the stand and should focus their efforts on eradicating the remaining populations. This process will take several years and should be an ongoing process. Once a patch of invasives has been removed from an area, it should be monitored for three years for any re-sprouting or new infestations. If herbicides are used, they should be applied according to the specifications on their label and always by a qualified and licensed applicator, if required.

Snag Trees

This stand has the potential to serve as habitat for cavity nesting wildlife species. Cavity nesting birds such as woodpeckers, chickadees, titmice, great-crested flycatchers and bluebirds nest in tree cavities which they excavate themselves or which were excavated by other cavity nesting birds. Therefore, a potential limiting factor for these birds is the number of standing dead trees which are suitable for nesting. Cavities are also important habitat for other forest wildlife including gray treefrogs, skinks, bats, squirrels, opossums and raccoons.

To further the landowner's goal of wildlife management and to reduce the stocking of the stand, a snag tree/cavity tree creation is recommended. Four to six snag trees per acre should be created *and/or* maintained, if they already exist. Snag trees can be created by selecting trees which are 12 inches or greater in diameter and deadening those trees. The trees can be deadened by a process called girdling. Girdling entails making a deep cut into the cambium layer (inner bark) with an ax or saw completely around the circumference of the tree. This will cease the

flow of water and nutrients to the crown and the tree will eventually die over a few years time.

Only select trees such as tulip poplar, sweetgum or poorly formed trees to girdle which will improve timber quality while creating wildlife habitat on your forest land. Live trees with existing cavities should not be girdled as they are more beneficial and the cavities last longer than cavities in dead trees. Also, healthy mast producing trees (i.e. oaks & hickories) should not be treated as they produce nuts, which are beneficial to many species of forest wildlife.

Upon request, the Project Forestry Office is available to mark the trees that should be selected. There is a nominal fee for tree marking ($12/acre); contact the forestry office for further assistance. Snag trees should not be created adjacent to streams or on steep slopes, as over time the tree will fall and increase the chances of stream bank erosion.

Trail System

Recreational opportunities can be enhanced by creating a trail system throughout the property. 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.

Summary

The invasive species eradication and monitoring should be continuous. The snag tree operation should be completed at a rate of 4.25 acres/year and should be completed in 15 years (2028). The trails system should be completed in five years (2018). The stand should be re-examined in fifteen years (2028) to update the management recommendations.

STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND NUMBER: 2

AREA ACRES: 8.3

DOMINANT OVERSTORY SPECIES: sweetgum, red oak, chestnut oak

DOMINANT UNDERSTORY SPECIES: American holly, sweetgum, greenbriar

TIMBER SIZE: sawtimber (65%), poletimber (18%), small tree (17%)

AGE: even (75-85 years)

STOCKING: overstocked (121%)

BASAL AREA: 145 ft^2/ac

GROWTH POTENTIAL: fair - good

SOIL: Annapolis Loamy Sand (AoC), Annapolis Fine Sandy Loam (AsE), Colemantown Silt Loam (CmA), Collington & Annapolis Soils (CRD)

RECOMMENDATIONS/PRACTICES:

This 8.3 acre stand is comprised mainly of sweetgum (22%), red oak (20%) and chestnut oak (20%) with tulip poplar, blackgum, white oak, hickory, willow oak and black cherry scattered throughout. The stand has a fair to good growth potential with a site index average of 59 feet for red oak and 74 feet for chestnut oak. The tree density (or stocking) in this stand is high in relation to maintaining the optimum growing space per tree. As trees in the stand continue to grow larger, growing space per tree will continue to decrease. This creates an "overstocked" condition where the stand will become less vigorous due to excessive competition for limited resources such as soil nutrients, water, and sunlight.

This stand is located in the southern and eastern portions of the property and the terrain ranges from flat ground to gentle slopes. Three tidal wetland types (E2EM5P, E2EM5/FLN and E1OWL) are found throughout the stand. Portions of the stand also border Blackwalnut Creek and Lake Ogleton. The understory is moderate with American holly, sweetgum, greenbriar, English ivy, ferns, high bush blueberry, spicebush, Japanese honeysuckle and grass. The stand is overstocked and current growth rates are good to poor, taking 7-16 years to grow 2.0 inches in diameter. The entire stand is located within the Critical Area. The Critical Area is defined as all land and water within 1000 feet of the mean high waterline. Forestry operations are regulated by law in this area. Additionally, the first 100 feet of woods from the water's edge is considered a Habitat Protection Area (HPA) and is covered by specific regulations. No forestry operations should be performed in the HPA. In an effort to meet the landowner's goals (soil & water quality, wildlife habitat, etc.) the following management practices are recommended:

Riparian Forest Buffer

This stand serves as a riparian forest buffer, absorbing runoff, sediments and nutrients before they reach the stream and wetlands. 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 riparian buffer. The stand will also serve as wildlife habitat for a variety of birds, mammals and amphibians.

Summary

Allow the stand to grow for fifteen years (2028) at which time the stand should be re-examined to update the management recommendations.

STAND DESCRIPTION AND RECOMMENDED PRACTICES

STAND NUMBER: 3

AREA ACRES: 18.9

DOMINANT OVERSTORY SPECIES: tulip poplar, sweetgum, boxelder

DOMINANT UNDERSTORY SPECIES: American holly, spicebush, wineberry

TIMBER SIZE: sawtimber (74%), poletimber (18%), small tree (8%)

AGE: even (35-45 years)

STOCKING: overstocked (128%)

BASAL AREA: 170 ft^2/ac

GROWTH POTENTIAL: excellent

SOIL: Annapolis Fine Sandy Loam (AsB, AsE), Annapolis-Urban Land Complex (AuB, AuD), Colemantown Silt Loam (CmA), Collington & Annapolis Soils (CRD), Donlonton-Urban Land Complex (DuB), Patapsco-Fort Mott-Urban Land Complex (PgB)

RECOMMENDATIONS/PRACTICES:

This 18.9 acre stand is comprised mainly of tulip poplar (68%), sweetgum (8%) and boxelder (8%) with sycamore and red mulberry scattered throughout. The stand has an excellent growth potential with a site index of 96 feet for sweetgum. The tree density (or stocking) in this stand is high in relation to maintaining the optimum growing space per tree. As trees in the stand continue to grow larger, growing space per tree will continue to decrease. This creates an "overstocked" condition where the stand will become less vigorous due to excessive competition for limited resources such as soil nutrients, water, and sunlight.

This stand is located in the western and eastern portions of the property and the terrain is flat to rolling. Portions of the stand also border Lake Ogleton. The understory varies from thick to sparse with American holly, spicebush, wineberry, red mulberry and English ivy. The stand is overstocked yet current growth rates are very good, taking 6 years to grow 2.0 inches in diameter. The entire stand is located within the Critical Area. The Critical Area is defined as all land and water within 1000 feet of the mean high waterline. Forestry operations are regulated by law in this area. Additionally, the first 100 feet of woods from the water's edge is considered a Habitat Protection Area (HPA) and is covered by specific regulations. No forestry operations should be performed in the HPA. In an effort to meet the landowner's goals (wildlife habitat, etc.) the following management practices are recommended:

Invasive Species

This stand has pockets of English ivy, wisteria, mile-a-minute and other miscellaneous vines scattered throughout the stand, mostly along forest edges, roadsides, right-of-ways and other areas of disturbance. Some of these species are considered non-native and invasive, imported from outside of the U.S.

English ivy is an invasive, evergreen climbing vine native to Europe, western Asia and northern Africa. The vine climbs trees and other vegetation, killing competing vegetation by either girdling the tree or shading out the foliage. Eradication can be done through hand pulling, mechanical mowing, herbicides, or a combination of all three. Removing or killing the root system is the most important aspect of the control process. Any living root can resprout and grow again. See the enclosed Forest Pest fact sheet for more detailed information on controlling and eradicating English ivy.

Wisteria is an invasive climbing vine native to China, Japan and the United States. The Chinese and Japanese varieties are much more invasive than the American variety and can kill competing vegetation by either girdling the tree or shading out the foliage, similar to English Ivy. Control options are the same as English ivy.

Mile-a-minute is an invasive, thorny shrub native to eastern Asia. It produces dense thickets which are difficult to penetrate. It spreads through both seed and stem sprouts. These dense thickets, while a habitat for some small birds and mammals, replace native vegetation. Control methods include mechanical and chemical means. See the enclosed Forest Pest fact sheet for more information on control options for this species.

The landowner has had success in eradicating portions of these invasive plants throughout the stand, but less so than in stand #1. Efforts should be focused on eradicating the remaining populations. This process will take several years and should be an ongoing process. Once a patch of invasives has been removed from an area, it should be monitored for three years for any re-sprouting or new infestations. If herbicides are used, they should be applied according to the specifications on their label and always by a qualified and licensed applicator, if required.

Snag Trees

This stand has the potential to serve as habitat for cavity nesting wildlife species. Cavity nesting birds such as woodpeckers, chickadees, titmice, great-crested flycatchers and bluebirds nest in tree cavities which they excavate themselves or which were excavated by other cavity nesting birds. Therefore, a potential limiting factor for these birds is the number of standing dead trees which are suitable for nesting. Cavities are also important habitat for other forest wildlife including gray treefrogs, skinks, bats, squirrels, opossums and raccoons.

To further the landowner's goal of wildlife management and to reduce the stocking of the stand, a snag tree/cavity tree creation is recommended. Four to six snag trees per acre should be created *and/or* maintained, if they already exist. Snag trees can be created by selecting trees which are 12 inches or greater in diameter and deadening those trees. The trees can be deadened by a process called girdling. Girdling entails making a deep cut into the cambium layer (inner bark) with an ax or saw completely around the circumference of the tree. This will cease the

flow of water and nutrients to the crown and the tree will eventually die over a few years time.

Only select trees such as tulip poplar, sweetgum or poorly formed trees to girdle which will improve timber quality while creating wildlife habitat on your forest land. Live trees with existing cavities should not be girdled as they are more beneficial and the cavities last longer than cavities in dead trees. Also, healthy mast producing trees (i.e. oaks & hickories) should not be treated as they produce nuts, which are beneficial to many species of forest wildlife.

Upon request, the Project Forestry Office is available to mark the trees that should be selected. There is a nominal fee for tree marking ($12/acre); contact the forestry office for further assistance. Snag trees should not be created adjacent to streams or on steep slopes, as over time the tree will fall and increase the chances of stream bank erosion.

Summary

The invasive plant eradication and monitoring should be continuous. The snag tree operation should be completed at a rate of 1.2 acres/year and should be completed in 15 years (2028). The stand should be re-examined in fifteen years (2028) to update the management recommendations.

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 State Department of Assessments in Anne Arundel County in order to receive a reduced tax assessment to an agricultural/woodland level. This plan must be filed before July 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 worrying about 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. You can contact the forestry office for a list of private consulting foresters licensed to practice forestry in Maryland.

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 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 a few 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. The University of Maryland Cooperative Extension Service maintains a website with information for forest landowners. The address is www.naturalresources.umd.edu.

10. The entire property falls within the Critical Area. The Critical Area includes all land and waters within 1000 feet of the mean high water line. Forest harvesting and tree removal is specifically regulated under the Critical Area Law. Additionally, the first 100 feet of forest buffer from the Chesapeake Bay is considered a "Habitat Protection Area" and is covered by specific regulations. Non-tidal wetlands within the Critical Area are also covered by the Critical Area Law. **The landowner should contact the Anne Arundel County Planning & Zoning office for more detailed information on Critical Area regulations and permits**. The Anne Arundel County Forest Conservancy District Board must review all commercial timber harvesting in the Critical Area.

MANAGEMENT PRACTICE SCHEDULE

Completion Date	Practice	WIP Code	EQIP Code	Stand	Acres
September 2018	Trail System			1	N/A
September 2020	Snag Trees		645	1, 3	82.7
Continuous	Invasive Species Control & Monitoring	410	315	1,3	82.7
Continuous	Riparian Forest Buffer			2	8.3
Continuous	Maintain Property Boundaries			All	93.5
Continuous	Monitor for Insect & Disease			All	91.0
Continuous	Maintain Roads and Trails			All	91.0
September 2028	Re-examine to Update Management Recommendations			All	91.0

To provide you with further assistance in carrying out the recommended practices please contact Brian Stupak, Project Manager, Maryland DNR-Forest Service, 6904 Hallowing Lane, Prince Frederick, Maryland 20678. Phone: (410) 535-1303. E-mail: bstupak@dnr.state.md.us