

NORTH CAROLINA
BOTANICAL
GARDEN

CONSERVATION GARDENER

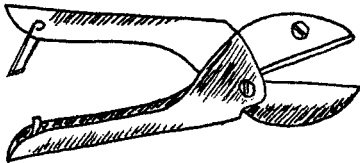
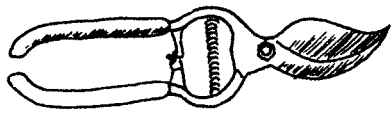
FALL/WINTER 2018/19
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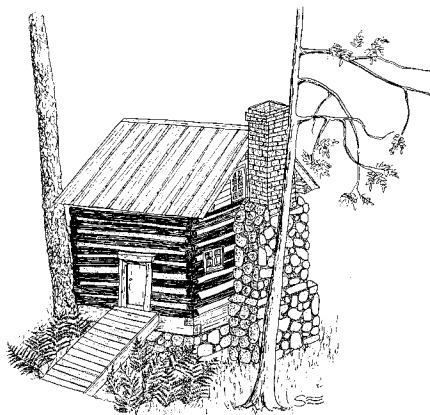
THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

ON THE COVER

*Watering can in the Mountain Habitat
near the Paul Green Cabin
Photo by Emily Oglesby*



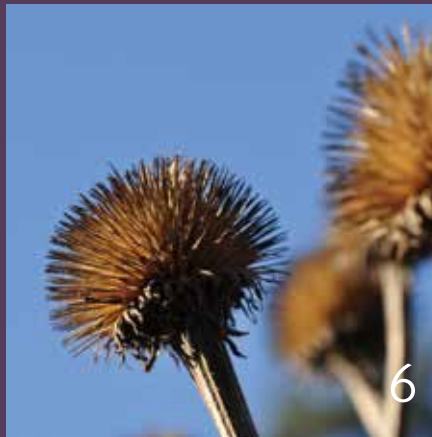
*Illustration by
Dot Wilbur-Brooks*



*Illustration by
Sandra Brooks-Mathers*

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*To inspire understanding, appreciation and conservation
of plants and advance a sustainable relationship between
people and nature.*

What Does it Mean to be a Conservation Garden(er)?

BY DAMON WAITT, NCBG DIRECTOR

Dear Members and Friends,

The original concept of being a conservation garden has its roots in the early 1970s at the North Carolina Botanical Garden in response to the problem of over-collecting in the wild by native plant enthusiasts, gardeners, and plant nurseries. The solution was to create an alternative source of native plant species by propagating them in our nursery, develop a market to serve people who wish to garden with natives, and disseminate a “conservation through propagation” message to the public. Through this combination of on-site research and off-site outreach, the Garden became an early leader in plant conservation, long before it had physical facilities and public display gardens to match its growing reputation as a conservation garden.

In the mid-1990s, then Garden director Peter White published an article in the American Association of Botanical Gardens and Arboreta magazine, *The Public Garden*, that broadly articulated the meaning of conservation in a botanical garden context. In that article, he discussed the many conservation-related activities that were at the heart of the Garden’s mission and programs. Shortly thereafter, the Garden began using the tagline “A Conservation Garden” to lay claim to this special

niche it occupies in the public garden world.

What does it mean to be a conservation garden today? In broad strokes, I like to think a 21st century conservation garden works to...

- Create compellingly beautiful garden displays that transform the way people think about native plants.
- Preserve biodiversity and protect the imperiled plants of the southeastern United States from extinction.
- Cure plant blindness and nature deficit disorder and reverse the homogenization of the American landscape.
- Increase botanical capacity locally, regionally, and nationally.

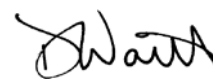
Of course it is one thing to call yourself a conservation garden and an entirely different thing to be recognized by your peers as one. You can imagine our excitement when we were selected by Botanic Gardens Conservation International, the largest plant conservation network in the world with 508 botanic gardens in 92 countries, to be accredited as one of 11 botanic gardens adhering to internationally recognized conservation standards. The accreditation recognizes excellence in plant conservation policy, practice,

and education, and is only available to botanic gardens carrying out plant conservation activities of local, national, or global importance.

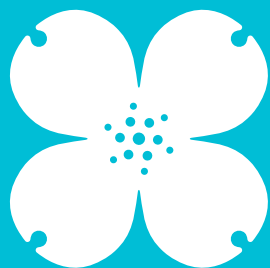
If that is what it means to be a conservation garden, what does it mean to be a conservation gardener? A conservation gardener is someone who enjoys the human health benefits from spending time outdoors. A conservation gardener is someone who conserves precious resources like fresh water and uses locally sourced and/or recycled materials in their landscape. A conservation gardener is someone who through their gardening practice enhances the environment’s ability to provide the natural benefits that support life on earth.

Want to learn more about being a conservation gardener? Then keep reading, because this issue of the *Conservation Gardener* is all about how to be, rather than to seem.

Esse quam videri.



Left: Ken Moore and others collect plants at Grandfather Mountain as part of the Garden’s “conservation through propagation” efforts.



NORTH CAROLINA
BOTANICAL
GARDEN



THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

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If you are interested in more tips and advice about gardening with native plants, contact our Green Gardener desk, open Tuesdays and Thursdays, noon - 2 p.m., or call 919-962-2393.



Bringing Conservation Gardening to You

BY JENNIFER PETERSON, MANAGING EDITOR

If you are like me, your mind fills with questions as you wander through the North Carolina Botanical Garden. Often, my questions are about the plants themselves, but many times, I'm curious about how our horticulture staff is able to get the plants to look so great. I know, a deer fence goes a long way toward that. But, I also know from the conversations I have had with our horticulturists, they hold a wealth of information about every aspect of gardening.

It is this knowledge I tapped into for this edition of the *Conservation Gardener*—a comprehensive guide to growing your own conservation garden. From how to start a garden to how to prune a tree, from garden maintenance to knowing what not to plant, I have tried to include useful information, straight from the experts themselves.

In addition to the information found in this edition, we have opportunities for you to learn even more! This fall, our education programs are also focusing on home gardening, and the instructors for many of these classes are our very own horticulture staff. During these workshops, they will be able to provide much more information than we were able to fit in this publication. Be sure to look through the insert of education programs to find the perfect classes for you.

Sharing our conservation values with the public has been a part of the North Carolina Botanical Garden's mission since our very beginning. Whether you are new to gardening or if you have been gardening for decades, I hope you find useful information in the following pages!



FITCH
LECTURE

THE FOODSCAPE REVOLUTION

NOVEMBER 4; 2:30 - 3:30 P.M.

Visionary horticulturist Brie Arthur presents her signature design technique of foodscaping, a sustainable landscape practice that integrates edible and ornamental plantings to create beautiful and functional gardens. Brie will discuss how pairing edibles in a traditional ornamental landscape increases biodiversity and adds purpose to underutilized, everyday spaces. Attendees will get a sneak peek of scenes from her next book, *Gardening with Grains* (January 2019). Book signing and reception follow lecture. Free, pre-registration required.

DETAILS AT
GO.UNC.EDU/FITCHLECTURE

A mattock can be a useful tool when starting a new garden in the clay of the North Carolina Piedmont.



Six Tips for Starting a Garden

BY CHRIS LILLOIA, NCBG HABITAT GARDENS CURATOR

Planning a garden, whether a perennial garden, a shrub border, a fern glade, or a grassy bank, can be as much fun as enjoying an already established one. Here's some hard-won wisdom to help you with your garden preparation.

1. Start by considering your site and the garden you want. Whatever your growing conditions, there are native plants for them, and starting with a plan based on your parameters is a good way to succeed. That said, I have been known to put a shade plant in the sun and a sun plant in the shade. Sometimes this means I need to dig that plant up and put it where I knew I should've put it in the first place. Sometimes a calculated risk pays off. It's a process.

2. Plan a whole bed. Unless your soil is amazing and needs no amending, your plantings will be more successful if you create a prepared bed rather than just digging holes and adding plants here and there.

3. Got clay? Soil that has a lot of clay has some upsides for gardening, but easy digging is not one of them. You'll do your soil a lot of favors if you avoid working it when it's too wet. You'll do yourself a favor if you get a mattock (pictured above). They are also very useful when working among tree roots, though it's wise to remember that trees need those roots, so keep disturbance within the dripline to a minimum.

4. Clay has plenty of nutrients and holds water well, but it can also be soggy so you'll need to think about drainage. Two ways to improve drainage are to add organic matter and to create a raised bed. At home I use my own compost, mulched leaves, and anything else I can get my hands on. When thinking about creating a raised bed, keep in mind that it can be edged with stone or wood or anything else that strikes your fancy, but it doesn't have to be. All you need for drainage is to be higher than the surrounding area.

5. If your space is an intractable weedy mess, consider laying down cardboard or newspaper and covering it with a thick layer of mulch. This will help smother even tough weeds, and once the cardboard breaks down you're ready to plant. If the weather is on your side, by which I mean not August, sometimes you can cheat and plant smaller plants right into the mulch. Alternately, you can pile soil on top of your cardboard layer but, again, it's a process and sometimes you just need to look at some mulch for a while as you dream your big garden dreams.

6. Patience is an important ingredient. Unlike plants with a long history of selection for horticultural expediency, native plants sometimes need a couple growing seasons to reach their full potential. It's a process, and the journey is half the fun.



FALL
PLANT
SALE

FALL IS FOR
PLANTING!

Find plants for your garden at our Fall Plant Sale!

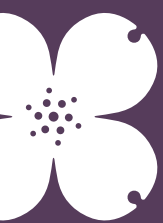
Choose from a wide variety of southeastern native wildflowers, shrubs, trees, vines, and ferns at our annual sale, in addition to an entirely new selection of donated books and native wildflower seeds.

Members' Night:
FRIDAY, SEPTEMBER 28, 4-7:30 P.M.

Members enjoy a special plant sale preview party with live music and refreshments. Non-members are welcome to become members at the door. Members receive a 10 percent discount on plant and Garden Shop purchases.

Public Sale:
SATURDAY, SEPTEMBER 29, 9 A.M.-3 P.M.





Garden Maintenance: Sometimes Less is More

BY MARGO MACINTYRE, COKER ARBORETUM CURATOR



“Gardening with natives offers benefits to the environment by featuring plants that are attractive to wildlife and pollinators.”

Gardening is a human endeavor as old as civilization, and growing plants for food and beauty is something that gives us pleasure whether you are a beginner or an old pro. If you are lucky enough to be among those who call themselves a conservation gardener, you enjoy the process of gardening as well as the outcome.

Gardening with native plants requires a different approach to maintenance and brings different rewards. Gardening with natives offers benefits to the environment by featuring plants that are attractive to wildlife and pollinators year round.

If this is what you want your garden to offer, then knowledge about maintenance is key to optimize the wildlife value of the plants.

A garden of natives will offer flowers, fruit, and cover throughout the year, not just in the spring and summer. There will be layers of color, texture, and interest. While some plants are producing buds, others are flowering, while still others are offering seeds, so there are stages in addition to layers.

There will be quieter times too, and what may be perceived as inert by human eyes is essential to birds and

insects. When *Echinacea purpurea* (purple coneflower) petals are fading to our eyes, the fruit within is ripening, and it's only a matter of time until the goldfinches descend. Now is when the maintenance, or lack thereof, enters the mix. A bit of a tangle is attractive to birds who need winter shelter. The sun at lower winter angles creates shadows unlike those displayed at any other time of the year, and the structure and architecture of a spent flower stalk is something a conservation gardener learns to appreciate.

Leaving the spent flower stalks of perennials up after their bloom time



Top left: Coneflowers left after the petals have fallen provide food for birds such as goldfinches. Bottom left: Birds and insects rely on seeds, including those from asters. When it snows, their structures also provide nooks and crannies where animals find shelter.

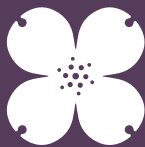
Above: Bluestem and other grasses provide winter interest and put on a light show during winter's setting sun. In addition, they provide homes and cover for birds and insects.

TOO MULCH OF A GOOD THING

When I took high school horticulture, my teacher kept his favorite saying posted on the wall: Mucho mulcho is my motto. It is true that in every garden I maintained since then, mulch has been a part of the look.

A conservation gardener always use leaves from on site or as close to the garden as possible. This chore involves picking up the leaves and shredding them. It's a big chore, but by keeping the leaves on site, gardeners conserve resources and don't introduce weeds they don't already have.

Let the leaves lie where they fall in your more natural areas. There is value in leaving the leaves intact to let the insects that overwinter on them and under them live. When mulching around trees, leave the trunk flare (where the trunk spreads and comes out of the ground) bare. I notice many landscapes and streetscapes where trees are mulched several inches up the trunks, and this "volcano mulching" is a bad practice. The flare of the roots by design shed leaves and soil. Water, insects, and disease can occur by covering this area with mulch.



MULCH GUIDELINES

- Mulch keeps weeds out, moisture in, and adds nutrients as it decomposes.
- Mulch adds a neat and finished look to the garden.
- Leaves or pine needles from your own garden are the best source of mulch for your garden.
- Chop them or leave them whole (Whole leaves can blow away in winter winds; chopped leaves decompose fast and may need refreshing.)
- Leaves from municipal green waste facilities are fine, but be aware that new weeds may come in, too.
- Shredded bark is good for tree rings, but could be difficult to use in flower bed settings due to its weight and tendency to wash away.
- Shredded hardwood is also good for tree rings, but water can't always infiltrate, especially in dry weather.
- Mulch 1-3" deep, depending upon how much suppression of seedlings you desire.
- Mulch around the crowns of plants and seedlings you want to nurture so the existing and newly emerging leaves are exposed to the sun.
- When mulching around trees, leave the trunk flare exposed.



can require patience and even tolerance. In the Coker Arboretum, we cut some particularly tall perennials back by a third or half in the early summer. This encourages them to branch laterally and they are less likely to fall over. In fall and winter, we leave most of the grass and perennial stalks up well into January to provide food and cover for birds and other wildlife. It's a balance between providing habitat and presenting a tidy garden that visitors expect to see on main campus.


In late winter we cut the stalks down, weed around everything, and mulch. Mulch is one thing that can help the garden by adding nutrients and suppressing weeds, and it can give your garden a well-maintained and purposeful edge.

Gardening is a highly personal endeavor; how you maintain your garden gives it that personal touch.

Left: Rose mallow seed pods add winter interest to the garden landscape long after the seeds have fallen.

Top right: After aster seeds have blown away, the remaining structures provide a perch for small birds. Many insects live inside flower stalks through the winter. If this material is composted, these homes are destroyed.

Bottom right: Wattle fences provide an attractive way to keep spent flower stalks in the garden.



“Gardening is a highly personal endeavor; how you maintain your garden gives it that personal touch.”

WATTLE FENCES

As a conservation gardener, I have trouble in late winter when it comes time to start cleaning up and preparing for the next growing season. Last year's perennial stems are valuable habitat for insects—be it overwintering adults, larvae, or eggs—as well as other wildlife that need a safe place to hide. They also hold the nutrients the plants pulled from the soil and useful organic matter. Turning them into compost is great, but leaving them in place to fulfill their ecological destiny is even better.

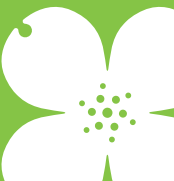
My first attempts to do so resulted in serpentine brush piles inspired by environmental artist Andy Goldsworthy. Linear piles meandering through garden beds can be interesting and functional and require very little effort. This year, I got more ambitious and built modified wattle fences with the old stems. The aesthetic is more formal and visible.

Wattle fences can be built in a couple of different ways. When you have tall perennial stems to work with, weave the stems between a row of upright branches anchored in the soil. At either end, use two uprights to keep things tidy.

Use a piece of rebar and a hammer to make pilot holes for the uprights. If the material is from shorter perennials, lay the stems between two rows of uprights and tie the tops with twine to keep things from leaning. One thing to keep in mind as you set your uprights is that whether you're weaving stems between a single row of uprights or laying them between two close uprights, your horizontal stems will work best if they are at least as long as the distance covered by three uprights.

Hollow stemmed plants like Joe pye weed, switch cane, and elderberry are especially valuable as nest sites for cavity nesting bees. My fences are mostly horizontal with vertical elements to hold the whole thing together. More vertical elements would arguably benefit the bees even more. There is no end to the possibilities in creating a wattle fence, so when you build yours, be creative and highlight the functions that are most important to you.

— Chris Liloia, Habitat Gardens Curator



Our Top Ten Weeds

(and how to rid your garden of them, too!)

BY AINSLEY BRIGGS, NCBG HORTICULTURAL TECHNICIAN

Webster's dictionary defines the word weed as "a plant that is not valued where it is growing and is usually of vigorous growth; especially one that tends to overgrow or choke out more desirable plants."

Being a conservation garden, the North Carolina Botanical Garden refines that definition a bit further to mean primarily a non-native plant that is not valued where it is growing, especially an exotic invasive. Our conservation department has studied and managed exotic invasives extensively and has written a comprehensive booklet on the topic. You can find out more about this booklet and how to download your own copy on the next page.

Excluding those species addressed in the booklet and those that are native and unintended, the following plants are the top ten weeds most commonly removed at the North Carolina Botanical Garden.



Digitaria sanguinalis
crabgrass

An annual grass brought to North America from Europe. It is used as a graze for livestock and its seed can be collected as grain for humans. Its adaptability makes it a tough weed to control. It acts as its own mulch, smothers other plants, and can tolerate harsh conditions. **It is best controlled by pulling it before it can go to seed.**

Photo by Randall G. Prostak,
University of Massachusetts-Amherst



Cerastium vulgatum
mouse-ear chickweed

A winter annual native to Eurasia. This plant ultimately grows to form a mat and has thick, fuzzy leaves and small, white flowers. **Remove plants before they set seed.**

Photo by Randall G. Prostak,
University of Massachusetts-Amherst



A late-winter/early spring annual invasive from eastern Asia. It has spread extensively throughout the southeastern U.S. and thrives in disturbed areas, roadsides, fields, and lawns. **Youngia reseeds widely and the best practice is to pull it before it is in flower and sets seed.**

Youngia japonica
oriental hawk's beard



Ficaria verna
lesser
celandine

A perennial invasive native to Europe and West Asia. It emerges in late winter and its bright yellow flowers are some of the first of spring. It is toxic and potentially fatal to grazing animals, and several states have banned it or listed it as a noxious weed. Its spread is a particular threat to spring ephemerals because its tubers separate easily to become new plants, allowing it to colonize new areas quickly. This trait also makes eradicating this weed difficult. **It can be controlled with a 2-3 percent glyphosate solution. If the plants are in a wetland area, it's important to use a formulation that is approved for aquatic use.**



Cardamine hirsuta
bittercress

A winter/spring annual native to Eurasia that has been introduced to most places in the world. A member of the mustard family, it is edible as a bitter herb. When the fruit is ripe, the seeds will burst explosively, using a seed dispersal strategy known as ballochory to send seeds far and wide. **This weed is best removed before it starts to flower, and absolutely before it sets seed.**



Stellaria media
chickweed

A late winter annual native to Europe that grows as a groundcover. It is sometimes grown as a vegetable crop for both humans and poultry, a source of nutrition when food is scarce. This plant flowers and seeds at the same time and is widespread throughout North America. **Remove them before they set seed.**

Photo by Dr. Mary Gillham
Archive Project, CC V. 2,
<https://bit.ly/2LKb13R>



Vicia sativa
vetch

An annual legume introduced to North America from Eurasia as animal fodder. It is sometimes sown as a cover-crop because it is sprawling and acts as a nitrogen-fixer. **It is shallow rooted and best to remove before flowers and seeds are set.**

Photo by Karan A. Rawlins,
University of Georgia,
Bugwood.org



Fatoua villosa
hairy crabweed

A summer annual invasive from eastern Asia. It is found mostly in moist, shady areas and is typically initially spread by nursery plants. Once introduced, this weed can reseed while very small and its seeds ripen quickly. **It's smart to collect these in plastic bags and throw them in the garbage to reduce the number of seeds impacting the area.**

Photo by Nancy Loewenstein,
Auburn University,
Bugwood.org



Phyllanthus urinaria
chamber bitter

A summer annual native to Asia. It has small alternate leaves and closely resembles plants from the Mimosa genus. *P. urinaria* produces a high number of seeds, can tolerate shade, and is widespread throughout the southern states. **It is shallow rooted and best to remove before flowers and seeds are set.**



A winter annual native to Eurasia. It grows prostrate to form a dense groundcover and has small, blue flowers. **Remove the plants before they set seed.**

Veronica persica
bird's eye speedwell

Photo by Nancy Loewenstein,
Auburn University, Bugwood.org

CONTROL YOUR INVASIVE PLANTS

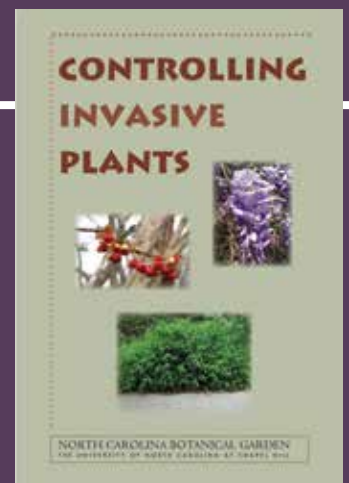
Is your yard filled with invasive plants that displace the native plants necessary for our pollinators and other wildlife? The best way to avoid being overtaken by invasive plants is to not purposefully introduce them to your garden. If you already have an issue with invasives, you need to know how to control them.

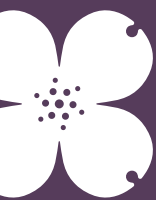
The first step toward recognizing you have a problem is being able to identify which

plants are invasive and which are not. The next step is knowing how to remove them.

Our Controlling Invasive Plants booklet helps with both, filled with color photos, descriptions, methods for removal, and much more! You can download your own copy at:

GO.UNC.EDU/CONTROLLINGINVASIVES





Common Myths of Tree Planting

BY LESLIE MOORMAN, NORTH CAROLINA URBAN FOREST COUNCIL

Almost everyone can agree that planting trees is a good thing, not just for their beauty, but for the benefits they provide like cooler temperatures, increased property value, and wildlife habitat. However, where and how you plant a tree is crucial for its long-term success. The longer a tree lives, the more benefits it provides. Many people have misconceptions about trees. Here, we bust some of the most common myths.

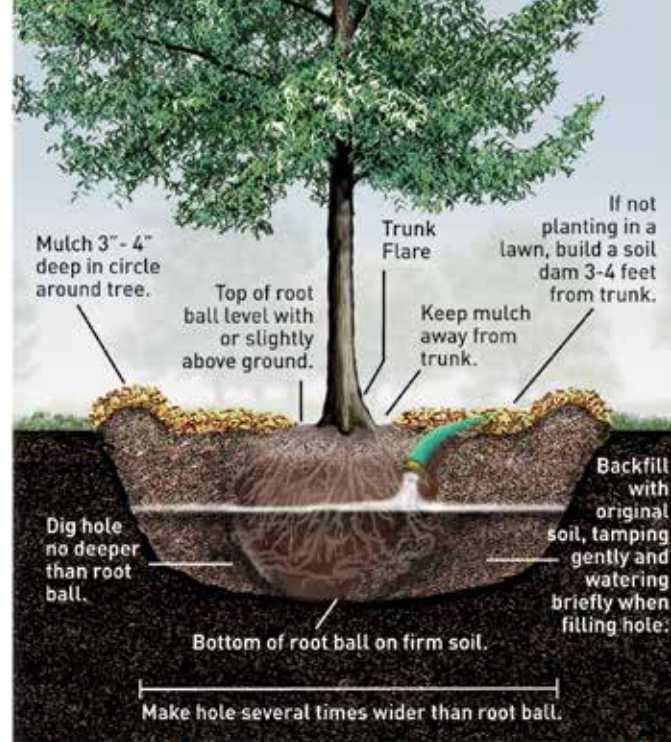
Myth #1
Planting location doesn't matter.
Trees can grow just about anywhere, give them any soil in any site, a little

water and sunlight and they are good to go. So, location shouldn't really matter, right? Wrong. Selecting the RIGHT TREE for the RIGHT PLACE is probably the most important part of tree planting. By selecting the wrong location to plant your tree, you are increasing maintenance needs as the tree grows, as well as decreasing its life expectancy. Think carefully about any site limitations—poor drainage, insufficient sunlight, or overhead utility lines—and select a species appropriate for your growing conditions. Make sure you allow enough growing space for the tree's mature height. Larger trees like oaks

are going to require a larger volume of soil and more above-ground space as they reach their maximum size.

Myth #2
Roots mirror the tree canopy.
Many people think a tree's root system looks exactly like the canopy (crown) of the tree, growing deep and staying within the dripline. Right? Wrong. A tree's roots grow out 2-3 times as wide as the canopy, and most trees do not have a tap root that grows deep into the soil. Ninety percent of a tree's roots are in the top 24 inches of soil, with most in the top 6-18 inches. Roots need nutrients,

Right: Illustration by Robert O'Brien
Opposite page: Tom Saielli from The American Chestnut Foundation plants an American chestnut tree in Coker Arboretum.



oxygen, and water to grow and these are found within the top 24 inches of soil.

Myth #3

Never prune a tree at planting.

Always remove any dead or damaged limbs at planting, when the limbs are small and within reach. You can correct any crossing limbs or structural defects such as co-dominant stems easily at planting as well. This will also mean better tree form over time, requiring less long-term maintenance. Be sure to make proper pruning cuts. See the article on page 14 for some pruning advice, and if you are unsure what and where to make the cut, contact a certified arborist.

Myth #4

Planting deep is better than planting shallow.

Many people mistakenly plant their trees too deep. Planting deep became a myth because people thought it improved tree stability, but in fact it causes girdling roots, trunk/root rot, and puts roots below where oxygen is readily available, leading to root death. The trunk flare (where the trunk meets the roots) should be at or right above the land grade. Ideally you want to dig the planting hole exactly as deep as the root ball and 2-3 times as wide. To determine root ball depth, find the trunk flare. You may have to remove soil from the top of the root ball to find it. Use the handle of a shovel or measuring tape to determine depth before putting the tree in the hole. Make sure the planting hole has sloped sides. This allows for a more natural, horizontal growth pattern for the roots.

Myth #5 Trees must be staked.

We've all seen the hose and wire tree stakes, sometimes with as many as three wire lines, being used on a recently planted tree. Trees don't need to be staked unless the site is windy, they are planted on a hillside, or they have a large crown in comparison to the height. If you do stake, the entire staking system should be removed within a year, otherwise you run the risk of girdling the stem. A better method is to use an underground staking system that holds the root ball of the tree down. Use 2"x2" untreated wood, pointed stakes, hammering them into the ground just outside of the root ball on four sides. Use screws to attach two cross pieces horizontally to the stakes, just on top of the root ball. Cut off upright stakes at ground level. This can be hidden underneath mulch, and because the wood is untreated, it will decay over time.

Myth #6 Always amend the soil.

It is unnecessary to amend the soil in the planting hole with organic matter. Research shows that only amending soil within the planting hole could impede establishment of roots outside the planting hole. If you have poor soil, amend and till the entire site, not just the planting hole.

Myth #7 Cutting roots and disturbing the root ball is bad.

Many people think disturbing the root ball during planting will damage the tree and lead to poor growth. This is false. It is important, especially if you are planting a container-grown tree, to break up the root ball and remove any circling or girdling roots. When in the nursery, trees are moved up to larger

and larger pots. Each time, they fill the pot with roots. This can sometimes lead to circling roots. Cut any circling roots at planting to allow for roots to grow horizontally out of the root ball. Use a spade to shave off the circling roots, then make about five radial cuts to ensure you eliminate circling roots deeper inside the root ball.

Myth #8 Tamp down soil in the planting hole.

Tamping down the soil with anything other than water or the shovel is unnecessary and will compact the soil in which the roots are trying to grow. This eliminates pore space that holds air and water for roots. To help settle soil around the root ball, water the tree when the hole is about halfway filled, and then again when planting is complete. Another option is to use the back of a shovel to tap and settle the soil around the root ball.

Myth #9 More mulch is better than not enough.

Mulch can provide nutrients to the soil, promoting better plant growth. It regulates soil temperature (not too hot in summer or too cold in winter). It helps retain water within the soil, making it available to tree roots for longer periods. Too much mulch (called mulch volcanoes) creates conditions that promote fungus and attracts rodents. Too much mulch also impedes oxygen exchange in the soil, which leads to poor root growth. Ideally, apply 2-3 inches of mulch across the root ball and out to the dripline. Make sure not to pile mulch up against the tree trunk.



Tips for Pruning Woody Plants

BY GEOFFREY NEAL, COKER ARBORETUM ASSISTANT CURATOR

Many gardeners, regardless of their experience or skill level, do not stop to consider the effects of the cuts they make on the shrubs and trees in their yard. The primary consideration is often one of necessity: "This limb is in the way...I should remove it." The immediate effect of the pruning cut is the only question answered when the loppers come out, and while this is worthwhile to think about, it should not be the only thing we consider.

Pruning, simply put, is the removal of plant parts. We prune to influence the growth of plants, enhance their performance in the garden, improve the strength of tree structure, and improve the ability of trees to bear fruit. Perhaps the main reason we prune is to make our garden more appealing.

Pruning is very much a "learn by doing" type of garden task, and it is as much art as it is science. By making the cuts and observing plant reactions over time, the patient gardener will become more confident season by season.

When to prune

You will save yourself a lot of pruning if you think about it when you are planting. Consider how big the plant will grow when you choose a space for it. Check the plant label, ask fellow gardeners, consult reputable resources (NCBG comes to mind!).

Usually, if you have a limb getting in the way of a path or gate, you can just have at it. Make your cut and move on.

But more complicated cases can and do arise. You may be asking when should I prune that oak or cherry or hydrangea that I planted in my garden last year? Well, the short answer is: it depends. The best time to prune is a function of the species of plant, the condition of the plant, and the result one desires. Here are a few points to remember.

- As a rule, a bit of light pruning can be done any time of year. Likewise, dead branches, broken

Right: Illustration by Robert O'Brien
 Opposite page: A recently pruned
Platanus occidentalis (American
 sycamore) at the Garden.

Three-step pruning method

1. Undercut the limb
 12-24" from the
 branch collar.
 This stops the bark
 from tearing.



2. Make the second cut
 from the top all the way
 through the branch,
 2"- 3" above the first cut.



3. The final cut should
 be just beyond the
 branch collar, without
 cutting into it. Support
 the stub so that it does
 not tear the bark.



branches, weak or heavily shaded branches may for the most part be removed as necessary.

- For deciduous plants (those that lose their leaves in winter), the dormant period is usually the best time to prune—the time between leaf fall and the end of winter.
- Late winter is also a good time to prune evergreen species.
- Avoid pruning most broadleaf species in early to late spring.

That said, if you notice your maple limbs are hanging too low after your tree has flowered, feel free to do some corrective pruning to raise those limbs to a more comfortable height. These pruning cuts can be made from April through November as various trees gain leaf and fruit weight.

To maximize flowering, pruning again depends on the plant. Knowing when your plants flower will inform your decision on when to make those cuts.

- Species that flower in summer/fall on current season's growth should be pruned in winter.
- Plants that flower in spring from the previous season's buds are best pruned at the end of their flowering period.

Types of pruning cuts

Now you're out there in your landscape, tools in hand, and you're staring into that tangle of *Morella cerifera* (wax myrtle) branches. Where to cut? How? Basically, there are two types of pruning cuts: heading cuts and thinning cuts.

Heading cuts remove the ends of shoots or limbs. This promotes regrowth near the cut. Imagine a loose, sprawling shrub that has had its tips removed over successive seasons to achieve a hedgerow. This is what a heading cut allows one to do. The natural form of the plant is altered to produce a more compact form. This is often done with shrubs along a foundation that have outgrown the space allotted them. It is sometimes preferable (certainly more economical) to removing the plants and starting over with a more space-appropriate plant.

Thinning cuts remove entire shoots or limbs at the point of attachment to a main branch. This type of cut does not stimulate regrowth as much but allows the plant to maintain its form as the ends of shoots are not removed. We use these cuts when we wish to open up a shrub or tree, improving light penetration and air circulation to the interior of the plant. This is also valuable when considering limbs that cross and rub one another. Over time, this stress can provide a point of entry for disease. Water sprouts are shoots that often arise from limbs that are close to parallel to the ground, though they are also seen on the trunks of trees. *Betula* spp. (birch) are susceptible to these as are many *Prunus* spp. (cherry). Thinning removes these shoots and may be done at any time. Lastly, thinning cuts are useful in removing limbs that share a narrow angle with their neighbor. Limbs that are crowded in this manner develop compressed bark between themselves and normal wood development is prevented. These tight pockets also

hold water (and subsequently ice) and weaken over time. The textbook example would be *Pyrus calleryana* 'Bradford' (Bradford pear), a widely planted cultivated form of an Asian pear. This fast growing tree often splits unexpectedly and can cause real damage if not tended (or better yet, removed).

What happens after pruning

Just as we develop a scar after a wound, so to do woody plants. When making your cut, it is very important to cut just outside the branch collar. The branch collar is a raised ring of tissue where the limb is attached to the stem or trunk. This is where the callus will form following a pruning cut. The callus is the plant's response to being wounded. It is a ring of tissue that closes up over the cut over time and protects the tree from pathogens and disease. Remember, make your cut close to the collar but not into it. Too far away from the collar will leave a stub, which is slower to heal and thus, more prone to decay. Stubs are often seen on trees that have been hastily pruned. Correcting these errors will result in a healthier and (usually) more aesthetically pleasing plant.

Pruning is an integral part of nurturing a cultivated landscape. Over time, confidence increases and the results of your good work will be evident in fitter, happier plants.

WHAT NOT TO PLANT

BY DAN STERN, DIRECTOR OF HORTICULTURE AND GEOFFREY NEAL, COKER ARBORETUM ASSISTANT CURATOR

We recently went undercover to a couple large scale retail nurseries and were surprised to see them carrying several mediocre, non-native (and sometimes invasive) species. Buyer beware! Here is a handful of common, non-native landscape plants we found that you would do well to avoid, as well as some suggestions of what native species to use instead. You can find these natives for sale at the Garden as well as several local native plant nurseries.

COMMON NON-NATIVE



Berberis thunbergii
Japanese barberry

- Deciduous shrub with attractive fall color
- 3-6' high, 4-7' wide
- Non-native invasive with heavy fruit set dispersed by birds over large distances



Cupressus x leylandii
Leyland cypress

- Fast growing evergreen tree often used for screening
- Columnar habit with fine textured foliage
- Drought intolerant and shallow root system causes plants to topple in heavy wind, rain, and ice



Nandina domestica
Heavenly bamboo

- Evergreen shrub with stout erect stems
- 6-8' tall, forms a wide thicket
- New foliage often tinted bluish, changing to green and then reddish in fall
- Pink/white flowers mature into bright red fruit in fall
- Non-native invasive with heavy fruit set dispersed by birds over large distances.



Itea virginica
Virginia sweetspire

- Deciduous shrub with fragrant white flowers in early summer and attractive fall color
- 3-5' high, usually wider than tall
- Highly adaptable native with no serious pest or disease issues



Juniperus virginiana
Eastern redcedar

- Native evergreen tree with moderate growth rate and medium texture
- Habit of straight species tends to be columnar but lots of variation in cultivars
- Highly adaptable to various site conditions



Agarista populifolia
Florida-hobblebush

- Evergreen shrub with multi-stemmed, arching habit
- 8-12' tall but can be maintained at shorter height with proper pruning
- New foliage tinged red or purple
- Small, cream-colored flowers in early summer that smell like milk and honey
- Will tolerate a wide range of light conditions but needs supplemental water in full sun

COMMON NON-NATIVE



Ligustrum spp.

Privet

- Evergreen shrub with dark green foliage
- 10-15' tall, multi-stemmed often forming dense thicket
- Large clusters of small white and fragrant flowers in early summer
- Prolific black berry-like fruit dispersed by birds over large distances
- Escaped seed forms dense thickets in the woods displacing native vegetation; highly invasive



Buddleja davidii

Butterfly bush

- Deciduous shrub, usually 5-8' tall with arching habit and gray-green leaves
- Large inflorescences covered with small individual flowers, available in a wide variety of colors
- Blooms for several months and popular with bees and butterflies
- Easily escapes cultivation and establishes along streambanks displacing native vegetation



Elaeagnus spp.

Autumn olive

- Evergreen shrub, 12-15' tall and comparable spread
- Medium texture, dark green leaves often silvery on the underside
- Small, fragrant yellowish flowers in late spring
- Prolific berry-like fruit in the fall dispersed by birds over large distances
- Escaped seed forms dense thickets in the woods displacing native vegetation; highly invasive



Pyrus calleryana 'Bradford'

Bradford pear

- Deciduous flowering tree
- 30-50' tall, 20-35' wide with broad conical shape
- Medium textured, glossy dark green leaves that turn yellow and red in the fall
- Abundant white flowers in early spring with unpleasant smell
- Branches at tight angles make it prone to serious splits in wind and ice
- 'Bradford' cultivar is known to produce seedlings that revert to the straight species Callery pear, a highly invasive tree

NATIVE ALTERNATIVE



Morella cerifera

Common wax-myrtle

- Evergreen shrub with medium to dark green foliage
- 10-15' tall and as high but can be maintained at smaller size with proper pruning
- Highly adaptable to a wide variety of soil types and light conditions
- Grayish, berry-like fruit that persists through the winter and is an important food source for many native bird species



Clethra alnifolia

Coastal sweet-pepperbush

- Deciduous shrub, usually 3-8' tall with round-topped erect habit. Often suckers to forms large colonies
- Leaves are deep green in summer turning goldish-yellow in fall
- Highly fragrant, white flowers (pink cultivars available) in July and August
- Attractive to bees and other native pollinators



Illicium parviflorum

Yellow anise-tree

- Evergreen shrub, 6-10' tall often suckering to form large colony
- Medium texture with glossy olive green leaves
- Inconspicuous flower and fruit
- Highly deer resistant and tolerant of a wide variety of soil types and light conditions



Cercis canadensis

Eastern redbud

- Deciduous flowering tree
- 20-30' tall, slightly wider at maturity with a rounded crown, arched branches, and distinctive zig-zag stems
- Large heart-shaped leaves, medium green turning yellow in autumn
- Clusters of small pink and purple flowers emerge along branches and in the axils in early spring
- Pea-pod shaped fruits appear mid-summer and persist through fall



FALL COLOR

Solidago nemoralis var. *nemoralis* (gray goldenrod) and *Schizachyrium scoparium* (little bluestem) thrive in dry to average soil and sunny conditions.

Gray goldenrod is a small and well-behaved goldenrod. Its upright and clumped habit and handsome grayish foliage help set off the great fall color and fine texture of little bluestem.

Staff Picks



Staff Picks is a new feature of the *Conservation Gardener*. In each issue, the Garden staff will offer up advice on plants that look and live great together. In this edition, our habitat gardens curator Chris Liloia shares two colorful combinations – one for fall and one for spring.

Aquilegia canadensis (eastern columbine), *Phlox divaricata* (woodland phlox), and *Packera aurea* (golden ragwort) thrive in moist to average soil with part sun to shade.

These three bloom together fairly early in the spring when we're all still used to a lot of gray and brown in the garden. The purple, red, and yellow combination is just right.

SPRING COLOR



PLANTING SEEDLINGS

Be sure to break up the root ball and knock the soil loose before you plant seedlings.



GARDEN WITH PATIENCE

It takes an average of three years for a native plant garden to look lush. Be sure to give your plants space to grow during those years. Your garden will reward you with beauty, low maintenance, and a thriving habitat for pollinators, birds, and more.



SOIL COMPRESSION

Be careful where you walk. Limit how much time you stand in one place to avoid soil compression.

Staff Tips

Our horticulture staff has spent countless hours in the Garden, and are experts in their field. Here they offer up some tips for working with native plants.



KNOW YOUR PLANTS

Take a moment to get to know your plants and what they like. Some like sun, while others like shade. Some like moist soil, and others prefer dry conditions. Give them what they need, and they will grow better for you.

USE THE RIGHT TOOLS

The right tools can make gardening easier. Our staff recommends having these tools on hand: shovel, leaf rake, hand trowel, triangular weeding hoe or soil knife, pruners, gloves, loppers, digging fork, and possibly even a mattock. See the article on page 5 for more information about mattocks.



GROWING MILKWEED

Milkweed needs a lot of drainage to grow successfully. At the Garden, we sometimes mix grit into the soil around our milkweed plants. The plants also like full sun, and prefer nutrient-poor soil.



LAWN ALTERNATIVES

Traditional grass lawns require a lot of resources and do not provide food or shelter for pollinators and other wildlife. Invite your wild neighbors to your yard by reducing the size of your lawn with these groundcovers:

SCIENTIFIC NAME

Heuchera americana
Asarum canadense
Chrysogonum virginianum
Tirarella cordifolia var. *collina*
Phlox divaricata
Mitchella repens
Piptochaetium avenaceum
Sedum ternatum
Antennaria parlinii ssp.
Polystichum acrostichoides
Iris cristata
Phlox nivalis

COMMON NAME

American alumroot
wild ginger
green and gold
foamflower
eastern blue phlox
partridgeberry
eastern needlegrass
woodland stonecrop
fallax big-head pussytoes
Christmas fern
dwarf crested iris
pineland phlox



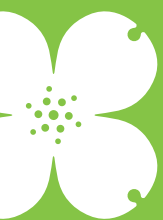
LEAF LITTER

What is an environmentally-responsible way of dealing with all the leaves each fall? Many critters rely on leaves for shelter during the winter, so if you can, leave some in place. Collect the rest, mow over them to shred them, and use them as mulch. Learn more about mulch on page 8.



WATERING

- Water in the morning or evening, but avoid the middle of the day when the water will evaporate faster.
- Try to water the roots of the plant rather than its leaves.
- Water thoroughly but less often. Water plants twice a week for about a month when they are planted, then water once each week for the next year.
- Dig in the dirt near the plant to make sure it was actually watered. Water can roll right off dry soil or a layer of mulch, leaving the roots dry.



Living Learning Landscapes: Therapeutic Gardening in Schools

BY EMILY OGLESBY, NCBG COMMUNICATIONS ASSISTANT

Anyone who has dug their hands into the earth, faithfully watered, and watched as new life emerged from the soil is no stranger to the way gardening lifts the spirits. But the professional therapeutic process of horticultural therapy is about more than just fresh air and new seedlings. It addresses the needs of the whole person: horticultural therapy uses plants and gardening to increase self-esteem, reduce depression and anxiety, create community and a sense of belonging, and provide sensory enjoyment and a feeling of awe and wonder. It provides gentle exercise and can be modified for many skill levels. It's a tool for education and can provide job training and practical skills that lead to greater independence. And all this to people with all kinds of needs: populations served include

individuals with mental illness, physical challenges, developmental disabilities, memory impairment, and more.

The Garden's first horticultural therapy program began in 1978, just five years after horticultural therapy was officially established as a profession. North Carolina Botanical Garden (NCBG) staff worked in hospitals, mental health centers, correctional facilities, and schools. Today, under the direction of program manager Sally Haskett, the NCBG horticultural therapy program carries on that legacy through programs for adults at the Garden, at continuing care retirement communities, and at The Farm at Penny Lane, a working farm in Chatham County serving individuals with mental illness.

Amy Brightwood was interning with Haskett as part of her training to become a registered horticultural therapist when she came up with the idea for her long-term project: a therapeutic horticulture program for exceptional children—those who are differently abled—incorporating goal-based lesson plans with hands-on time in pollinator and vegetable gardens. She brought the project to Glenwood Elementary in Chapel Hill last summer, working with teachers, counselors, and parents to develop program goals and prepare the school's gardens. Beginning in fall 2017, students at Glenwood with learning differences and behavioral challenges learned about the importance of pollinators and examined real-life chrysalises, and then planted pollinator-friendly native perennials propagated by the

NCBG nursery. Ongoing work in their school garden—watering, weeding, and more—not only provides hands-on therapeutic and educational experiences but also helps sustain this new habitat for native wildlife.

Inspired to expand this program to other local schools, NCBG applied for a grant to train local teachers to implement a therapeutic horticulture program in their own schools. The thinking, according to Brightwood, was that “schools may not have the budget to hire a horticultural therapist, but if we can train teachers to do therapeutic gardening with kids, that’s a way to keep that going.” Thanks to a Honeybee and Human Health grant from the Burt’s Bees Greater Good Foundation, the Living Learning Landscapes program was born: a program that develops sustainable pollinator and vegetable gardens at schools in combination with teacher training in therapeutic horticulture.

Last March, teachers, occupational therapists, and counselors from five different schools in the Chapel Hill-Carrboro City School district participated in the new Living Learning Landscapes training. The training was an A-to-Z of implementing a therapeutic horticulture program in a school, from basics of plant and gardening therapy to workshops on how to grow a pollinator garden and lessons on pollinator-friendly plants. As part of the grant from Burt’s

Bees, Brightwood was also able to consult at each school about how a therapeutic horticulture program or garden might be implemented. Through Living Learning Landscapes, over 50 distinct species have been planted across the Chapel Hill-Carrboro City School district, many from the NCBG nursery. The program’s vegetable gardens, harvested in the fall, promote the development of home gardens and enrich family access to healthy organic foods.

At Scroggs Elementary in southern Chapel Hill, Brightwood worked with fourth grade teacher and school garden club coordinator Jeanette Dixon to plant a sensory garden full of plants that engage kids’ senses of smell, touch, taste, and sight. Kids of different ages and with a variety of developmental and physical differences plant, weed, and water together in gardening programs at Scroggs, an integrated learning experience that builds community among students.

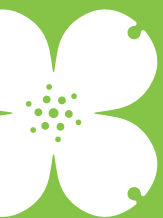
Beyond helping teachers with the initial development of a school therapeutic horticulture program, the Living Learning Landscapes training provided an opportunity for peer support and sharing ideas that Brightwood hopes will continue to motivate teachers going forward. Teachers in the training swapped ideas about programming and talked about how to make their programs sustainable by applying for grants and cultivating parent involvement.

And the results are clear: the exceptional children teacher and the school counselor at Glenwood whose students went through Brightwood’s program last fall agreed they saw significant, positive changes in their kids through their work in the gardens. Kids with behavioral challenges who had been having a hard time with aggression demonstrated decreased impulsivity and improved focus, cooperation, and social skills. Kids with learning differences showed improved language and social skills, a better ability to follow step-by-step instructions, and an increased sense of self-esteem and accomplishment. According to exceptional children teacher Annabelle Davenport, the students who worked on the gardens last fall “are still very proud of their achievement” and are “very keen to show their creation to visitors to the school.”

The exceptional children program at Glenwood has officially adopted the school’s butterfly garden, the one they themselves planted with pollinator-friendly perennials with Brightwood last fall. Gardening is the gift that keeps on giving: through caring for a garden, students are able to grow, nourish, and care for themselves and the world around them.

Below left: A student waters the new garden at his elementary school. Below right: Teachers learn how to use horticultural therapy in their schools. Facing page: The pollinator garden at Glenwood Elementary School.





100 Years of Forest Theatre

BY JENNIFER PETERSON, NCBG COMMUNICATIONS MANAGER

Many of us know and love Forest Theatre as the late summer home of the Paperhand Puppet Intervention's annual performances. Others remember frequent performances by various groups through the mid-1970s, and a few might even remember the work of its namesake, the father of American folktale.

The Frederick Henry Koch Memorial Forest Theatre is celebrating its 100th birthday next year. The story of its youth is a story of community culture combined with the passion of Koch.

Frederick Koch grew up in the Midwest in the late 1800s, earned several degrees in drama, and eventually became a professor at the University of North Dakota.

In this role, he encouraged his students to create dramas based on their own experiences of farm and frontier life. Koch was passionate about Shakespeare, and he believed by having students write about themselves, eventually someone would write in a way that would reflect America and resonate universally, becoming an American Shakespeare.

Meanwhile, in Chapel Hill, UNC president Edward Kidder Graham was interested in extending education off campus to the community and beyond. He appreciated Koch's work in community drama, and thought dramas created by the people of North Carolina demonstrating their heritage could be used to show the

nation that North Carolina was filled with rich culture. A recent essay by H. L. Mencken had criticized the South as "a vast plain of mediocrity," citing the little theater movement as evidence. According to Mencken, community theaters and art exhibitions were sweeping the nation, with the exception of the South.

Graham brought Koch to UNC in 1918, and the drama department quickly took off. Shortly after his arrival in Chapel Hill, Koch and William C. Coker, botany professor and chair of the grounds and buildings committee, met to determine the location of an outdoor theater, the venue we now know as Forest Theatre. The location they chose had already been used for this purpose—one of the earliest



Left: Professor Koch, known to his students as “Proff Koch,” works with students during a dress rehearsal. Below: Paperhand Puppet Intervention performs at the Forest Theatre every summer. Photo by Lee Capps Photography.

performances at the site was in honor of the tercentenary of Shakespeare’s death, and freshman Paul Green had performed his self-authored “Surrender to the Enemy” there in 1917.

In 1919, Koch established the Carolina Playmakers, now Playmakers Repertory Company, to produce and perform original folk plays in addition to performing classic and contemporary plays. Forest Theatre became the home for their annual outdoor production.

Thomas Wolfe, Paul Green, and numerous other students created folk drama, writing about legends or day-to-day college life. Often, these plays portrayed the conflicts of the New South, adding to the university’s radical reputation. Meanwhile, the Carolina Playmakers were critically acclaimed. Beginning in the 1920s, the troupe traveled across the state and the nation, and UNC was home to a leading academic program in playwriting and production with Koch as the head.

In the 1930s, the university’s drama program was tapped to aid in recovery from the Great Depression. In 1935, the Works Progress Administration (WPA) created the Federal Theatre Project, led by Hallie Flanagan who worked to build a nationwide program despite the concentration of theater artists in Los Angeles and New York. To do this, she turned to directors at community and college theaters across the country. She worked closely with Koch and the Playmakers, hoping this would become the model for other rural areas.

Flanagan felt a new building for the Playmakers would be a candidate for a WPA construction project. That plan collapsed, but from 1940-1943, a WPA grant was used to renovate Forest Theatre. Flagstone steps were built in addition to stone lighting towers, a director’s box, ticket box, main entrance, and a stone stage backdrop. The new stonework was designed by Albert Q. Bell, designer of the Waterside Theatre, home of “The Lost Colony” written by Paul Green.

In 1943, the new Forest Theatre was dedicated before a Carolina Playmakers production of Shakespeare’s “A Midsummer Night’s Dream.” Unfortunately, Koch died the following year. In 1953, the theater was officially named the Frederick Henry Koch Memorial Forest Theatre.

By the mid-1970s, Playmaker’s new building offered several indoor production facilities. Forest Theatre was no longer a venue for

many performances, and received little maintenance. In 2004, the management of Battle Park, which includes Forest Theatre, was transferred to the Garden. In 2012, a grant enabled the Garden to enhance the electrical capacity of the stage, but there are many more improvements necessary to allow Koch’s vision to flourish, including addressing drainage issues, repairing the lighting towers and other structures, and improving lighting and sound infrastructure. As we look to the next 100 years of Forest Theatre, the Garden hopes to work with campus and community partners to sustain Koch’s dream of outdoor performances.

To learn more about Forest Theatre restoration planning or to make a financial gift toward Forest Theatre enhancements, contact NCBG associate director of development Stephen Keith at 919-843-2411 or skeith@email.unc.edu.



Bill and Mary Coker Joslin generously supported the Garden, and continue their support through planned gifts.



A Garden of Gratitude

BY CHARLOTTE JONES-ROE, DIRECTOR OF DEVELOPMENT

Gardeners are often good planners, because creating even the simplest gardens and landscapes takes thought and consideration. Gardeners don't take for granted the basics like sunshine and rain and are grateful for the reemergence of favorite plants after a long winter. The North Carolina Botanical Garden doesn't take your support for granted, either. I personally want to thank everyone who helped us succeed this year and increased our permanent revenue sources for programs and places at the North Carolina Botanical Garden.

Our largest gifts this year came from founders, volunteers, and other loyal friends who planned ahead, leaving significant gifts for immediate use or to provide permanent resources. Additional trust distributions from William and Mary Coker Joslin continue to build the Coker Arboretum Endowment and provide funds for construction of a new UNC Herbarium. These gifts were in addition to the Joslins' generous contributions throughout the history of the Garden and the gifts made in their honor by family and friends. Volunteer Patricia Aulick's planned gift for general support of the Garden will go a long way to help fund basic operations, staff, and students. Similarly, Julia Irwin's eighth distribution from her charitable lead annuity trust is helping with critical expenses. An additional distribution

from the estate of Barbara Roth arrived to build the Mason Farm Endowment. Barbara defended Mason Farm for nearly half a century, and her planned gift will support management of this research reserve from now on.

A record number of contributors added up to more than 3,600 members. Your dues and additional gifts helped us meet our fundraising goals for general support as well as for specific programs and places. Not all of the Garden's financial support came from individuals. Syngenta Crop Protection's \$50,000 gift for conservation will make a wide range of native plant conservation projects possible. Similarly, the Oak Foundation's \$50,000 for Wonder Connection will provide support for the Garden's program to involve children at UNC Children's Hospital with nature. The Chapel Hill Garden Club presented \$32,500 in proceeds from their 2018 spring garden tour for the Children's Wonder Garden. Florence and Jim Peacock's generous contributions are funding new hands-on interpretive displays for children in the Peacock Children's Discovery Room. Marcella Grendler's challenge for the Garden's entry landscape improvements inspired many contributions, and she has offered an additional match up to \$30,000 for contributions made by our members' annual meeting on November 16.

The Garden offers a number of paid opportunities for students to work at the Garden and gain direct experience in their major or intended career fields. UNC botany alumni Larry Blanton and Candace Haigler gave \$25,000 to complete the permanent endowment that generates funds for the Mary McKee Felton Herbarium Internship. Janice Coffee Swab's gift for the Edward C. Swab Floristics fund will be available immediately to support botanical field work for the Herbarium.

Chicita Culberson made two very generous gifts this year to make sure we have the funds to care for her former home and woodland, Villa Pinea. Our Carolina Campus Community Garden was the recipient of an especially large gift this year from a donor who prefers to remain anonymous. The Burt's Bees Greater Good Foundation contributed toward Living Learning Landscapes (see page 20) and creating a pollinator toolkit for North Carolina. Dave Robert sponsored the Dead Mule event to raise funds for student interns at Coker Arboretum and Battle Park, and he contributed \$15,000 to launch the fund for the replacement of the arbor in the Coker Arboretum.

It's one thing to plan a Garden, but quite another to keep it growing! To help us raise our largest total ever for general support, our members sent in

Continued on page 26.



SCULPTURE
IN THE GARDEN

SEPTEMBER 16 – DECEMBER 9

Our annual outdoor sculpture exhibition unites the work of North Carolina artists with the curated landscapes of the Garden. Free and open to the public.
NCBG.UNC.EDU/SCULPTURE

PREVIEW PARTY, SATURDAY, SEPTEMBER 15, 4:30–6:30 P.M.

Meet the artists, vote for the People's Choice award (announced in October), make early purchases, and enjoy beverages and hors d'oeuvres. Tickets: \$30 per person.

COMMUNITY DAY, SUNDAY, OCTOBER 14, 2–4 P.M.

Tour the exhibit, enjoy refreshments, and vote for the People's Choice Award. At the end of the afternoon, we'll announce the People's Choice Award winner. Free and open to the public.



We appreciate all memberships and additional gifts to the Garden!

Tribute Gifts below were received from January 25 to July 16, 2018.

IN HONOR OF

Brie Arthur

Springdale Estates Garden Club

Lynda Baddour,
on the occasion of her birthday
Duffy and Fred Askin, *for Children's Wonder Garden*

Geoffrey Barton and Shoshana Fried,
on the occasion of their marriage
Emily and Richard Scoville, *for Battle Park Endowment*

Melissa McComb Cain
Kimberly and James Goff, *for Coker Arboretum Endowment*

Nancy Easterling
For the Horticultural Therapy Program
Catherine Alguire
Sandra Brooks-Mathers and Mike Mathers
Pam and Bill Camp
Barbara Carman and Larry Hodges
Sarah and John Dendy
Betsy Donovan
Allison Essen
Nina and Milton Forsyth
Anne D. Geer and David Scott,
for General Support
The Greenbriers
Anne F. Harris
Shawn Hoffman
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Glenda P. Jones
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Stephen L. Keith and Lisa C. Glover
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Susan C. Turbak and Kenneth R. Tindall
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Barbara and Bob Wendell
Fran and Gary Whaley

Elizabeth McIntyre Fitch-Sweet
Nancy G. Schoonmaker

Marilyn Henshaw
William R. Henshaw,
for Friends of UNC Herbarium

Wesley Huppert,
on the occasion of his 2nd birthday
David and Sarah Huppert

Charlotte Jones-Roe
Harriet and D.G. Martin
Grier and Louise Martin
Brandon and Kelly Wright

Mary Kiger
Freddie Kiger, *for Battle Park Endowment*

Margo MacIntyre
For Coker Arboretum Endowment
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on the occasion of her birthday
Katherine Manfred, *for Carolina Campus Community Garden*

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Grier and Louise Martin

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Sherry Morgan, *for Carolina Moonlight Garden Party*

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Harriet and Kimball King, *for Carolina Moonlight Garden Party*

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Charlotte Battle, *for Battle Park Endowment*

Sue Tiedeman
Betty White

Susan Trout
Randy and Robin Mullis,
for Wonder Connection

Damon Waitt
Catharine and Wood Burns, *for Carolina Moonlight Garden Party*

Fran Whaley
Meredith Quinn

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Elizabeth A. Dutton

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William and Mary Coker Joslin
Charlotte Jones-Roe and Chuck Roe

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Endowment

Nancy N. Pruden

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Endowment

**Albert E. Radford, Harry E. Ahles
and C. Ritchie Bell**

"On the occasion of the 50th
Anniversary of publication of
Flora of the Carolinas"
John and Elizabeth Bozeman

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Thompson, *for Coker Arboretum*
Endowment

Bernice Stiles Wade

For Battle Park Intern Program
Frank and Joan Adler
Anthony and Tricia Amitrano
Charles and Jane Byrd
Jewel L. Crawford
Geraldine E. Day
Jan and Jim Dean
Arthur and Mignon DeBerry
Sara P. Faccidomo, *for Battle Park*
Endowment
Deborah M. Hock
Jean Holcomb
Harriet T. Holderness
Stephen L. Keith and Lisa C. Glover,
for Battle Park Endowment
The Kilgore Family—Marge, John,
Johnny, Sara and Megan
Mildred and John Long
James E. Luebchow
Orange County Extension and
Community Association
Josie Patton
Martha and Wilborn Roberson
Barbara G. Schliebe
Becky and Robbie Smith
Jack and Nancy Tomkovick
Bob and Susan Williams

LEAVE A LEGACY

If you would like to speak with
someone about making a special gift
to the Garden, call Charlotte Jones-
Roe at 919-962-9458 or UNC's gift
planning experts at 800-994-8803.

Mary L. Waitt

Carey and Billie Durham
Charlotte Jones-Roe and Chuck Roe
Patti Smith

Jane Carter Walker

Richard I. Walker

Anne Louise Dutton Wharton

Elizabeth A. Dutton, *for Wonder*
Connection

Kemp Winstead

Henry G. Grossberg, *for Battle Park*
Endowment

Richard Harden Ziglar

Mary Clara Capel, *for Battle Park*
Expendable and Coker Arboretum
Improvement Fund

Charles Zimmerli

Jeanne P. Duggan

Continued from page 24.

unprecedented annual gifts, including extra contributions from Harriet and D.G. Martin, Greg Fitch and John Sweet, Tom Kenan, James and Beth Joslin, and David and Laurie Joslin.

Especially gratifying is the growth of permanent endowments to provide for some of the Garden's special places and programs. The Coker Arboretum Endowment basis has surpassed \$1.2 million and generates more than \$50,000 per year for staff as well as student assistants. The newer Battle Park Endowment generates more than \$13,000 for staff and interns who care for our campus forest. The Herb Garden Endowment, established by Garden

volunteers in the early days of the Garden, now provides more than \$25,000 annually toward care of the Mercer Reeves Hubbard Herb Garden. These and other permanent endowments, totaling more than \$4 million, generate more than \$200,000 each year to support free public lectures, plants and displays, exhibits, and internships.

You have helped us achieve or exceed all of our fundraising goals for the year, and you have invested in the Garden's future as well. I am grateful for my colleagues, past and current staff, as well as all the many volunteers, students, and members who built and continue to care for the North Carolina Botanical Garden.

We follow in the footsteps of people who have done whatever they could to advance the mission of native plant conservation, and, in some modest way, to preserve our beautiful planet.

With gratitude,
Charlotte Jones-Roe
Director of Development
(919) 962-9458

Stephen Keith
Associate Director of Development
(919) 843-2411



IN THE GARDEN SHOP

Folding pocket guides are designed to be an indoor/outdoor quick reference filled with tips and resources for your home garden needs. We carry a wide variety of titles including *Bugs and Slugs*, *Edible Wild Plants*, *House and Garden Pests*, *North Carolina Trees and Wildflowers*, *Butterflies and Moths*, *Invasive Weeds*, *Garden Insects and Bugs*, *Dragonflies and Damselflies*, and many more.



THANK YOU, COMMUNITY PARTNERS!

CONSERVATION VISIONARIES



HABITAT SUSTAINERS



GARDEN SUPPORTERS



MARK YOUR CALENDAR

September 15
**Sculpture in the Garden
Preview Party**

September 28 & 29
Fall Plant Sale

October 26
**Boo-tanical:
Pumpkins in the Garden**

November 4
Jenny Elder Fitch Lecture
featuring Brie Arthur

November 16
**Botanical Garden Foundation
Membership Meeting**

December 7
**Botanical Garden Foundation
Holiday Party**

December 8 & 9
**Winter in the Garden
Holiday Festival**

For more information:
ncbg.unc.edu/2018-events

BECOME AN EVENT HOST

Would you like to sponsor one or more of the Garden's signature events by becoming an Event Host? We can customize a hosting program that meets your individual needs and philanthropic goals. For more information, please contact Stephen Keith at skeith@email.unc.edu or call 919-843-2411.

North Carolina Botanical Garden

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