

A Guide for Virginia Forest Landowners

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Introduction

As a private woodland owner, you are a vital link in the sustainability of Virginia's forest resources. Your land provides many benefits to all Virginians, including wood products, wildlife habitat, clean air and water, and recreational opportunities. Because woodland owners like you own and manage two-thirds of the state's forestland, the decisions you make regarding your woods today will impact the quality of Virginia's forests for many years. The purpose of this publication is to provide you with a set of suggestions for starting or continuing to actively manage your land. In addition, this guide will help you understand the importance of timber harvest planning and how to work with professional foresters and natural resource management agencies.

The information contained in this publication regarding taxation and environmental regulations is accurate but should not be construed as official government interpretation. Regulations and laws are constantly evolving, so you are encouraged to obtain professional forestry assistance before making your final management decisions. Resources for learning more about any of the topics covered are available at www.virginiasfi.org, or contact the agencies listed at the end of this brochure for further assistance.

What Is Sustainable Forestry?

Virginia's forests make a vital contribution to our state and beyond by providing economic, consumer,



environmental, recreational and aesthetic benefits essential to our quality of life. While sustainability is a dynamic concept, some basic principles are clear: sustainable forestry consists of those management practices that meet present needs without compromising the ability of future generations to meet their own needs. Specifically, sustainable forestry integrates reforestation, and the managing, growing, nurturing and harvesting of trees for useful products and ecosystem benefits such as conserving soil, air and water quality, sequestering carbon, perpetuating biological diversity, conserving wildlife and aquatic habitats,

improving recreational opportunities and protecting aesthetics.

Examples of sustainable forestry practices include:

- Regenerating forests as soon as possible following a timber harvest
- Minimizing the impact of forest management activities on water quality
- Maintaining important habitat elements for wildlife and plant species
- Managing for populations of imperiled and critically imperiled species
- Protecting forests with exceptional conservation value
- Managing biological diversity
- Limiting the spread of exotic (non-native) plant species and pests

www.ext.vt.edu

What is the Sustainable Forestry Initiative?

The Sustainable Forestry Initiative® (SFI) program was launched in 1994. The SFI® program is a comprehensive system of principles, objectives and performance measures that integrates the perpetual growing and harvesting of trees with the protection of wildlife, plants, soil, and water quality. This comprehensive system is SFI's sustainable forestry Standard. The SFI program is an independent, non-profit, organization with a science-based, internationally recognized forest management Standard for North America. SFI, Inc. is governed by the Sustainable Forestry Board, a three-chamber board with equal representation from the conservation, social and economic sectors. The SFI Standard is the largest single standard in the world.

The SFI 2010-2014 Standard is based on principles and measures that promote sustainable forest management and consider all forest values. It includes unique fiber sourcing requirements to promote responsible forest management on all forest lands in North America.

SFI certification also extends to the market. When consumers see the SFI label on a product, they can be confident they are buying wood or paper from responsible sources – whether it is reams of paper, packaging or two-by-fours.

Virginia's wood products industry purchases the majority of the wood necessary for their manufacturing processes from private forestlands like yours. With the cooperation of many state, federal, and private natural resource agencies, Virginia's forest industry encour-

ages you to consider the information in this brochure and to adopt sustainable practices in the management of your forest.

How Do I Begin?

You can implement sustainable forestry practices at any time. Whether you're a new forest landowner, with little management experience, or a veteran forest landowner already actively managing your property, this guide will provide you with useful strategies to make your forest sustainable. You can begin learning about your options by reading through this booklet.

Next, sit down with your family to discuss your goals for owning forestland. A goal is the big picture or a general statement about how you want your land to look in the future. Examples of goals you may have include:

- Improving the health of the forest
- Harvesting timber and regenerating the forest
- Providing quality habitat for game and non-game wildlife species
- Identifying and protecting special sites

Once your goals are set, a professional forester can help you develop a multi-resource forest management plan, the foundation of sustainable forest management. Even if you already have one, it's a good idea to regularly review and update your management plan, as your property conditions, resources, and goals change over time. Allowing yourself the freedom to modify your plans as conditions change or as new information



Figure 2:
A professional forester can help private landowners reach their goals through a written forest management plan.

or resources become available is known as adaptive management. Adaptive management allows you to implement the best management practices available.

Develop a Multi-Resource Forest Management Plan

A well-written multi-resource forest management plan:

- Provides a roadmap to help landowners achieve their goals through well-managed, sustainable forestry practices
- Can meet forest management planning elements required for your land to be certified as sustainably managed
- Can meet forest management planning elements required for Forest Use Value taxation
- Potentially increases the landowner's ranking for inclusion in the Environmental Quality Incentive and Conservation Stewardship Programs
- Meets a prerequisite for applying for the riparian forest buffer tax credit.
- Provides a required element for placing the land under a conservation easement which may result in tax advantages
- Potentially helps to meet sustainability requirements necessary to participate in ecosystem services markets
- Potentially outlines and meets the requirements necessary for participating in renewable energy/biomass incentive programs

A multi-resource forest management plan will include several key elements that will help the landowner make good decisions about forest management. The plan will include:

- Current forest conditions
- Recommended practices to enhance or maintain the natural resource benefits
- A detailed map of the property
- A list of management activities to be conducted (objectives) and an associated timeline for their completion

- A list of natural resource professionals and agencies that can provide further information and/or assistance

There are several high-quality multi-resource forest management plans available to forest landowners in Virginia. All plans encourage long-term stewardship by assisting landowners to more actively manage their forest and related resources. Forest Stewardship, Tree Farm and Conservation Activity Plans are all types of multi-resource forest management plans.

These three types of plans are interchangeable when it comes to meeting the planning requirement for cost share programs, becoming certified under the American Tree Farm System, or enrolling in the Forest Stewardship Program. Check with your forester for other things you may need to enroll in each of these programs.

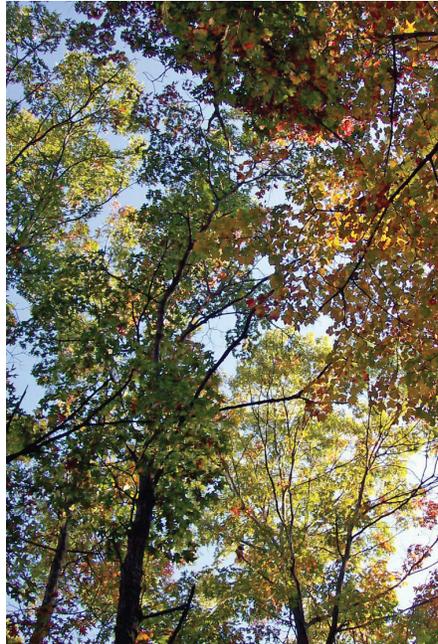


Figure 3: The canopy of an unthinned hardwood stand. The crowns of the individual trees are touching, a sign that that stand is overcrowded and competition for limited resources (i.e., sunlight, water and nutrients) is high.

Implement Your Multi-Resource Forest Management Plan

Many landowners may already have a forest management plan, but for some, taking the next step and actually implementing the plan may be daunting. A well-written forest management plan should have objectives and an accompanying timeline which can guide you through the process. And remember to remain flexible.

If you can't complete an objective this year, try finishing it next year. Managing your forest is a long-term process. Depending on your resources (i.e., skills, money, equipment, and access to labor) you may be able to complete some objectives on your own. For others, you will need the assistance of a professional forester.

What follows is a list of common management goals and strategies for working towards them. This is by no means a complete list of possible goals, and the order is arbitrary. The goals in your own forest management plan will most likely be different. Each management plan is unique, like forests and the families that own them.

Goal 1: Maintaining and improving the health of your forest

Like all living things, forests are susceptible to a host of potential health threats including fires, insect attacks, diseases, and natural disasters. While your control over these threats is limited, certain management actions will protect your investment by minimizing your forest's risk to damage.

Some actions you can take include:

- *Plant tree species best suited for the site.* Trees planted outside their natural range or on unsuitable sites are generally weak and unhealthy. Unhealthy trees are more susceptible to insect attack and disease, and expose the healthy trees in your forest to damage as well.
- *Monitor the health of your forest.* Periodically walk through your forest, especially after severe weather such as ice storms, hurricanes, and tornadoes. While some level of damage is natural and acceptable, you may want to conduct a salvage cut to remove severely damaged trees before further damage from insects and disease occurs.

When insect and disease outbreaks occur, respond quickly. Insects and disease destroy more timber in the United States than any other factor. If an insect outbreak such as southern pine beetle occurs, the infected trees, as well as a small buffer of surrounding trees, should be cut and removed immediately. Becoming familiar with the symptoms of insects and disease outbreaks can help you identify these problems early on, when they are easier to treat.

- *Thin overcrowded stands.* Thinning focuses sunlight, water, and nutrients on fewer trees, resulting in a healthier, more vigorous forest. Diameter growth of the remaining trees will likely increase, adding to the future value of the stand.
- *Consider prescribed burning.* In Coastal Plain and Piedmont pine forests, potential damage from wildfire may be reduced through the periodic use of prescribed burning. Burning every three to five years reduces fuel loads, controls rust diseases, and encourages shrub and forage growth for wildlife food and cover.
- *Use the appropriate harvesting method.* How you harvest your timber depends on your management goals. In Virginia's Mountain and Piedmont hardwood stands, poor harvesting practices such as high grading or diameter limit cutting may have removed the best formed, most vigorous trees from the forest, leaving predominantly weak and unhealthy trees.



Figure 4: Thinnings remove enough trees to open the canopy, so the crowns of the remaining trees are not touching, giving each tree access to more resources.

If your goal is to grow a healthy vigorous forest, in some cases, the best long-term prescription is to remove all trees within the stand and start over with vigorous natural or planted regeneration. This also holds true if your goal is to grow species which require full sunlight, such a loblolly pine or yellow poplar. Most of Virginia's pine and hardwood species that have commercial and wildlife value require full sunlight for optimal survival and growth.

Other harvesting methods remove individual or small groups of trees and are suitable for regenerating species which are more tolerant of shade. With these methods, it's best to cut the worst trees and leave the best trees, so your forest is healthier after each cut.

- *Eliminate invasive exotic (non-native) species.* The introduction and spread of exotic plants, insects, and diseases has severely impacted native forests. Disturbed sites, such as forest edges and forest road rights-of-way are often dominated by non-native species. Exotic species may out-compete and displace native trees, alter the structure and function of forests and often have little wildlife value. These infestations increasingly erode forest productivity, hinder forest use and management activities, and degrade diversity and wildlife habitat. In addition, exotic species such as tree-of-heaven and autumn olive are very difficult to remove from the landscape once established.

When thinking about the introduction of a non-native species on your property, please consider its potential negative impact on native vegetation and the larger landscape. There are many suitable native species which can be used instead.

Goal 2: Harvesting your Timber

A common component of forest management plans is a timber harvest. Timber is typically harvested for financial reasons (i.e., to pay for college or retirement); however, timber may also be harvested for a variety of other reasons, including:

- Establishing new forests
- Improving overall forest health and vigor
- Creating wildlife habitat and recreation access
- Controlling forest density
- Releasing desirable tree species from competition
- Controlling forest insects and disease
- Creating diversity

To help ensure your satisfaction when a harvest is completed, be sure you have a current management plan, as discussed in the previous section, before the timber is sold. Insufficient planning can be costly and can prevent you from reaching your goals. In addition to having a forest management plan, other important steps to consider when planning a timber sale include:

- *Mark your sale boundaries.* Identifying and marking your sale boundaries are critical first steps in a successful timber sale. Poorly marked boundary lines can lead to timber trespass, that is, the harvesting of a neighbor's timber. The penalty for timber trespass in Virginia could be three times the value of the timber taken plus the expenses of a timber appraisal. Well-marked boundaries will minimize the possibility of trespass. Property deeds, topographic maps, and aerial photographs will greatly aid in helping you establish your boundaries; however, you may need to hire a professional surveyor.
- *Know what you have to sell.* Have a complete inventory of your forest resources conducted to determine what your timber is worth. During the inventory, tree species, merchantable volumes, and potential products will be tallied. Note that timber markets are very localized and the price you receive for your timber will depend on many factors including tree quality, size, species, site access, soil conditions, harvest method, market cycles, and distance to the mill. During the inventory other important non-timber resources, such as plant and animal species of



Figure 5: Regeneration harvest of a loblolly pine plantation.

concern, wildlife habitats, sensitive biological areas, historic sites, aesthetics, and wetlands, should be identified. A professional consulting or industry forester can conduct a timber cruise for you.

- *Work with a quality logger.* The forester you work with can provide a list of potential loggers. To choose a quality logger, take into account requirements such as:
 - Completion of logger training/continuing education programs such as Virginia's Sustainable Harvesting and Resource Professional (SHARP) Logger Program (www.sharplogger.vt.edu)
 - Knowledge and use of forestry BMPs (see next section)
 - Proof of adequate worker's compensation and liability insurance coverage
 - Adequate equipment to do the job
 - List of references from previous harvesting jobs

You may want to visit an on-going harvesting operation the logger is conducting. During the on-site visit look at the condition of logging equipment and haul trucks, note whether woods workers wear protective equipment, how trees excluded from the timber sale are protected, and the appearance of skid trails, landings, and haul roads.

- *Secure a written sale agreement.* Your forest is a valuable economic and ecological resource. When you decide to sell timber, it is important that your short-term and long-term interests are protected. The best way to protect your interests during a timber sale is through a written timber sale agreement. At a minimum, a good timber sale contract will include:
 - Description of land with boundary lines and guarantee of title
 - Specification of payment terms
 - Description of timber, method of designating trees to be cut, and harvesting method
 - Specification of time period covered by the contract
 - Prohibition of excessive damage to residual trees, buildings, fences, and roads

- Specification of penalties for damage or removal of unmarked trees
- Assignment of liability for losses caused by the timber buyer or his agents
- Requirement of the use of forestry BMPs and adherence to all local, state, and federal laws

- *Supervise the harvest.*

Before the harvest begins, review the timber sale agreement and walk the site with the logger. This will give you an opportunity to get to know each other and to explain your objectives for harvesting timber. A logger who is personally familiar with you and aware of your objectives will likely do a better job. Once harvesting begins, either you or your forester should periodically inspect the harvest site. Visits will ensure that logging is being conducted in compliance with the terms of the sale agreement and will identify any potential problems early, when they are most easily fixed. When the harvest is complete, conduct a final inspection to be certain that the job is in compliance with Virginia's Forestry BMPs.



Figure 6: Proper stream crossings are an important part of protecting water quality. Notice that, in addition to the bridge, the stream banks have been seeded to reduce erosion.

- *Keep the aesthetics of the harvest in mind.* Work with your forester to create positive visual impacts with your timber harvest. Creating openings with irregular borders and leaving trees along ridge tops can help soften the appearance of clearcuts. Allowing recently harvested areas to regenerate (or green-up) before harvesting adjacent tracts can also help maintain the aesthetics of an area. Additionally, the layout and design of the roads, skid trails and landings can have a large impact on the aesthetics of the logging operation.
- *Management of harvest residue.* Typically, following a timber harvest, there is a significant amount of what was once considered non-merchantable logging residue (tops, branches, and otherwise non-merchantable stems) left on site. As society focuses on deriving more energy from resources other than fossil fuels, these forest residues (also known as woody biomass) are important as potential sources of

renewable energy. New markets for woody biomass are emerging, and where markets exist, landowners may be able to increase total revenue from a timber sale by harvesting and utilizing this material. Harvesting woody biomass can make the site more aesthetically pleasing and help reduce site preparation costs for reforestation.

However, there is also value in leaving woody biomass on site. Benefits include long-term increases in ecological values such as carbon sequestration, soil organic matter, soil moisture and nutrient retention, as well as moderation of soil temperature fluctuations. In addition, the material can be used as a ground cover in implementing BMP's during the harvest. Landowners need to weigh the economic value of harvesting woody biomass versus the ecological values of leaving it on site.

- *Use professional assistance.* If you are uncertain about what you have to sell or have other questions about the timber sale process, don't guess – contact one of the sources of assistance listed at the end of this brochure.

Best Management Practices

Best Management Practices (BMPs) are forest management practices designed to reduce erosion and prevent or control water pollution resulting from forestry operations. The potential for water contamination occurs when runoff from rain or snow moves over a harvesting site. Without the proper use of BMPs, this runoff can pick up and carry away soil and other pollutants, depositing them as sediment into waterways, wetlands, and groundwater.

Forestry activities that can potentially cause water pollution include forest road construction and stream crossings; forest harvesting activities such as skidding and loading trees; site preparation (getting the harvest site ready for reforestation); and chemical treatments like pesticide and fertilizer application. Of these activities, road construction has the greatest potential to degrade water quality, so most forestry BMPs focus on proper road construction to minimize soil erosion.

Planning before the timber harvest is essential to minimize the potential impact to soil and water quality. Identify special and sensitive sites in your overall forest management plan. These sites include streams, areas with unique plant or animal species, areas with steep slopes and highly erodible soils, and forested wetlands. Forested wetlands are distinguished by specific plant communities, hydric soils and hydrologic conditions. Use this information in the more comprehensive pre-harvest plan specifically prepared for the portion of your forest to be harvested.

The preharvest plan should:

- *Identify streamside management zones (SMZs) or buffers adjacent to perennial and intermittent streams.* SMZs are designed to stop runoff from reaching waterways and to keep stream temperatures cool; harvesting within SMZs should be limited to minimize disturbance of the forest floor and canopy.
- *Require the use of special harvesting equipment and techniques to protect water quality in and around wetlands*
- *Minimize soil erosion by including properly designed and constructed truck haul roads.* Roads should be designed to follow the land's contour and to allow water removal while slowing the flow of runoff toward waterways (these include broad based dips, turnouts, and culverts).
- *Keep the number of stream crossings by haul roads and skid trails to a minimum*
- *Provide measures for keeping logging debris out of stream channels*
- *Minimize soil compaction and ground disturbance by restricting the use of heavy equipment during wet periods*
- *Prevent soil erosion with prompt seeding and fertilizing of bare soil areas including logging roads, trails, and loading decks*
- *Require prompt reforestation of harvested sites*

Note: If timber harvesting or other management activities are negatively affecting water quality, the logger or timber buyer and the landowner are liable and each may be required to rectify water quality problems. The Virginia Department of Forestry (VDOF) has the responsibility and legal right to inspect all timber-harvesting sites for water quality degradation. The VDOF maintains a state handbook for forestry BMPs that is available upon request and available for download at www.dof.virginia.gov. State law requires that loggers

notify the VDOF three days before or after beginning a timber harvest. This is easily done by calling (800) 939-LOGS (5647) or on the VDOF website. Be sure that your logger meets this requirement.

Goal 3: Regenerating your forest

If you have a multi-resource forest management plan which includes a timber harvest, your regeneration plan will be included as well. There are several key items you should consider in your regeneration plan. For example you will need to determine what species you want to grow. Forests are composed of evergreen trees (often pines), deciduous trees (sometimes called hardwoods), or a mix of both. The factors that determine which tree species grow on a specific site include climate, land-use history, soil quality and structure, water availability, and the direction the slope of the site faces (aspect). The limits imposed by these conditions in combination with your management objectives will determine what types of trees are best suited for your forest. When choosing to manage for pines or hardwoods, you should consider a few basic forest ecology principles:

- *Match your goals with your resources.* Forests are managed in units called stands. A stand is a group of trees sufficiently uniform in species composition, age, and/or condition to be distinguished from surrounding groups of trees. Most forest ownerships are made up of several different stands. Stand boundaries are identified by changes in tree species and are influenced by differences in soils, slope, climate, and other physical characteristics of the land. For example, yellow poplar, white oak, and eastern hemlock are best suited to cool, wet, north-facing hollows with deep fertile soils. Other species such as Virginia pine and chestnut oak



Figure 7: Although pines can be regenerated naturally, most landowners choose to plant nursery grown seedlings. This ensures a more uniform stand, better genetics, and an increased return on investment.

frequently occur on hotter, dryer, south-facing slopes with shallow soils. Your goals should match the different site types that occur in your forest.

- *Pine and hardwood forests are established differently.*

- *Pine:* Frequently, new pine forests are established by planting nursery grown seedlings (artificial regeneration). Studies show sites of average quality in Virginia's Piedmont and Coastal Plain regions that are reforested with improved loblolly pine seedlings yield good returns on investment. Returns on investment increase when landowners utilize all available cost-share programs and tax incentives. While risk factors such as damage by ice storms, hurricanes, insects, and disease may reduce the expected return on investment, proper management greatly reduces the occurrence of these threats. Cost share is available to assist landowners reforesting with certain pine species.

- *Hardwoods:* While hardwood trees may also be planted, new hardwood forests are usually established using natural regeneration methods, such as seed germination and stump sprouting, which reduces the upfront investment. When regenerating most Virginia hardwood species, a heavy cut allows sunlight to reach the forest floor, encouraging seeds to germinate and stump sprouts to grow. Later in the life of the stand, you generally need to do some management work (such as thinning) to produce quality hardwood sawtimber. The holding period (rotation age) is longer for hardwoods, often running 60 to 80 years or more.



Figure 8: Stump sprouts and seeds are typically relied on to naturally regenerate a hardwood stand. This method is less expensive than planting.

Whether you manage your forests for pines, hardwoods, or both, plan to set aside a portion of the income you receive from your timber harvest to use toward regenerating a healthy new forest.

Reforestation is one of the best long-term investment opportunities available to forest landowners. This conclusion is based on the appreciation of timber products in the southeastern United States over the past 50 years. Current trends lead analysts to believe that:

- Prices paid to private landowners for softwood sawtimber and quality hardwood sawtimber will rise at a rate at least equal to inflation.
- Prices paid for standing timber in the Southeast may rise more rapidly than in other regions because of increased demand and competition.

The returns from an investment in reforestation should be calculated like any other long-term investment. To analyze the potential economic return of reforestation on your land, you will need the following information:

- The site quality or productive capability of your land
 - The costs of site preparation and reforestation
 - The amount and frequency of management activities required to maintain and protect a vigorous stand (e.g., prescribed burning, boundary line maintenance, fire/insect/disease protection, etc.)
 - An estimate of the future value of harvested timber products
 - The length of time from planting to final harvest
 - Other costs and revenues (e.g., real estate taxes, hunt club lease income, etc.)
- *Afforestation*

Afforestation is defined as planting trees to create a forest on land which has not been previously forested. On privately owned lands, this may include areas which have been in pasture or agricultural production for long periods of time. The forest industry in Virginia supports afforestation of fields, strip mines, or other open areas as a way to increase forestland. Typically, species used for afforestation are pines but hardwood trees may also be planted. If you are interested in planting open areas on your property you should consult with your professional forester. They can help guide you as to which species and planting techniques would best suit your preferences and needs.

Goal 4: Creating and improving wildlife habitat

Managed forests provide an abundance of resources other than timber, including wildlife habitat. To develop a variety of wildlife habitats, some management options and activities for you to consider include:

- *Providing a variety of food, cover, and habitat for wildlife by managing some of your forest stands for a mixture of pines and hardwoods.* Your forest will attract many wildlife species if you provide a diversity of habitats across your tract, such as different aged forest stands, a variety of species, forest openings, abandoned agricultural fields, overgrown fence lines, and streams and ponds with clean water.



Figure 9: Timber harvests help create a diversity of wildlife habitats across the landscape. Maintaining water quality is an essential component of protecting wildlife.

- *Using the borders or edges of harvest sites to create unique wildlife management opportunities.* Edges are transition zones between two adjoining forest- or land-use types. Many wildlife species use edge habitat. Edges may be softened by planting shrubs and fruit trees along harvest and field/forest borders. Irregular, scalloped forest edges improve the visual impact of timber harvesting, while providing good wildlife habitat. Timber harvests should also be designed to protect aquatic habitats and provide corridors for wildlife to move into and through the area.

Goal 5: Conserving special sites

Protecting significant natural communities and unique features in your forest is an important component of sustainable forestry.

- *Protecting sites with special biologic significance.* NatureServe, an international network of Natural Heritage Programs, assigns plant and animal species and natural communities a conservation status rank based on their rarity and conservation status across their entire range. Significant natural communities include those which are rare in Virginia,

as well as exemplary examples of more common types. Species ranked “G1” (global rank 1/critically imperiled) or “G2” (global rank 2/imperiled) are most at risk. Forest certification systems, such as the Sustainable Forestry Initiative, protect all “G1” and “G2” species and natural communities, even if they are not listed and protected under the Endangered Species Act. State rankings are similar (“S1” and “S2”), but only indicate the status of the species within Virginia. The term Forests with Exceptional Conservation Value is used to describe sites that support “G1” and “G2” species and communities.

If you are fortunate enough to have one or more state or globally ranked species or natural communities on your land, you should be particularly vigilant about protecting them. Your efforts to manage rare species and significant natural communities have the added bonus of protecting more common species, keeping them off regulated lists in the future.

- *Protecting sites with high aesthetic values.* If your property has waterfalls, caves, exposed rock outcrops, or other visually appealing features, protect them by leaving forested buffers or take other appropriate actions to avoid negative impacts on their visual quality and biological functions.
- *Protecting sites with historic significance.* Examples include Civil War and Native American sites and cemeteries. Because of their significance and sensitivity, these areas are often set aside and managed solely for their unique features. You may be able to reduce your tax burden through charitable contributions such as land donations or conservation easements. Be sure you understand your rights, obligations, and the implications for future forest management activities before entering into a conservation easement agreement.



Figure 10: Virginia sneezeweed is a rare perennial wildflower found only in wetlands in Virginia.



Figure 11: Prior to a timber harvest, walk your property and identify any areas with high aesthetic values, such as this waterfall. The timber harvest should be planned in a way that minimizes impacts to these features.

Certifying Your Forest

If you have a multi-resource forest management plan and are implementing sustainable forestry practices, you may want to consider having your forest certified. Certification is a voluntary process that recognizes well-managed forests. Benefits of having your land certified include both recognition of your efforts to practice forestry in an environmentally responsible manner and, potentially, access to markets which may seek wood from certified forests. There are a number of certification systems available, but most private forest landowners have their land certified through the American Tree Farm System (ATFS), an internationally recognized forest certification system. For more information on becoming a Tree Farmer, contact the ATFS.

Environmental Regulations

As you implement your forest management plan, be aware that forestry activities must comply with state and federal regulations. Because you are liable for activities occurring on your land, you need to be aware of how environmental laws impact your forest management activities and you are encouraged to obtain professional advice prior to conducting any forest operation such as a timber sale. Some frequently applicable environmental regulations are outlined below.

Water quality: Excessive sediment and chemicals entering waterways resulting from forestry activities are subject to Virginia's Silvicultural Water Quality Law that is administered by the VDOF. If serious

water-quality degradation is found, the VDOF may stop the harvesting job, require corrective action, and in extreme cases, institute civil penalties. In addition, Virginia's Debris in Stream Law requires that debris from harvesting activities such as tree tops, logs, felled timber, and trash be removed from waterways to allow boats and fish unobstructed use of the water. Compliance with Virginia's forest BMP guidelines for water quality is generally considered adequate to meet requirements under the Federal Clean Water Act which also requires proper steps be taken to prevent water pollution. A large portion of Virginia is in the Chesapeake Bay Watershed and is subject to regulations under the Chesapeake Bay Preservation Act (for more information contact the Virginia Department of Conservation and Recreation). Overall, the best prevention for pollution resulting from forestry activities is management planning and the proper installation and maintenance of forestry BMPs.



Figure 12: Following Virginia's Best Management Practices helps ensure the protection of water quality. These culverts are part of a well-planned stream crossing.

Burning: The leading cause of forest fires in Virginia is the burning of debris. Because woody debris in the forest dries out during winter months, fire danger is especially high during early spring. To prevent forest fires during this period, Virginia's 4:00 p.m. Burning Law states that between February 15 and April 30 it is unlawful to burn debris within 300 feet of any material capable of spreading fire, except between the hours of 4:00 p.m. and 12:00 midnight. In addition, other burning bans may be invoked during periods of extreme fire danger.

Reforestation: The purpose of Virginia's Seed Tree Law is to ensure proper pine regeneration following a timber harvest. The seed tree law applies to any area of 10 or more acres on which loblolly or white pine

constitute 25 percent or more of the live trees on each acre. Eight cone-bearing pine trees 14 inches or larger in diameter must be left uncut and uninjured on each acre for three years following harvest. An exception may be granted when an effective reforestation plan has been secured from the VDOF. For example, in lieu of leaving seed trees, the harvested site may be planted with genetically improved, nursery-grown seedlings. This allows better control of spacing and stocking and usually provides a healthier and more productive forest. Cost-share assistance is available for reforestation activities under the VDOF's Reforestation of Timberlands (RT) Program.



Figure 13: In order to comply with Virginia's Seed Tree Law, mature seed bearing trees must be left on site after a timber harvest. Alternatively, landowners may plant nursery-grown seedlings.

Financial Considerations

Taxes. Annual surveys consistently reveal that timber and estate taxation are the leading management concerns among private forest landowners. Careful planning and accounting practices will likely save you money and help preserve your estate for future generations. Tax laws pertaining to forest management are subject to interpretation and frequent change. The information provided below should not be considered an official interpretation of the federal and Virginia income tax codes and you are strongly encouraged to seek the advice of a tax advisor on the applicability of the current tax law to your particular situation. In addition, consult with your forester and accountant to determine the best strategy to protect your assets.

Some basic points to keep in mind:

Keep good records. Recordkeeping is perhaps the easiest but most neglected task of the forest landowner. At a minimum you should keep a journal of all expenses and income along with evidence of transactions such as invoices, receipts, canceled checks, contracts, meeting agendas, mileage records, workshops attended, and maps that pertain to your land and forestry practices.

Determine your basis. The basis of your forestland is the original amount you invested to purchase your property. This amount is the cost of land including standing timber, roads and buildings, and payments to realtors, foresters, surveyors, attorneys, and/or other costs associated with the acquisition. As with the purchase of land, the value of the property acquired by gift or inheritance is allocated proportionally among the categories as listed above. Basis is used to determine gain or loss on sales and exchanges, and for calculating amortization, cost recovery, depletion, and casualty-loss deductions. In addition, qualifying for long-term capital gains and deducting for management expenses are equally important.

Major tax advantages are available for forest landowners who harvest timber and reforest harvested land or previously nonforested land.

Investigate your land use tax assessment. Almost three-fourths of Virginia's counties allow land to be assessed according to its land use value rather than its fair market value. The intent is to preserve open space in rural areas by helping landowners keep their land in forest or farm use. Land-use value assessments are usually much lower than the rates associated with fair market value for real estate development.

Consider a conservation easement. A conservation easement is a voluntary legal agreement by which a landowner conserves the agricultural, environmental and open space value of the land in exchange for tax credits and deductions. With a conservation easement, a landowner relinquishes the right to develop the land intensively for residential, commercial, or industrial purposes to a state agency or land trust. This



Figure 14: Conservation easements are one tool which can protect forestland from subdivision and/or conversion to other, non-forested uses.

will ensure that the land will remain undeveloped into perpetuity. Conservation easements can, however, be written to allow traditional uses of the land, such as farming and timber harvesting. Tax advantages include state income tax credits, federal and state tax deductions, and reductions in estate taxes. The landowner maintains ownership of the land which can still be freely sold or passed onto children; however, the limits on development stay with the land. The Department of Conservation and Recreation's Office of Land Conservation serves as a statewide clearinghouse for land conservation information.

Financial assistance. Financial or cost-share assistance is available to private forest landowners for many management activities, including reforestation, timber-stand improvement, stream-bank and forest-road stabilization, and wildlife habitat improvement. Cost-share assistance can greatly offset your out-of-pocket expenses for forest and wildlife management activities. Most cost-share programs are administered by state and federal agencies. All programs have specific requirements such as minimum acreage, areas of application, water-quality protection, and length of time that the cost-share practice must be maintained. Funding for programs is limited and programs may be added or dropped at any time. A comprehensive list of current programs can be obtained from the VDOF.

State programs administered by the VDOF include Reforestation of Timberlands (RT) and the Pine Bark Beetle Prevention Program (PBBPP). The goal of the RT program is pine reforestation of harvested lands. This program can provide cost-share assistance for up to 75 percent of site preparation, tree planting, and stand improvement costs. Qualifying landowners must have a forest management plan developed by the VDOF or other approved forestry professional. The goal of PBBPP is to prevent and lessen the impact of bark beetle outbreaks. The program provides up to 50 percent cost-share assistance for thinning pine stands as a preventive measure.

The Logging Best Management Practices Program is available to qualified loggers. The program provides up to 50 percent of the cost of an approved stream crossing in watershed areas designated by DEQ as impaired or of special interest.

Most federal programs are administered by the Natural Resources Conservation Service (NRCS), Farm Services Agency (FSA), and Soil and Water Conservation Districts (SWCDs). Major programs include the Conservation Reserve Program (CRP), the Conservation Reserve Enhancement Program (CREP),

the Environmental Quality Incentive Program (EQIP), and the Wildlife Habitat Incentives Program (WHIP). The primary goal of these programs is to protect wetlands and water quality, prevent soil erosion, and improve wildlife habitat through the adoption of forestry BMPs and conversion of sensitive agricultural lands to streamside or riparian buffers. Some of these programs provide cost-share funds for approved practices and rental monies for converted agricultural lands. An approved conservation plan is required to qualify for any federal cost share program and practices must be maintained for 10 to 15 years.

In addition, some forest industry companies offer management assistance. Depending on the company, a variety of services may be offered at cost or free of charge including management planning, site preparation, and reforestation. Funding and requirements for most cost share programs change annually. Contact one of the management assistance agencies listed at the back of this brochure for specific details.

Educational Opportunities

An important part of sustainably managing your forest is educating yourself and being aware of your options. You have already taken the first step by reading through this brochure. In Virginia, there are numerous other educational opportunities available. The following statewide programs are offered to loggers, landowners, and other interested parties to promote the sustainable management of the commonwealth's forest resources.

Logger Education: Loggers are a critical link in the sustainability of our forest resources. An important component of promoting sustainable forestry practices is enhancing professionalism among timber harvesters, foresters, and others in the



Figure 15: SHARP Loggers participate in continuing education courses to keep them up to date on safety and environmental regulations.

forestry community. Virginia's Sustainable Harvesting and Resource Professional (SHARP) Logger Program focuses on the training and continuing education of these professionals in using forestry BMPs during timber harvesting; compliance with environmental laws and regulations; forest regeneration and resource conservation; awareness of the Endangered Species Act and other wildlife considerations; logging truck and equipment safety; business management; and many other topics. For more information, contact the SHARP Logger Program Coordinator at the Virginia Tech Department of Forest Resources and Environmental Conservation or visit the SHARP Logger website at www.sharplogger.vt.edu.



Figure 17: Private forest landowners can learn how to practice sustainable forestry through workshops, classes, field tours and publications.

Landowner Education: The Virginia Forest Landowner Education Program (VFLEP) offers short courses to forest landowners on a variety of natural resource topics, including options for forest and wildlife management, resource assessment and planning, sources of financial assistance, timber sales and harvesting methods, BMPs, nontimber forest products, land-use conservation strategies, forest taxation, and estate planning. An on-line landowner course on forest management is available annually at the VFLEP website. Additionally, VFLEP hosts the annual Fall Forestry & Wildlife Field Tour Series, during which participants visit public, private and industry lands to learn about forest and wildlife management, as well as cost share programs. The Virginia Forest Landowner Update, a quarterly newsletter, is available to all Virginia landowners. For a complete quarterly listing of educational programs or more information, contact the VFLEP Coordinator at the Virginia Tech Department of Forest



Resources and Environmental Conservation, or visit the VFLEP website at www.cnre.vt.edu/forestupdate.

The logger and landowner education programs listed are cooperatively sponsored by the many natural resource agencies and companies listed in this publication.

This introduction to sustainable forest management is meant to raise your awareness of the options available to Virginia forest landowners. Whether your goals are similar or very different from what has been presented in this brochure, the hope is that you have enough information to begin to implement sustainable forestry practices on your land. Virginia is fortunate to have a wealth of well-trained natural resources professionals available to assist private forest landowners with these practices. Please contact the appropriate agency below to find out more about their services.

Sustainable Forestry Initiative Inc.

900 17th Street, NW, Suite 700
Washington, DC 20006
(202) 596-3450

www.sfiprogram.org
www.virginiasfi.org



The Sustainable Forestry Initiative® (SFI) program was launched in 1994. Today, SFI® Inc. is an independent, non-profit organization responsible for maintaining, overseeing and improving a sustainable forestry certification program that is internationally recognized and is the largest single forest standard in the world.

American Tree Farm System

c/o American Forest Foundation
1111 19th Street, NW, Suite 780
Washington, DC 20036

(202) 463-2462

www.treefarmssystem.org



The American Tree Farm System (ATFS) is a private program of the American Forest Foundation with the mission to promote growth of renewable forest resources on private lands while protecting environmental benefits and increasing public understanding of all benefits of productive forestry. State ATFS committees bring foresters, consultants, and government agency officials together with experienced tree farmers to plan and administer each state ATFS program. The ATFS is a nationally recognized certification system, and the oldest certification system in the world.

Virginia Cooperative Extension

Virginia Tech College of Natural Resources and Environment

Virginia Tech Department of Forest Resources and Environmental Conservation

313 Cheatham Hall (0324)
Blacksburg, VA 24061

(540) 231-5483

www.ext.vt.edu

www.cnre.vt.edu

www.forestry.vt.edu

These state agencies administer the Virginia Forest Landowner Education Program and SHARP Logger Program, and provide basic forestry, wildlife, and natural resource management information to forest landowners, farmers, and the general public. Extension forest resources personnel conduct educational tours, meetings, and short courses on a variety of forestry and wildlife topics. They publish numerous natural resource Extension publications. All Virginia counties have local Cooperative Extension offices; see the blue pages in your phone book under State Government or visit their website.

Virginia Department of Conservation and Recreation

203 Governor Street, Suite 213
Richmond, VA 23219

(804) 786-1712

www.dcr.virginia.gov

www.vainvasivespecies.org

The Virginia Department of Conservation and Recreation (DCR) is a state agency that works with Virginians to conserve, protect, and enhance their lands and improve the quality of the Chesapeake Bay and rivers and streams. The DCR promotes the stewardship and enjoyment of natural, cultural, and outdoor recreational resources (e.g. state parks), coordinates statewide nonpoint source pollution control, insures the safety of Virginia's dams, and, via the Land Conservation Office, provides statewide land conservation information.

Virginia Cooperative Extension



Virginia Department of Forestry

Fontaine Research Park
900 Natural Resources Drive, Suite 800
Charlottesville, VA 22903

(434) 977-6555

www.dof.virginia.gov

The Virginia Department of Forestry (VDof) is a state agency that provides basic forest management planning and forestry information, seedlings and seed mixes for reforestation and wildlife, BMP guidance, and enforces water-quality, seed tree, and burning laws. The VDof administers cost share programs, and maintains lists of private forestry consultants, contractors, and timber buyers by county. The VDof cooperates closely with other state and private resource agencies and companies to conduct education programs for loggers and landowners. Most counties have local offices; see the blue pages in your phone book under State Government or visit their website.



Virginia Department of Game and Inland Fisheries

4010 W. Broad Street
P.O. Box 11104
Richmond, VA 23230-1104

(804) 367-9369

www.dgif.virginia.gov

The Virginia Department of Game and Inland Fisheries (VDGIF) is a state agency that provides information, education, and technical assistance on wildlife management to forest landowners. The VDGIF monitors wildlife populations, enforces hunting and fishing regulations, and provides technical assistance to federal agencies on cost-share programs for wildlife management practices on private lands. The agency is currently developing a comprehensive strategy for managing wildlife, including threatened and endangered species.



Virginia Forestry Association

3808 Augusta Avenue
Richmond, VA 23230-8733
(804) 278-8733

www.vaforestry.org

This private nonprofit membership organization represents Virginia's broad forestry community. The Virginia Forestry Association (VFA) is active in legislative and regulatory issues affecting forestry and forest management, works with the media on forestry issues, sponsors forestry and environmental camps for school-age youth, provides general forestry and forest industry information, and assists member landowners and others in interpreting regulatory requirements relative to forestry. The VFA publishes Virginia Forests, a quarterly magazine on forest management and issues.



Virginia Natural Heritage Program/NatureServe

217 Governor St.
Richmond, VA 23219
(804)786-7951

www.dcr.virginia.gov/natural_heritage

www.natureserve.org

The Virginia Natural Heritage Program (VNHP) represents a comprehensive effort to save Virginia's native plant and animal life and the ecosystems on which they depend through inventory, conservation information provision, protection and stewardship. As a member of NatureServe, the VNHP contributes to an understanding of global diversity and helps to provide for the conservation and recovery of the earth's common, and rare and endangered species and threatened ecosystems.



Virginia Outdoors Foundation

101 N. 14th Street, 17th Floor
Richmond, VA 23219

www.virginiaoutdoorsfoundation.org



The Virginia Outdoors Foundation (VOF) is a state agency charged with the preservation of cultural and heritage lands in Virginia. VOF works with private landowners to establish voluntary conservation easements to protect farm and forestland. The VOF easement program has grown to over 3,000 properties (591,000 acres).

Forest Legacy

Forest Legacy Program Manager
USDA Forest Service
NA State and Private Forestry
271 Mast Road
Durham, NC 03824

(603) 868-7695

www.fs.fed.us/spf/coop/programs/loa/flp

The Forest Legacy Program is a partnership between states and the USDA Forest Service developed to identify and protect environmentally important forests from conversion to nonforest uses. The main tool used for protecting these important forests is conservation easements. The federal government may fund up to 75 percent of program costs with at least 25 percent coming from private, state, or local sources.



U.S. Fish and Wildlife Service

1849 C Street NW
Washington, DC 20240
(800) 344-WILD (9453)

www.fws.gov

The mission of the U.S. Fish and Wildlife Service (USFWS) is to work with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. The USFWS is committed to a collaborative approach to conservation. Its strategy is to empower Americans to become citizen conservationists.



USDA Forest Service

1400 Independence Avenue, SW
Washington, DC 20250

(202) 205-8333

www.fs.fed.us

The mission of the USDA Forest Service (USDA FS), a federal agency of the United States Department of Agriculture, is "to sustain the health, diversity, and productivity of the nation's forests and grasslands to meet the needs of present and future generations." For over a century, the USDA FS has managed public land in national forests and grasslands, which currently total over 193 million acres.



Professional Foresters

Professional foresters are employed by government organizations, the forest industry, and private consulting companies. Professional foresters offer a full range of services to private landowners, including management planning, timber appraisals, timber sale preparation and administration, and site preparation and reforestation. Landowners are advised to check the references and professional affiliations before choosing a forester. These references include membership in organizations such as the Association of Consulting Foresters (ACF, www.acf-foresters.org) and the Society of American Foresters (SAF, www.safnet.org). Lists of professional foresters are available from your local VDOF office (www.dof.virginia.gov), ACF, and SAF.

Virginia Forest Facts

- Virginia is 62 percent forested (15.8 million acres)
- Non-industrial private landowners own 64 percent (10.1 million acres) of Virginia's forestland
- Timber Investment Management Organizations, Real Estate Investment Trusts and non-forestry corporations own 18 percent (2.8 million acres)
- Forest industry owns less than 4 percent (550,000 acres)
- Public lands make up 16 percent (2.5 million acres)
- Hardwood forests make up more than 78 percent of all Virginia timberland (12 million acres)
- Softwood forests make up more than 20 percent of all Virginia timberland (3 million acres).
- Between 2001 and 2007, net forestland loss was 27,000 acres per year as a result of land use changes
- Total hardwood forest acreage increased from 8.1 to over 12 million acres since 1940
- Total softwood forest acreage has declined from 6.2 to 3 million acres since 1940
- Growth rates are exceeding removal rates
- Plantations account for 10 percent of Virginia's timberland and more than 50 percent of all softwood acreage
- Forestry contributes \$27.5 billion annually to Virginia's economy
- Forests provide more than \$2.5 billion in recreational opportunities
- Forestry provides more than 144,000 jobs in Virginia

Virginia Forest Fact Source:

Virginia Department of Forestry. Virginia Statewide Assessment of Forest Resources: A Comprehensive Analysis of Forest Conditions, Threats and Priorities. June 2010. Available on-line at <http://www.dof.virginia.gov>

Review Committee

Scott Barrett, Virginia Tech

Jim DeMoss, MWV

Jim Fretz, International Paper

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Virginia Forestry Association

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