Rob Farrell
State Forester

COMMONWEALTH of VIRGINIA

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April 16, 2019

Tract Number: LUD97036

Loudoun Waltonian Club Inc
C/O: H M Butch Thompson
Po Box 4120
Leesburg Va 20177-8266

Dear Mr. Thompson:

Please find within your *Virginia Forest Stewardship Plan* for your property located in Loudoun County. It was my pleasure to prepare this plan for you knowing that you have a true interest in the good stewardship and active management of your natural resources.

In this plan, there are two basic components. The first is a personalized management plan based upon your objectives for managing your property. The second part is an extensive appendix containing important information to help you understand the plan's recommendations and make your future management decisions. The appendix can be accessed at http://www.dof.virginia.gov/infopubs/VA-Forest-Stewardship-Appendix-2015_pub.pdf

All of the recommendations within this plan are for your consideration, but I believe that they will help you achieve your long- and short-term goals for your property.

The first step you should take in managing your forest resources is to remove invasive species.

I trust that you will find this plan to be informative and useful as you actively manage your natural resources. If you have any questions or comments please feel free to contact me at any time.

Sincerely,

James McGlone
Urban Forest Conservationist
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Jim.mcglone@dof.virginia.gov

Virginia Forest Stewardship Management Plan

ABOUT THIS PLAN

This Forest Stewardship Plan was developed to help guide you in the active management of the natural resources on your property. The plan is based upon the objectives you identified as being important to you. All of the management recommendations are for your consideration.

PRIMARY GOALS THAT YOU IDENTIFIED FOR MANAGING THE PROPERTY

1. Forest Stand Management
2. Wildlife Habitat
   2.1. Songbirds
   2.2. Fur Bearers
   2.3. Deer/Turkey
3. Non-Wildlife Related Outdoor Recreation
4. Maintenance of a Scenic Forest

INTRODUCTION

This multiple-use forest management plan covers the examination of approximately 69.5 acres of forestland in Loudoun County, Virginia. The management recommendations, given on the following pages, were developed for each specific stand on your property. Boundaries and acres are only estimates derived from aerial photographs. The tract map is located in the plastic folder at the front of this book, allowing you to see the map as you read through your plan.

By having this plan developed, your property is now eligible to become a certified Tree Farm through the American Forest Foundation's Tree Farm System. It also qualifies as a Natural Resources Conservation Service's Conservation Activity Plan #106. Contact your local VDOF Forester to learn more about the benefits of these two programs.

TRACT LOCATION

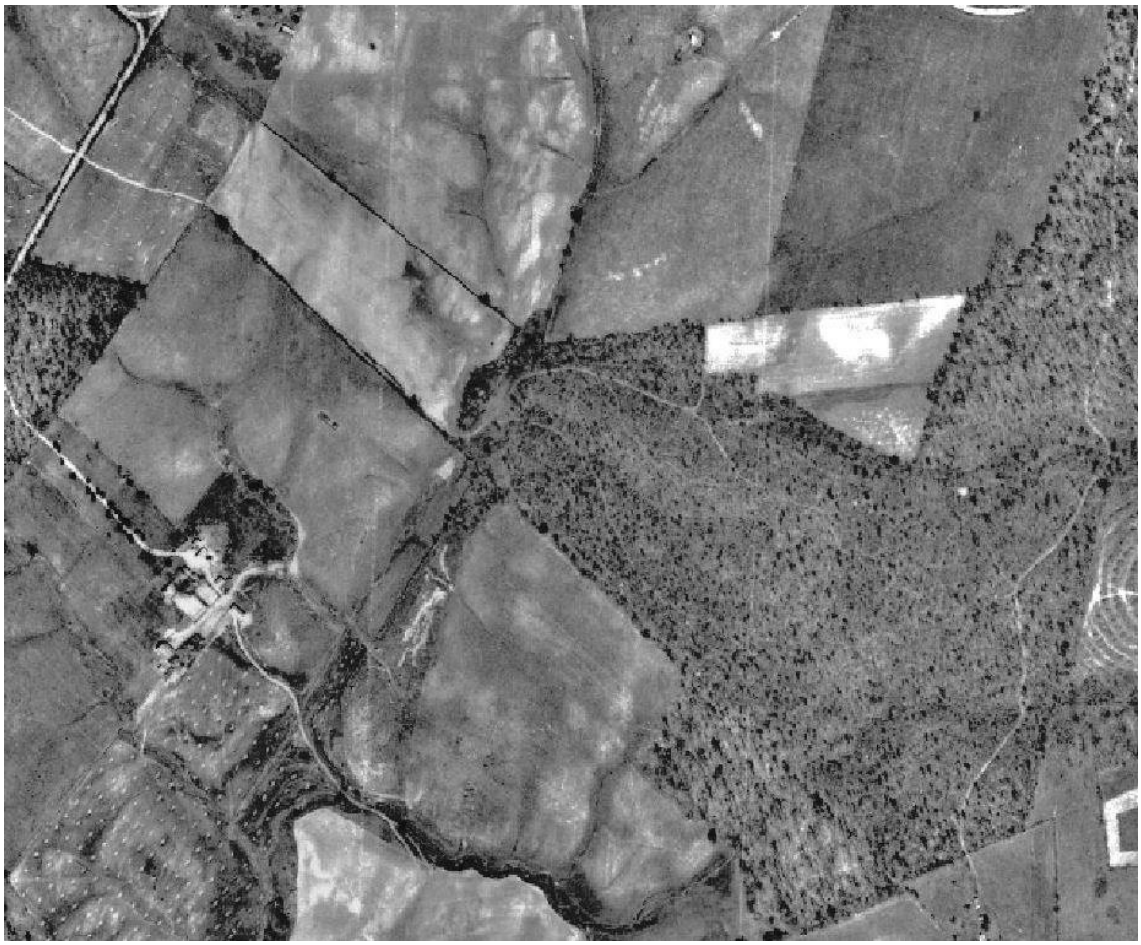
The Tract is located in central Loudoun County, approximately one-quarter of a mile south of the intersection of Mountain Spring Lane and Shelburne Glebe Road.

PROPERTY OVERVIEW

The tract lies on the western shoulder of the rise that, to the south, becomes Bull Run Mountain and defines the eastern edge of the Blue Ridge province. On the eastern side of this ridge is the Culpeper Triassic Basin. Stand A and properties along this ridge are forested. To the west is mainly agricultural land.

The land is rolling to steep in the east and flat in the west. There are three small unnamed streams that flow west from the eastern boundary. Two of these flow into an artificial pond in the north central part of the property. These three streams eventually join a stream that divides the property in two and flows west of south under the firing range.

The land east of the south flowing stream has been in forest for about 100 years. The land west of this stream was agricultural until around 1960. By 1996 there was a stand of pine growing where the firing range is now. These trees were harvested in 1997 and a few remain in stand B.



Izaac Walton League of Loudoun County 1937 showing an old field about 20 years into reforestation

STAND A

Descriptions and Recommendations: This is an upland forest on roiling to steep terrain. The understory is sparse and consists mainly of young hickory and pawpaw. Managing non-native invasive species is needed and maintaining trails should be priorities here.

Acres: 49.6

Forest Type: Upland mixed hardwood

Species Present: Pignut hickory (*Carya glabra*), Yellow poplar (*Liriodendron tulipifera*), Northern red Oak (*Quercus rubra*), Blackgum (*Nyssa sylvatica*), Beech (*Fagus grandifolia*), Pawpaw (*Asimina trilobia*), spicebush (*Lindera benzoate*), Putty root orchid (*Aplectrum hyemale*)

Age: 100 years

Stand History: Historical aerial photography shows this stand has been developing as forest for about 100 years. File reports in the DOF office indicate it has been selectively harvested in the early 1970s, in 1997 and 2005. Compared to the 1997 reported stand composition, white oak (Quercus alba) and walnut (Juglans nigra) are noticeably missing, as are any large well-formed yellow poplar. The current stand composition and density suggests that the stand was high-graded in 2005: the most valuable species were removed and all yellow poplar over 16 to 20 inches diameter were removed. This has left behind a stand that is succeeding to hickory, red maple and beech, all second or third tier commercial hardwoods. Fortunately the owners are more interested in the aesthetic, wildlife and recreational values of this forest as past management has significantly impaired the commercial value.

Size: 9.8 to 22.7 inches diameter, 14.8 inches on average

Tree Quality: Good

Stocking/Density: Low. The forest is just now reaching the low end of the well-stocked range of a commercial forest. This indicates the 2005 harvest was heavier than it should have been for good long term management of this forest.

Growth Rate & Vigor: Good

Site Quality & Soils: Fair to good. Soils in this stand are typical Blue Ridge upland soils. Site indices (expected height at 50 years) for

	yellow poplar range from 75 to 90 feet. Site indices for oaks are about 80 feet.
Aspect & Topography:	West with rolling to steep slopes
Water Resources:	Three unnamed streams and a pond. These are in generally good shape as they drain forested slopes to the east.
Invasive Species:	Autumn olive (*Elaeagnus umbellata*), multi flora rose (*Rosa multiflora*), Japanese honeysuckle (*Lonicera japonica*), oriental bittersweet (*Celastrus orbiculatus*)
Wildlife Habitat:	Fair. The understory is generally sparse due to over browsing by deer. This significantly reduces nesting habitat for songbirds.
Recreation/Aesthetics:	Good. Much of this stand has been developed as a moving archery range and skeet range. Other parts of the stand are designated camping and picnic areas.
Cultural Resources:	None observed.
T&E Species Present:	The DGIF data base lists three bat species in the area: northern longeared (*Myotis septentrionalis*), little brown (*Myotis lucifugus lucifugus*), and tricolored (*Perimyotis subflavus*). All three are known to use hardwood trees, especially oaks, for brood and daytime roosts during their active seasons. Do not fell trees in this stand between May and September
Fire Risk:	Moderate. Fire is carried in the leaf litter of eastern deciduous forests. Care should be taken to maintain a fuel break around all buildings. Also be sure to prevent any buildup of leaves in gutters, on roofs and around buildings. Campfire rings and barbeque chimneys should have spark arresters.
Unique Natural Features:	None

Recommendations: This stand is still recovering from the 2005 harvest. The main management issues it faces are deer over browse and non-native invasive species. Stand A is in good shape relative to stand B regarding the invasive species due to poorer soils and previous management.

1. Continue to manage non-native invasive species.
2. Reduce the deer herd.
3. Install spark arresters on all fire rings, pits and chimneys.

STAND B

Descriptions and Recommendations: This is a relatively young stand that has been heavily invaded by non-native invasive species. The most pressing need is to reduce and begin to control the invasion.

Acres:	15.9
Forest Type:	Mixed hardwood
Species Present:	Hackberry (*Celtis occidentalis*), mockernut hickory (*Carya alba*), slippery elm (*Ulmus rubra*), green ash (*Fraxinus pennsylvanica*), black locust (*Robinia pseudoacacia*), red maple (*Acer rubrum*), American hornbeam (*Carpinus caroliniana*), catalpa (*Catalpa* spp.), hazelnut (*Corylus americana*), yellow poplar, spicebush, walnut
Age:	50 years
Stand History:	This stand began developing from agricultural land in the early to mid-1960s. It has never been cut. In the 2010s it became infected with Emerald ash borer (*Agrilus planipennis*)
Size:	11 to 22 inches, average 8.1
Tree Quality:	Fair to poor
Stocking/Density:	Fully stocked
Growth Rate & Vigor:	Good
Site Quality & Soils:	Soils in this stand are more consistently good to excellent than stand A. Yellow poplar site indices are 90 feet through out.
Aspect & Topography:	East and generally flat with slope down to stream valley at eastern edge
Water Resources:	Piped stream along eastern edge.
Invasive Species:	Autumn olive, multi-flora rose, beef steak plant (*Perilla frutescens*), wineberry (*Rubus phoenicolasius*), mile-a-minute (*Persicaria perfoliata*), tree of heaven (*Ailanthus altissima*), Japanese stiltgrass (*Microstegium vimineum*), oriental bittersweet, Japanese honeysuckle, porcelain berry (*Ampelopsis brevipedunculata*); Emerald Ash Borer.
Wildlife Habitat:	Fair. Many of the large number of non-native invasive plant species provide berries and fruit that is readily eaten by birds and other wildlife. The flowers of these plants are also nectar and pollen resources for native insects. But,

these species are poor food for insect grazers that make up the bulk of the diet of nestlings.

Recreation/Aesthetics: Poor. Much of this stand is a jumble of vines and fallen trees

Cultural Resources: None observed

T&E Species Present: The DGIF data base lists three bat species in the area: northern longeared (*Myotis septentrionalis*), little brown (*Myotis lucifugus lucifugus*), and tricolored (*Perimyotis subflavus*). All three are known to use hardwood trees, especially oaks, for brood and daytime roosts during their active seasons. Do not fell trees in this parcel between May and September

Fire Risk: Moderate. Similar to stand A

Unique Natural Features: None

Recommendations: The dominance of non-native invasive (NNI) species in this stand make their control the most pressing management consideration. Controlling NNI is not just important for the health of this stand, but also to eliminate a seed source for invasion of Stand A.

When dealing with NNI plant species there are two perspective depending on the life history of the plant. Think about perennial plants as roots that are trying to live and reproduce. Think of annual plants as seeds that are trying to make more seeds. This means that to get rid of perennial NNI you must kill the roots; and to get rid of annual NNI you must prevent seed formation.

There are three ways to kill roots: grub them out; starve them; or poison them.

1) Grub them out. This is the mechanical removal of the root system by hand pulling, digging, wrenching or using a tractor to pull them. Many of these plants are prolific sprouters, so if any part of the root is left they will come back and retreatment will be necessary.
2) Starving the roots. Like all plants, these NNI species require leaves to make energy. By cutting them down after they have leafed out, you can cause them to expend energy to make new leaves and shoots and then you need to prevent them from replacing that lost energy. This generally takes several applications throughout the growing season to put these plants in an energy deficit. It will likely take several years of treatment to completely starve the root.
3) Poison them. Applying a systemic herbicide after June 21st can kill the root system. Some plants may require multiple applications to kill the entire root system, especially if they are old plants. June 21st is significant because days begin to get shorter after this date, signaling plants to begin to enter dormancy. This means that the plant will be actively moving nutrients and sugars to the root and will more readily deliver the herbicide to the roots too. One thing to note is that many of these plants remain green longer than our native plants and a late

season foliar application of a systemic herbicide can kill them without harming native plants. Be aware: because this is a Common Interest property herbicides may only be applied by a Certified Pesticide Applicator.

Preventing seed set in this case means destroying the reproductive part of the plants in mid- to late-July. This can be done by pulling, cutting, mowing or herbicide application. Unlike the perennials, an organic burnout type herbicide can be used since it is not necessary to kill the roots of these plants.

At the end of the appendix, you will find fact sheets on the listed NNI plants and information on controlling woody NNI species.

COST-SHARE ASSISTANCE PROGRAMS

Cost-share assistance programs may be available to help defray reforestation project costs. Programs generally may pay between 35 percent and 75 percent of the costs involved in certain projects. Funds are available on a first-come, first-served basis and must be approved prior to the start of any management work. Please check with your local Virginia Department of Forestry representative for availability of programs and funds.

CULTURAL AND HISTORIC RESOURCES

Cultural resources refer to landscapes, structures, archeological artifacts and vegetation that represent a culture or society of historic value. Federal and state laws protect some archeological, cultural and historic sites from disturbances, destruction or removal. It is critical to understand where such sites may be located prior to ground-disturbing forest management activities.

Historic and cultural resources are a vital link to past land-use practices in Virginia. While no sites were identified during my visits, old records for the area may exist. The Department of Historic Resources offers programs which survey, catalog and encourage the preservation of historic resources. This Department maintains records of historic sites and these records are available to the general public. More information can be found at www.dhr.virginia.gov or by calling their office at (804) 367-2323.

THREATENED OR ENDANGERED SPECIES

No endangered or protected species were observed on the property. The DGIF database lists the following species as potentially in the area of your property:

Status	Common Name	Scientific Name
FE SE	Dwarf Wedgemussel	Alasmidonta heterodon
FT ST	Northern Longeared Bat	Myotis septentrionalis
SE	Little Brown Bat	Myotis lucifugus lucifugus
SE	Tricolored Bat	Perimyotis subflavus
SE	Brook Floater	Alasmidonta varicose
ST	Wood Turtle	Glyptemys insculpta
ST	Peregrine Falcon	Falco peregrinus
ST	Loggerhead Shrike	Lanius ludovicianus
ST	Henslow's Sparrow	Ammodramus henslowii
ST	Green Floater	Lasmigona subviridis
ST	Migrant Loggerhead Shrike	Lanius ludovicianus migrans
F= Federal, S= State, E= Endangered, T=Threatened		

Those species that have habitat requirements that match those on the property are noted in the Parcel descriptions. Information in this plan concerning the presence of Threatened and Endangered (T&E) species has been determined through observation and/or review of T&E species maps and databases. This information does not substitute for a through exam completed by trained T&E specialists. For more information regarding threatened and endangered species or any regulations involved with them, please contact your local Virginia Department of Game and Inland Fisheries office or the Department of Conservation and Recreation, Natural Heritage office.

FOREST HEALTH AND PROTECTION

A healthy forest is a forest that possesses the ability to sustain the unique species composition and processes that exist within it. Active management of the forest helps to maintain and improve its productive capacity, taking into account all the factors that influence the resource elements addressed in the Forest Stewardship Plan. Silviculture harvest practices and the use of prescribed fire as a tool can reduce risk from wildfire, pests and invasive species, and ensure long-term forest health and vigor. Forest health protection issues are often directly related to the active management of insects and diseases, invasive plants and wildfire. Annual inspections for signs of insects, diseases or invasive plant infestations should be completed by the landowner.

Evidence of Emerald Ash Borer was observed on the property. Spotted Lantern Fly became established in Winchester Virginia in 2019. This large leaf hopper is a phloem feeder and poses an unknown threat to U.S. forests. It is particularly attracted to Tree of Heaven, but feed on some forty species and genera of plants.

Continued monitoring is the best preventative measure to ensuring forest health. If any unusual problems are found, please contact the Virginia Department of Forestry for an examination.

FIRE

Prescribed fire, also known as “controlled burn,” refers to the controlled application of fire by a team of fire experts under specified weather conditions that help restore health to fire-adapted environments to obtain specific management objectives. Prescribed burning is a critical management tool that enhances and benefits forests, grasslands and wildlife habitats. Prescribed fire is an effective tool in site preparing harvested areas for replanting tree seedlings as well as reducing excessive amounts of hazardous fuel build up and catastrophic damage of wildfire on our lands and surrounding communities. Prescribed fire is one of the most effective tools we have in preventing the outbreak and spread of wildfires.

Protection of your property from wildfire is essential. Wildfire rapidly destroys valuable timber, wildlife and property. From February 15 through April 30, open air fires are not permitted within 300 feet of woodland, brushland or field containing dry grass or other flammable material between midnight and 4:00 p.m. The number one cause of wildland fire in Virginia is debris burning. In other words, MOST of the fires that occur could have

been prevented. In the case of an emergency, please report all woods fires to your local County Fire Dispatch Center at 9-1-1.

CARBON CYCLE

All forest plants and soils "store" carbon, so active forest management influences the natural cycles of that storage in both living and dead plant material. The removal of carbon from the atmosphere is the process called carbon sequestration. Carbon sequestration is the process by which atmospheric carbon dioxide is consumed by trees, grasses and other plants through photosynthesis and stored as carbon in biomass (trunks, branches, foliage and roots) and soils. Sustainable forestry practices can increase the ability of forests to sequester atmospheric carbon while enhancing other ecosystem services, such as improved soil and water quality. Planting new trees and improving forest health through thinning and prescribed burning are some of the ways to increase forest carbon in the long run. Harvesting and regenerating forests can also result in net carbon sequestration in wood products and new forest growth.

WETLANDS

Wetlands include areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances, do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. Wetlands are also highly diverse and productive ecosystems with emphasis on supporting timber production, water quality protection, wildlife habitat and more. It is important for you to be aware of and understand the laws and regulations related to forestry practices before engaging in wetland management activities on your land. Chapter 9 of the publication "Virginia's Forestry Best Management Practices for Water Quality Technical Manual, 2011" offers many of the guidelines for forestry activities within a wetland. The publication can be found on the web at: http://www.dof.virginia.gov/print/water/BMP/Technical/BMP-Technical-Guide.pdf. Your local Virginia Department of Forestry forester can provide information on forestry practices permitted in wetlands.

BIOLOGICAL DIVERSITY

Biodiversity is the variety of life (including diversity of species, genetic diversity and diversity of ecosystems) and the processes that support it. Landowners can contribute to the conservation of biodiversity by providing diverse habitats. It is important to select management options that offer the greatest opportunities for promoting wildlife habitats and conserving biodiversity while fulfilling other land management objectives. Some of these options include, but are not limited to, the conservation of wildlife habitats and biodiversity by:

1. Managing stand-level habitat features.
2. Promoting aquatic and riparian areas.
3. Managing landscape features.

4. Conserving rare species and communities.
5. Protecting special features and sites.

AGROFORESTRY/SILVOPASTURE

Agroforestry intentionally combines agriculture and forestry to create integrated and sustainable land-use systems. Agroforestry takes advantage of the interactive benefits from combining trees and shrubs with crops and/or livestock. In the United States, agroforestry is commonly divided into five main practices: Windbreaks, Alley Cropping, Silvopasture, Riparian Forest Buffers and Forest Farming.

Silvopasture combines trees with forage and livestock production. The trees are managed for high-value saw logs while providing shade and shelter for livestock and forage, reducing stress and sometimes increasing forage production. Silvopasture is increasingly popular in the southeastern region of the United States as a way to supplement timber income on small pine plantations and some hardwood stands. However, there can be problems with combining the two management schemes if it is not done correctly or actively managed. This management system requires active rotational grazing to avoid damage to the standing trees and allowing the forage to recover. Before any new silvopasture system is established, you should thoroughly explore the associated economic and environmental considerations along with local land use, zoning, cost-share programs and tax regulations.

HIGH CONSERVATION VALUE FORESTS

These are forests of outstanding and critical importance due to their environmental, social, biodiversity, or landscape values. High Conservation Value Forests are considered critically important because they contain a unique combination of values. These can be social, cultural, biodiversity and environmental values.

Social or cultural values are aspects of a forest that are critical to the surrounding community's identity. They can range from significant historical features, such as sacred sites or burial grounds, to the forest's role within the community — for example, whether local residents have traditionally depended on the forest for berries, firewood or other products.

Biodiversity values are critical to preserving local flora and fauna. Such values could include rare ecosystems or habitats, or unusual communities of plant or animal species. Keep in mind that these ecosystems and species need not be on state or Federal Threatened or Endangered Species lists — they may just be considered rare regionally or locally.

Environmental values can benefit the whole community. Some examples are forests whose presence helps protect local watersheds or prevent erosion in vulnerable areas.

When forestry professionals and other experts evaluate a forest as a potential HCVF, they look at the entire landscape — not just a single stand of trees — and consider all of these values.

Places that combine and contain these features are rare, so it's especially important to protect them. *(American Forest Foundation)*

INTEGRATED PEST MANAGEMENT

A pest control strategy may use a variety of complementary strategies including mechanical devices, physical devices, genetic, biological or cultural management and chemical management. *(U.S. EPA)*

Integrated Pest Management (IPM) combines several appropriate pest control tactics into a single plan to reduce pests and their damage to an acceptable level. Using many different tactics to control a pest problem causes the least disruption to the living organisms and non-living surroundings at the treatment site. Relying only on pesticides for pest control can cause pests to develop resistance to pesticides, can cause outbreaks of other pests, and can harm surfaces and non-target organisms. With some types of pests, using only pesticides achieves very poor control.

To solve pest problems, first:

- Identify the pest or pests and determine whether control is warranted for each,
- Determine pest control goals,
- Know what control tactics are available,
- Evaluate the benefits and risks of each tactic or combination of tactics,
- Choose the most effective strategy that causes the least harm to people and the environment,
- Use each tactic in the strategy correctly, and
- Observe local, state, and Federal regulations that apply to the situation.

The best strategy for each situation depends on the pest and the control needed.

(Michael J. Weaver, Patricia A. Hipkins, Virginia Tech Pesticides Program, 2013)

10-YEAR RECOMMENDED SCHEDULE OF MANAGEMENT ACTIVITIES

Year	Parcel	Activity	*Possible Cost Share	Future Stand Conditions		
				Year	Stocking	Species
2019	A & B	Determine a budget for treating Non-native invasive species				
2019	A & B	Determine the feasibility of deer hunting on the property				
2019 - 2029	A& B	Treat non-native invasive species, focusing on Stand A so as not to lose progress already made				
2019 - 2029	A&B	Look for possible cost share for non-native invasive species management				
2029	A&B	Reevaluate the tract with the Virginia Department of Forestry				
2019	A	Install spark arresters on fire rings and fire places				

This schedule may need to be adjusted depending on financial needs, timber markets, timing of actual harvest and availability of contractors.

*Cost-share program eligibility requirements vary between the programs and funding may not be available. Contact your local VDOF forester for up-to-date information about the various programs.

RT – Reforestation of Timberlands Program
EQIP – Environmental Quality Incentives Program
CRP – Conservation Reserve Program
CREP – Conservation Reserve Enhancement Program
AgBMP – Agricultural Best Management Practices Program