

Creating Native Plant Educational Materials through Virginia Cooperative Extension
Publications

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Abstract

Virginia Cooperative Extension (VCE) has been a reputable source of research-based information for over 100 years. This information is provided through various forms such as field days, demonstrations, volunteer services and written materials in the form of publications. Peer reviewed publications are scholarly works and undergo reviews from experts in the field. Currently there are no VCE publications about native plants and their benefits. Materials from other organizations and such as the Virginia Department of Environmental Quality's Plant Virginia Natives Campaign regional guides, Department of Conservation and Recreation brochures and the Digital Atlas of Virginia Flora online database have been used in VCE programming efforts. Plant Virginia Natives has been a leader in the movement to raise awareness, demand for native plants throughout the state, and has developed guides for ten regions across Virginia. By increasing the awareness of native plants, pollinators, and wildlife, local ecosystems will benefit greatly. Incorporating native plants into landscapes is especially critical because a review of 16 studies shows that the global population of insects has decreased by 45% in 40 years (Dirzo et al., 2014). Native plants provide essential support for insects. One of the barriers identified to planting more native plants is the lack of knowledge or confidence in people's knowledge of the subject (Plant RVA Natives Steering Team, 2021). To address the lack of resources from VCE and the need for supplemental education materials, I have developed a three-part publication series on native plants. This series will promote native plants in the landscape by helping homeowners understand what native plants are, their benefits, how to use them in the landscape and how to maintain them for long term sustainability and resilience of landscapes.

Keywords: Native Plants, Publication, Virginia Cooperative Extension

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Introduction

Background and Setting

Virginia Cooperative Extension (VCE) is a long-standing organization that has worked in partnership with the two land grant universities Virginia Tech and Virginia State University for over 100 years. This organization is multifaceted and works through local units, research centers, 4-H recreational centers and university specialists. At the local level agents and volunteers provide information, programs and other engagement opportunities that directly addresses the unique needs of that community. One form of resource used to provide information is a publication. These are written works that provide research-based information on a topic that is not already covered by a VCE publication, provides data on a research project, or compiles existing knowledge into a new delivery format. There are two types of publications, peer reviewed and non-peer reviewed. Typically, non-peer reviewed are short written works or fact sheets that briefly touch on a topic or research project. Peer reviewed publications go through a formal review process by experts in the relevant field and are considered scholarly works. These publications are written with a specific audience in mind, such as farmers, industry professionals, academic colleagues or the general public. The publication is written to address a current need for information and meant to be a long-term resource. These publications are often utilized in VCE programming efforts. Current publications are available online through the VCE website. From January to June in 2023 there were 162,300 clicks from Google to the pubs.ext.vt.edu site to view publications. The top viewed publication, Virginia's Home Garden Vegetable Planting Guide: Recommended Planting Dates and Amounts to Plant (Hessler,2019) | VCE Publications, had 13,138 page views in the same six-month timeframe (Greiner, 2023).

Statement of Problem

Virginia Cooperative Extension currently does not have any publications on the topic of native plants. VCE is a leading source of research-based knowledge in Virginia especially in relation to horticultural topics and should have reliable resources on timely topics. Publications on utilizing native plants would help to fill the gap in VCE resources. The target audience for these publications are homeowners or those taking care of residential landscapes. These publications would help those interested in native plants gain a deeper understanding of why they are important, how they can be utilized in their landscape, and how to maintain them long-term. The “Understanding Native Plants” publication could also serve to give a basic understanding to local government decision makers.

Significance of Problem

Extension Master Gardeners (EMG) are volunteers of VCE that promote research based horticultural practices through a variety of programs. In many of these programs they utilize publications as handouts or references for the client. One such example is at a Master Gardener Help Desk, a service common at many VCE units where EMGs field questions from the public. These questions can range from how one would start a garden to managing a certain pest or getting their soil tested. In many cases to answer the questions or support the answers, EMGs provide publications to the client. The first suggested source of publication is through VCE. If VCE does not have a relevant publication, research-based resources from other Virginia organizations can be used. If none of those resources exist, extension materials from other states can be referenced. Often these materials can come from adjacent state resources that have similar climate conditions to Virginia. VCE publication materials on native plants could be utilized by EMGs on their help desks and other programs. Agriculture and Natural Resources Extension

agents throughout the state could also use the resources to have supplemental educational materials in their programming.

VCE publications are available online through Publication and Educational Resources at <https://www.pubs.ext.vt.edu/>. Many of these publications are interactive. Clients can click on live links embedded in the publication to be taken to relevant pages. Printed publications can also have QR codes that link to websites with additional resources on native plants. The native plant publications will be written in a series that references each other publication and can be added to as new native plant information and topics are available.

Purpose of the Project

The native plant publications written during this project will fill the gap of resources not yet provided by VCE. They will serve as introductory educational materials to inform the public. The first three publications will cover: what native plants are, why native plants should be incorporated into your landscape and how to do it, and maintenance of native plants for long-term sustainability in the landscape. Additional resources and references pertinent to the publication topic will be included in each publication. Online views of the publications can be tracked through the VCE publications website to determine utilization.

Project Objectives

- Review current literature and Virginia native plant resources.
- Confirm the need for native plant publication resources.
- Identify key topics for publications.
- Write a series of three introductory papers on native plants that will become VCE peer-reviewed publications.

- Recommend ways to utilize the publication in VCE programming.

Literature Review

This literature review will focus on resources and needs specific to Virginia educational materials on native plants.

Available Resources

There are several key organizations in Virginia that have developed resources on native plants. The Plant Virginia Natives Initiative has been a leader in raising native plant awareness. The initiative is part of the Virginia Department of Environmental Quality's Virginia Coastal Zone Management (CZM) Program. A critical goal of this organization as well as the Habitat Partners Program at the Department of Wildlife Resources is to increase and maintain native vegetation cover in Virginia. This initiative was created after research conducted by CZM to determine barriers that may prevent people from planting native plants. The strategy to help address those barriers was a statewide Community Based Social Marketing Campaign at regional levels throughout Virginia. This campaign focuses on three major areas: captivating communications, point of sale engagement, and commitments/social norms. The captivating communications area has been responsible for creating the ten regional native plant guides. These guides raise awareness of regionally native flora, emphasize the benefits of each plant, especially wildlife support, list how the plants can support wildlife, and suggest ways of utilizing these plants in landscapes. The Plant RVA Natives, Plants for the Capitol Region Guide has 72 pages highlighting over 200 native perennials, ferns, grasses, shrubs, vines and trees. This guide has been utilized at the Chesterfield Cooperative Extension office as a handout to participants in the Learn Your Landscape program and for new EMGs as an educational resource. The guides are

visually attractive, user-friendly, and list native plants that are more easily found on the market. The guides can be downloaded for free from the Plant Virginia Natives website where many additional resources on native plants are available; including links to webinars and regional campaign websites (Plant RVA Natives Steering Team, 2021). Some campaigns such as Plant Nova Natives have developed websites with extensive region-specific resources.

The Virginia Department of Conservation and Recreation, Natural Heritage Program has regional resources on Virginia Native Plants. These brochures focus on coastal, piedmont and mountain native species. They have charts on native plant uses, moisture and light requirements. The website contains other information on why natives are beneficial, where to buy them and explanations of the different Virginia regions. On this page there is the native plant finder tool (DCR, 2023). Plants can be searched by common or scientific name. The results contain many details such as cultural requirements, height, bloom season, nurseries selling the plant, regions where a plant grows, and much more.

The Digital Atlas of Virginia Flora is an online resource created and managed by the Virginia Biological Associates, which is made up of staff from many universities and institutions in Virginia (Virginia Botanical Associates, 2023). This resource shows the specific locality of a native plant across the state. Plants can also be searched by common or scientific name to determine native areas. Lists of plants native to each county are available. The Flora of Virginia Project also operates the Flora of Virginia Mobile App that can be downloaded and utilized for a fee to access the information of the digital atlas and more.

These three organizations have worked to provide information and promote Virginia native plants. The VCE publications written through this project will complement the existing resources.

Resource Relevance

In recent years there have been efforts on many levels to help raise awareness of the importance of native plants. In April of 2021 the U.S. Senate passed a resolution declaring April National Native Plant Month. Virginia Governor Glenn Youngkin followed suit by signing a proclamation that April is Native Plant Month in Virginia. Residents of Virginia are encouraged to explore the natural heritage of native plants, appreciate their importance for wildlife and ecosystems, learn more about them, and to plant them during this time.

Native plants are an important part of local ecosystems that support wildlife. In a review of 16 studies, the global population of insects has decreased by 45% in 40 years. This can lead to impacts on not only our ecosystems, but agriculture production systems as well (Dirzo et al., 2014). Insects are utilized by 96% of terrestrial birds to feed their young. One clutch of Carolina Chickadee fledglings can consume 6,000 to 9,000 caterpillars before they are independent. There is a direct correlation between declining insect populations and declining bird populations.

Another correlation is between the use of non-native plants in landscapes and lack of insects that birds can eat. In some instances, non-native plants have become invasive, displacing native plants and adversely impacting native ecosystems (Tallamy and Shriver, 2021). An example of one of these plants is the invasive Bradford or callery pear tree, *Pyrus calleryana*. Native plants have evolved with insects for millions of years, with some establishing specific host relationships. To help support insect populations, and in turn bird populations, planting native plant communities is suggested (Tallamy and Shriver, 2021).

Before the Plant Virginia Natives campaign was launched, pre-campaign research was conducted to find barriers that may prohibit someone from planting native plants. This research was conducted through surveys and focus groups on the Eastern Shore and in the Northern Virginia

and Central Rappahannock areas. Four common barriers to adoption of native plants were identified and generalized to other regions: 1) unaware of which plants are native, 2) uninformed about the interactions between native plants and wildlife, 3) little to no available native plants to purchase, and 4) a lack of demonstration gardens showcasing native plants and how to use them. One survey question was, “What are the education needs of our target audience?”. Respondents were not confident in their knowledge of native plants. Most could successfully define what a native plant was, but still categorized themselves as not being knowledgeable. The target audience was also interested in plant and wildlife interactions, information about local adaptations and being low maintenance when incorporated into a landscape (Plant RVA Natives Steering Team, 2021). The results of this research have influenced the key topics that have been chosen for the publication. Each publication will provide more information and resources to expand on the topics of interest that were identified.

Summary

Resources exist to help educate the public on the benefits of native plants. Multiple organizations have worked to provide tools such as guides, brochures, and apps. Materials such as the regional Virginia Native Plant Guides have been utilized by many partnering organizations, including VCE units and their EMG programs. Many of these resources are web based only and require access to the internet. Others, such as the guide, are available both online and in hard copy formats. The three new Extension publications fill an information gap in Extension resources and provide clients multiple formats to access the information.

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Appendices

Appendix A. Draft Native Plants in the Landscape: Understanding Native Plants

Native Plants in the Landscape: Understanding Native Plants

Sierra Seekford, Agriculture and Natural Resources Extension Agent, Virginia Cooperative Extension Chesterfield Office

Introduction

There is an increase of interest in incorporating native plants into homeowner landscapes. You may have considered or already planted natives in your landscape. A clear understanding of exactly what they are and the terminology surrounding them will help in making smart choices and incorporating them successfully (Rihn, 2022). This publication will review what it means to be a native plant, key words to know when you shop for plants and how these plants can benefit you and your landscape. There will be a focus on utilizing Virginia native plants.

What Are Native Plants?

The U.S. Forest Service defines native plants as “indigenous terrestrial and aquatic species that have evolved and occur naturally in a particular region, ecosystem, and habitat.” This means that the species occurred naturally, prior to colonial settlement (U.S. Forest Service).

Coevolution with other native species

Plants and other species of animals have co-evolved together for millions of years. So, it's not surprising that many plants have specialized relationships with other species and work together to reproduce. A well-known example is the relationship between monarch butterflies and milkweeds, in which the plant is a host for insect larvae. Another example is the yucca plant and the yucca moth. Only the yucca moth can pollinate the flowers of the yucca plant. In return for pollination, the moth lays its eggs and the larvae feed on the seeds of the yucca plant (Landry, 2019). Other plants and flowers are generalists. Meaning the plant will receive many species of pollinators or that a pollinator will visit many species of plants.

Native to a region or area

Because native plants have been adapting to certain geographic areas for millions of years, they are more adapted to the local temperatures, soil conditions, humidity, rainfall and environmental events like storm, floods, fires, etc. When choosing native plants, it is important to source plants that are adapted to your area, the local ecotype. This can lead to better success with your planting and conservation of genetics. Ask your local nursery or garden center where the native plants are sourced. If plants are from another part of the country they may not establish or grow as well. You can always collect seed or propagate from local ecotypes yourself. You may need to ask permission first. Remember, you should never dig plants out of the wild.

Resources to find plants native to your area

Many resources are available that provide information on Virginia natives. The Digital Atlas of Virginia Flora (Virginia Biological Associates, 2023) is a reference for the geographical distribution of native plants in Virginia. It is managed and updated by the Virginia Biological Associates. This resource provides information on a plant's native status to the local level. Another resource is the Plant Virginia Native Initiative (Witmer, 2023). This organization has completed guides for different regions of Virginia, as well as a collection of native plant resources. The Department of Conservation and Recreation has a native plant finder on their website as well as regional brochures on native plants. Other local organizations to reach out to for more information are your local Virginia Cooperative Extension Office, the local chapter of the Native Plant Society and Master Naturalists.

Important Terminology

Biodiversity- the variety of life in a place on Earth or throughout the entire Earth

Cultivar- A plant variety that has been selected and cultivated by humans. The cultivar name will be displayed capitalized in single quotations. In some instances, a native cultivar may be referred to as a nativar. Pictured below in Figure 1 is the native Yarrow *Achillea millefolium* and Figure 2 is the cultivar *Achillea millefolium* 'Colorado Mix'.



Figure 1 Common Yarrow *Achillea millefolium* (Photo Credit: David Cappaert, bugwood.org)



Figure 2 *Achillea millefolium* 'Colorado Mix' (Photo Credit: Roland Steinmann, Pixabay)

Ecotype*—A population of species, whether native or not, that has adapted to a particular set of environmental conditions through a process of natural selection.

Hybrid- A genetic cross of two different plants, usually from two different varieties of the same species.

Introduced*- A species that is not native and has been brought to the location through human activity either deliberately or accidentally.

Invasive Species- non-native (or alien) to the ecosystem under consideration and, whose introduction causes or is likely to cause economic or environmental harm or harm to human health. -USDA definition

Naturalized*- A term used to describe a species that is not native to an area but has established a sustained population in that area.

Straight Species- A native plant that is true to its wild type.

Variety- Plant with a slight variation in characteristics of the original species that can still be reproduced by seed. An example of a naturally occurring variety of a native is the white flowering redbud *Cercis canadensis var. alba*.

*Definitions sourced from UF/IFAS Extension Publication ENH1045.

How Native Plants Benefit You and Your Landscape

Provide Habitat and Food for Wildlife

Incorporating more natives into your landscape provide food to the insects they host. These insects attract birds and other animals, adding diversity to the food web. Carolina Chickadees have been found more likely to visit landscapes with native plants, especially during the breeding season when caterpillars are used as a food source (Narango et al., 2017). When thinking about what to plant in your landscape also consider how much food for wildlife it will produce. Certain genera attract more insects which have caterpillars as a developmental stage, this provides more food for birds. The genera that support the most caterpillars are *Quercus*, *Prunus*, *Salix*, *Betula*, and *Populus* (Narango, 2020). Consider including trees that are native to your area from these genera. Adding native plants from different genera and types such as shrubs, herbaceous perennials, trees, vines and more contribute to an increased biodiversity of your landscape. Often our landscapes can include a monoculture or one type of turfgrass.

Sustainable Maintenance

Since native plants have adapted to a certain location they need fewer inputs from you as a gardener. Most are tolerant of the climate and the amount of annual rainfall. Complex irrigation systems are not needed to enjoy native plants in your landscape. After watering the first year of establishment, they will not need water as frequently as non-natives. They are also used to the soil conditions. Amendments such as lime and fertilizers are not needed in large amounts, or not all in some instances.

Observing Nature

Incorporating native plants into your landscape brings new opportunities to observe nature. You are creating a diverse ecosystem within your landscape. Animals may appear that you have never seen before. You could witness the emergence of monarch caterpillars that would be supported

by milkweed. Gardening has great benefits to our mental health. Taking a walk and observing the plant and animal interactions can help to reduce stress and mental fatigue (Hall et al., 2019).

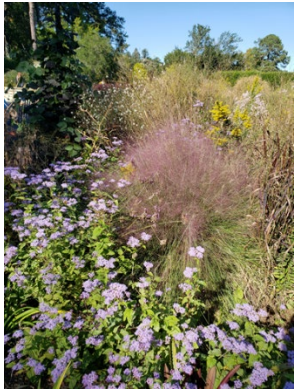


Figure 3. Fall Landscape with Native Plants. (Photo Credit: Sierra Seekford)

Resources

Flora of Virginia Digital Atlas- <https://vaplantatlas.org/>

Plant Virginia Natives- <https://www.plantvirginianatives.org/>

Virginia Department of Conservation and Recreation- Natural Heritage Program
<https://www.dcr.virginia.gov/natural-heritage/nativeplants>

Virginia Cooperative Extension website: <https://ext.vt.edu/>

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Appendix B. Draft Native Plants in the Landscape: Using Native Plants

Native Plants in the Landscape: Using Native Plants

Sierra Seekford, Agriculture and Natural Resources Extension Agent, Virginia Cooperative Extension Chesterfield Office

Introduction

Landscapes are so much more than pretty plants. They are valuable assets that increase property value, moderate climate effects, support pollinators and wildlife, save money, and provide many other benefits. Native plants are an important part of every landscape. Although research has shown that a landscape provides the most benefits if it has at least 70% native plants, even incorporating a few native plants into a landscape can make a difference (Narango et al., 2017). This publication covers considerations in getting started and design aspects with native plants.

Taking the First Steps

There is a popular saying in the gardening world: put the right plant, in the right place. This means choosing plants that are well adapted to the site conditions. While native plants are adapted to an area, they still have preferred site and growing conditions. Matching the plant to the location in your landscape is important to ensure it establishes quickly and grows well. Think of your landscape as a community with the plants as neighbors. Which plants like the same conditions and grow well together? Instead of planting just one plant, consider planting several of the same plants or several plants to create the community. Preparations and planning will help you match the proper community to your landscape.

Site Conditions in Your Landscape

You will want to become familiar with conditions on your property:

- Sun vs. shade- morning or afternoon, length of time
- Drainage- where is the water and how long does it stay
- Soil conditions- sand, clay, organic matter, pH
- Topography- slopes and low areas
- Existing features- mature trees, rocks, ponds, buildings, utilities, desired views

It is helpful to create a map of your landscape. Note the different conditions that can influence what plant you choose. Are there areas that have more sun or shade and what times of the day? Are there slopes that might need stabilizing? Where is stormwater runoff coming from and how does it move through the landscape? Are there areas that stay wet? Are there valuable natural features like streams, wetlands, mature trees or forested areas? Are there existing structures like a house, shed, driveway, fence or are any other structures going to be built? Think about how the space will be used, such as kids' activities, pets, vegetable garden, or song birds and butterflies.

Is there a certain look or style you want to achieve? Match the native plants to the site conditions and uses.

Removal of Invasive Plants

When taking note of your site conditions, also look for invasive plants. These should be removed before planting native plants in the landscape. Some invasive species can be pulled out while others may need a multi-year approach for management. One of the first steps towards promoting natives naturally, can be the removal of invasive competition. The *Eight Essential Elements of Conservation Landscaping* book has more information on managing invasive species. The Virginia Invasive Species List can be found through the Virginia Department of Conservation and Recreation (see Resources). If you need assistance in identifying invasive species in your landscape and creating a management plan, contact your local Extension office. You can find your local Extension office contact information on the VCE website: <https://ext.vt.edu/>.

Observing Naturally Occurring Plants

One way to learn about a native plant's preferred conditions is observing them in their habitat. Visit your local parks, nature preserves, botanical gardens, and Extension demonstration gardens. Look at how and where the plants grow and which plants grow together in that community. For example, you may see buttonbush, *Cephalanthus occidentalis* on a walk in the James River Park System. This is because this medium sized native shrub thrives in wetlands, swamps and occasionally flooded areas. Other plants in the community may include sweetbay magnolia and red maple trees, swamp azaleas, ferns, rushes and sedges. Resources like the *Digital Atlas of Virginia Flora* and *Native Plants for Conservation, Restoration and Landscaping Brochures* can be a good reference on which plants are in your area and what habitat they prefer (see Resources). Most of the regional native plant guides have a list of places you can visit to see native plants in your area. Sometimes it's easier to visit places that have the plants labeled so you know what you are looking at.

Designing Your Landscape

You decide the degree and style in which you incorporate native plants into your landscape. Natives can be used in a formal style or more naturalistic landscape. Natives that are better suited for a formal landscape have more of a bunch type growth, larger flowers, and do not vigorously reseed. A naturalistic landscape style is meant to replicate how native plants look in the wild. This style is still purposeful and planned. Your plants should be layered based on height, have different textures and bloom times. They may be allowed to fill in and grow closely as they would naturally (Brzuszek).

Pollinator Support Throughout the Seasons

Plant herbaceous perennials that bloom throughout spring, summer, and fall to provide food sources to pollinators. In the spring, as soon as the soil temperatures warm to 55°F for several days, insects start to emerge. Pollinators such as bees will be looking for early sources of nectar.

Refer to your local Plant Natives Guide to learn about the bloom times of different perennials. Blooming trees and shrubs can also be important food sources for pollinators. Consider incorporating a fringe tree, *Chionanthus virginiana*, as a small tree or a tulip poplar, *Liriodendron tulipifera*, for a large tree.

Plants for Winter Interest

Gardening is not just for during the warm months. As summer plants start to go dormant in the fall, grasses can become the star of our garden. Feathered plumes of grasses such as little bluestem (*Schizachyrium scoparium*) and pink muhly grass (*Muhlenbergia capillaris*), will also give the landscape different textures in the winter. Your landscape is critical to wildlife even during the winter. It can provide food and shelter during those critical months where resources can be scarce. By choosing plants of different heights and textures you provide layers of shelter. Debris from the plants provide materials to moths and butterflies that overwinter as larvae or eggs. Winterberry *Ilex verticillata* or female Eastern Red Cedar *Juniperus virginiana* have berries that provide food for birds in the winter. Wait until the spring to trim back your gardens. When there is snowfall you will enjoy looking out on a landscape with the snow delicately resting on the stems and flowers of the plants.



Pink muhly grass plumes give a native plant bed color and texture after the first frost. Photo Credit: Sierra Seekford

Planting to Attract Pollinators

When planning your landscape, you can choose to install plants that host or attract certain pollinators. We will take a closer look at some considerations when trying to attract monarchs. A study was performed to see what kind of garden structure attracted more monarchs. The results indicated that planting a structured garden with mulched milkweed on the perimeter of the garden received the most visits and had the most eggs and larvae. The monarchs prefer that you

make the milkweed as obvious and accessible as possible. The tallest milkweeds such as common milkweed *A. syrica* and swamp milkweed *A. incarnata* attracted the most egg laying monarchs. Incorporate other milkweeds native to your area such as butterfly milkweed *A. tuberosa* (Baker, 2018).



Monarch butterfly and caterpillar on swamp milkweed. Photo Credit: [Rob Routledge, Sault College, Bugwood.org](#)

Giving Definition

Giving definition can help add appeal and aesthetic to areas planted with natives. Some ways to give definition include purposeful pathways, edging garden beds, or other plants or structures to delineate the area. Add some features such as bird houses, walking stones, bird baths, benches or sculptures to add more interest to the area. Install an arbor over the walkway or a bench to add further depth and layering to your design. Your garden can become a great way to educate neighbors about the importance and utilization of native plants. Consider having a sign explaining the landscape and others identifying plants (Brzuszek).

Install in Stages

Do not think that your entire landscape needs to be changed tomorrow. Install your plan in stages. Do what is manageable for your time and resources. New plantings will need more time post-installation for watering and weed maintenance, than established areas. Pick manageable areas to install in different seasons, optimizing spring and fall for planting. Try creating a multi-year implementation plan. Consider reaching out to your local Soil and Water Conservation District to find out if you qualify for the Virginia Conservation Assistance Program. This program provides financial incentives and educational assistance to implement landscape best management practices.

Resources

Flora of Virginia Digital Atlas- <https://vaplantatlas.org/>

Plant Virginia Natives- <https://www.plantvirginianatives.org/>

Virginia Department of Conservation and Recreation- Natural Heritage Program
<https://www.dcr.virginia.gov/natural-heritage/nativeplants>

Virginia Cooperative Extension website: <https://ext.vt.edu/>

Plant NOVA Natives, <https://www.plantnovanatives.org/>

Soil and Water Conservation District, Virginia Conservation Assistance Program.
<https://vaswcd.org/>

University of Maryland, Designing with Native Plants
<https://extension.umd.edu/resource/landscape-designs-native-plants>

The Eight Essential Elements of Conservation Landscaping
<https://www.chesapeakelandscape.org/resources/the-eight-essential-elements/>

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Appendix C. Draft: Native Plants in the Landscape: Maintenance Practices

Native Plants in the Landscape: Maintenance Practices

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Introduction

In many ways native plants are maintained no differently than other landscape plants. Most of the practices covered in this publication would apply to taking care of any herbaceous perennial, shrub or tree. There are some considerations to maintaining native plants that may help you create a more beneficial home ecosystem. In this publication we will cover considerations before planting and after installation. Maintenance will then be discussed for long term development of your landscape.

Pre-Installation Maintenance

- Before removing from container
 - Remove and discard dead leaves
 - Prune broken branches or stems
- Removal and planting
 - Carefully loosen the soil and roots to remove from the container
 - Loosen soil around roots
 - Prune girdling or rootbound roots
 - Plant at root flare, removing excess soil if needed
 - For planting trees refer to Publication Hort248-NP: Planting Trees

Post Installation Maintenance

Watering Practices

Native plants are adapted to local climate conditions and can conserve water. Once established they do not need frequent supplemental watering or irrigation systems.

- At planting
 - Saturate plant in container and let drain
 - Water area where plant will be installed
 - Keep backfill soil moist
 - Water deeply once installed
- The morning is the ideal time to water.
- During establishment
 - For herbaceous perennials water twice a week for the first several weeks then once a week until winter.
 - For shrubs follow this same deep watering for a year.

- Tress will need more water, one gallon of water per inch of trunk caliper every other day for a month. Then twice a week until established.
- Long term
 - After the establishment period for native plants, stop watering unless there is a severe drought.

Mulching

- A variety of materials can be used for mulching depending on the needs of the landscape and aesthetics desired. If you have deciduous trees in your landscape, fallen leaves work well as a natural mulch and will break down over time adding organic matter to the soil.
- Mulching helps to manage weed competition when establishing plants.
- Mulch helps to retain moisture.

Invasive species management

- Invasive species can displace native plants in managed landscapes and in the wild. Removing invasive plants can help give native plants the opportunity to reestablish.
- Some can be managed by pulling and others need a multi-year plan.
- Contact your local Extension office for information on managing invasive plants.

Monitoring for pests

- As you take time to enjoy the beauty of your landscape, take time to look at the conditions of your plants. Note if any plant starts to look differently than it should such as leaf discoloration, damage to parts of the plant or death.
- Consider an integrated pest management strategy for addressing issues that may arise. Reference publication Ento-365NP An Introduction to Integrated Pest Management

Long-Term Maintenance

Spread the seeds

- Collect seeds in a dry paper bag once seed head is dry. Typically, 6-8 weeks after bloom.
- Can mix together to broadcast in landscape.
- Use controlled propagation to start seeds in spring. Some seeds may need a period of cold called stratification.
- Label for species, collection date and location collected. These can be given to friends, taken to plant swaps or donated to seed libraries.

Save the stalks

- In the spring when the temperatures are at or above 50°F for several days is when insects will start to emerge. Around this time of the year is when you should start preparing your garden for the next season.
- Cut the stems of the previous year's native herbaceous perennials that have pithy or hollow stems such as bee balms, joe pye weed, mints, milkweed and more to 8-24 inches.

The stems should be cut to varying heights in this range. These will become spaces for cavity nesting bees to reproduce and overwinter. To learn more read the publication 'How to create habitat for stem-nesting bees' by the University of Minnesota Extension. Cross reference this with the Digital Atlas of Virginia Flora to utilize hollow stems plants native to Virginia.

- If the stems are cut, there are other ways to leave them and still look intentional. Gather the stems, tie them together with a ribbon, and leave them standing against a fence or structure. Another option is to gather them standing in a tomato cage.

Leave the leaves

- Just like you want to cuddle up under a nice warm blanket in the winter, so do our insects, birds and other wildlife. Except their blanket is made of leaves and fallen debris from plants.
- Designate areas of your yard to rake fallen leaves. Perennial flower beds and under trees can be a great place to add a layer of leaves. This provides mulching to increase water retention and reduce soil temperature. Leaves also add organic matter as it breaks down. These fallen leaves provide a space for insects to pupate such as the Polyphemus moth.
- If there is a concern for plant diseases remove the plant debris each season.

Supporting Plants

- Native herbaceous perennials can tend to flop over and this can be due to many reasons such as too little sun, lack of support from other plants, too much water or fertilizer, or a need to divide. There are some structural additions that you can add to support these plants.
 - Stakes and string
 - Tomato cages or peony cages

Pruning Perennials

- Pruning perennials can help them to maintain a more compact shape, increase number of blooms and reduce the height. To prune your perennial native plants, cut a third to one half in the early summer before July.

Thinning or Dividing

- Many natives have adapted to spread easily or grow out from the center of the plant. This is to compete with other plants.
- A plant that spreads easily by underground stems or rhizomes is bee balm. In the spring you can dig up and manage the spread. Dig up the new shoots along with roots for transplanting or sharing with others.
- Best time to divide is when the plant is not in bloom.

Resources

Flora of Virginia Digital Atlas- <https://vaplantatlas.org/>

Plant Virginia Natives- <https://www.plantvirginianatives.org/>

Virginia Department of Conservation and Recreation- Natural Heritage Program
<https://www.dcr.virginia.gov/natural-heritage/nativeplants>

Virginia Cooperative Extension website: <https://ext.vt.edu/>

University of Minnesota Bee Lab. <https://beelab.umn.edu/>

Plant NOVA Natives, <https://www.plantnovanatives.org/>

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