Trumpet Vine

Knowledge for the Community from Loudoun County Master Gardeners

Summer 2014

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LOUDOUN COUNTY MASTER GARDENER LECTURE SERIES

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July 10. Pollinator Meadow offsite at Banshee Reeks, 21085 Woods Rd. Leesburg, with Park Manager Ron Circé.

Aug. 7. *Reduce your garbage footprint: recycle, reuse, compost* with Debra Maes, Eco-Education Coordinator at Fairfax County Public Schools

Sept. 6. *Horticultural Therapy* with Helen Lake, Certified Horticultural Therapist

Oct. 2. *The Joy of Gardening* with Marianne Wilburn, newspaper columnist and blogger and Loco gardener

Nov. 6. *Holiday Floral Design* with Kim Wright, NVCC Loudoun Campus floral fesign instructor

For more information, please visit our web site at loudouncountymastergardeners.org

Visit us on Facebook: Master Gardeners of Loudoun County, Virginia.

Summer — Time to Play

We are wrapping up our second consecutive cool wet spring and everything is growing prolifically. With some luck all we'll have to do this summer is some weeding and we can enjoy the fruits of our labor. Pictured below is globe thistle and vegetables harvested from our Demonstration Garden last year.

In this summer issue we step off the beaten path to consider alternatives: heritage vegetables, a different way of gardening using straw bales, appreciating moss and clover, farmscaping and preventative pruning for perennials.

Visit us in the Demonstration Garden at Ida Lee Park, Leesburg, the first Saturday of each summer month for a presentation and garden tour 10 – 12pm: July 12, *Planning a Fall Vegetable Garden*; August 2, *Butterfly and Pollinator Gardening*; September 6, *Fall Flowers.*

And always remember we are here to assist you with all your gardening questions. The Grass Roots team will advise you on proper turf care that will help you fight water pollution and help clean up our watershed while maintaining a beautiful lawn. Master Gardeners are available at Saturday Plant Clinics (Leesburg Farmers Mkt., Sterling Lowe's and Purcellville So. States) as well as our Mon. – Fri. morning Help Desk. Contact us by phone or email (See the bottom of each page in this newsletter for contact information!)

Gardening Clinics

It seems that everywhere you look this season you can see those distinctive green shirts of the Loudoun County Master Gardeners! We are at our Demo Garden, the Lucketts Fair, the Leesburg Flower and Garden Festival, giving lectures, and maybe even at your neighborhood school. We are here to help educate the community in many different venues and in many different ways. One traditional venue is our outreach Gardening Clinics. We staff booths on the weekend where the cheerful Master Gardener volunteers help answer your gardening questions, whether about lawns, vegetables, trees, shrubs, pests, or flowers.

Mindy Page of Sterling discusses stinkhorn mushrooms with Master Gardener Beth Simms at the Lowes Garden Center.

Perhaps you would like to start a butterfly garden or a rain garden—we have information on those—or your squash is dying again this year and you would like to find a solution. We tote along several boxes of reference materials to help answer your questons. We also have soil test kits to hand out as well as information about how to become a Master Gardener.

Master Gardener volunteers assist with identifying insects or diseases that are eating away at your fine plant foliage. Unknown plant? Stink bug? Powdery mildew? Unidentified caterpillar? Bring it to us for identification. It's always easier to diagnose a problem or identify a plant or insect if we can see it, so please bring a fresh sample enclosed in a baggie. If you suspect a disease or insect problem, make the plant sample 12-18 inches in length, showing "the good, the bad, and the ugly" so we can see the progression – how the plant normally looks and how the diseased part looks. If you cannot bring a sample, a few photos would help: one of the overall plant and a few close-up shots of the infected area and/or insect. Please note we do not identify ticks, spiders or snakes.

We'll be glad to chat with you about anything pertaining to sustainable gardening. So the next time you're in Sterling, Leesburg or Purcellville on a Saturday morning, stop by one of our Gardening clinics:

- Lowes, 45430 Dulles Crossing Plz, Sterling, VA 20166, every Saturday from April through September, 8:00 – 12:00
- The Leesburg farmers market, Virginia Village Shopping Center on Catoctin Circle, SE, every Saturday from May through September, 8:00 – 12:00
- This April we initiated our newest location at the Purcellville Community Market in front of LoCo Joes Coffee, across from the Food Lion. The Purcellville Garden clinic is held every Saturday April through September, 9:00 – 1:00

If we cannot answer your question on site, we will pass it along to our expert Help Desk volunteers at our Leesburg office. They will research the problem and get back to you on Monday after the clinic.

Linda Ward, Master Gardener

Straw Bale Gardening

Most of us have practiced container gardening. Large pots, window boxes, urns and more have been a good alternative for gardeners with limited space or poor soil quality. There are several advantages to container gardening — the growing medium will not contain weed seeds, insects, soil borne diseases and there is adequate drainage. But…the cost can become prohibitive, especially if large quantities of growing medium are needed.

One alternative to traditional container gardening is to use a straw bale as the container and planting medium combined. First, you encourage the tightly packed straw to compost quickly to become the planting medium. This process is called 'conditioning' (the instructions come later). It is an essential part of Straw Bale Gardening (SBG). The result is that the composted straw has all the characteristics of a good growing medium without the cost.

The strings that hold the bale together help make the bale a container. The container is actually the outside 'crust' of the bale, the part that is exposed to sun and wind. It dries out quickly, thus decomposing more slowly. Preparing the bales for planting can be done quickly, in 12 days or less. In a regular growing season (early spring start), preparation should begin about a month before the last frost date.

There are a lot of advantages to SBG. You bypass all the soil problems such as the high cost of soil improvement — drainage, pest control, fertility, and particle structure — which can take years of conditioning. And the cost savings are significant. Straw bales are predictable, so they react in a similar way every year. That is key to successful planning of future gardens. If you move from one area to another with unfamiliar soil, all you need are new straw bales.

The agricultural use for straw is bedding for livestock, not forage. It is used to keep animals warm and dry. The stalks of straw are narrow and hollow. Physics come into action when water comes into contact with the stalks. The simple principle of capillary action causes water to climb inside the narrow tube and is trapped due to adhesion. This gives straw a great water holding capacity. But bales will only get wet to a certain extent. Excess water will run out of the bottom of the bale. If a traditional soil garden gets too wet and puddles form around veggie plants, they will suffer. Not with SBG.

Another advantage of growing in straw bales is the height of the growing surface. Having a working height of 20–24 inches can be an advantage for gardeners with any physical limitations. Also, the hard labor required every fall/spring to turn soil and prep beds is eliminated. Digging up root crops can be hard work, but planted in bales, they simply fall to the ground when the bale gets pushed over. Bales of straw are typically weed free, except for the few oat, wheat or barley sprouts. And spraying for insects can be eliminated or reduced. The physical height of the straw bale discourages pests and other problems.

The biggest advantages is that as the bales 'condition' or begin to compost, bacteria that are working to decompose the straw are generating heat. Planting seedlings or seeds into a warm bale gives them green house like conditions.

A straw bale can be placed anywhere that gets at least 6 to 8 hours of full sun and where water is accessible. It is best to run bales in a single file, going north to south. This provides the maximum amount of full sunlight. It also allows access from both sides and good air circulation. If doing multiple rows, keep them at least 3 feet apart, allowing for a wheelbarrow or lawnmower to fit through. This also prevents crop shading. You can also put down something in between rows such as mulch, landscape fabric, newspaper, cardboard, old carpet or straw. If you are growing something that trails, like cucumbers or squash, you don't want weeds growing up into the plants.

Take notice that straw has two distinct sides. One is the cut side and the ends look cut. The other side is the 'folded' side, and appears as such. The cut side should be positioned upward, to allow for easier penetration of fertilizer and water. Remember to keep the strings uncut on the sides of the bale. Compression inside the bale is essential for quick decomposition.

Planting a 6–7' tall steel fence post or stake at each end of the bale row will help hold the bale row together. You can string wire stretched tightly between the posts. That can be used as support for taller plants (some, like tomatoes, will need a cage or extra support) and clear plastic can be hung over the wire in a tent like greenhouse.

Conditioning the bale is a simple and essential part of the process. The length of time is determined by outside temperatures. The straw has to be allowed to compost from 10 to 12 days, as a seedling planted into raw straw will fight for nitrogen from the bacteria in the bale and may starve. For organic gardening, use 3 cups per bale, of a 5–10% nitrogen source, such as blood meal, feather meal or chicken manure. Sprinkle on the bales, end to end, side to side, and work in a bit. Then water completely until water comes out the bottom of the bale.

Nitrogen provides a food source for the bacteria that do the work of decomposing the straw. Make certain the nitrogen is not a slow release type. Avoid weed and feed combination fertilizers.

Continue watering on Day 2. On Day 3, add another 3 cups per bale of nitrogen source, and water in. Day 4 is a strictly water day. Day 5, more fertilizer. Day 6, water only.

In the MG Demonstration Garden, we have 6 bales lined up. Since we are not there every day, we used blood meal the first day, and then switched back and forth between blood meal and our organic granular fertilizer. We were ready to plant in 2 weeks.

After Day 6, the microbial activity should be starting and you can begin to feel heat if you put your fingers in the bale — you may also be able to smell the activity. For the next 3 days, add 1½ cups of fertilizer each day and water in. On Day 10, apply a cup of balanced garden fertilizer. The main focus is to get P&K (phosphorus & potassium) into the bale. You should begin to see earthworms in the bale, and that is good news. Mushrooms may sprout, which means the insides have begun to decompose nicely.

A layer of potting medium is used on top of the bales before planting seeds or seedlings. Never use soil from the garden. Always use potting mix — this keeps soil borne diseases, seeds and other pathogens away. Also never position bales right next to a building (too much heat) or on top of a wooden deck (holds moisture or could damage the wood).

Day 12 is planting day! If planting seedlings, take a trowel and stab into the bale and work it back and forth, making a hole big enough for the seedling. Add a bit of potting mix around the plant. For seeds, mound about 2" of potting mix (remember not to use garden soil) and tamp down with a board. Planting annual flowers in the sides of the bales adds an attractive touch.

Always read the seed packet for planting depths. Carrots and other plants from tiny seeds can be thinned later. You can use clear plastic seed tray covers over the seeds to hold in the heat and aid germination. Fasten the covers down with 'earth staples'. The covers also keep out hard rains that could wash away the planting mix.

The SBG growing environment is favorable to most any crop. Exceptions are sweet corn and perennials such as asparagus and rhubarb. Strawberries do well when treated as an annual. Also, annual flowers, flowers for cutting and bulbs work well.

Liquid fertilizer (we use fish/kelp in the DG) is recommended every 2 to 3 weeks throughout the season. Soaker hoses are an added bonus. Checking to see if a bale needs water is just like checking the soil. Insert a finger into the bale, and if it feels dry, it needs water. You can also watch the plants, or plant an indicator plant, such as an impatiens, in several bales. When they start to droop, you need to water.

There are usually fewer insect problems with a straw bale garden. The ground insects hit the bale and turn around. Flying insects are disoriented because the wind blows up and under the leaves and dries out any moisture and exposes the insects. They don't experience that in a 'regular' garden plant. That is not to say that insects won't find your plants. We've had 1 pepper plant disappear (critter?) and 1 pepper chewed up.

Our SBG was formed as a last minute inspiration, so we planted seedlings that MG's started and had no room for in their gardens. We have kale, mustard, 2 brassicas (which we have sacrificed as trap crops), peppers, an eggplant and some basil. Next year the bales will be included in our plan and we will have specific seeds and seedlings.

To review the advantages of straw bale gardening over conventional gardening, here are the most important points:

- No weeds — straw bales are sterile with very few seeds.
- No heavy work — the hardest part is carrying the bales to the backyard.
- Less critter problems — keep the SBG covered early in the season and at night to keep them away.

- Fewer disease problems — use a soaker hose, keep the leaves dry, and plant so that air can circulate.
- Fewer insect problems — wind flow helps, and insects seem disorientated.
- Less possibility of frost — using cover with the decomposing bales prevents early frost.
- Faster growth — due to heat from the bale.
- Predictable — use the same straw and conditioning recipe and the results are the same every year.
- Even if SBG is an addition to your regular garden, it is worth trying. It is exciting!!

Normalee Martin, Master Gardener, Demo Garden co-lead

Garden Corn, Tomato and Basil Salad

A fresh salad with ingredients from your garden or farmers' market.

6 ears of peak season fresh corn (4 c)

3 cups garden tomatoes (3 medium tomatoes)

½ cup fresh basil leaves

¼ small red onion

¼ cup extra virgin olive oil

½ cup red wine or cider vinegar

Salt and fresh ground pepper to taste

1. Shuck and rinse corn. Cook in boiling water no more than 4 minutes. Submerge in ice water to chill. Cut kernels from cob about 2/3 the depth of the kernels.
2. Rinse garden tomatoes and cut into bite-sized pieces. If using cherry tomatoes, cut in half.
3. Rinse basil, pick leaves from stem. Stack several leaves. Roll into a tube shape and cut into ¼ inch strips.
4. Peel and rinse onion, Cut into wedges 1/8 inch thick.
5. In large mixing bowl combine corn, tomatoes, basil, onion, oil and vinegar. Add salt and ground pepper to taste. Chill one hour and serve.

This recipe was provided by the Virginia Cooperative Extension, Family and Consumer Sciences Food, Nutrition & Health, Fairfax County.

Heritage Vegetables of Virginia

As with people, the preservation of heritage vegetables involves many of the same challenges families face in order to preserve their lineage through the years. Consider some of these similarities; adaptation to changing environments, constant nurturing of the present generation and continual protection in order to ensure a new generation. In the Master Gardeners' Demo Garden at Ida Lee, the Heritage garden this year is showcasing popular heritage varieties with a Virginia history either because they were discovered here or are transplants from elsewhere, but have withstood the test of our climate through the centuries. Below are some of these varieties which might suit your garden in future seasons.

Cool season vegetables started off this spring season in April and have now concluded their run for this year, but do keep in mind for your garden come next spring.

White Icicle Radish

- *White Icicle* radishes are a pre-1865 type. They grow in a cylindrical shape and have white flesh. They are quick to mature and can take the occasional spring heat wave without growing pithy (woody) or bitter.
- *Green Deer Tongue (Matchless)* lettuce dates back to the 1700's and is an upright loose-leaf type with a crisp, nutty flavor. It also resists the occasional hot spell without going bitter and is considered the standard for heritage varieties.
- *Black Seeded-Simpson* lettuce dates back to 1840 and produces large, frilly leaves. It is one of the most resilient lettuces and usually goes through spring, summer and fall without bitterness. It is the best lettuce for hot and dry conditions.

The summer heritage vegetables are just getting started and we will be anxious to assess their characteristics over the next couple of months.

- *Old Virginia* tomato has been grown in VA for over 50 years. The fruit is deeply lobed and the old fashioned taste of sweet-tart reminds many of childhood tomatoes. It thrives in hot conditions and resists cracking more than most.
- *Early Hanover* melon was introduced in 1895 by T.W. Wood and Sons in Richmond, VA. This melon is medium-sized and wastes nothing because the flesh can be eaten down to the rind. It withstands all weather types making it perfect for a hot, humid summer in Virginia.
- *Yellow Crookneck* squash has been grown for over 150 years. The tender skin and firm flesh display the "warts" typical of this old variety. Although not an early starter they do produce over a long period of time. Pick at no more than 6 inches.

Early Hanover Melon

- *Whippoorwill* southern peas (cowpeas) were once considered the standard for this category. Grown by Jefferson at Monticello, these can be eaten green or dried for making soup later in the year. Although many think of them as a bean, they are in the pea family. They perform well in any soil type, especially poor soils, and require hot temperatures for maximum production.

- *Henderson's* bush lima bean was originally discovered alongside a road in Lynchburg in 1883 and later was sold to Peter Henderson & Co in 1888. Back then it was proclaimed to be "a vegetable wonder" in seed catalogs. It has many of the attributes many look for in any summer vegetable; disease resistant, very early, productive and great performance under any weather condition.

Henderson's Bush Lima Bean

- *Potomac* pole bean was introduced by Southern Exposure Seed Exchange in 1990. However, this bean was grown on the Potomac side of Virginia before 1860 and then carried west by the Barley family to California after the civil war. They continued to grow it there for decades. Qualities include the ability to withstand very hot conditions as well as enormous production. While they can be eaten green, canning for later use brings out a rich, nutty flavor which does not require additional seasonings.

Please visit the Master Gardener's Demo Garden in person during the season to check out the success of our Virginia heritage vegetables. Or visit online: http://loudouncountymastergardeners.org/demonstration-garden/

Perhaps you will add one of these varieties to your list for next season.

Denise Palmer, Master Gardener

What's that Pepper?

This heirloom pepper is called "Fish" or the Baltimore fish pepper because traditionally it has been used to season fish and shellfish dishes. This plant dates from the 1800's and was grown almost exclusively by African American gardeners, chefs and truck farmers in the Richmond, Baltimore and Philadelphia area to supply crab, oyster and seafood restaurants in the mid-Atlantic area.

The plant is also known for the beautiful variegation of its leaves and fruits. The fruits mature from green, through orange, brown, then white to red with striped accents of green, yellow and cream when fully matured. Fish peppers produce prolifically. All this color makes it an ideal container plant on the deck or patio.

You can harvest and use the peppers at any stage. It is often harvested when it is white for use in French-style cream sauces and soups where they spice up the dish but remain invisible. But the flavor and heat are best when the fruit is mature—red. Fish peppers can be used raw in salsa, salads or vegetable trays or cooked as an ingredient in a recipe. They can be roasted, dried or pickled. (They will lose some of their heat from cooking.)

These peppers were regarded as a "secret ingredient" and their use was passed down by word of mouth. Consequently they fell off the culinary radar in the mid 1900's and became scarce. But in 1997 William Woys Weaver, the food historian, wrote about fish peppers in his book *Heirloom Vegetable Gardening* and offered the seed on the Seed Savers Exchange. Since then, fish peppers have enjoyed a resurgence in popularity and seafood chefs seek out sources for fish peppers. A photograph of a fish pepper plant can be found in Peter Hatch's book about the gardens of Monticello, *A Rich Spot of Earth.*

Get your fish pepper seeds from a reliable heirloom vegetable seed company. It is believed that fish peppers cross easily with other peppers.

Next spring save a spot in your garden for a fish pepper.

Carol Ivory. Master Gardener

Farmscaping

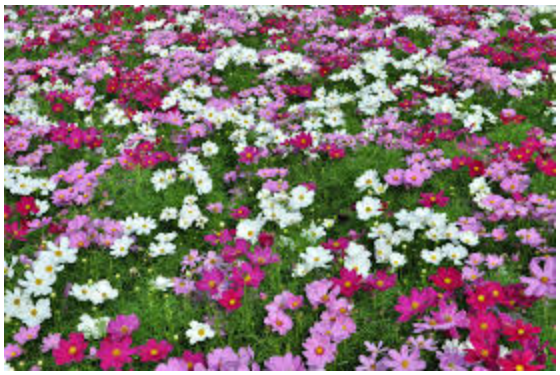
Good bugs and bad bugs. Beneficials and pests. Bad bugs attack our vegetable and flower plants every year and we search for ways to rid our gardens of these pests without using harmful pesticides. We practice companion planting by incorporating trap plants in our gardens to draw these agricultural pests away from the vegetable and flower plants. We plant flowers to entice the good bugs into the garden and prey on the pests. These relationships were first noticed by an entomologist in Davis, California, Dr. Robert Bugg, who coined the phrase *farmscaping*, which he defined as the "deliberate use of specific plants and landscaping techniques to attract and conserve 'beneficials'."

Farmscaping is more popularly defined in various publications, including several from Virginia Tech, as a "holistic, ecological approach to pest management that emphasizes the arrangement of plants that promote biological pest management by increasing the presence of beneficial bugs." Farmscape plantings provide a habitat (food and shelter) for beneficial insects, suppress weeds and grow close to the cash crop without competing for light, nutrients or water. They can be arranged as living mulches or trap crops near your garden, in fence rows, borders or islands within rows, as entire rows spaced at regular intervals within the farm field or as herbs or flowers interspersed with vegetable or fruit crops in your garden.

You might be wondering if farmscaping is only for big commercial farm operations and the answer is no! Can your little backyard garden plot benefit from farmscaping? Absolutely! Although the primary goal of farmscaping is to improve pest management, farmscaping plants can also add value beyond biological control because flowers and herbs have multiple uses. Other reasons to farmscape include working smarter, not harder, because you can control pests earlier in the season, thereby increasing your productivity with less work. Farmscaping lowers production costs by encouraging and using natural enemies to control pests at a cheaper cost to the producer. Farmscaping is inexpensive; you only need to farmscape about 5% or less of your garden. For example, a 625 square foot backyard garden (25 feet by 25 feet) can benefit by planting only 31 square feet of the space (or a nearby space) with farmscape plants. For larger farming operations, a one acre field can be seeded from a commercial flower mix for about $10 per acre. You can put farmscape plants anywhere in or around the garden; as long as they are in the general area of the cash crop (your vegetables), you reap the benefits. Grass roadways can be planted with farmscape plants. Drainage ditches and steep hillsides make great harborages for beneficials. Farmscaping in the contours between fields, steep ditches or in easily eroded places stabilizes the soil in those places. And finally, farmscaped areas make a good overwintering habitat for beneficials to ensure that they survive from year to year in your garden.

Farmscaping with native plants supports the habitat needs of beneficials by providing shelter, nesting and over-wintering sites, as well as sources of nectar and pollen. Native insect pollinators and birds are two groups that greatly benefit from farmscaping. They in turn provide a great benefit to gardens and farms by pollinating plants and preying on insect pests. The Xerces Society is a non-profit, environmental organization that "focuses on invertebrates which are essential to biological diversity." According to the Society's fact sheet, Farming with Pollinators, the pollination activity of native pollinators compares favorably to the pollination activity of honey bees. Native pollinators are on the job earlier, work longer hours, are more active in colder and wetter weather and are more efficient in distributing pollen when compared with honey bees. Along the same lines, birds are very effective at controlling insect pests such as caterpillars, ants, grubs, leafhoppers, aphids, snails, and scale in sects.

According to a Virginia Tech publication, one of the goals of farmscaping is to increase the numbers and health of beneficial insects and to keep them in your garden or on your farm. To do this you need to make readily available the resources needed by the beneficials. Examples are flowering plants that provide sufficient nectar and pollen so that these plants can sustain the beneficial insect populations until the insects are needed. Choosing appropriate plants is very important and should be based on the plant's ability to provide enough of a food source for beneficial insects. Most beneficials feed on nectar and pollen at some point in their life so it's important to consider these two characteristics in farmscaping. Different plant families provide these resources in different ways. Buckwheat, for example, has become a farmscaping staple. Because little is known about the nectar requirements for specific beneficials, consider planting a mix of flowering plants from various plant families to ensure that nectar and pollen are available to target beneficials at the right time. This is actually the idea behind the packets of multiple plant seed mixes. It's also important in farmscaping to choose plants that provide many benefits, such as increasing soil fertility, providing beneficial resources and suppressing weeds. A good source of information on what kind of flowering plants to incorporate in your garden is Rodale's Successful Organic Gardening Companion Planting. Also, the Virginia Tech publication, Improving Pest Management with Farmscaping lists some of the more popular companion plants in Table 1.



Cosmos binpinnatus

Buckwheat

It's important to have a farmscape plan before you begin. Collect as much information as you can, and make a list of the most damaging pests for each crop to be grown. Try and answer a few questions about each pest. What are its food and habitat needs? Where does it come from and how is it attracted to the crop? How does it reproduce and what kind of damage does it do? What are the most important common predators of the pest? Where do the predators come from and how are they attracted to the crop? Are pollen, nectar, alternative hosts/prey available at the right time? Decide on the best strategy to manage the pests. Possible strategies are (1) reduce or alter the overwintering site or reduce/alter the

locations from which the pest invades; (2) When establishing the plants that attract beneficials, consider both perennials and annuals. Try to establish a year-round beneficial habitat and food source. The "beneficial habitat season" maybe be extended by adding plants that bloom sequentially throughout the year; (3) plant trap crops which are often more attractive to the pest than the cash crop; (4) plant flowers and plants that provide nectar and pollen so the beneficials have a food source and a mating site. According to a July, 2013 article in the journal *Organic Agriculture*, some of the best plants for nectar sources are those in the wild carrot family such as dill, fennel, tansy, Queen Anne's lace, caraway, coriander and parsnip. These plants have small, open flowers that are easily accessible to beneficials such as parasitic wasps, lacewings, ladybugs, syrphid flies and mantids.

Once you've gathered the information about the life cycles and habitats of insect pests and their natural predators, monitor your farmscape regularly. Keep good records of where, when, and what pests are in your garden. Make a list of favorable strategies for your farmscaping "toolbox" that you can use to create a friendlier habitat for beneficials and a more unfriendly habitat for pests. Select a combination of strategies from your toolbox that best fit your plan--location of the garden/fields, crops being grown, available equipment and labor. Experiment with different strategies to fine tune your plan. Start simple and small and then, based on your records and observations, you can develop and expand your farmscape plan.

Jayne Collins, Master Gardener

Resources: *Improving Pest Management with Farmscaping*, see http://www.pubs.ext.vt.edu/ENTO/ENTO-52/ENTO-52.html

Farmscaping Techniques for Managing Insect Pests see http://localfoodhub.org/wp-content/uploads/2012/07/5_farmscapingTechniquesForManagingInsectPests_VCE.pdf

Pollinators and Pesticides: A Bad Combination

Pollinators collectively are considered a keystone group, i.e., pollinators are essential to nearly all ecosystems, worldwide. About 75% of the world's flowering plants depend on pollination by insects or animals in order to reproduce. Pollinators are responsible for nearly one-third of all of the food and beverages we consume. Clearly, if pollinators disappeared or their numbers were greatly reduced, our diets and our world would be substantially different.

In the Mid-Atlantic region, our primary pollinators are imported European honey bees and wild native bees (bumblebees, orchard bees, sweat bees, and many others), followed to a much lesser extent by butterflies, beetles and true bugs, ruby-throated hummingbirds, and some flies, moths, wasps. Of these, honey bees and wild native bees, particularly bumblebees, are by far the most important.

For a variety of reasons many of our pollinators, particularly our bees, are in trouble. We are all familiar with colony collapse disorder which is decimating the imported European honey bee population. Wild native bees are already an important pollinator resource; if the European honey bee population continues to fall, they will become even more important to farmers, orchardists, and gardeners. But unfortunately, the European honey bee isn't the only bee in trouble; some of our wild native bees are struggling as well and could use our help. Fortunately, if we take steps to protect and help our wild native bees, particularly bumblebees, other pollinators will also benefit.

The specific challenges bees face, come from several sources:

- Pesticide use
- Lack of season-long food sources (i.e., flower-rich areas for foraging)
- Lack of nesting sites (i.e., some of us are too neat in our lawns and gardens!)
- Diseases and parasites (a problem with honey bee and bumblebee colonies commercially raised for crop pollination with the distinct possibility that commercial bees can spread these pests and diseases to wild native bees)
- Habitat loss, degradation, fragmentation — including encroachment of invasive plants — intensive agriculture (especially in the West and Midwest), pollution, and urbanization.
- Low genetic diversity in bumblebees (caused by population declines)
- Climate change (bees requiring cooler temperatures may begin to migrate northward)
- Competition with honeybees (as important as honeybees are, their presence is detrimental to bumblebees, which find it difficult to compete with them)

Obviously, we can't do anything about some of these challenges. We can, however, control our own personal habitats to make them more pollinator friendly by modifying our use of pesticides and by providing season-long food sources and nesting sites. Just these three changes to our own personal landscapes can go a long way to protecting and encouraging our local pollinators.

Of the three elements within our control, the use of pesticides, and particularly insecticides, is probably the most critical. Whenever possible, we should reduce or eliminate the use of pesticides. If it is necessary to use pesticides, we can learn more about them and their proper use before venturing forth, sprayer in hand.

Herbicides

Herbicides and plant growth regulators are not generally believed to be deadly for bees and other pollinators; research, however, may prove otherwise. While it may be necessary to resort to herbicides under some circumstances, try to avoid using them whenever possible. You may end up with a weed-free environment, but you run the risk of reducing the diversity of the native plant community in your lawn or garden, diversity which is highly desirable from the point of view of a foraging bee or other pollinator.

If you need to use herbicides:

- Don't broadcast them; instead spot treat specific plants whenever possible. If necessary to spray a larger area, do so on a windless day to minimize the possibility of spray drift.
- Use hand-held weed wipes or a properly calibrated sprayer and follow label directions.
- Do not spray larval host plants, forage plants, or nest sites.
- Do not spray any plants which are in bloom or when bees are present.

Fungicides

Generally, most fungicides are fairly safe for bees, although there are some possible exceptions, such as captan, iprodione and chlorothalonil, sold under several trade names. (For an excellent and extensive list of insecticides and fungicides including the trade names under which they are sold and their known effects on bees, see "How to Reduce Bee Poisoning from Pesticides" from Oregon State University at http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/42829/PNW%20591.pdf) More studies are needed to clarify the question of toxicity to bees. Toxic products should never be used when bees are present.

Insecticides

Insecticides adversely affect bees in several ways:

- Bees may be killed outright either when they are sprayed while foraging or when they forage in an area, hours or even days later, where toxic residues persist.
- Bees can be poisoned by drinking tainted nectar or, for some bees, exposure to tainted water.
- Bees can receive a sub-lethal dose of pesticides, which while not immediately deadly, can affect their behavior. They may be unable to fly, fly erratically, or have trouble navigating and finding their way back to the nest. Foraging will become impossible. Reproduction can be reduced.
- Bees can bring insecticide-contaminated pollen or nectar back to the nest where it can kill larvae or other adult bees.
- Bees can bring insecticidal dust back to the nest, trapped in their pollen-collecting hairs.
- Bees can mistake microencapsulated insecticides for pollen and bring the poison back to the nest.
- Leafcutter and mason bees may build their nests using insecticide-contaminated leaf pieces, flower petals, and mud, poisoning the newly-made nest and causing larval mortality.

Excellent fact sheets are available about the effect of pesticides on bees. If you are considering using insecticides in your garden, you really should spend some time reading these publications so you are fully informed. From Land Grand Oregon State University,
http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/42829/PNW%20591.pdf

If you need to use insecticides, there are a number of things you can do to prevent harming bees.

- Do not spray where you believe bees are nesting. About 70% of our native bees, including bumblebees, are ground nesters, with the nests being difficult to spot unless you're alert.
- Never spray plants that are blooming.
- Avoid broad-spectrum insecticides; instead, choose an insecticide formulated for the specific target pest, if possible. (Admittedly, this is difficult; most insecticides are broad-spectrum.)
- If at all possible, avoid using *any* systemic insecticides, which are absorbed by the plant tissues and spread to all parts of the plant, including the pollen and nectar. They can remain in the plant tissues for at least a year and in some cases, longer. Because of their persistence in plant tissues, when buying new plants, ask if they have been treated with systemics. The length of time most systemics are persistent in the environment and the toxicity of most systemics to wild native bees has <u>not</u> been studied. Don't turn your garden into an accidental research project.
- Do not use any insecticide which contains neonicotinoids, all of which are systemic. The chemical names to watch for are, specifically, imidacloprid, clothianidin, thiamethoxam, acetamiprid, and dinotefuran. Neonicotinoids can remain in the soil for months or years and be absorbed by plants grown on the site in the future. They *are* considered relatively safe for humans and other mammals and for this reason are widely available and used by commercial landscaping companies, on farms, and by homeowners. There is increasing concern, however, about the effects of neonicotinoids on honey bees and bumblebees, although as of 2012 information is extremely limited and research is on-going. What little information is available thus far supports these concerns. It is known that neonicotinoids are highly toxic to bees if they are sprayed directly. Several are toxic to bees if they contact the spray residue on a plant or if they ingest contaminated nectar and/or pollen. Even in sub-lethal doses the ability of bees to fly, navigate, and forage is impaired. Bumblebee colonies exposed to neonicotinoids grow more slowly and produce fewer queens (the founders of new colonies) thus negatively impacting the total number of future colonies in an area, causing the population, and thus the genetic diversity, to decline. Until more is known, it would be wise to avoid using these substances if at all possible.
- Choose the least harmful formulation available. Dusts and microencapsulated insecticides are the most dangerous for pollinators. Wetable powder sprays are more toxic than liquid formulations, and large granules are the safest formulation to use.
- Choose the least toxic insecticide possible with the shortest residual toxicity.
- Be aware that pesticides approved for organic agriculture can be toxic to bees.
- Always follow label directions explicitly. Be aware that products for home use (unlike those for agricultural use) are <u>not</u> required to carry warnings regarding toxicity to bees. For guidance, see "How to Reduce Bee Poisoning from Pesticides", mentioned earlier in footnote 1.
- Make sure all spray equipment is correctly calibrated and adjusted.
- Avoid spraying <u>near</u> plants which are blooming but if you feel you must:
    - Spray on a windless day to reduce the possibility of spray drift.
    - Spray as close to the target as possible.
    - Spray in the evening when bees have finished foraging for the day.

  - Do not spray when dew is forecast; pesticide residue remains toxic on wet foliage longer than when foliage is dry.
  - Spray when it's warm; insecticides remain toxic longer at cooler temperatures.

- And finally, the *Gold Standard*! Stop using insecticides in your lawn and garden; instead, use alternative insect control methods such as trap crops and handpicking. For home gardeners, where insect damage may be primarily cosmetic, it is quite feasible.

This one step — reducing or eliminating our use of pesticides or selecting the least toxic substances available — will have an enormous beneficial result and, in our region, help our pollinators more than any other single step we can take.

From *Bumblebees of the Eastern United States*
United States Department of Agriculture
Photograph by Leif Richardson

Lina Burton, Master Gardener

Resources:
For more information about neonicotinoides and garden products containing them see http://www.xerces.org/neonicotinoids-and-bees/ and "Are Neonicotinoids Killing Bees" at http://www.xerces.org/wp-content/uploads/2012/03/Are-Neonicotinoids-Killing-Bees_Xerces-Society1.pdf .

For a fact sheet about the effect of organic pesticides on bees, a list of the toxicity of common organic-approved pesticides to bees, and the effects of each specific pesticide on bees, see http://www.xerces.org/wp-content/uploads/2009/12/xerces-organic-approved-pesticides-factsheet.pdf

To Clover or not to Clover… that is the Question!

Some call it a weed in the lawn and try to eradicate it, while others purposely seed it into their turf. What is it? Our lucky friend – clover! There are so many benefits to having it as a part of your lawn; I hope you will consider making a friend of it

The biggest benefit of clover in your turf is the FREE fertilizer. Clover is a legume which has the ability to take nitrogen out of the air and fix it into the soil. A self-feeding turf! Who can argue with that? Clover is drought tolerant, resists pet urines, is low growing and needs little mowing. It stays green longer in the winter, resists insects and diseases (especially the white grubs - a major lawn nemesis), provides nectar for honeybees and it masks the presence of other weeds in your yard. You can even use it as a ground cover to thwart erosion. And according to PSU studies, clover can improve foraging quality in pastures (see http://extension.psu.edu/plants/crops/forages/species/white-clover).

Your lawn nutrient plan, aka fertilizing, may be drastically reduced by taking two easy steps:

1) Let your lawn clippings sit where you cut them (i.e. don't bag them and put them out to be picked up by yard waste trucks). Let that nitrogen in the grass clippings go back into the soil, and,

2) Intersperse clover in your turf.

In the old days prior to the invention of chemical weed killers and fertilizers, clover was included in lawn seed mixes. Clover and grass actually work well together. Researchers are developing microclovers (*Trifolium repens* L. var. Pirouette) that may grow lower and not even need mowing. Microclover varieties flower less prolifically than standard white clover and they tend to spread well, so you don't have the same patchy look you get with regular white clover.

A coin gives a sense of the size of the clover leaf in a lawn mix with grass and microclover.

From a distance the lawn in front of the British Parliament building in Victoria is so lush and green. But upon close inspection, you'll see clover interspersed with the grass plants. How those English know who to garden!

Cindy Annino, Master Gardener

Creating a Shade Garden for Summer Relief

It all started with moss, by chance. While I had been slowly developing sunny garden beds and borders in my new property, there was a corner left untouched. Perhaps because it was to the side of the house seldom visited or viewed. Tall trees were there, so that seemed sufficient for a deck-level view. Then one spring day, as I was walking by, I saw green where I had thought was under-tree bareness. It was moss, emerald green moss! So to I went to research moss. And what a discovery!

Moss was the inspiration for a wonderful shade sitting garden now framing that side of my house. Learning all about moss got my creative-design juices flowing. And with herbicides including moss killers on shelves at the garden stores, one really gets even more committed to giving moss the appreciation and nurturing it deserves.

In this Trumpet Vine edition is another article fully covering moss in all its glory—its history, beauty, use, and care. This article instead is about what moss can inspire: Creating a shade garden. When summer heat beats down on otherwise sun-loving people, what a relief it is that one turns around in one's own property and there is a shade garden where one can sit and still enjoy a fresh outdoors.

Refer to this VCE publication *Lawn Moss: Friend or Foe?* http://pubs.ext.vt.edu/430/430-536/430-536.html

As it says, "If moss is already growing on your property, you're off to a good start." Yards and properties are different, and homeowners' creativity, tastes, capabilities, interests, wants, needs, and budgets are equally as different. But inspiration can tie all of those into action. Be inspired to create a garden where moss already grows and may even be persistent. Why fight it? Benefit from it! Imagine also getting to explore the world of shade-loving plants to enhance your gardening experience and know-how. So let me share my experience in creating a wondrous shade sitting garden, and be inspired fellow gardeners.

If there is moss, one may imagine moss not only on the soil but on rocks and stone, and how peacefully Zen it would look. There should first be stone steps, a pathway, I thought, around which delicate moss will grow and eventually creep onto. So I started with a pathway for my imagined shade garden (left photo above).

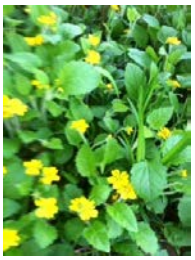
That spring, I noticed a lot of moss patches on the sunny area of my yard, which was a surprise and good reason to order a soil test or follow the recommendations of a soil test already ordered. Before dealing with the liming suggested, I made a project of harvesting those carpets of moss from my turf area and relocating them, laying them around the pathway steps to supplement the moss that was already in that shade location. Paver steps would take the foot traffic while the moss is allowed to get established and flourish all around them.

Shade gardens, especially with imaginations of peacefulness and relaxation, contemplation and solitude, would need a sitting area, to linger, to take in pleasure and comfort. So I bought a bench, and not just a bench, but a trellis bench where a dainty vine can climb. I then also set a stone table on which to lay that refreshing glass of iced tea in the heat of summer or glass of wine on a cool fall day later.

Now, when taking a leisurely walk along a shade path or sitting to linger, one may still need sensory stimulation, such as a scent, enjoyable details for discovery, and something to

view or to catch one's calm attention. Plants! Imagine unfurling fern fronds, fragrant lily-of-the-valley and woodland phlox, the surprising yellow of a Virginia Chrysonogum (green and gold), the leaves of heuchera or hosta, the texture of hellebores, and the foundation woodiness of hydrangeas. The choice is only limited by how much of a shade area it is—deep, filtered, dappled—or how much sun creeps in at certain times of the day. A shade microclimate could possibly nurture a surprising collection of plants, and the learning and finding out is part of the gardening lure.

Go ahead and explore shade-loving or shade-tolerant plants to serve as garden display. If the planting area is large, mulch may be used where moss may not thrive … but why not ground covers? (Pictured: sweet woodruff, woodland phlox, and green and gold.)



What could come next are adding whimsy and features such as a bird bath, a bird/frog wader, plaques, jars, pots, statuaries, etc. Or none of those for simplicity.

So, it all started with moss in the garden as inspiration. For those with a lot of gardening ground to cover, a shade garden room is a worthwhile project to complement the vividness of open and sunny beds and borders. Decide what you like, what you can accomplish even at an extended timeframe, and see it all come together. You can either let go and collect shade plants and accessories to fill your new shade garden on an all-at-once basis or do it on an as-you-go-along basis. For those with only a small area of moss and shade, the project would be simpler, with few stepping stones here, a well-placed rock or boulder there, a seat, and a plant or two.

Following are examples of peripheral plants for that moss-carpeted shade garden. Depending on the layout or amount of sun peeking into that spot, the plant choices are anything but limited:

Ground Cover	**Moist Shade Shrubs**	**Herbaceous Moist Shade**
Asarum canadense (Wild Ginger)	*Acer palmatum* (Japanese Maple)	*Anemone* (Windflower)
Chrysogonum virginianum (Green and Gold)	*Clethra alnifolia* (Summersweet)	*Dicentra* (Bleeding Heart)
Convallaria majalis (Lily of the Valley)	*Hydrangea*	*Eupatorium* (Joe Pye Weed)
Galium odoratum (Sweet Woodruff)	*Itea virginica* (Virginia Sweetspire)	Ferns
Lamium maculatum (Lamium)	*Kalmia latifolia* (Mountain Laurel)	*Helleborus* (Lenten Rose)
Pachysandra (Spurge)	*Pieris japonica* (Andromeda)	*Heuchera* (Coral Bells)
Phlox divaricata (Woodland Phlox)	*Rhododendron*	*Hosta* (Plantain Lilies)

A list of native plants for shade may be found at:
http://www.fairfaxcounty.gov/parks/greenspring/infosheets/nativeshadeperennials.pdf

A list of shrubs for moist shade (Virginia):
http://statebystategardening.com/state.php/va/articles/sunless_success_15_great_easy-to-grow_shrubs_for_shade/

Remember though, that moss may temporarily disappear in the heat of summer. But you know they are there. And come the cool moist time again in the fall, and especially back in the early spring, the vision of emerald carpeting will be a delight. Also during each early spring when you could be fretting at the sight of patches of moss on your open lawn, instead you will be merrily lifting them and transplanting them to your moss-inspired shade garden.

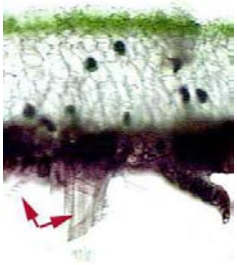
Maria Daniels, Master Gardener

Falling in Love with Moss

Moss has been around a long time. In fact, it existed as early as the Permian Period (299 to 251 million years ago) with ancestors dating back possibly 450 million years (that's way before dinosaurs first appeared around 230 million years ago) and is some of the simplest plants on earth.

Moss is most commonly found in moist, shady locations and is best known for carpeting forest floors and rocks. Moss colonies are also indicative of good air and water quality so having moss in your yard is a very good sign of a healthy environment.

Unlike other plants, moss does not have roots. Instead they have something called rhizoids which are hair like growths used to anchor plants to a surface but they do not absorb water or nutrients.



Rhizoid

Nutrients and moisture are absorbed through the cell walls of their leaves from rain, fog or mist. The quantity of water that moss absorbs and retains helps to reduce runoff, erosion and fluctuating lake levels. And stored nutrients are released slowly which helps keep the growth of other plant communities in check.

Another interesting fact about moss is how they reproduce since they don't produce flowers, fruit or seeds. Mosses can reproduce asexually/vegetatively (think of a small piece of moss, or even a leaf, separating from the parent plant and becoming a whole new plant) or sexually. Sexual reproduction ultimately results in spores which are contained in capsules. When the spores mature, they are released and scattered and also require moisture to grow. If you see small vertical growths on your moss, these contain the spores and will result in new plants once dispersed if conditions are right.

Mosses range in size from microscopic to more than 20" and their leaves can be lance shaped, ovate, sickle or even leafless.

As one gets closer to urban areas, moss is found less and less with the exception of *Bryum argenteum* which is common around asphalt parking lots and gets its nutrients from runoff fertilizer, and enjoys being near concrete!

Mosses of the Northeast

With over 12,000 species of moss in the *Bryophyta* division, the Northeast is lucky to have over 200 of them growing in our woodlands, wetlands, mountains and backyards. While walking along the Appalachian Trail or even in your own yard, you might find haircap moss (*Polytrichum commune*), pincushion moss (*Leucobryum glaucum*) or Broom moss (*Dicranum scoparium*). (See photos on next page.)

Haircap

Pincushion

Broom

Gardening with Moss

Taking care of a moss garden is a bit different than "normal" gardening but in a way, it's easier. You don't need (or want) rich soils and you don't need to fertilize. What moss requires is shade, moisture and to be kept clean of leaf debris as air is essential for its survival. Most moss prefer an acidic environment (between 4.5 and 5.0) and to plant it, just press it firmly onto a hard, compacted site to be sure rhizoids make good contact with a firm soil bed, substrate or even rocks and water it well.

In Richmond, a beautiful garden called Eden Woods is cared for and nurtured by Norie Burnet. She has over 14 different types of moss in her garden and other shade loving plants thrive alongside the moss.

Moss and Turfgrass

Moss thrives in acidic, shady, compacted, wet conditions — an environment not conducive to turf. If turfgrass is desired at the expense of your moss (glyphosate is ineffective against moss), drainage must be addressed, tree canopy thinned and lower branches pruned. Aerate lawns to give turfgrass a better growing environment. If you haven't had a soil test recently, it would be a good idea to get one to determine the pH. Since moss thrives in an acidic environment (low pH), raising the pH will have a negative impact on most moss.

If you find yourself fighting with moss in your shady yard, why not embrace it and try a moss garden? You can create your own soft, lush moss carpet that never needs mowing or fertilizing. Just water and enjoy!

Joanne Patton, Loudoun County Master Gardener Intern

Sources

McKnight, Karl B., Common Mosses of the Northeast and Appalachians. Princeton University Press, 2013

Virginia Cooperative Extension Publication: http://pubs.ext.vt.edu/430/430-536/430-536.html

Stewartia, a Mid-Summer Flowering Tree

I have had the joy of becoming acquainted in recent years with a most graceful group of flowering trees, the genus *Stewartia* in the family *Theaceae* (tea family). I was first drawn to a grove of *Stewartia pseudocamellia* in a small Japanese-style garden (Mytoi Garden on the island of Chappaquiddick off the main island of Martha's Vineyard, MA). The simple exquisite beauty of the white, fringed five-petalled flower with

yellow stamen, its subtle sweet fragrance, the mottled creamy gray-tan-cinnamon bark and rich green leaves are a feast for the senses as it comes into flower over a several week period in late June through July. I was then introduced to a much larger collection of *Stewartia* at the Polly Hill Arboretum in the center of Martha's Vineyard where I volunteer in the summertime. This arboretum was founded by Polly Hill who became a horticulturist in her 50's (an inspiration in and of itself), and over her next 50 years propagated many species of *Stewartia*. Polly Hill Arboretum with the Arnold Arboretum (Harvard University) in Boston have been designated the National Collection of *Stewartias*. As there are about 20 species of *Stewartia* world-wide, from Europe to Asia (a few only in northern China), I will focus on the two south-eastern US natives as well as the more available cultivars for Virginia gardeners.

First some history: The original reference to the genus was in 1687, attributed to Rev. John Clayton in his "Account of Virginia". He described a tree near Williamsburg, VA. The genus was introduced to cultivation by Mark Catesby, traveler and naturalist, in England 50 years later having been sent by Clayton, a naturalist in Virginia. That tree was *Stewartia malacodendron*, native to Virginia. It eventually flowered in 1742 and Catesby passed on plants to John Stuart, an English earl and botanist. When taxonomist Linnaeus subsequently received dried specimens, he honored John Stuart (but misspelled his name) as he named the genus *Stewartia*.

There are two native species in southeastern US ranging, albeit sparsely, from southern Virginia to Florida and west to Alabama, Texas and Arkansas. *Stewartia malacodendron* (sometimes called silky camellia or Virginia *Stewartia*) and *Stewartia ovata (*also known as mountain camellia) are deciduous, grow to about 10-15' in the mountains and forests in zones 7-9. The *Stewartia* Working Group, after expeditions to Alabama in 2007 gathering seeds, is dedicated to preserving the two native species. The natives are rarely available commercially as propagation is quite challenging. To quote Michael Dirr regarding *S. ovata*: "Culture is ripe with landmines and I continue to agonize over my inability to successfully grow this and *S. malacodendron."* A testimony to Polly Hill's patience and commitment is a *Stewartia malacodendron* 'Delmarva', grown from wild seed on the Delmarva Peninsula (Polly Hill originally came from Wilmington, Delaware). She received 8 seeds, was only able to grow 2 plants, and only one has survived, flowering after 27 years from seed. The flowers are about 5 cm. across with red-streaked petals and striking purple stamens.

Most available in commercial nurseries is *S. pseudocamellia,* a native of Japan and Korea. It is also deciduous and, though especially beautiful in its long summer blooming (as I write this in the early days of June I can report that my *Stewartia* in Great Falls, VA, has several buds about to open), it truly has year-round interest. In the winter one can enjoy the zig-zag shape of its branches and, as it matures, a fascinating and handsome mottled bark as mentioned above. In the fall *S. pseudocamellia* has a brilliant red-orange color. In June and

July the flowers are nestled on the ovate, slightly serrated dark green leaves. It is relatively pest and disease-free though I can testify that Japanese beetles set up housekeeping in my *Stewartia* (even in the flower buds) last summer. It prefers acidic loamy soil, grows slowly, and can grow to 30-40 feet tall, 25-30' wide in zones 5b-7. Somewhat less available in nurseries is the non-native (from Korea and Japan) *S. monadelpha (aka Tall Stewartia)*. It favors hardiness zones 6b through 8, grows to 20-25 feet. It is deciduous though leaves (turning deep red in the fall) cling late. Small white cupped flowers open in June. It has smooth cinnamon bark which is spectacular in winter.

In Joe Eck's and the late Wayne Winterroud's wonderful poetic book "Our Life in Gardens" (writing from southern Vermont) there is a chapter on *Stewartias* (*S. pseudocamellia*), and I quote: “Trees are companions and one can even hug them...But in any garden, some trees are visitors, and some are guests. Stewartias are true love..." It is a long committed relationship with enhancing flowering and increasingly beautiful bark as the years go by. In the colder zones care must be taken to place *S. pseudocamellia* in a somewhat sheltered location.

I sincerely encourage your consideration of including *Stewartia* in your gardens.

Beth Simms, Master Gardener

Butterflies of Loudoun County and their Host Plants

This chart shows butterflies frequently found Loudoun County and the host plants required for their larvae. Note the wide variety of plants used as hosts to butterfly larvae.

Butterfly	Host Plant
Spicebush Swallowtail	Spicebush, Sassafras
Black Swallowtail	Queen Ann’s lace, Parsley, Dill, Fennel, Rue
Eastern Tiger Swallowtail	Cherry, Birch, Poplar, Willow, Ash, Magnolia
Zebra Swallowtail	Pawpaw
Cabbage White	Mustard family, Cabbage
Clouded Sulphur	Pea family, Alfalfa, White clover, Vetch
Summer Azure	Dogwood, Cherry, Viburnum, Blueberry, Spirea
Great Spangled Fritillary	Violet, May apple, Passionflower vines
Silvery Checkerspot	Black-eyed Susan, Sunflowers, Wingstem
Eastern Comma	Nettles, Hops, Elm, Hackberry, Willow
American Lady	Aster, Ironweed, Plantain, Pussytoes
Monarch	Milkweed

For more information on Loudoun County butterflies see *Field Guide to the Butterflies of Loudoun County*, by Nicole Hamilton, Loudoun Wildlife Conservancy.

The Sound of Splashing Water

Close your eyes for a second--imagine the most beautiful garden. Maybe the roses exude a heavenly fragrance, or perhaps in your perfect world it's wisteria, lavender or honeysuckle. The swallows twitter overhead as they flit across the sky and a mockingbird perched on the pergola changes his song every 15 seconds as he voices the full avian repertoire. You kick your shoes off and feel the warm soil through your toes. Ummm.

Perfection. What could possibly be missing?

How about the sound of running water? Maybe splashing its way over rocks to a pond, or bubbling through a fountain or sliding down the sides of a large rounded pot. Then add the deep-throated sounds of a large bullfrog, the higher-pitched croaks from a younger frog and the loud splash of fish as they break the surface. Better? Yep, simply divine.

This article kicks off a series on water gardening—an oft overlooked element of landscaping that is immensely pleasurable to gardeners and beautiful to anyone strolling by it. While it might sound daunting, adding a water element and optionally adding wildlife can be hugely rewarding and easier than it sounds. To get you started, the first article in this 4-part series will examine planning: developing simple to elaborate gardens. Here are some basic decisions to make:

Size: Do you want to have a small water garden tucked into a corner of your landscape, or are you angling for a much bigger fishpond? Small water structures can be as simple as a ceramic pot outfitted with a pump that recirculates water so it splashes through the top of the pot and comes down the sides in sheets of water and has space for a water plant. Or, alternatively, you could use half a wooden rain barrel. The barrel could sit above ground and serve as a focal point for the garden. In contrast, a larger water garden involves constructing the pond out of preformed fiberglass, flexible pond liners (butyl rubber) or concrete. Usually these ponds are 3' x 5' up to 15' x 15' or larger, are central elements in the landscape design and often involve aquatic animals in addition to plants.

Bird's eye view of a small water garden in a suburban garden

Small ponds make good companions for small gardens

Infrastructure: All water gardens, no matter what size, require recirculating water to avoid stagnation. In addition, if the water garden has plant and animal life, it will require one or more filters and ultraviolet lights to control algae. The more plants and animals, the more important filtration becomes. You'll also need electrical outlets to power the filters and pumps, and the water garden must be near a water source because evaporation dictates frequent replenishment. If the water garden has fish life, you'll also need a floating heater during winter, which frees some of the surface from ice and allows the fish to continue breathing.

Location: Simple water gardens can be located in shady or sunny spots, can be a focal point for the landscape design, or be tucked into a quiet corner. In many ways, think of them as garden art. More complex water gardens complete with plants and animals and must be located in a sunny spot. That's because aquatic plants require full sun and because leaves and debris from trees add too much organic matter, damaging the ecosystem required to support fish life. Too much organic material promotes the growth of algae and bacteria, and reduces the oxygen supply. Another factor impacting the site is whether you want waterfalls. If so, it's helpful to locate the water garden at the base of an incline, and use the natural slope for building one or a series of waterfalls. (You'll also need to ensure access to the infrastructure described above.)

Cost: Small water gardens are typically self-contained units—with pump and fountain provided. They can be made of many different materials, like stone, metal, ceramic and bamboo. These units vary greatly in cost, ranging from around $200 to $500 depending upon the size, material and attractiveness of the container. Infrastructure requirements are simple, helping keep the total cost down. And the footprint allows these water gardens to be used in a very small space—say, outside of apartments and townhouses.

Many factors influence the costs for larger ponds. For example, some ponds require stonework around the border or the construction of rock shelves for waterfalls. The complexity of construction work greatly impacts the cost. Also, the cost varies depending on the number and kind of fish added and the type of plants used. For example, less exotic fish like comets and shubunkin range from $6 to $12 depending on size, whereas exotic koi can start at $12 to $30, but can zoom to several hundred dollars per fish depending on size. Other minor costs include snails and tadpoles. Similarly, water lilies can start at $25 but increase to $80 for tropical night bloomers or $60 for large lotuses. Bog plants, like bamboo, bulrush, cattail, horsetail and irises, cost in the $10-$20 range, but you will need several pots for larger ponds. Additional costs include submerged plants—crucial to the life of the pond--plus fertilizer and tools for maintaining the pond.

A large water garden in a country setting

Here's the approximate cost of a 14' x 9' pond my husband and I constructed about 4 years ago. It cost approximately $1,200 for the basics (liners, sand, pumps, fountains, biological filter, and heater) but that was just the beginning. To keep costs down, we did most of the labor, but ultimately we needed help constructing the walls around our formal pond. Construction cost approximately $1,070 for cinderblock, stone, slate and labor for drystacking. (This excludes the cost of extending electrical power to the pond.) And finally, we spent around $780 for water lilies, lotus, bog plants, submerged plants, and animal life—koi, shubunkins, comets, snails and tadpoles. This brings the estimate to $3,050, which is probably still on the low side. Our investment, however, has given us a sizeable pond that dominates our patio area and screened porch, and provides huge joy and delight to everyone who gathers around it.

I hope this first installment in the series has given you a sense of how to start thinking about water gardening. The next article will look at design, and will focus on how to link your water garden with your overall garden landscape.

Recommended reading:

Virginia Cooperative Extension, "Urban Water-Quality Management: Purchasing Aquatic Plants," Publication 426-044.

The Pond Doctor: Planning and Maintaining A Healthy Water Garden, Helen Nash, 1995.

How To Know The Aquatic Plants, G.W. Prescott, 1980, second edition.

Pools, Ponds, and Waterways, Dawn Tucker Grinstain, 1992.

Identification and Control of Weeds in Southern Ponds, George W. Lewis and James F. Miller, Cooperative Extension Service, The University of Georgia College of Agriculture

Connie Moore, Master Gardener Intern, 2014

Perennials You Should Prune Now

We know that we should *deadhead* or remove spent flowers in the hopes of encouraging more. We should also *cut back* tired and torn foliage to restore the perennial's neat appearance. But there's another kind of pruning that we can apply to our perennials. Most of us already know and practice the rule about pinching back chrysanthemums until July 4th. This is pre-emptive pruning that allows perennials to grow into a better version of their natural selves, and it can involve a lot more than a little pinching back.

For many summer and autumn flowering perennials, cutting back before flowering can help limit a plant's height and eliminate the need for staking. It can also be used to layer a plant, creating gradations in height along garden edges. Cutting back before flowering will produce a fuller plant as a result of increased branching.

If you want to extend the flowering period of a perennial, prune 50% of the plants in the garden. In other circumstances, if you are going to be away for a month during the summer, prune the majority of the garden by about 1/3 before you leave and you will come back to a lush blooming garden with flowers on plants that would normally have bloomed in your absence. The worst thing that can happen is that the pruned plant will have fewer blooms or no blooms at all this year.

Prune now before the summer becomes too hot and dry. The following are some perennials that can generally be pruned by a few inches to half its height:

- *Achillea*
- *Adenophora* (bellflowers)
- *Artemisia*
- *Aster*
- *Echinacea* (coneflowers)
- *Eupatorium maculatum (Joe-Pye weed)*
- *Helenuim autumnale* (sneezeweed)
- *Lobelia cardinalis (cardinal flower)*
- *Monarda didyma*
- *Phlox maculate* (meadow phlox)
- *Phlox paniculata* (summer phlox)
- *Rudbeckia (black-eyed susan)*
- *Solidago hybrids* (goldenrod)
- *Veronia noveboracnesis* (New York ironweed)

Carol Ivory, Master Gardener

Reference: *The Well-Tended Perennial Garden,* Tracy DiSabato-Aust, Timber Press, 2006.

Rose Rosette Disease

The "Knock Out" series of roses was introduced in 2000 and quickly took over the country. Knock Out roses were extensively planted as a massive landscape display in shopping mall parking lots, in highway medians, and probably even in your own backyard. Its showy, reddish-pink flowers and extremely hardy constitution have made it very popular with both serious and casual gardeners. It blooms continuously, stays compact although responds well to pruning to control shape, and is resistant to the bane of Virginia rose lovers –black spot. It requires virtually no maintenance. It soon became available in double forms, as well as in pink and yellow. It was a gardener's dream come true. But now our beloved Knock Out roses are threatened by a teeny, tiny mite, the eriophyid mite, which spreads a viral disease to Knock Out roses as well as roses in the Drift series and other roses with an Asian heritage.

One you've seen rose rosette you'll always be able to recognize it: the leaves, stems, thorns, and flowers on a part of the bush just look weird. The initial symptom, which you may not even notice at first, is a reddish cast to the underside of the leaves, which then becomes deformed and crinkled. Oddly the bush continues to bloom but the flowering canes exhibit a 'bunchy' growth resembling a witches' broom. There is also an abundance of rubbery, closely spaced thorns. Part of the bush may look normal while the other part exhibits this strange growth.

This eriophyid mite is a wingless, microscopic mite and is carried along on the wind, which makes the mass landscape plantings so prevalent in Loudoun County very susceptible to the spread of the disease. The virus comes from the invasive multiflora roses which were planted extensively in highway medians, and found in untended meadows and pastures. Because rose rosette is caused by a virus, there is no known cure as it seems to spread like an infection systemically in the rose. By the time you notice the symptoms, the rose is pretty much gone. The multiflora rose is the vector for the eriophyid mite which spreads the deadly viral disease.

You can try to save the rose bush by heavy pruning in late winter, removing up to 2/3 of the bush. You must destroy the pruned canes which harbor mites and eggs. Do not compost it. Sterilize your pruning shears so that you do not spread the disease. In the early stages of the disease the rose is weakened and susceptible to other diseases and insects and will usually die within 2-5 years.

Virginia Tech has reported on research suggesting that spraying with certain miticides along with suggested cultural controls can somewhat halt the spread of rose rosette disease. "The insecticide Avid is registered for control of booth eriophyid and spider mites", according to the Virginia tech publication # 450-620. Refer to this publication, available online at http://pubs.ext.vt.edu/450/450-620/450-620_pdf.pdf for more information.

What can you do now? Inspect your Knock Out and Drift roses to see if you can spot the beginnings of the disease. If you find any deformed canes, prune it out and destroy the cuttings, then sterilize your pruning shears. If the whole rose seems infected, remove the whole plant, rootstock and all. Keep the rose as healthy and vigorous as you can. Eradicate any multiflora rose brambles on your property. Late next winter or early spring cut back your roses by 2/3 to destroy any overwintering eggs. And keep your fingers crossed!

Linda Ward. Master Gardener

Notes from the Help Desk: *Weed ID*

Pokeweed

Lambsquarter

Ground Ivy

Purple deadnettle

Henbit

Venice mallow

Black medic

Common ragweed

Horsenettle

Prickly lettuce

Photos from http://weeds.cropsci.illinois.edu/weedid.htm#BroadleafPhotoGallery

Contact our Help Desk at 703-771-5150 for best practices in eliminating these garden invaders.

Notes from the Help Desk (cont.): *Pest ID*

Asparagus beetle

Four lined plant bug

Bagworm*

Squash bug

Cabbageworm

Leafminer (damage)

Colorado Potato beetle

Mealybug

Cucumber beetle

Spotted Cucumber beetle*

Photos: http://www.garden.org/pestlibrary/bugs.php, *https://insects.tamu.edu/extension/youth/bug/bug072.html

Contact our Help Desk at 703-771-5150 for best practices in eliminating these garden pests.

Barb Bailey, Loudoun County Master Gardener