ESVMG
Gardening on the Shore
Fall, 2022

President's Message

Autumn is my favorite time of year. Our family tradition is to head to an orchard for apple picking and indulge in fresh cider and cider doughnuts. The weather is delightful, and I think of this season as harvest time - when you reap what you sow. Nature is showing us its beautiful colors after working so hard the past summer.

Autumn is also an ideal time to plant trees. When you peruse the stock available, whether from a big box or local nursery, keep a few things in mind. It is easy to fall in love with a tree that looks wonderful. However, if it is not recommended for your location, you may be disappointed and out some money when it doesn't live up to your expectations. Be mindful of the optimum growing conditions as well as the mature size. Check the tree out to assure it is healthy and has a strong leader. Signs of concern would be the presence or telltale signs of unwanted disease or bugs.

Fall is also the time to put our gardens to bed for the winter. Remove dead branches but remember that plants that have died back need not be removed until spring. They will be a source of food for birds. Many of our native insects would be delighted to find protection from the winter elements in the stems of those plants.

Congratulations to our 5 newest members to achieve Master Gardener status. Six more interns are very close to their 50 hours, and I am confident that we will be celebrating their milestone soon.

See you at the Garden Symposium!

Joyce Falkinburg

IN THIS ISSUE

Feature Article

ALL ABOUT LEAVES

by Jane McKinley, ESVMG EMG

The fall is a time when we look upward to enjoy the kaleidoscope of color that deciduous trees present as they begin their move toward winter dormancy. As Master Gardeners, the fall display may also remind us of the lessons learned when we were trainees and pique our interest in refreshing this knowledge and learning more. This article will focus on the leaves of deciduous trees, looking at the role of leaves, gaining some pointers on identifying trees through their leaf shapes, examining the architecture of a leaf, and, of course, learning more about the annual color display.

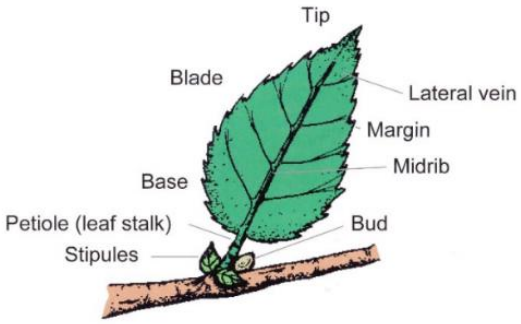
The Function of Leaves

Leaves serve many purposes, all critical to the health of the plant. They move water and nutrients up from the roots through evapotranspiration. They regulate moisture, gas exchange and temperature through small openings on the leaf, known as stomata. They have many horticultural uses including providing shade, creating mulch & compost, providing wildlife habitat, reducing wind, noise & dust, and slowing down the rate of rainfall to minimize runoff. One of the most critical functions of leaves is the manufacture of sugars and starches through the process of photosynthesis.

During the growing season, leaves serve as little food-making factories. Most of the foods necessary for the plant's growth are produced in the leaf, taking place in numerous leaf cells which contain chlorophyll. This extraordinary chemical absorbs energy from sunlight and uses it to transform carbon dioxide and water into carbohydrates – sugars and starches- which nourish the plant.

Characteristics of the Leaf

Leaves are characterized, among many aspects, through the blade, stalk, and stipules. The blade is the flattened part of the leaf, identified by its shape, veins, and midribs. The stalk, called the petiole, connects the leaf blade to the branch. And the stipules are leaf-like appendages at the base of the leaf.



There are two main types of leaves found on trees: simple and compound. **Simple leaves** can be lobed or unlobed. Lobes are projections of the blade with gaps between them that do not reach the middle vein. Sycamore and maple leaves, with their distinct pointed projections, are good examples of simple lobed leaves. Unlobed simple leaves have plain, rounded shapes without any projections. A magnolia leaf is a good example of a simple unlobed leaf.

Sycamore leaves are simple lobed.

Compound leaves have several leaflets arising from the same petiole. Palmately compound leaflets, such as those of buckeye, radiate from one central point, whereas pinnately compound leaflets, such as those of pecan and ash trees, are arranged on both sides of a common leaf stalk.

Pecan leaves are pinnately compound.

Buckeye leaves are palmately compound.

Leaves also come in many shapes, the most common of which are elliptical, oval, truncate, linear, lancolate, and heart-shaped. The following are examples of each type:

An **elliptical** shape is a "flattened oval" such as that of a Swamp Chestnut Oak.

American Beech has **oval** leaves which are egg-shaped, wider at the bottom.

Poplar leaf is **truncate** where the base of the leaf is wide and perpendicular to the petiole.

A **linear** leaf is long and slender. A willow tree has linear leaves.

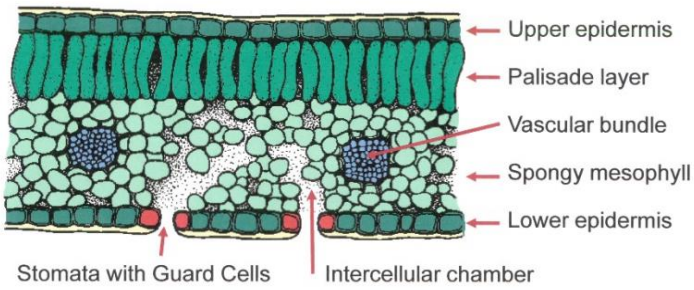
A **lancolate** leaf shape tapers to a point like that of a black cherry.

A redbud has a **heart-shaped** leaf.

The shape of the leaf base, tips and margins are also ways to characterize leaves. More information on this topic is available in the *Manual of Woody Landscape Plants* by Michael Dirr.

Architecture of the Leaf Blade

The leaf blade is composed of several layers, the most important of which is the tough, outer layer of tissues called the **epidermis**. The epidermis protects the leaf from pests and too much UV light, limits and facilitates water loss, and transmits sunlight for photosynthesis. The epidermis is like human skin in that it looks solid but actually contains many pores. These pores, primarily located in the lower epidermis, are called stomata (singular, stoma) and are natural openings which allow for the exchange of carbon dioxide and oxygen, for plant cooling, and for the release of excess water. Like a straw, the roots at the bottom pull water up and into the plant, and the leaf stomata let the water out at the upper end. There is a constant flow of water going up and out of the plant.



Opening and closing action of the stomata is regulated by guard cells. At night, when a plant is not photosynthesizing, they tend to close up. In the day, when a plant is photosynthesizing and needs more carbon dioxide, the stomata open up.

Interesting Factoid

When foliar fertilizers are sprayed on leaves, for the most part, the tough epidermis keeps them from getting inside the leaves. That's why Robert Plavis (see Sources below) advises that foliar feeding, the practice of fertilizing plants on their leaves rather than applying fertilizer to the soil, isn't an effective way to fertilize plants. He says, "The problem is the amount of nutrients that get in through leaves is very tiny compared to what a plant can absorb through roots." For a micronutrient deficiency, such as a plant with not enough zinc, foliar feedings can yield results within hours. However, macronutrients — nitrogen, phosphorus, potassium — are needed in such large quantities that "you'll never be able to get it through the leaves," Plavis says.

Leaf Color

The green color of most leaves is caused by chlorophyll, one of several pigments that gather energy from sunlight in the process of photosynthesis. Chlorophyll absorbs both the blue and the red wavelengths from sunlight and reflects most of the green wavelengths. Carotenoid compounds which produce yellow and orange color play a minor role in photosynthesis and, although always present, are masked by the greater amounts of chlorophyll during the growing season.

Yellow Beech leaf

Every year we enjoy the colorful display of autumn leaves with their mixture of orange, yellow, red, and purple. As days shorten and temperatures get cooler chlorophyll begins to break down faster than it is produced, allowing the yellow and orange carotenoid compound pigments to become visible. At the same time as chlorophyll declines other chemical changes occur that result in the reds and purples. These colors are caused by anthocyanins, the intensity of which are affected by the pH of the cell sap in the leaves. With an acid pH such as those found in dogwoods and sumacs, anthocyanins are often red; with a more alkaline pH they turn purple-to-blue as with the sweetgum.

Red-Purple
Sweetgum leaf

Temperature, light, and water supply have an influence on the degree and the duration of fall color. Low temperatures above freezing will favor anthocyanin formation; however, early frost will weaken the brilliant red color. Rainy and/or overcast days tend to increase the intensity of fall colors. The best time to enjoy the autumn color would be on a clear, dry, and cool (not freezing) day.

As the fall colors appear, leaves are preparing to be shed. At the point where the stem of the leaf is attached to the tree, a special layer of cells develops and gradually severs the tissues that support the leaf. At the same time, the tree seals the cut, so that when the leaf is finally blown off by the wind or falls from its own weight, it leaves behind a leaf scar.

In many forests, oak trees don't add much to the collage of fall colors. They often just turn brown, thanks to a group of compounds called tannins. Tannins are revealed when both chlorophyll and carotenoids break down in the leaves. And, unlike most other deciduous trees, the dead leaves of oaks usually stay on the tree until growth starts again after the winter. So, there is more leaf clean up to look forward to in the spring!

Speaking of leaf clean up, it is good to follow the advice of numerous research reports which study how leaf mulching affects the performance of turf grass. In almost every instance, the results show that chopping up deciduous leaves as part of a regular mowing schedule is an effective means of managing these leaves without harming the turf. And, of course, raking and applying fallen leaves to garden beds as a natural source of mulch is an excellent practice.

Please avoid this practice of disposing of a valuable natural resource!

Sources:

"Plant Science for Gardeners, Part II," The Joe Gardener Show with Robert Plavis, author of *Garden Myths*
"When and Why Leaves Change Color," Minnesota Department of Natural Resources
"Why Leaves Change Color," SUNY College of Environmental Science and Forestry
"Plant Structures: Leaves," Colorado State University Extension
"Simple Leaves: Lobed and Unlobed" and "Identify a Tree Using Leaf Shape," Treehugger.com

Interesting Factoid

Biologists at the University of Cincinnati say that nighttime light pollution can interfere with the remarkable navigational abilities of monarch butterflies. Researchers found that butterflies roosting at night near artificial illumination such as a porch or streetlight can become disoriented the next day because the light interferes with their circadian rhythms.

A bunny visits Ker Place garden.

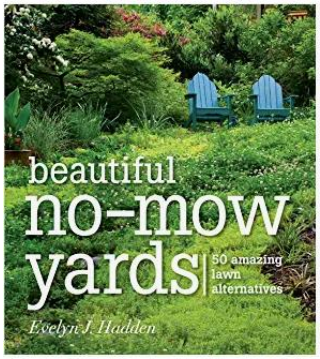
Articles of Interest

A MASTER GARDENER BOOKSHELF

Any time is the right time to settle in with a good book. And as the cold months of winter will soon be here, there is no time like the present to stock up on some good reading material. Gardening books are always at the top of my list, and I'm sure that other Master Gardeners share my interest in learning something new and renewing past knowledge. An extra bonus is that if the book being read is listed in "Reference and Reading Recommendations for a Master Gardener Bookshelf," we can earn up to three hours of continuing education credit.

This is the first in a series of reviews on books from the approved list. The books reviewed in this issue of "Gardening on the Shore" are available through the Eastern Shore Public Library.

Beautiful No-Mow Yards, Evelyn J. Hadden

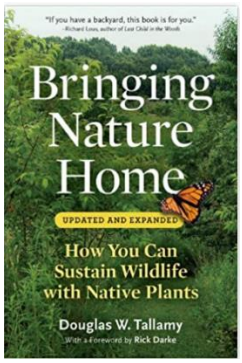


This book, published in 2012, uses the approach adopted by the Lawn Reform Coalition to grow plants that connect with nature and create spaces to "gather, play, and calm [the gardener's] overworked nerves." This book acknowledges the fact that the traditional concept of the Great American Lawn results in much environmental damage in the form of pesticides, wasted water, and fertilizers, and provides a range of alternatives.

Part One of this book provides design inspiration with a description of the many possibilities available to the homeowner to replace their labor intensive turf grass with "living carpets" of plants that require very little maintenance and green up earlier than the traditional lawn. Hadden provides inspiration by writing about shade gardens, rain gardens, play areas, and xeric gardens. For those who want to keep some of the look of a lawn, she presents the concept of "smarter lawns" which is one reduced to a manageable space and includes plants such as red clover, trefoil, violets, dock and other broadleaf plants to "free it up."

In subsequent parts, Hadden provides a game plan for how to convert your existing lawn to no-mow and how to design an eco-friendly garden. She finishes up the book with a list of ground-layer plants presented in groups according to their growth habit, maintenance requirements, and companion plants that play well together.

Bringing Nature Home, Douglas W. Tallamy



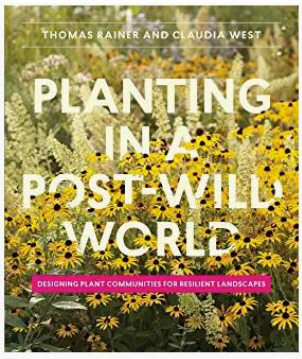
ESVMG is extremely lucky to have snagged Doug Tallamy for our upcoming Garden Symposium on Oct. 22. This book is his flagship work, updated and expanded in 2009, and is true to its mission to teach the reader how to sustain wildlife with native plants. This book is a call to action to restore natives into the suburbs and defines a new role for the suburban gardener. He highlights the value of planting a diverse pallet of native plants and describes why insects cannot gain sustenance from "alien" plants.

Tallamy rejects the notion that landscaping with natives is inherently messier or less beautiful than landscaping with "aliens." He gives advice on how a homeowner can successfully plant more natives on their property while, at the same time, not alarming the neighbors. In the chapter on "What Should I Plant," Tallamy identifies those plants, such as oaks, willows, and cherries, that offer the greatest value to wildlife. This chapter identifies the trees (woody plants) which provide the greatest support to Lepidoptera species (butterflies & moths) and describes each, in detail, including its landscape value and benefit to other types of wildlife such as songbirds, small mammals, and other insects.

The final chapter addresses some of the most common questions that Tallamy has encountered when giving his talks. These questions range from "Why can't we just let nature take its own course?" to "What's wrong with leaving vines on trees?" to "If an alien plant has been in this country long enough, doesn't it become a native?"

Not only is this book a good read, but it is also a great reference. I have referred to my copy multiple times and keep it handy on the bookshelf. And, by the way, Tallamy has published a new book, "Nature's Best Hope," which will surely be added to the MG approved list and, along with this one, will be available for purchase at the Garden Symposium.

Planting in a Post-Wild World, Tomas Rainer and Claudia West



In my studies of native gardening, I had seen *Planting in a Post-Wild World* referred to time and time again. And now that I have purchased and devoured this book, I see why. It is a jewel!

Published in 2015, this book has become the go-to for how to structure our landscape to be full of life and biodiversity while, at the same time, creating intentional landscapes that thrill the eye. With the understanding that we "hunger for an authentic connection with the landscape that engages our senses and fills us with wonder," the authors set out to guide the reader through a methodical analysis of

one's own unique space and present ideas for designing plant communities that will thrive there.

The authors discuss the role of native species and, although asserting that "a plant community may be composed of all exotic species and still engage in ecological processes similar to a naturally occurring community," they acknowledge the many advantages offered by natives including a "sense of authenticity." They encourage the reader to view plantings, not as individual plants placed in the garden, but as a community of compatible species that interact with each other and doing just fine on their own with little, if any, human intervention. They see stress as an asset, helping the gardener to find those plants that grow best within the constraints of the site. They support the principle of matrix planting where every available space within the landscape is covered with plants (very much like Mother Nature does it herself) grouped within functional and design layers.

Taking their inspiration from the wild, the authors describe in depth four different landscape archetypes: grasslands, woodlands and shrublands, forests, and edges. Personally, I think the landscape in my urban yard is "edges." I wonder what your is.

Chapters on the design process and creating and managing a plant community provide tools and concepts for the gardener to intentionally create a landscape that is robust, ecologically intentional, and beautiful. The book offers plenty of pictures to illustrate the principles discussed and recommends plants to use under different conditions.

Gardeners' Tips

FALL 'TO DO' LIST

As Master Gardeners we are joyfully familiar with the many, many tasks on our 'To Do' list for fall. In this section, we will take a little different twist on this list by providing guidelines for overwintering plants inside. For more in-depth information, go to the Farmer's Almanac which was the source for this article.

- Tropical and annual plants should be brought indoors before nighttime temperatures get below 45°F. To act well in advance of any actual frost events, you should, actually, begin bringing them inside as fall advances and nighttime temperatures approach a low of 50°F.

- The atmosphere inside can be dry. To ensure that your plants do well in this environment, an easy long-term method to increase the indoor humidity is the use of a pebble tray under your plants with a reservoir of water. This works much better than misting, a temporary solution that must be repeated often to obtain the benefits.
- If you cannot provide an adequate indoor environment for all of your plants, you may need to make some selective choices. The ones most precious to you, the most expensive to replace, and the healthiest should be on the top of the list of keepers.
- Keep in mind that even a south facing window has only the winter light intensity of an outdoor shady area in the summer. This is especially important to remember when it's time to move them back outside in the spring – avoid placing them in direct sunlight until they have been carefully hardened off.
- For bulbs requiring winter dormancy such as caladiums, calla lilies, and cannas, if in pots, stop watering them and tuck away in a cool, dark spot. For those in the ground, dig them up, cut back the foliage, allow to air dry, and pack loosely in cardboard or newspaper. Pot them up in the spring about a month before bringing them outside. Although elephant ears are bulbs in the ground, it has been my experience that they can remain in the ground over the winter.
- For those tender annuals and tropicals, begin to acclimate them to indoor lighting by moving them initially into a shady outdoor space. Once inside, try to locate them in a south facing window or place under plant lights on a timer for 16 hours a day. They can be pruned back before bringing inside. Don't be worried about leaf drop as they are adjusting to their new interior environment.
- To avoid bringing in pests, vigorously rinse the leaves down with a spray of water and check the pots all over for any unwanted insects or animals. Once inside, if you see indications of an infestation treat it with an insecticidal soap. One recipe is to mix 1 tsp. of non-detergent soap with water in a 1 qt spray bottle.

Geraniums may bloom all winter, but if you don't have a sunny place you can let them go dormant. Cut them back by half, put a bag over the top, and water sparingly if they begin to shrivel. They can even be hung bare-rooted in a dark, cool place, and misted occasionally. Soak roots in the spring to rehydrate before potting.

EXCERPT FROM VA MASTER GARDENER HANDBOOK

One of the major differences between plants and animals is the ability of plants to internally manufacture their own food. To produce food for itself, a plant requires energy from sunlight, carbon dioxide from the air, and water from the soil. If any of these ingredients is lacking, photosynthesis, or food production, will stop. If any factor is removed for a long period of time, the plant will die. Photosynthesis literally means "to put together with light."

Carbon dioxide + water → sugar + oxygen

$6CO_2$ + $6H_2O$ $C_6H_{12}O_6$ + $6O_2$

Plants first store the energy from light in simple sugars, such as glucose. This food may be converted back to water and carbon dioxide, releasing the stored energy through the process called respiration. This energy is required for all living processes and growth. Simple sugars are also converted to other sugars and starches (carbohydrates) which may be transported to the stems and roots for use or storage or may be used as building blocks for more complex structures, e.g., oils, pigments, proteins, cell walls.

Any green plant tissue is capable of photosynthesis. Chloroplasts in these cells contain the green pigment chlorophyll which traps the light energy. However, leaves are generally the site of most food production due to their special structure. The internal tissue (mesophyll) contains cells with abundant chloroplasts in an arrangement that allows easy movement of water and air. The protective upper and lower epidermis (skin) layers of the leaf include many stomata that regulate movement of the gasses involved in photosynthesis into and out of the leaf.

Photosynthesis is dependent on the availability of **light**. Generally speaking, as sunlight increases in intensity, photosynthesis increases. This results in greater food production. … **Water** plays an important role in photosynthesis in several ways. First, it maintains a plant's turgor, the firmness or fullness of plant tissue … Second, water is split into hydrogen and oxygen by the energy of the sun that has been absorbed by the chlorophyll in the plant leaves. The oxygen is released into the atmosphere, and the hydrogen is used in manufacturing carbohydrates. Third, water dissolves minerals from the soil and transports them up from the roots and throughout the plant where they serve as raw materials in the growth of new plant tissues … Photosynthesis also requires **carbon dioxide** which enters the plant through the stomata. Carbon and oxygen are used in the manufacturing of carbohydrates.

Although not a direct component in photosynthesis, temperature is an important factor. Photosynthesis occurs at its highest rate in the temperature range 65 to 85°F and decreases when temperatures are above or below this range.

Chapter 2, Physiology: Plant Growth & Development
Photosynthesis

KNOW YOUR NATIVES

As interest in native plants and how to incorporate them into one's landscape grows, with each issue, this series introduces the reader to a select variety of native plant. The plant featured will be at its most attractive during the current season. In autumn, the bright red blooms of Cardinal Flower take center stage in a moist garden setting.

High-tide Bush, *Baccharis halimifolia*

Also known as Groundsel Tree, this native shrub puts on quite a show in the fall. A 6-12' deciduous shrub with gray-green oval leaves, this plant produces numerous branches from short trunks densely covered with branchlets. It is commonly found in salt marshes, sandy locations, and wet disturbed sites near roads and fields. Silvery plume-like seeds resembling silvery paintbrushes appear in the fall on female plants.

Plant in full sun to partial shade in wet to dry, sandy or loam soils. Heat, drought, waterlogged soil, and salt spray are all tolerated. It is one of the few eastern shrubs suitable for planting near the ocean. It is best planted on the edge of a natural area and can become weedy if seedlings are left unattended.

Pollinators and insects are attracted to its nectar, it provides cover, and its seeds are enjoyed by songbirds.

PHOTO ESSAY: *KOSTELETZKYA PENTACARPOS*

by Al Curry, ESVMG EMG

Al propagated Kosteletzkya pentacarpos, Sea Shore Mallow, from seed and kept a photo journal of its development over the past year. In this photo essay, Al provides a description of the plant and pictures showing its development from seedling to mature, blooming plant.

My introduction to Sea Shore Mallow occurred decades ago as *K. virginica*. An opportunity to obtain seed was discovered in an article by Mary Reid Barrow (Pilotonline) describing Lillie Gilbert's enjoyment of this interesting plant. Both are active in the conservation organization Lynnhaven River Now (www.lynnhavenrivernow.org).

Kosteletzkya is a genus within the mallow family (Malvaceae) and identified as a native to the Virginia Eastern Shore in the Flora of Virginia (2012). This plant is a herbaceous perennial that

grows from a tough crown of roots, reaching up to 3 ft. tall. Its grey-green leaves are 3-6” long, half as wide, and more or less angular with spreading basal lobes. Five pale to deep pink (occasionally white) spreading separate petals are up to 1.5” long. Flowers are followed by hairy brown fruit which consists of a flat ring of 5 capsules, each containing a seed.

It grows in salt, brackish, and almost fresh marshes on the outer coastal plain. Plant in rich moist soil in full sun. This plant will thrive in ordinary garden conditions as long as the soil is not too dry.

Early April

Close up of sprouting seeds. Recycled household containers sunk in ground in late fall and over wintered outside. The soilless mix is half Miracle Grow potting mix, half Lowe’s inhouse tree and shrub mix.

May

Seedlings transplanted. True leaves apparent.

June, Early Leaf

Card with orange tape, 1 inch between lines beginning at the bottom. Total height 3 1⁄2 inch.

Low left, false nettle, *Boehmeria cylindrica.*

August, Flower Buds, Leaf

Five petals, conspicuous stamens form tube around pistol. Leaves on left triangular, on right better view of basal lobes

September

Location: bright shade (3 hours sun +/-), wave of Japanese stilt grass in back.

Winter

Looking down on bare stalks, plant disappears in winter.

What We've Been Up To

NEW WATER FEATURE INSTALLED AT KIPTOPEKE

by Jennifer Alley, ESVMG EMG

It all began in the Fall of 2021, as the ESVMG volunteers sat around the pergola at the Kiptopeke State Park Demonstration Garden. On their customary muffin break, Paula Valentine brought up the subject of installing a 'water feature' down on the banks of Taylor Pond near the Jack Humphrey's tree and memorial plaque. The idea appealed to the crew. After receiving approval from the Park Manager, Sean Dixon, research into 'pond forms' began. We settled on a 100 gallon "Madeira 100-gallon pre-formed pond liner" at a cost of $150, just about the balance remaining in their account. *Perfect!* The pond form arrived at Home Depot in Hampton on December 31, 2021, and thus began the venture into the world of small, non-aerated ponds and aquatic plants!

The pictures below capture the experience, from installation to glorious blooms and wildlife.

The form has arrived.

Paula is happy with the installation of the form.

Paula's husband & grandson level the form once it's in place.

David Boyd & Paul Tiffany spreading mulch on sandy soil.



The final project provides an oasis for plants and wildlife such as the water lilies, iris, bees, and a leopard frog.

CHINCOTEAGUE REFUGE GARDEN GROWS

by Ray Schaney, ESVMG EMG

Following Covid-19 shutdown, the Fish and Wildlife Service (FWS) permitted Master Gardeners to reenter the garden in June 2021. A strong core of EMG volunteers was established by the fall.

The Songbird Garden was used to reference all gardens cared for by the Master Gardeners around the Visitors Center (VC) since inception in 2010. However, with all the work needed to reestablish the gardens after Covid, it became necessary to highlight plants in various parts of the garden. Collectively, it is now called the Chincoteague Refuge Garden at the Visitors Center consisting of four distinct gardens: Songbird, Rain, Pollinator, and Wildflower Meadow. This is helpful when educating visitors with specific areas of interest.

Collectively, it is now called the Chincoteague Refuge Garden at the Visitors Center consisting of four distinct gardens: Songbird, Rain, Pollinator, and Wildflower Meadow.

Much work was necessary to reestablish the gardens. A watering system for the Wildflower Meadow and Pollinator Garden was added with the purchase of sprinklers, timers, and hose in May 2022. It is still time intensive, but we are happy with the outcome. Next year it will be permanent and less work. Pathways through the gardens were identified and pavers added in the Rain and Pollinator gardens. The pathway leading to the gardens from the VC and the parking lot were rebuilt with pea gravel and weed barrier. The Garden was expanded by cutting phragmites along the east side of the Pollinator Garden and south side of the Wildflower Meadow. We also received a grant from the Eastern Shore Soil and Water Conservation District to reestablish plants.

Thanks to the skills of Melanie Beal, EMG, we now have video presentations that display on the monitors inside the Chincoteague VC. The presentations show the gardens at various times of the year and provide subtitles identifying plants. Ron Grainger, Refuge volunteer and artist, added a Butterfly to the Pollinator Garden
and Christina Murry, EMG, designed and created a Dragonfly for the Rain Garden. Paul Sears kindly stepped forward and agreed to play a major role to maintain and "grow" the gardens over the summer. Thank you, everyone!

Throughout the project manpower, support, and material was supplied by the Fish and Wildlife Service. We are very grateful for the support and daily input of our director, Park Ranger Laurel Wilkerson, who keeps us focused on the mission of the FWS. She takes an active ongoing part in brainstorming, weeding, watering, planting, and getting our message out to a 1 million plus refuge visitors every year.

MG trainees visited the Refuge Gardens this past April for an introductory presentation by Laurel on its history, followed by hands-on experience in the gardens. Multiple articles have been published on garden upgrades and outreach in the FWS's Quarterly Newsletter, "Refuge Highlights."

Plans for the coming months include expansion of educational components for visitors, (inside and outside the VC) and continued efforts to maintain and grow the gardens. Our goal for our visitors over the next 2-3 years is education with a take home message: Chincoteague National Wildlife Refuge Gardens - A Destination.

Paul Sears & Laural Wilkerson, FWS, installing the Dragonfly in the Rain Garden

Melanie Beal and Cindy Shogun suited up for a work day in the gardens. Mosquitos can be quite intimidating.

Rebuilding the path around the gardens from the parking lot to the Visitors Center. Lots of help from Chincoteague Fish and Wildlife was much appreciated.

Freshening up the Bug Hotel in the Rain Garden with 2022 MG students.

Destination: Chincoteague National Wildlife Refuge **Rain Garden**.

Destination: Chincoteague National Wildlife Refuge **Pollinator Garden**.

CSB GARDEN HAS A GREAT YEAR

By Robin Swert, ESVMG, EMG

The CSB Garden had a great 2022 growing season! First and foremost, I would like to thank the wonderful, warm, and hardworking volunteers. The number of volunteers takes the stress away from everyone; no obligation to come every week or even every month for that matter.

Summer was ridiculously hot and dry, wreaking havoc on our yields, particularly the peas and cucumbers. As of early September, we have harvested 233 pounds of vegetables. Since we recently planted a Fall garden, hopes are high that we can get closer to the 300 mark by the end of the year.

We have also added hostas, swamp milkweed, rose bushes, Mexican sunflowers, bee balm, hydrangea, black raspberries, blackberry, and fennel. The forsythia had a major pruning and looks ever so much better and the pear trees actually blossomed and had little pears for the first time. Unfortunately, we didn't get mature pears, but they were headed in the right direction!

The heat was so intense, the clients did not meet with us for many weeks, so we met earlier during that period to keep everyone out of the swelter. The clients came back in early September and helped with the Fall garden. We are planning to schedule a work day in October that everyone will be invited to and serve coffee and some light fare.

Larry Breech working with CSB clients.

Watering our Fall Garden plants which include lettuce, broccoli, cauliflower & cabbage.

NEW ROOTS YOUTH GARDEN UPDATE

By Phil Goetkin, ESVMG, EMG

When New Roots Youth Garden was first established in 2011, it consisted of 3 raised vegetable beds and a pollinator garden. Over the past 10 years we have added 11 more raised beds, a three sisters garden, a pumpkin patch, a berry patch, an asparagus patch, 5 additional raised beds for handicapped individuals, a potato patch and a weather station. Now in its 12th season, the garden is still flourishing and continues to evolve.

For much of the past two and a half years, COVID prevented children from entering the garden. During that time many children aged out of the program; others have either moved or simply lost contact with the program. In addition, demographic changes have been occurring in Cape Charles over the last several years. Although there are plenty of kids in town, especially in the summer, many of them are just visitors or part time residents. To deal with these issues, we have adopted a new strategy for the garden. We now have established partnerships with Kiptopeke Elementary School, the Cape Charles Christian School and the local home-schooled children. Each week during this past spring, we brought in the Second Grade from Kiptopeke Elementary and the First Grade from the Christian School.

This summer while schools were out, we held our traditional weekly Open Garden Club Sessions, which were open to any child. The Garden Club met each Thursday from 5:00 – 6:30 pm. We had great participation this summer from children, their parents (grandparents) and volunteers. We were successful in reaching children who were in Cape Charles only temporarily. The Summer Garden Club started on June 30 and ended on August 29.

This fall we will be continuing our partnership with Cape Charles Christian School and Kiptopeke Elementary School. Both schools will be sending one of their classes to the garden each week. We are also now working with the Cub Scouts to begin to involve them in the garden.

In the future, we hope to add a greenhouse, convert our puppet stage into a drying shed and renovate the storage shed.

New Roots Youth Garden is a wonderful concept that has been established and maintained through a true community effort. New Roots has been a successful program through the combined efforts of the Town of Cape Charles, the Master Gardeners, the Rotary Club, the United Way and many, many other volunteers. Whenever a need has arisen, the community has responded. New Roots is always looking for new volunteers to maintain our operation and to provide new insights and fresh ideas. I invite anyone who has not already volunteered at the garden to do so.

The New Roots Board is excited, energized and motivated to build on our past and keep the garden moving forward. I encourage all of you to stop by anytime to see what is going on in the garden.

RECOGNITION OF NEW MASTER GARDENERS AND MILESTONE RECIPIENTS

Congratulations to the following Interns who have now met the qualifications to become Extension Master Gardeners:

- Melanie Beal
- Al Curry
- Candy Perdue
- Joni White
- Libby Wright

The following Master Gardeners earned certificates for reaching hour milestones:

250 Hours:

- David Boyd
- Julie Cardinale
- Susanne Grizzard
- Lisa Gurney
- Mary Klein
- Victor Klein
- Ray Schaney
- Lynn Wajda

500 Hours:

- Joyce Falkinburg
- Jocelyn Grover

1,000 Hours:

- John McCormick

2,000 Hours:

- Phil Goetkin

HELP NEEDED

- The election for President will be held in November. Cindy Ray volunteered to be Treasurer for another year (thank you, Cindy!). We need members for the Nomination Committee and Candidates. Please consider getting involved.
- Volunteers needed to help with Holiday Luncheon, contact Julie Cardinale to offer your services.

UPCOMING 2022 EVENTS

Sept 20, time TBD	Farm Tour Day; ESVMG doing a composting demo
Oct 4, 9:30 – noon	General Membership Meeting, AREC, Speaker: Russell Vreeland, "Bees & Their Role as Pollinators" and Risk Management training
	Note: Symposium committee meeting immediately following
Oct 8, 10:00-2:00	AG Fair, Machipongo
Oct 22, noon – 4:00	ESVMG Garden Symposium
Dec 6, 11:00 – 1:00	Annual Meeting & Holiday Luncheon, Island House

2021-22 ESVMG BOARD MEMBERS

President – Joyce Falkinburg
Past President – Phil Goetkin
Vice-President – Jocelyn Grover
Secretary – Nancy Arnold
Treasurer – Cindy Ray
Member at Large (Accomack) – Pauline Milbourne
Member at Large (Northampton) – Jennifer Alley

COMMITTEE CHAIRPERSONS

Membership Committee Chair – Brenda Fitzsimmons
Education Committee Chair – Christine Williams
Publicity Committee Chair – Julie Callahan
Hospitality Committee Chair – Julie Cardinale

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VISIT ESVMG WEBSITE

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