

Bettina Ring

State Forester

**COMMONWEALTH of VIRGINIA**

**DEPARTMENT OF FORESTRY**

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June 30, 2015

Tract Number: BUK95048

Land of the Pines, LLC

2018 Raintree Drive

Henrico, VA 23238

Dear Mr. Edwards:

Please find within your *Virginia Forest Stewardship Plan* for your property located in Buckingham 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. 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.

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,

Matthew T. Hall

Heartland Area Forester, Cumberland County

Virginia Department of Forestry

751 Oak Hill Road

Cumberland, VA 23040

matthew.hall@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. The stand data table figures in this plan are for planning purposes ONLY and not intended for making economic decisions where more detailed information would be required.

## Primary Goals That You Identified For Managing The Property

1. Managing Timber for Income
2. Wildlife Habitat
3. Wildlife for Hunting
4. Non-Wildlife Related Outdoor Recreation
5. Forest Stand Management

## Introduction

This multiple-use forest management plan covers the examination of approximately 300 acres of forestland in Buckingham County, Virginia. The management recommendations, given on the following pages, were developed for each specific parcel 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 property is located on the east side of Route 24, and is ¼ mile south of Toga Road.

## Property Overview

This property is a very bio-diverse tract. There are three pine stands of different age classes growing. There are bottomland hardwoods that border the Slate River and surrounding creeks. The following pages give you a more in depth description of the Land of the Pines, LLC tract.

Parcel A

Descriptions and Recommendations:

Acres: 30+/-

Forest Type: Loblolly Pine plantation. The Virginia Seed Tree Law does apply to this stand.

Species Present: Loblolly pines with smaller mixed hardwoods, such as yellow-poplar, White Oak, Red Oak, and dogwood

Age: 12 years old

Stand History: This stand was clear cut and then reforested in 2003.

Size: Most stems are pole size timber to small pulpwood sized timber, and about 20-30 feet tall.

Tree Quality: Fair to Good

Stocking/Density: Well stocked in most portions of the stand. This stand was planted at a rate of 500-550 trees per acre

Growth Rate & Vigor: Good, pines still have around 50% of their live crown ratio

Site Quality & Soils: Refer to soils map and descriptions; overall the soil is good for timber growth

Aspect & Topography: Generally level ground with some gently sloping hills

Water Resources: None

Invasive Species: None observed

Wildlife Habitat: This parcel provides excellent bedding for wildlife, and the understory provides some browse for the wildlife to feed on.

Recreation/Aesthetics: Due to the density of the stand, it is hard to navigate through these woods, although the feed patches that are strategically placed around this parcel provide good areas to hunt. Also the intricate road systems and trails throughout the property are great for riding ATV’s.

Cultural Resources: N/A

T&E Species Present: None observed

Fire Risk: Moderate, with the thick vegetation, on a bad fire day with low humidity and dry weather; if a fire were to get in this parcel it could severely damage the stand. However, there is a good road system that goes through the property that would allow firefighters a chance to cut off the fire before it spreads too far. Keeping these roads open is a good practice for preventing the spread of fires.

Unique Natural Features: N/A

Recommendations: Allow this stand to grow for another 4 to 6 years, and then re-evaluate the parcel for a commercial timber harvest. Depending on the forest markets there are a couple of options that can be pursued.

Between the ages of 16 and 20 the stand should receive a commercial thinning harvest. Quality trees should be left for further growth while poor quality trees should be harvested. Residual trees not harvested should have straight, relatively defect free boles and intact, healthy crowns. Basal Area of the residual stand should be between 80 and 90 square feet per acre, and/or about 220 to 240 trees per acre. About five to eight years after the first commercial thinning takes place another commercial thinning should be conducted. This second thinning should leave about 50 to 70 square feet of basal area per acre or about 120 trees per acre.

It is typical after a thinning for the understory to experience a surge of growth as a result of the sudden increase in sunlight. This invigorated understory competes with the loblolly pine for moisture and nutrients, thereby slowing growth. A controlled understory burn should be considered a year or two following the first commercial thinning. Controlled burning is also beneficial for some wildlife species, in particular the bobwhite quail, wild turkey, and whitetail deer. Access into the stand will increasingly become difficult as the understory proliferates. The fire will stimulate the growth of early successional grasses, and clear away thick ground vegetation which hinders the movement. Once the fire lines have been established, controlled burns can be conducted economically every few years as the need arises. It would be preferable to time the burning for early summer (after full leaf out) to maximize the effect on the hardwood stems. Burning should be avoided during the Spring and Fall fire seasons and periods (Spring) when ground nesting birds are sitting. A prescribed fire could be conducted every few years until final harvest.

Option 2 would be to clear cut the stand. With the way that biomass markets are today, it may make more sense financially to clear cut and start a new stand, but 4 to 6 years from now it could be a very different market. The stand should be re-evaluated in 4 to 6 years to see what best practice should be used.

 If clear cut, the stand should be reforested the following spring. Sometimes a site preparation treatment is recommended to control volunteer pine seedlings and undesirable hardwood brush; this is done the summer months prior to planting. If a site preparation spray is not needed sometimes the area will need a release spray treatment in a year or two to control the hardwood competition. To maximize timber production it is important to control the undesirable vegetation. Typically you only need to perform one spray operation in the life of a stand. Your forestry consultant or the Department of Forestry can make the necessary recommendations as needed.

## Parcel A-1

Descriptions and Recommendations:

Acres: 26+/-

Forest Type: Loblolly Pine plantation. The Virginia Seed Tree Law does apply to this stand.

Species Present: Loblolly pines with smaller mixed hardwoods, such as yellow-poplar, White Oak, Red Oak, and dogwood

Age: 7 years old

Stand History: This stand was clear cut and then reforested in 2003. A wildfire burned through this stand in 2008 destroying all the planted pines that were planted in 2003. The burned area was then reforested in 2008.

Size: Most stems are 2-4 inches DBH, and about 10-15 feet tall.

Tree Quality: Fair to Good

Stocking/Density: Well stocked in most portions of the stand. This stand was planted at a rate of 500 trees per acre

Growth Rate & Vigor: Good, pines still have over 50% of their live crown ratio

Site Quality & Soils: Refer to soils map and descriptions; overall the soil is good for timber growth

Aspect & Topography: Generally level ground with some gently sloping hills

Water Resources: One creek drain flows through the middle of this stand.

Invasive Species: None observed

Wildlife Habitat: This parcel provides excellent bedding for wildlife, and the understory provides some browse for the wildlife to feed on.

Recreation/Aesthetics: Due to the density of the stand, it is hard to navigate through these woods, although the feed patches that are strategically placed around this parcel provide good areas to hunt. Also the intricate road systems and trails throughout the property are great for riding ATV’s.

Cultural Resources: N/A

T&E Species Present: None observed

Fire Risk: Moderate, with the thick vegetation, on a bad fire day with low humidity and dry weather; if a fire were to get in this parcel it could severely damage the stand. However, there is a good road system that goes through the property that would allow firefighters a chance to cut off the fire before it spreads too far. Keeping these roads open is a good practice for preventing the spread of fires.

Unique Natural Features: N/A

Recommendations: Allow this stand to grow for another 9 to 11 years, and then re-evaluate the parcel for a commercial timber harvest. Depending on the forest markets there are a couple of options that can be pursued. First, you could commercially thin the stand. During the commercial thinning, quality trees should be left for further growth while the poorer quality trees should be harvested. The purpose of this would be to grow the residual trees for pine saw timber. Option 2 would be to clear cut the stand. With the way that biomass markets are today, it may make more sense financially to clear cut and start a new stand, but 9 to 11 years from now it could be a very different market. The stand should be re-evaluated in 9 to 11 years to see what best practice should be used.

 If clear cut, the stand should be reforested the following spring. Sometimes a site preparation treatment is recommended to control volunteer pine seedlings and undesirable hardwood brush; this is done the summer months prior to planting. If a site preparation spray is not needed sometimes the area will need a release spray treatment in a year or two to control the hardwood competition. To maximize timber production it is important to control the undesirable vegetation. Typically you only need to perform one spray operation in the life of a stand. Your forestry consultant or the Department of Forestry can make the necessary recommendations as needed. Parcel B

Descriptions and Recommendations:

Acres: 92+/-

Forest Type: Loblolly Pine plantation. The Virginia Seed Tree Law does apply to this stand.

Species Present: Loblolly pines with smaller mixed hardwoods, such as yellow-poplar, White Oak, Red Oak, and dogwood

Age: 12 years old

Stand History: This stand was clear cut and then reforested in 2003.

Size: Most stems are pole size timber to small pulpwood sized timber, and about 20-30 feet tall.

Tree Quality: Fair to Good

Stocking/Density: Well stocked in most portions of the stand. This stand was planted at a rate of 500-550 trees per acre

Growth Rate & Vigor: Good, pines still have around 50% of their live crown ratio

Site Quality & Soils: Refer to soils map and descriptions; overall the soil is good for timber growth

Aspect & Topography: Generally level ground with some gently sloping hills

Water Resources: There is one main creek that flows through the middle of parcel B. Slate River is located on the southeast side of this stand as well.

Invasive Species: None observed

Wildlife Habitat: This parcel provides excellent bedding for wildlife, and the understory provides some browse for the wildlife to feed on.

Recreation/Aesthetics: Due to the density of the stand, it is hard to navigate through these woods, although the feed patches that are strategically placed around this parcel provide good areas to hunt. Also the intricate road systems and trails throughout the property are great for riding ATV’s.

Cultural Resources: N/A

T&E Species Present: None observed

Fire Risk: Moderate, with the thick vegetation, on a bad fire day with low humidity and dry weather; if a fire were to get in this parcel it could severely damage the stand. However, there is a good road system that goes through the property that would allow firefighters a chance to cut off the fire before it spreads too far. Keeping these roads open is a good practice for preventing the spread of fires.

Unique Natural Features: N/A

Recommendations: Allow this stand to grow for another 4 to 6 years, and then re-evaluate the parcel for a commercial timber harvest. Depending on the forest markets there are a couple of options that can be pursued.

Between the ages of 16 and 20 the stand should receive a commercial thinning harvest. Quality trees should be left for further growth while poor quality trees should be harvested. Residual trees not harvested should have straight, relatively defect free boles and intact, healthy crowns. Basal Area of the residual stand should be between 80 and 90 square feet per acre, and/or about 220 to 240 trees per acre. About five to eight years after the first commercial thinning takes place another commercial thinning should be conducted. This second thinning should leave about 50 to 70 square feet of basal area per acre or about 120 trees per acre.

It is typical after a thinning for the understory to experience a surge of growth as a result of the sudden increase in sunlight. This invigorated understory competes with the loblolly pine for moisture and nutrients, thereby slowing growth. A controlled understory burn should be considered a year or two following the first commercial thinning. Controlled burning is also beneficial for some wildlife species, in particular the bobwhite quail, wild turkey, and whitetail deer. Access into the stand will increasingly become difficult as the understory proliferates. The fire will stimulate the growth of early successional grasses, and clear away thick ground vegetation which hinders the movement. Once the fire lines have been established, controlled burns can be conducted economically every few years as the need arises. It would be preferable to time the burning for early summer (after full leaf out) to maximize the effect on the hardwood stems. Burning should be avoided during the Spring and Fall fire seasons and periods (Spring) when ground nesting birds are sitting. A prescribed fire could be conducted every few years until final harvest.

Option 2 would be to clear cut the stand. With the way that biomass markets are today, it may make more sense financially to clear cut and start a new stand, but 4 to 6 years from now it could be a very different market. The stand should be re-evaluated in 4 to 6 years to see what best practice should be used.

 If clear cut, the stand should be reforested the following spring. Sometimes a site preparation treatment is recommended to control volunteer pine seedlings and undesirable hardwood brush; this is done the summer months prior to planting. If a site preparation spray is not needed sometimes the area will need a release spray treatment in a year or two to control the hardwood competition. To maximize timber production it is important to control the undesirable vegetation. Typically you only need to perform one spray operation in the life of a stand. Your forestry consultant or the Department of Forestry can make the necessary recommendations as needed.

Parcel C

Descriptions and Recommendations:

Acres: 57+/-

Forest Type: Loblolly Pine plantation. The Virginia Seed Tree Law does apply to this stand.

Species Present: Loblolly pines with smaller mixed hardwoods, such as yellow-poplar, White Oak, Red Oak, and dogwood

Age: 7 years old

Stand History: This stand was clear cut and then reforested in 2008. An aerial herbicide release spray was performed in 2009 to control competing natural vegetation.

Size: Most stems are 2-4 inches DBH, and about 10-15 feet tall.

Tree Quality: Fair to Good

Stocking/Density: Well stocked in most portions of the stand. This stand was planted at a rate of 500 trees per acre

Growth Rate & Vigor: Good, pines still have over 50% of their live crown ratio

Site Quality & Soils: Refer to soils map and descriptions; overall the soil is good for timber growth

Aspect & Topography: Generally level ground with some gently sloping hills

Water Resources: There are two creek drains that flow through parcel C. Slate River also borders the northwest side of parcel C.

Invasive Species: None observed

Wildlife Habitat: This parcel provides excellent bedding for wildlife, and the understory provides some browse for the wildlife to feed on.

Recreation/Aesthetics: Due to the density of the stand, it is hard to navigate through these woods, although the feed patches that are strategically placed around this parcel provide good areas to hunt. Also the intricate road systems and trails throughout the property are great for riding ATV’s.

Cultural Resources: N/A

T&E Species Present: None observed

Fire Risk: Moderate, with the thick vegetation, on a bad fire day with low humidity and dry weather; if a fire were to get in this parcel it could severely damage the stand. However, there is a good road system that goes through the property that would allow firefighters a chance to cut off the fire before it spreads too far. Keeping these roads open is a good practice for preventing the spread of fires.

Unique Natural Features: N/A

Recommendations: Allow this stand to grow for another 9 to 11 years, and then re-evaluate the parcel for a commercial timber harvest. Depending on the forest markets there are a couple of options that can be pursued. First, you could commercially thin the stand. During the commercial thinning, quality trees should be left for further growth while the poorer quality trees should be harvested. The purpose of this would be to grow the residual trees for pine saw timber. Option 2 would be to clear cut the stand. With the way that biomass markets are today, it may make more sense financially to clear cut and start a new stand, but 9 to 11 years from now it could be a very different market. The stand should be re-evaluated in 9 to 11 years to see what best practice should be used.

 If clear cut, the stand should be reforested the following spring. Sometimes a site preparation treatment is recommended to control volunteer pine seedlings and undesirable hardwood brush; this is done the summer months prior to planting. If a site preparation spray is not needed sometimes the area will need a release spray treatment in a year or two to control the hardwood competition. To maximize timber production it is important to control the undesirable vegetation. Typically you only need to perform one spray operation in the life of a stand. Your forestry consultant or the Department of Forestry can make the necessary recommendations as needed. **Parcel D**

Descriptions and Recommendations:

Acres: 15+/-

Forest Type: Loblolly Pine plantation. The Virginia Seed Tree Law does apply to this stand.

Species Present: Loblolly pines with smaller mixed hardwoods, such as yellow-poplar, White Oak, Red Oak, and dogwood

Age: 5 years old

Stand History: This stand was clear cut and then reforested in 2010.

Size: Most stems are sapling sized and between 5 and 10 feet tall.

Tree Quality: Fair to Good

Stocking/Density: Well stocked in most portions of the stand. This stand was planted at a rate of 560 trees per acre

Growth Rate & Vigor: Good, pines still have over 50% of their live crown ratio

Site Quality & Soils: Refer to soils map and descriptions; overall the soil is good for timber growth

Aspect & Topography: Generally level ground with some gently sloping hills

Water Resources: None

Invasive Species: None observed

Wildlife Habitat: This parcel provides excellent bedding for wildlife, and the understory provides some browse for the wildlife to feed on.

Recreation/Aesthetics: Due to the density of the stand, it is hard to navigate through these woods, although the intricate road systems and trails throughout the property are great for riding ATV’s.

Cultural Resources: N/A

T&E Species Present: None observed

Fire Risk: Moderate, with the thick vegetation, on a bad fire day with low humidity and dry weather; if a fire were to get in this parcel it could severely damage the stand. However, there is a good road system that goes through the property that would allow firefighters a chance to cut off the fire before it spreads too far. Keeping these roads open is a good practice for preventing the spread of fires.

Unique Natural Features: N/A

Recommendations: Allow this stand to grow for another 11 to 13 years, and then re-evaluate the parcel for a commercial timber harvest. Depending on the forest markets there are a couple of options that can be pursued. First, you could commercially thin the stand. During the commercial thinning, quality trees should be left for further growth while the poorer quality trees should be harvested. The purpose of this would be to grow the residual trees for pine saw timber. Option 2 would be to clear cut the stand. With the way that biomass markets are today, it may make more sense financially to clear cut and start a new stand, but 11 to 13 years from now it could be a very different market. The stand should be re-evaluated in 11 to 13 years to see what best practice should be used.

 If clear cut, the stand should be reforested the following spring. Sometimes a site preparation treatment is recommended to control volunteer pine seedlings and undesirable hardwood brush; this is done the summer months prior to planting. If a site preparation spray is not needed sometimes the area will need a release spray treatment in a year or two to control the hardwood competition. To maximize timber production it is important to control the undesirable vegetation. Typically you only need to perform one spray operation in the life of a stand. Your forestry consultant or the Department of Forestry can make the necessary recommendations as needed.

Parcel E

Descriptions and Recommendations:

Acres: 84+/-

Forest Type: Bottomland Hardwoods/Cove Hardwoods

Species Present: The predominate species present are: Yellow Poplar, Black Walnut, Hackberry, Maple, Black Cherry, American Beech, Northern Red Oak, White Oak, and Dogwood

Age: 70-100 years old

Stand History: No evidence of any timber harvesting in recent times, other than cutting out dead trees and snags for firewood.

Size: Pulpwood size to saw timber. Diameter at Breast Height (DBH) ranges from 8 inches-24 inches and up.

Tree Quality: Fair

Stocking/Density: Well stocked in most portions of the stand, anywhere from 80 to 130 basal area.

Growth Rate & Vigor: The growth rate is slow due to the timber type and the age of the trees.

Site Quality & Soils: Refer to soils map and descriptions; overall the soil is good for timber growth

Aspect & Topography: Gently sloping hills, to more moderate slopes as you get closer to the creeks and Slate River

Water Resources: This stand is the creek buffers that were left along all streams on this property and also along the Slate River

Invasive Species: None observed

Wildlife Habitat: This parcel provides good browse for wildlife such as acorns for deer, walnuts for squirrels, beech nuts for turkeys, and berries for various song birds. The draws that lead to the creeks provide excellent hunting opportunities.

Recreation/Aesthetics: This stand is a good area for hiking. Also the amount of hardwoods throughout this stand makes the aesthetics of the woods very nice.

Cultural Resources: N/A

T&E Species Present: None observed

Fire Risk: No unusual fire hazards

Unique Natural Features: N/A

Recommendations: Due to the location of this parcel, it is recommended to leave all timber because of the close proximity to streams and other bodies of water.

However, during a timber harvest if you decide to harvest some of the over mature trees in the hardwood streamside buffers, the harvest should be carefully designed by a professional forester to achieve the following:

1. Remove over-mature trees in danger of imminent mortality

2. Protect the visual integrity of the stand

3. Leave preferred hard and soft mast producing trees to encourage regeneration of the same

4. Protect against erosion by implementing Best Management Practices (BMP’s)

5. Provide understory and ground cover for wildlife

6. Leave some defective trees for tree dwelling wildlife.

Parcel O

Descriptions and Recommendations:

Acres: 4

General Description: This area pertains to the large feed patch on the south side of the Slate River that borders parcel C

Aspect & Topography: Level to gently rolling slopes

Invasive Species: None observed

Wildlife Habitat: Good habitat for wildlife to feed and graze in. Also the field borders, or “edge”, provides good bedding and nesting habitat.

Recreation/Aesthetics: The open land provides good hunting areas

Cultural Resources: N/A

T&E Species Present: None observed

Fire Risk: No unusual fire hazards

Unique Natural Features: N/A

## 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 resourcesrefer 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. 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](http://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. No such species are known to exist that would be found on your property. 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. 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.

No disease or insect problems were identified on the property. 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. If you feel that the situation does not warrant a fire department response, you may call a Virginia Department of Forestry representative at (804)492-4171.

## 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 conservationof 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 aquaticand 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)

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| 10-YEAR RECOMMENDED SCHEDULE OF MANAGEMENT ACTIVITIES |
| Year | Parcel | Activity | \*Possible Cost Share | Future Stand Conditions |
| Year | Stocking | Species |
| 2019-2021 | A & B | Thin/ Clear Cut  |  |  |  |  |
| 2019-2021 | A & B | If clear cut, Site Preparation Herbicide Spray | RT |  |  |  |
| 2019-2021 | A&B | If clear cut, Reforestation | RT | Spring following timber harvest/site preparation | 500-550 TPA | Loblolly Pine |
| 2019-2029 | E | Single Tree Selection Harvest |  |  |  |  |
| 2024-2026 | A1 & C | Thin/ Clear Cut  |  |  |  |  |
| 2024-2026 | A1 & C | If clear cut, Site Preparation Herbicide Spray | RT |  |  |  |
| 2024-2026 | A1 & C | If clear cut, Reforestation | RT | Spring following timber harvest/site preparation | 500-550 TPA | Loblolly Pine |
| 2026-2028 | D | Thin/ Clear Cut  |  |  |  |  |
| 2026-2028 | D | If clear cut, Site Preparation Herbicide Spray | RT |  |  |  |
| 2026-2028 | D | If clear cut, Reforestation | RT | Spring following timber harvest/site preparation | 500-550 TPA | Loblolly Pine |
| 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