

SUMMER 2015
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Extension Gardener provides timely, research-based horticultural information. We publish four issues per year. Send comments about *Extension Gardener* to:

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Special Issue: Native Plants

Welcome to a special issue of *Extension Gardener*. All articles in this issue focus on native plants and how gardeners across North Carolina can incorporate more natives into their landscapes. Why did we decide to focus this issue on natives? To start with, you asked for it. In our 2014 survey, readers indicated native plants were the top issue they wished to learn more about in 2015. Equally important, we feel all gardeners should be aware of the critical need to increase the use of native plants in landscapes.

The key to understanding why increasing the use of natives in our gardens is so important lies in recognizing the essential role native plants play in supporting biodiversity and the ecosystem services needed to sustain our environment. Ecosystem services are the essential benefits we receive from nature. These include pollination of crops and plants by bees and other pollinators, purification of water as it filters through plant roots and soil, and the moderating effect forests have on our climate. When native plants are removed from an area, the biodiversity of that area, and the ecosystem services that result from it, are diminished. Planting locally native species empowers gardeners to care for nature and preserve biodiversity.

So, what exactly are native plants? They are those species that evolved naturally in a region without human intervention. Red maple (*Acer rubrum*), flowering dogwood (*Cornus florida*), and butterfly weed (*Asclepias tuberosa*) are examples of the more than 3,900 species of plants native to North Carolina. These plants have



Joe-pye weed and swallowtail butterfly ©Charlotte Glen



Coral honeysuckle and hummingbird
©wingbeats551/Bigstockphoto.com



Luna moth
©Tom Coleman, USDA Forest Service, Bugwood.org

developed and adapted to local soil and climate conditions over thousands of years. Because they have coevolved with pollinators, insects, birds, mammals, and other wildlife, native plants are vital parts of our local ecosystems and are necessary for the survival of many species that occur in North Carolina.

When defining native plants for landscaping, it is essential to define the region to which you refer. North Carolina has three distinct regions: (1) the coastal plain and sandhills, which extends from the Atlantic coast inland to the Fall Line; (2) the piedmont, which encompasses the center of the state; and (3) the foothills and mountains that make up the western part of our state. When adding natives to your landscape, benefits such as tolerance of local conditions and value to wildlife will be strongest if you select plants native to your region.

The next time you consider adding new plantings to your landscape, keep this in mind: Any

Extension Showcase

NC State's Going Native at ncsu.edu/goingnative

North Carolina is home to an amazing diversity of wildlife, including many species of plants our native pollinators, birds, and wildlife need to survive. When forests and natural areas are cleared to make way for homes and businesses, wildlife loses out because their homes are destroyed. Altering natural areas so they are no longer able to support native wildlife is known as *habitat loss*—one of the greatest threats to native plants and wildlife here and around the world.

But there is something you can do: restore wildlife habitat in your yard by planting native plants that provide food and shelter for native wildlife. A website developed by specialists with NC State's Wildlife Extension Program makes this task easier than ever by providing the information you need to choose and establish native plants for wildlife habitat.

The **Going Native: Urban landscaping for wildlife with native plants** website offers expert advice and instructions on how to incorporate native plants for wildlife habitat in your yard. The site includes a searchable plant database that allows you to create a personalized list of native species for your landscape. The database includes large and small trees, shrubs, wildflowers, ferns, and grasses. Most important, you can search for plants adapted to the conditions found in your yard, such as sun or shade and dry, moist, or wet soil. Choosing plants adapted to the site in which they will be planted is the key to success with any planting.

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Smart Gardening: Choosing the right native for the site

When planting natives, many gardeners find they don't know what rules to follow. Just because natives grow here naturally, they still have specific growing requirements. The rules that apply to selecting and establishing any plant are the same when planting natives. You still have to choose the right plant for the site.

The best way to establish a native landscape is to first learn about the habitat where the plants grow naturally and visit the plants in the wild. Take butterfly weed (*Asclepias tuberosa*), for example. Where does it grow in the wild? Usually in dry sunny spots. So, it wouldn't be a good decision to place butterfly weed in a wet or shady spot where it would succumb to root rot or languish from lack of sun.

In addition to sun/shade exposure and soil conditions, take note of a plant's mature size so you will know how much space to provide. Also consider whether the plant is a spreader. Plants that spread by underground roots, such as bee balm, work well in natural areas but may not be the best choice for small spaces.

As with any gardening project, do your homework before you plant. Be aware of potential insect or disease problems. Just because a plant is a native doesn't mean it can't have pest issues, but these are usually not severe. For example, caterpillars of native moths and butterflies may feed on native foliage but their feeding activity rarely causes serious damage.

Remember that newly planted natives require just as much water to get them established as non-native plants. Many wonderful natives are out there just waiting for a home in your landscape. The key to success is to choose wisely.

—Donna Teasley



Asclepias species such as swamp milkweed are essential to monarch butterflies.
©Rob Routledge, Sault College, Bugwood.org

Food Production: Planting edibles for insects

Put a new spin on edible gardening by adding plants that will feed the immature forms of beneficial insects and pollinators, such as hoverflies, soldier beetles, and butterflies. Fortunately, many of the native plants that attract beneficial insect adults also sustain future generations by offering sustainable food sources for insects' often overlooked immature life stages. Native trees such as oaks, cherries, hickories, maples, and pines host over 1,000 different native caterpillars, which mature into beautiful, interesting moths and butterflies and also serve as critical food sources for birds. Oak trees can support over 500 different species. Hickory trees play host to over 100 different species, including the hickory horn devil caterpillar. Small trees and shrubs such as sassafras and spicebush are host plants for the spicebush swallowtail and tulip tree beauty caterpillars. Smooth sumac, bayberry, blueberries, and passionflowers also support many native caterpillar species.

Perennials such as goldenrod, joe-pye weed, black-eyed susan, and asters are magnets for many native pollinators and predatory insects. Goldenrod is a favorite of soldier beetle adults and larvae, which are predators of grasshopper and moth eggs. Asters and coreopsis attract predatory hoverflies whose larvae also feed on the nectar, pollen, and leaves of these plants. *Asclepias* species, commonly known as milkweed and butterfly weed, host monarch caterpillars as well as milkweed leaf beetles and milkweed longhorn beetle larvae.

If you are concerned that instead of a garden, you are planting a buffet for insects, remember that native plants have coevolved with native insects. Unlike invasive insect species, native insects will not totally eliminate their food sources. Supply an abundance of different plants so that you can support beneficial insects and also maintain the beauty of your garden.

—Sam Marshall

Pest Alert: Emerald ash borer—A new threat to ash trees

North Carolina has four species of native ash trees: white (*Fraxinus americana*), green (*Fraxinus pennsylvanica*), Carolina (*Fraxinus caroliniana*), and pumpkin ash (*Fraxinus profunda*). Ash wood is strong and resilient and is used to make baseball bats, tool handles, and other products requiring strength and durability. White and green ashes are also widely planted as landscape specimen trees.

Emerald ash borer is a small metallic-green beetle that bores into ash trees, eventually killing them. This non-native beetle was first spotted in Michigan in 2002 and was first confirmed in North Carolina during 2013, in Granville, Person, Vance, and Warren counties. A new infestation was revealed in Wayne County in March 2015. These counties are currently under quarantine, and the movement of ash wood products out of these areas is restricted.



©David Cappaert, Michigan State University, Bugwood.org

Gardeners should be on the lookout for emerald ash borer. Adult beetles emerge from trees in May leaving a characteristic D-shaped exit hole. Females lay eggs on the bark, and the larvae bore beneath the bark, creating distinctive tunnels or galleries. Initially the upper canopy of affected trees begins to thin and die. Affected trees often exhibit heavy woodpecker damage. Death of infested trees occurs rapidly—in as little as two to three years.

Little can be done to protect or save trees in a forest environment. To minimize the spread of emerald ash borer, observe all quarantine restrictions and buy firewood locally. If you suspect emerald ash borer infestation in ash trees on your property, contact your county Cooperative Extension center.

— Randy Fulk

Regional Focus: Deer-resistant natives

The Eastern white-tailed deer can be a pest in NC piedmont gardens. Although at times it seems as if deer will eat anything, they are actually picky eaters. There are quite a few native plants deer prefer not to eat. Deer are browsers, not grazers. They prefer woody or broadleaved plants and seldom feed on grasses. While no native grasses are suitable for a lawn, several have value in the landscape as ornamentals, including little bluestem, panicgrass, and river oats.

Piedmont native trees deer are less likely to damage include river birch, hawthorn, honey locust, red buckeye and American holly. Shrubs typically bear the brunt of deer feeding, particularly in winter. Wax myrtle, inkberry, and leucothoe are native evergreen shrubs that offer good deer resistance and are attractive yearlong. Native deciduous shrubs with good deer resistance include sweetshrub, American beautyberry, fothergilla, and clethra, also known as summersweet.

Deer love the flowers of most plants, but a few piedmont native perennials have proven deer resistant. These include eastern columbine, bluestar, butterfly weed, mouse-ear coreopsis, alum-root, and joe-pye weed. Green and gold and partridgeberry are native ground covers rarely damaged by deer. In addition, deer rarely damage ferns, which make attractive ground covers in shady sites. Add vertical interest to your landscape with deer-resistant native vines such as crossvine, coral honeysuckle, and Carolina jessamine. A few natives are deer favorites and are likely to be frequently damaged if not protected by fencing or sprayed with deer repellents. This is especially true when these plants are grown near woodland edges or areas where deer travel. Piedmont natives that are most prone to deer feeding include redbud, fringe tree, strawberry bush, Virginia sweetspire, and black-eyed susans.

— Randy Fulk

Buying Native Plants

Where to buy native plants is one of the greatest challenges gardeners face when trying to incorporate natives into their landscapes. The good news is that many nurseries and garden centers are paying more attention to native plants.

The types of natives you will most likely find at garden centers are species that are easy to propagate, fast growing, adaptable to a wide range of landscape conditions, and that have showy flowers. A few NC natives that fit this category are redbud, dogwood, rhododendron, coral honeysuckle, joe-pye weed, and orange coneflower.

Many less common natives are excellent landscape plants and deserve to be more widely planted. If there are certain plants you can't find, ask your local garden center if they can get them for you. This will make the center aware of which varieties their customers are interested in purchasing and create demand for a greater diversity of native species.

If you have trouble purchasing a specific native plant locally, you may be able to find it at a mail-order or online nursery that specializes in native plants. Both the NC Native Plant Society (ncwildflower.org) and NC Botanical Garden (ncbg.unc.edu) maintain lists of native plant nurseries on their websites. Happy shopping!

— Charlotte Glen



Butterfly weed (*Asclepias tuberosa*)
© David Stephens, Bugwood.org

Going Native website

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You can also search for plants that will provide habitat for specific types of wildlife, such as nectar for hummingbirds, larval food for butterflies, or seeds and fruits. You can even specify your NC region (coastal plain, piedmont, or mountains) and if you need the plants to be deer-resistant. The site also provides links to help you find nurseries where you can buy natives.

Steps to using native plants for wildlife habitat are explained in detail. In addition, there is a list of invasive exotic plants to keep out of the landscape. These non-native plants can invade and overtake natural areas, and are another cause of habitat loss. Discover more about landscaping with natives for wildlife by visiting ncsu.edu/goingnative.

—Charlotte Glen

Native Plants

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plant can add beauty, but only native plants can sustain wildlife and help you to connect with the natural heritage of your region. We hope you enjoy this special issue of *Extension Gardener* and that it inspires and empowers you to incorporate more species of native plants into your landscape.

—Charlotte Glen



Liatris and bees ©Charlotte Glen

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Audubon North Carolina: Bird-friendly native plants of the year

Would you like to grow native plants in your yard to benefit birds, the environment, and the local economy? According to Kim Brand, Audubon's Bird-Friendly Communities Project coordinator, that is the goal of Audubon North Carolina's Bird-Friendly Native Plants of the Year. To make sure native plants are available to the state's gardeners, Audubon has recruited nurseries across North Carolina to grow native plants that benefit our birds. Now it's time for gardeners to show their support and help native plants resurge in landscapes across the state. Shop and grow local with Audubon's Bird-Friendly Native Plants of the Year. Look for plants sporting tags with the program's logo at a garden center near you. To learn more about the program, see featured plants, and locate participating retailers, visit nc.audubon.org/bird-friendly-native-plants-year-gardeners.

—Shawn Banks



© Audubon North Carolina

Incredible Edibles: 'Von' blackberry

As a North Carolina native, blackberries are one of the easier fruits to grow in our climate. 'Von' is a new cultivar of blackberry recently released by Gina Fernandez and Jim Ballington from their small fruit breeding program at NC State University. What makes this cultivar so special? One of the biggest complaints people have about blackberries are their large seeds. 'Von' has a smaller seed than most market blackberry cultivars. This alone would make it a great selection to grow. It also has low acid and sweet flavor, and holds up as good or better than most blackberry varieties on the market for staying fresh once harvested. 'Von' blackberry is a heavy producer of fairly large berries late into the season. Although it doesn't have the largest berry size, 'Von' blackberry plants produced more weight per plant than most varieties currently grown. Try 'Von' blackberries for a small-seeded, tasty treat.

—Shawn Banks

Sustainability: Be water-wise with drought-tolerant natives

Would you like to conserve water by planting natives adapted to your region's climate and soil conditions? Are you interested in planting natives, but don't know where to start or if natives will work in your landscape? The good news is you do not have to sacrifice beauty to establish a drought-tolerant landscape filled with NC native plants. With nearly 4,000 species native to our state, you are sure to find easy-to-grow varieties that will thrive in your yard.

There are many drought-tolerant natives—from flowering perennials to trees—that gardeners can plant. Some great drought-tolerant native trees include persimmon, serviceberry, and redbud. Persimmon and serviceberry have edible fruits, while redbud has beautiful flowers in early spring. Some drought-tolerant native vines that will add vertical interest to your garden include Virginia creeper, which has beautiful fall color, and coral honeysuckle, which bears red showy flowers in spring and summer.

Oakleaf hydrangea, New Jersey tea, wax myrtle, and American beautyberry are great drought-tolerant shrubs that will grow in most areas of the state. Just remember to choose the right plant for your site by researching any plant's sun and soil preferences before planting.

If you prefer flowers, there are many drought-tolerant choices. Many native perennials are multipurpose plants. They can be planted in landscapes for beauty and included in vegetable gardens to entice pollinators and beneficial insects. Incorporate drought-tolerant native perennials such as butterfly weed, wild indigo, threadleaf coreopsis, moss pinks, Eastern columbine, and coneflowers (both *Rudbeckia* and *Echinacea* species) to increase your landscape's beauty and sustainability.

—Dannelle Cutting