

# FOREST STEWARDSHIP PLAN

For

Izaak Walton League of America Inc., Frederick Chapter  
C/o Preston Wood  
4719 Reels Mill Road  
Frederick, MD 21704



Maryland  
Department of  
Natural Resources

## Location

Property located on the east side of Reels Mill Road  
1.50 miles south of Reichs Ford Road intersection  
4.25 miles southeast of Frederick

Lat. / Long.: 39.362508 / -77.367277  
Map/Parcels: 0087 / 0027 & 0123

Watershed: Lower Monocacy River / 02140302

In

Frederick County, Maryland

On

Total Acres: 52.21  
Woodland Acres: 49.21  
Improved Acres: 3.00

Prepared by:

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## PROPERTY DESCRIPTION AND LANDOWNER OBJECTIVE

This Forest Stewardship Plan has been developed to provide management guidance and feasible recommendations based on your objectives and the current forest conditions. This will help manage the forest sustainably while providing benefits for you and future generations.

The Izaak Walton League of America (IWLA) Frederick Chapter is located approximately 4.25 miles southeast of the city of Frederick in southeastern Frederick County Maryland. It totals 52.21 acres, with 49.21 being woodland and 3.00 acres for the clubhouse and shooting range. The property is situated in what's referred to as the Piedmont Plateau physiographic province in the Harford Plateaus & Gorges Region. The surrounding landscape is variable with areas of hardwood forest, agricultural fields, residential communities, and urban sprawl. An unnamed tributary flows through the northern section of the property and eventually merges with Bush Creek to the west. The entire property is within the Lower Monocacy River Watershed.

According to historical imagery, land cover on the property has transitioned from agriculture to forest. The north and east portions along the property line were previously agricultural fields until about the 1960s, when conifers were planted and early successional tree species naturally regenerated. Remnants of old stone walls exist around these areas. The mixed oak forest along the west boundary line has always been forest. Soils found on the property have developed from gravelly residuum weathered from greenstone, phyllite, and/or schist. There are five major soil types that make up the forestland.

Hyattstown – Linganore channery silt loams (HtF, HyD, LyB, LyC) make up about 30% of the soil composition. It is located along the north boundary line and at the apex of the centrally located ridgetop. This soil type is well drained with a medium to very high runoff potential. This soil is typically found on narrow ridge crests and side slopes in the Piedmont Plateau. Land use is usually either forest or agricultural with white oak, black oak, northern red oak, white pine, Virginia pine, yellow poplar, and black locust growing well.

Edgemont – Rock outcrop complex (Erc, ErD) makes up about 28% of the soil composition. It is located in Stand #1 along the east boundary line. This soil type is well drained with a low to medium runoff potential. This soil is typically found on hills and ridges. Land use is usually mixed hardwood forest comprised of yellow poplar, northern red oak, and ash.

Catoctin – Spoolsville complex (CeD) makes up about 26% of the soil in composition. It is located in Stand #2 along the west boundary line. This soil type is well drained with a high runoff potential. This soil is typically found on nearly level to very steep ridges and side slopes. Land use is usually either forestland or agricultural. Oaks, hickories, poplar, and walnut grow well here.

Catoctin channery loam (CcE) makes up about 10% of the soil composition. It surrounds the stream in the northern portion of the property. This soil type is well drained with a medium runoff potential. This soil is typically found on ridges and side slopes in the Blue Ridge Mountains. Land use is usually forest with white oak, northern red oak, yellow poplar, hickory, redbud, and eastern red cedar growing well.

Glenelg – Mt. Aory channery loams (GmB) makes up about 6% of the soil composition. It is located in the northwest corner of the property around the clubhouse. This soil type is well drained with a medium to very high runoff potential. This soil type is typically found on dissected uplands in the Piedmont Plateau. Land use is usually agricultural. Northern red oak, white oak, hickory, yellow poplar, and red maple grow well here.

**Owner's Primary Objective:** Natural Heritage  
**Secondary Objective:** Recreation

The IWLA Frederick Chapter wishes to manage a healthy and native forest that provides recreational opportunities to its members such as hunting and hiking. Controlling invasive species is another objective.

### **Forests of Recognized Importance**

These are areas of woodland that have been identified at a larger landscape level which contain exceptional ecological, social, cultural, or biological resource values. In Maryland, Forests of Recognized Importance (FORI) have been defined as those streamside woodland areas (also known as riparian woodland areas) which are of special importance to protecting the water quality of the Chesapeake Bay and the water quality of reservoirs that serve metropolitan areas. Specifically, these important riparian woodland areas are identified using specific data sets from the Maryland Biological Stream Survey, the Maryland Department of the Environment, and the Maryland Fisheries Services. Collectively, the woodland areas adjacent to these high-quality stream areas – that is, within a 100-foot stream buffer area – are defined as FORI. Your woodland was checked for the presence of FORI as part of the Forest Stewardship Planning process, and no FORI area was identified in your woodland.

### **Rare, Threatened, and Endangered Species**

Based on nontidal wetland maps; rare, threatened, and endangered species guidance maps; and a review of the State Natural Heritage database; no threatened or endangered species are found on the property.

### **Cultural and Historic Resources**

This property was checked for cultural and historic resources using data provided by the Maryland Historical Trust, and no resources were noted as occurring on your property.

### **Special Sites**

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 available, no special sites were detected.

## **DEFINITION OF TERMS**

**STAND:** A basic forest management unit. A grouping of trees which are uniform in species composition, age, density, and condition, and are distinguishable.

**DOMINANT SPECIES:** Those tree species which dominate the stand.

**DEVELOPMENT STAGE:** The size class of the trees which are predominant in the stand.

**Seedling** – Up to 0.9” in caliper (Diameter measured 6” above ground level)

**Sapling** – 1” to 5.9” DBH (Diameter measured 4.5’ above ground level)

**Pole** – 6” to 10.9” DBH

**Sawtimber** – 11” DBH and larger

**AGE:** A system of classifying stands based on the arrangement of ages of the trees in the stand.

**Even-aged** – Trees have relatively small differences in age (80% of the trees are no more than 10-20 years different in age).

**Uneven-aged** – Three or more age classes of trees represented.

**Two-aged** – Two distinct age classes of trees present (Twenty or more years different in age).

**All-aged** – All, or almost all, age classes of trees represented.

**STOCKING:** The number of trees growing in a stand.

**High** – too many trees, diameter growth rate is below normal.

**Adequate** – optimum number of trees which have sufficient room to grow at an acceptable rate.

**Low** – an insufficient number of trees; the stand is not producing at full potential.

**DESIRABLE/UNDESIRABLE:** The percentage of desirable or undesirable trees. Desirability of a tree is based on the form (straight, crooked), species depending on the owner’s objective, local markets, and the presence of disease or insects.

**SITE GROWTH POTENTIAL:** The inherent capacity of the site, which is made up of soil, moisture, topography, and other environmental factors for tree growth. Expressed as follows: excellent, good, average, fair, poor. It is based on the height a dominate tree reaches at age 50.

**RECOMMENDATIONS:** The practices which you as a landowner should follow to obtain your management objectives. Specific descriptions are included with the report.

**BASAL AREA:** A measure of density of stocking. It is the area of the cross-section of tree stems including bark at breast height, measure in square feet on a per acre basis.

**RESIDUAL STAND:** The stand remaining after a partial harvest, such as a thinning or other treatment.

**MAST:** Collective name for fruits, nuts, and seeds produced by trees and shrubs. Mast can be hard or soft, e.g., acorns and hickory nuts vs. black cherries and dogwood berries.

## STAND DESCRIPTION AND RECOMMENDED PRACTICES

**Owner's Objective:** Primary – Natural Heritage  
 Secondary – Recreation

Stand #	Area (Acres)	Dominant Species	Development Stage	Age	Stocking	% Des. Trees	% Undes. Trees	Site Growth Potential	Recommendations and Practices
1	34.61	White pine, Yellow poplar	Immature Sawtimber	Even ≈ 60yrs	Adequate	82%	18%	Average	Monitor and limit the spread of invasive species.
2	14.60	Chestnut oak, Scarlet oak, White oak	Immature Sawtimber	Uneven	Adequate	85%	15%	Good	Monitor and limit the spread of invasive species. Conduct a crop tree release.

STAND SUMMARY TABLE		
<b>Stand #:</b> 1	<b>Area (Acres):</b> 34.61	
<b>Dominant Overstory Species:</b> White pine, Yellow poplar		
<b>Dominant Understory Species:</b> <i>Trees:</i> American beech, Elm, Spicebush, Sycamore, Redbud <i>Shrubs and Vines:</i> Poison ivy, Grapevine, Greenbrier, Virginia creeper		
<b>Development Stage:</b> Mature Sawtimber: 4%; Immature Sawtimber: 63%; Poletimber: 15%; Small Tree: 18% (% Composition)		
<b>Invasive Species:</b> Japanese barberry, Japanese honeysuckle, Wineberry, Japanese stiltgrass, Multiflora rose, Bush honeysuckle, Autumn olive, Ailanthus		
<b>Stewardship Practices (past 10 years):</b> None.		
<b>Forests of Recognized Importance:</b> None.		
<b>Slope:</b> 0-25%	<b>Topo Positions:</b> Ridgetop, Sideslope, Lowland	<b>Aspect:</b> Variable
<b>Age:</b> Even ≈ 60yrs	<b>Stocking/Basal Area:</b> Adequate 123ft <sup>2</sup> /ac	
<b>Soil Type:</b> Edgemont – Rock outcrop complex; Hyattstown – Linganore channery silt loam	<b>Site Growth Potential:</b> Average	
STAND DESCRIPTION		

Stand #1 totals 34.61 acres, encompassing most of the wooded acreage on the property. It is located in the northern portion of the property and along the east boundary line. This stand was previously farmed dating back to the 1960s. Most of this area was planted with conifers including white pine and Virginia pine. Early successional hardwoods such as yellow poplar, sycamore, black locust, redbud, and ash naturally regenerated as well. The species composition is diverse throughout the stand, with 18 species being recorded during the inventory. A stand with high species diversity provides habitat to a wide range of wildlife and is less vulnerable to insect damage and diseases. White pine and Virginia pine dominate the higher elevations whereas yellow poplar, sycamore, and basswood are found at lower elevations around the stream. Other notable species present include elm, black cherry, sassafras, red maple, and mixed oaks. This stand is even aged, meaning the overstory trees are relatively the same age. The stand



density is determined as adequate. This means there is an optimum number of trees growing and utilizing the available growing space. The ratio of acceptable growing stock (82%) to unacceptable growing stock (18%) is excellent. Classifying acceptable and unacceptable growing stock trees is based on a variety of factors including species, form, quality, defects, location, and the landowner's objectives. The site growth potential is average. Most of the Virginia pine are declining, if not dead already. These pines generally live to be about 65 to 90 years. The white pines, especially at high elevations, are in great condition. The pines at lower elevations aren't growing as well as the higher elevations due to high soil moisture content. Pines typically thrive on drier soil types. The early successional black locusts, ash, and black cherry are declining as well. As these trees start to die, the canopy begins to open up, allowing more sunlight to reach the

forest floor. Unfortunately, certain invasive species have taken advantage of this forest structure change and have established themselves.

Understory conditions in this stand are variable. The higher elevation sites have less advanced regeneration under the canopy, whereas the lower elevation sites around the stream are more dense. American beech, redbud, musclewood, blackgum, flowering dogwood, white pine, and Virginia pine are found at higher elevations. More wet tolerant species are found around the stream, including spicebush, boxelder, black walnut, elm, blackhaw, and sycamore. Poison ivy, grapevine, and Virginia creeper are very common growing up the trunks of the overstory trees. Invasive species are abundant in this stand. Wineberry and Japanese stiltgrass are found throughout but pose the least risk regarding forest health. However, Japanese barberry, Japanese honeysuckle, multiflora rose, bush honeysuckle, autumn olive, and Ailanthus can be troublesome if left unmanaged. Japanese barberry, bush honeysuckle, and autumn olive can all displace native vegetation by outcompeting them for water, sunlight, and nutrients. Japanese barberry also forms an excellent habitat for ticks, which can carry Lyme Disease. Japanese honeysuckle is a woody vine that can wrap around native trees and cause limbs to break. Multiflora rose can quickly take over an area by growing into a thicket, outcompeting native species in the understory. Ailanthus is a prolific seeder and is the preferred host species for the invasive insect, Spotted Lanternfly.

Overall stand health is average. The pines at higher elevations are growing at adequate rates. However, the pines at lower elevations show decline, allowing invasive species to fill the canopy gaps. The forest surrounding the stream is functioning as an effective riparian buffer, with large sycamore and poplar trees stabilizing the streambank. The dense understory and pine overstory provide excellent cover for deer and other wildlife.





## STAND #1 RECOMMENDATIONS

There is one recommendation when managing this stand. It is to monitor and limit the spread of invasive species.

Invasive species are present; as such, it would be beneficial to monitor and limit their spread when possible. This will ensure stand health and vitality are maintained, while minimizing future spread and cost for control. When controlling these species, it would be good to consider your options, such as chemical, mechanical and in some cases biological control methods. Any time herbicide is utilized, special care should be taken to ensure it is applied in accordance with the label, following all safety protocols and procedures. Additionally, when applying herbicides around any stream channel, or where there is standing water, specially designed wetland herbicides should be employed. The invasive species in most need of control are Japanese barberry, Japanese honeysuckle, multiflora rose, bush honeysuckle, autumn olive, and Ailanthus. Invasive species control also qualifies for the Woodland Incentive Program (WIP) cost share program. Information on this program and invasive species control methods can be found in the additional comments section of this plan.

Integrated Vegetation Management (IVM) is a multi-step approach to invasive species control. This framework involves identifying those species, determining acceptable population levels, and controlling those species through mechanical, chemical, and/or biological methods. Mechanical methods include hand pulling, cutting, or heavy machinery. Chemical methods include herbicides and pesticides. Biological methods include organisms that naturally predate on those invasives. IVM can be used on any scale to effectively control both invasive pests and vegetation in accordance with your objectives. The following paragraphs detail each invasives species that should be addressed in order of recommended prioritization based on population sizes and density.

Japanese barberry (right), bush honeysuckle, and autumn olive are best controlled using a combination of mechanical and chemical. The cut stump method is most effective. Smaller stems can be cut using a brush cutter or loppers. Larger stems can be cut using a chainsaw. Once the stems are cut, applying an herbicide immediately to the stump will kill the root system. Follow-up applications for resprouts may be necessary. Stems two inches in diameter or less could also be controlled using a basal bark treatment. This method involves spraying an herbicide around the entire circumference of the lower section of the stem. This herbicide penetrates the bark and kills the plant. Foliar applications can also be utilized on smaller stems.







Japanese honeysuckle (left) is best controlled chemically via the cut stump method or foliar treatment. The cut stump method is the most effective and entails cutting the shrub at ground level and then directly applying herbicide to the stump. This method is effective at killing the root system, which prevents resprouting. Proper technique includes cutting the vine at about eye level, again at ground level, and applying herbicide to the stump. If the cut vine is still making contact with ground, it can actually grow new roots and re-establish. A foliar application utilizing a systemic herbicide is another option. This method entails spraying the herbicide directly on the leaves, which is then absorbed and translocated throughout, thus killing the vine. This method may require follow up treatments. Cutting the vine at ground level and applying herbicide to the stump is most effective and uses the least amount of herbicide between the two methods.

Multiflora rose is best controlled through either a foliar application or a cut stump herbicide treatment. A foliar application utilizing a systemic herbicide entails spraying the herbicide directly on the leaves, which is then absorbed and translocated throughout, thus killing the plant. This method may require follow up treatments. The cut stump method is also effective. Cutting the plant at ground level and then applying herbicide to the cut minimizes herbicide use and will not affect surrounding vegetation. Mowing followed by a foliar spray can also be utilized.

Ailanthus (right) is best controlled using herbicides. The hack and squirt method or the basal bark method are most effective. The hack and squirt method entails cutting evenly spaced slits into the bark around the entire circumference of the tree, being sure to leave at least 1” between cuts. A handheld spray bottle containing herbicide should then be used to wet all cut areas around the tree. This method allows for herbicide to be translocated throughout, generally, killing the tree quickly and easily. The basal bark method entails the spraying of a mixture of herbicide and oil carrier around the entire circumference of the tree from ground level up to 12”-18”. This method should only be utilized on trees that are 6” at DBH and under, as it is most effective on smaller diameter trees.



<b>STAND SUMMARY TABLE</b>		
<b>Stand #:</b> 2		<b>Area (Acres):</b> 14.60
<b>Dominant Overstory Species:</b> Chestnut oak, Scarlet oak, White oak		
<b>Dominant Understory Species:</b> <i>Trees:</i> Hickory, American beech, Flowering dogwood, Black oak, Scarlet oak, Chestnut oak, Blackgum <i>Shrubs and Vines:</i> Grapevine, Blueberry		
<b>Development Stage:</b> Mature Sawtimber: 2%; Immature Sawtimber: 66%; Poletimber: 12%; Small Tree: 20% (% Composition)		
<b>Invasive Species:</b> Japanese stiltgrass, Japanese barberry		
<b>Stewardship Practices (past 10 years):</b> None.		
<b>Forests of Recognized Importance:</b> None.		
<b>Slope:</b> 15-25%	<b>Topo Positions:</b> Sideslope	<b>Aspect:</b> Southwest
<b>Age:</b> Uneven	<b>Stocking/Basal Area:</b> Adequate 118ft <sup>2</sup> /ac	
<b>Soil Type:</b> Catoctin – Spoolsville complex	<b>Site Growth Potential:</b> Good	
<b>STAND DESCRIPTION</b>		

Stand #2 totals 14.60 acres and is located along the west boundary line. This stand has always been forest, being comprised of mixed upland oaks. Chestnut oak, scarlet oak, white oak, black oak, northern red oak, blackgum, red maple, pignut hickory, and shagbark hickory are found here. This stand provides an excellent food source for deer, turkey, squirrels, and other small mammals. Having the combination of both dense cover (Stand #1) and a food source (Stand #2) attract a wide range of wildlife. This stand is uneven aged, meaning there are more than three different age classes among the overstory trees. The stand density is determined as adequate. The ratio of acceptable growing stock (85%) to unacceptable growing stock (15%) is excellent. The site growth potential is good, but oaks are only growing about 16-20 rings per inch.



This could be an indicator of a stand approaching an overstocked status, meaning that there may be too many trees growing in an area. This causes the trees to compete for sunlight, water, and nutrients. This competition causes stress, resulting in reduced growing rates. Stressed trees are also more susceptible to insect and disease attacks.

Understory conditions in this stand are consistent. Advanced regeneration is abundant, including hickory, American beech, black oak, scarlet oak, chestnut oak, and blackgum. Grapevine is present here as well, providing an additional food source to birds. Blueberry is common as well, attracting deer, turkeys, and bears. Invasive species are minimal and are primarily located on the north end of the stand. Japanese stiltgrass and Japanese barberry are the only invasive species found. These were described in the Stand #1 description.

Overall stand health is excellent. The high concentration of oaks provide a desirable food source to a wide range of wildlife, especially being in close proximity to Stand #1. Invasive species are minimal and are currently at manageable levels.



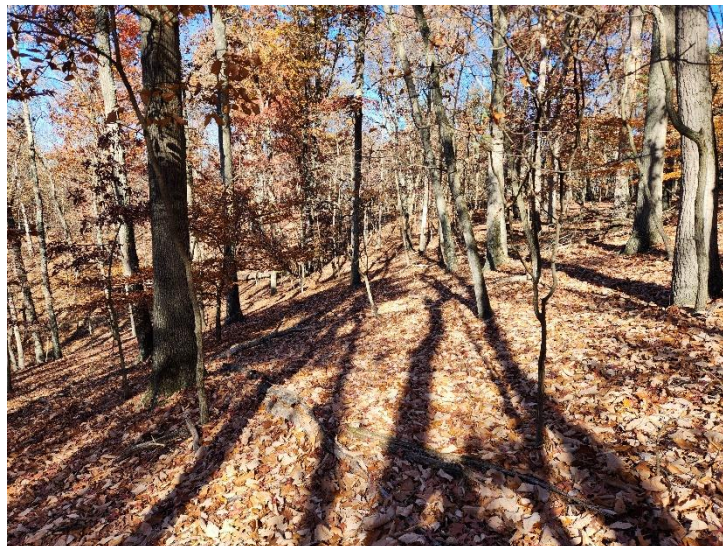


## STAND #2 RECOMMENDATIONS

There are two recommendations that should be considered when managing this stand. They are to monitor and limit the spread of invasive species and to conduct crop tree release.

As previously mentioned, invasive species are minimal and are primarily located along the north end of the stand adjacent to Stand #1. The Japanese barberry should be monitored and prevented from spreading to new areas. Proper control techniques were outlined in the Stand #1 recommendations.

Crop tree release is an effective forest management tool to provide healthy seed trees with additional growing space. Allowing residual trees access to sunlight, water, and nutrients increases their growing rate, thus increasing their value and resiliency. The first step is to identify high-quality crop trees. These trees are the tallest, strongest, and healthiest trees that have good form and few defects. After these trees are selected, the next step is to provide them with additional growing space. This is accomplished by removing undesirable trees in close proximity to the selected crop trees. Trees to select can include those with poor form, defect, signs of insect or disease infestation, or undesirable species, such as invasive species. These trees selected to be removed can be girdled or cut down. Girdling involves removing the bark around the entire circumference, thus killing the stem. They could also be cut down and either harvested for firewood or left in the woods to decompose. The Maryland Forest Service can assist in selecting which trees to remove if desired. Providing the larger seed trees with additional growing space will increase their growing rate and improve their resiliency to insects and diseases.



## ADDITIONAL COMMENTS

**Forest Stand Improvement:** The potential for weed control practices, which are outlined in this plan, are cost sharable through the WIP, or EQIP programs. Please call if you have any questions regarding control strategies or wish to apply for cost share assistance. To learn more about opportunities within the EQIP program, you can call the Natural Resources Conservation Service at 301-695-2803 ext. 3 and speak to Brent Camauff about this program.

**Forest Health:** Maintaining the health of your forest is an important goal for all landowners. Trees provide some of the basic necessities of life (oxygen, shelter, forest products) as well as maintains and improves the environment in which we live. A healthy forest provides cleaner air and water as well as reduced soil erosion. By maintaining and improving forest health through sustainable forestry practices, the health of the environment as a whole is sustained.

**Firewood Harvesting:** Harvesting firewood off of your property can be both a benefit to you and your woodland. The removal of trees that lack desirable traits (are/have crooked, poor branching, undesirable species, etc.) can free up space allowing the favored trees more room to grow. These types of trees can be cut down and utilized by you for firewood. If you are interested in harvesting firewood, we are available to help mark trees. By having us mark trees for you, we can help you select trees that would be safe for you to cut as well as those that would benefit the forest by their removal. If you have any further questions regarding firewood harvesting, please give us a call.

**Maintaining Property Boundaries:** Marking and maintaining property boundaries is an important but often neglected practice. Posting of private lands with paint marks or permanent signs should be done when a landowner is interested in preventing or minimizing trespassing. It is also recommended that the boundaries be well marked prior to the implementation of management practices, especially any timber cutting. The paint marks should be at least two inches in width and eight inches in length and centered at three feet, but no more than six feet from the ground. The marks should be readily visible to a person with normal eyesight who approaches the property. Using blue paint in Maryland is the universal sign for no hunting is permitted without the landowner's permission. Boundary marking paint can be purchased through outlets such as Forestry Suppliers. Boundary marking paint normally lasts for 5-10 years on trees before it needs to be reapplied. Marking boundaries is most easily carried out during the winter when the leaves are off trees. Enclosed with this plan is more information on boundary line maintenance.

**Forest Carbon Management:** In recent years, increased interest has developed in regard to managing woodland 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, 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: <https://www.fs.usda.gov/managing-land/sc/carbon>.

**Ecosystem Services:** Trees, and forests more generally, are providers of many ecosystem services. Ecosystem services are the often unnoticed benefits gained from the natural environment such as pollination, flood water control, and decomposition of wastes. Many of these services require that the natural system be in good working order. Natural water filtration, for example, requires wide buffers of trees or other vegetation along stream banks. Even when not in a forest, trees provide tangible services. In an urban setting, trees process volatile chemicals that are given off by asphalt, concrete, and other materials improving air quality. In a homeowner's yard, a well-placed tree can save on cooling costs by providing shade in the summer. Current research is attempting to quantify the value of these services. However, there are already some resources available that can help calculate these benefits and provide recommendations on how best to utilize them (<https://www.itreetools.org/>).

**Invasive Species Identification and Control:** Many woodlands in Maryland are negatively impacted by a variety of introduced (non-native) species, including plants, insects, and diseases, that have the ability to "invade" an area of the forest and "take over" the ecosystem at the expense of native plants and animals. These types of organisms are known collectively as "Invasive Species". Mile-a-minute vine, with its amazing growth speed, nasty thorns, and ability to entirely smother native plant species, is an example of a well-known invasive species in Maryland. Kudzu, spongy moth, emerald ash borer, and multiflora rose are other well-known invasives. These invasive plants and insects can be problematic for forest landowners. From vines that take over disturbed areas, forest edges, and tree canopies, to insects that defoliate and girdle trees, to diseases that kill desirable tree species, these pests not only have the ability to decimate the natural ecosystem, but they are also difficult to control. Identifying invasive species that may be present in your woodland and minimizing their spread is an important activity in order to maintain a healthy forest. Since these species can become established at any time, you should monitor your woodland for invasive species on an on-going basis. Most invasive species can be controlled with persistent efforts, but you need to know the right approaches and timing to avoid wasted effort and money. Contact the MD DNR Forest Service for further assistance if you note any occurrence of invasives. Information sheets on selected forest invasive species can be found on the DNR Forest Service website at

<https://dnr.maryland.gov/forests/pages/programapps/pests.aspx>

Additional information on invasives, as well as many other useful and informative weblinks related to this topic can be found at the DNR Wildlife and Heritage website at:

<https://dnr.maryland.gov/invasives/Pages/default.aspx>

Please utilize these web links to improve your knowledge in identifying and controlling invasive species in your woodland.



**Integrated Pest Management:** Insects and disease damage 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 diseases 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.

**Invasive Species Control:** The Frederick County office of the MD Forest Service and Frederick County Weed Control reached out to local weed control contractors to determine if they would be interested in conducting weed control practices on forested properties like yours. Five contractors responded to these inquiries, and we met with them to discuss potential projects. All five contractors indicated that they are interested in bidding on and doing the work. Enclosed is a list of the contractors. You are encouraged to contact them if you would like professional assistance with your weed control projects.

**Pesticide:** Pesticides are approved for use by the U.S. Environmental Protection Agency (EPA) for specific uses; however, as a landowner, it is your responsibility to ensure that you understand and comply with all EPA label requirements for application, storage, and disposal. There are alternatives to pesticides that can be effective and easy to use. As part of the Standards, you should evaluate alternatives to pesticides for the prevention or control of pests, pathogens, unwanted plants, and weed to achieve specific management objectives. For more information on alternatives to pesticides, please consult online resources or contact a local qualified natural resource professional to find state-specific information on pests, weeds, and diseases. When utilizing pesticides, maintain a record of use that you keep with your Management Plan with the name of pesticide used, purpose, date of use, and any alternatives that you considered.

**Spongy Moth (formerly known as Gypsy Moth):** The spongy 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 Frederick County. Defoliation by the spongy moth will weaken a tree, reduce growth, and often kill the tree. Several factors determine the likelihood of a woodlot being infested by the spongy moth. The type of tree present is one factor, oaks are among the most preferred species, and also favorable are sweetgum, black gum, dogwood, hickory, maple, and pine. Least preferred species include American holly, American sycamore, ash, black locust, and yellow poplar. The condition of the woodland is also important. Areas with considerable percentage of cull, damaged, deformed trees are highly susceptible. These conditions provide structural refuges and hiding places for larvae, pupae, and eggs. If a stand is attacked by spongy 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 spongy 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.

**Spotted Lanternfly:** The spotted lanternfly was first detected in Pennsylvania in 2014 and has now reached Frederick County. This insect is a planthopper that feeds on the leaves and stems. They also excrete a substance called honeydew that covers the leaves and reduces photosynthesis. Ailanthus, or Tree of Heaven, is the preferred host of the spotted lanternfly, although will feed on a wide variety of fruit trees such as maples, walnuts, cherries, and grapevines. It has also been observed to feed on oaks, hickories, poplars, and sycamores. Controlling and limiting the spread of the Ailanthus to deter the insect from the property is recommended.

