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Feature Article, Feature Plant, Good or Bad?, Quick Tip:, Garden Visits,  
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# The Gardener's Dirt

Johnston County Center

May 2017

## Feature Article

### Bee Hotels - Artificial Habitats for Native Pollinating Bees

Jody Boronkay, Extension Master Gardener Volunteer



Photo Courtesy of Marshall Warren  
Marshall Warren & Jody Boronkay



Photo Courtesy of Jen Kehr  
Jen Kehr & Paul Papineau

The "Keimy Bee Hotel" is officially open for residential native bees! It is located at the Johnston County Extension Office, just at the edge of the beautiful "Choice Plants Garden".

The concept of building a Bee Hotel seemed to be a perfect way to honor my Aunt, Susan Keim Eichelberger, who passed away late last year. She was a remarkable woman with a great sense of humor. Next to her family, particularly her 3 grandsons, Susan was one of us, passionate about her garden. I approached my three siblings with the Bee Hotel Memorial concept and all agreed it was the perfect idea; providing shelter for native bees, in a silly thing called a BEE HOTEL to encourage pollination of more flowers! Very fitting of my Aunt's sense of humor -

### What's all the Buzz about Native Bees?

Approximately 20-30 percent of the 4000 native bees in North America nest in small tunnels of hollowed plant stems and vacated insect holes bored in logs. North Carolina is home to over 500 species of these native bees. With rapidly developing land, and the effects of urbanization, these natural nesting areas are diminishing at an alarming rate! Over-application and misuse of pesticides, especially by homeowners, are an additional factor threatening pollinators as well.

Native bees are important contributors to our food production and their well-being is directly linked to our nutritional well-being. Without pollinators, the variety of many foods, including fruits, vegetables, coffee, chocolate and many of the oils we use in cooking, would no longer be available for our consumption.

*"If the bee disappeared off the surface of the globe then man would only have four years of life left"*  
- Author unknown

Native bees are excellent pollinators, surpassing honey bees in taking pollen from flower to flower. Native bees tend to cover themselves in pollen while extracting nectar; in contrast, honey bees are very methodical foragers, just barely getting their feet in pollen while gathering nectar. This pollination is so vital to the fertilization process for seed and fruit production of flowers, trees, shrubs and agricultural resources - the ultimate sources of the very foods we consume!



Unlike the honey bees that live in large colonies native bees prefer to lay their offspring in nesting tunnels, individually. They are often referred to as solitary bees because of their individual nesting life style.

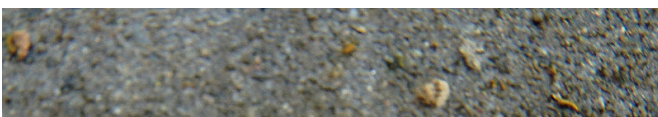
There are spring and summer solitary bees, two of the most common are the spring nesting Mason Bee and the summer nesting Leafcutter bee.

Mason bees are very efficient pollinators as they move erratically throughout the garden visiting many more blossoms. This ensures superior cross pollination leading to more seed production. In addition, Mason bees are sloppy eaters and have special tiny hairs all over the abdomen, called the scopa, that gather pollen.

The leafcutter bees nest in the warmer months of summer and use pieces of leaves to carry back to their tunnels for their brooding cavities.

Solitary native bees lay their eggs in the tubes or tunnels and mix together bee bread made up of pollen and nectar to feed their larva.

They build partitions using mud, leaves and other plant material, lay an egg, and continue this sequence until they reach the end of the







Photos Courtesy of Wikimedia



Photo Courtesy of Elsa Youngsteadt

tunnel. The female bee is able to determine the sex of each egg and lays the female eggs furthest into the tunnel with the male eggs laid closer to the opening. It is thought that the female does this to protect the more valuable female eggs from parasites and predators. The ends of the tunnel are then closed with mud or plant matter.

### **Location, location, location!**

The nesting site for artificial bee hotels is very important and should be placed strategically to avoid the worst of weather, with entrance holes facing toward the east or southeast for the warm morning sun. Bee shelters should never be in a hanging position and always secured to a stationary fixture to avoid swaying in the wind.

Providing plenty of food sources surrounding the bee habitat in the form of pollinator plants is imperative. Native bees forage for pollen and nectar within 200 yards from where they emerge. We chose plants from the Top 25 Native Plant list for North Carolina, created by Debbie Roos, Agricultural Agent, NC Cooperative Extension - Chatham County Center. Native plants have the morphology (structural design) which allows the bees efficient access to nectar and pollen. Careful planning when choosing native plants is important in order to provide blooming plants for spring, summer and fall foraging seasons.

### **The "Keimy Bee Hotel" - A Gold Star Hotel!**

The actual design of our bee hotel was inspired by a beautiful bee hotel in France. The added architectural details were incorporated by Horticulture Extension Agent - Marshall Warren. In fact, he designed several nesting boxes with clear viewing portals to observe the development of the bee larva. Paul Papineau, father of Master Gardener Jen Kehrer, generously offered his skills in building the structure of pressure treated wood. Once the design was under construction we began gathering nesting materials. Our nesting cavities consist of bundles of reeds, pieces of wood logs, bamboo and pre-made nesting boxes and tunnels purchased through Crown Bee Suppliers.

Fellow Master Gardener, Dave Allison, was called upon to be the lead as our "Drill Master." After in-depth research, we embarked on the tedious task of drilling tunnels. Who would have thought native bees could be so fussy about their living accommodations at our hotel! Each tunnel was placed  $\frac{3}{4}$ ' off center and hole sizes varied from  $\frac{5}{32}$  inch to  $\frac{5}{16}$  inch in diameter. Each block of wood having only one size

hole, as similar bees like to nest nearby each other. Every hole had to be counter drilled to ensure a smooth finish to a length of no longer than 7 inches deep. The reeds were cut at nodes to ensure a closed end. Our nesting blocks were designed into two pieces, Marshall's clever design to allow easy access for parchment paper straws lining

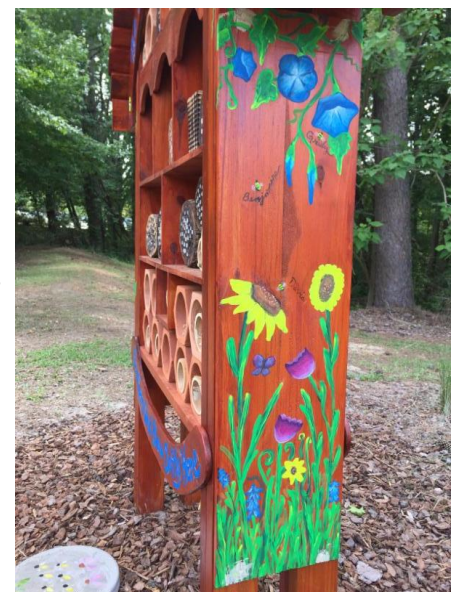


Photo Courtesy of Marshall Warren

each tunnel to be replaced as needed.

Jen Kehrer brought our structure to life with her artistic magic. She created murals we painted together with special bee attracting fluorescent paint. Did you know native bees are attracted to the colors blue and yellow? It's true! Another common way to attract bees is by burning the ends of the tunnels and tubes to blacken them, apparently, bees like black too!

If you look closely at the murals, you will find three dear little bees named Benjamin, Grady and Davis, representing my Aunt's three precious grandsons.

I am eternally grateful to Marshall for his leadership, creative interpretation and tireless efforts throughout this project. Paul's woodworking skills brought our vision to fruition and Jen's artistic talents brought it to life. Dave spent countless hours meticulously drilling each hole and is now, fondly, known as our Hotel Manager! Master Gardener Margery Pearl's sprinkling of native plants from her personal garden completes it beautifully.

It is quite a sight to behold as you approach the stairway down to the "Choice Plants Garden", bright and ever so welcoming!

My family will be touched beyond words -

There are no limits to what we can achieve when we work together for such a valuable resource in the gardening world.

**Resources:**

The Xerces Society [www.xerces.org](http://www.xerces.org)

Top 25 Native Pollinator Plants for North Carolina - <https://growingsmallfarms.ces.ncsu.edu>

[www.carolinapollinatorgarden.org](http://www.carolinapollinatorgarden.org)

<http://ecoipm.org/native-pollinators/>

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## Feature Plant

### ***Viburnum* x 'Nantucket'**

*(Grown and recommended by Johnston County Nurserymen)*

**Marshall Warren, Horticulture Extension Agent**





Photos Courtesy of US National Arboretum

Viburnum 'Nantucket' is a beautiful cultivar that was released from the National Arboretum's shrub breeding program and was selected for its consistent, prolific, large, mildly fragrant, branched white flowers that cover the plant in April. Its thick and narrow dark evergreen leaves make it useful as a specimen plant or a foundation plant. It can be useful as a hedge, mass planting, or as a backdrop in the shrub border, and it also performs well as a container plant. Its growth habit is relatively compact, upright and narrow, reaching 12 feet tall and 7 feet wide in 16 years. It grows in full sun to part shade. It displays superior heat and drought tolerance, and would make an excellent choice for the pollinator garden, and it is deer resistant. This plant will make a wonderful addition to your home landscape.

## Good or Bad?

### Colorado Potato Beetle

**Tiffany Whichard, Extension Master Gardener Volunteer**



Photo Courtesy of Clemson University

Colorado Potato Beetles are a very common, unwelcome visitor in most gardens. Chances are you've seen the round, yellow beetles, with ten black stripes along their wings, looking to munch their way through your crops. Although they like to feast on potato leaves and shoots, they'll also happily make a meal of tomatoes, eggplants and peppers.

These pests overwinter in garden soil, in potato plots and along field margins. During the spring, they become active and start to mate. The females then lay clusters of 10-30 yellow eggs on the underside of leaves. Each female can lay a staggering 350 eggs during her adult life, so you definitely need to be prepared! Remember, the best thing you can do is to be vigilant in your garden.

Eggs may begin to hatch within as little as 2 weeks, depending upon air temperatures. Larvae remain in groups near the egg mass but, as they mature, they'll move through the plant and eat leaves. They can develop in as little as 10 days if average temperatures are warm. As larvae grow, they will eventually drop from the plant and burrow into the soil, continuing the cycle.

Both larvae and adults feed, which can reduce your yields or even kill your plant, which means this beetle is something you'll want to take action on. Unfortunately, the potato beetle is notorious for its ability to develop resistance to so many insecticides, so it is best to use multiple methods to try to manage them.

The easiest way to prevent damage is to protect your plants by draping them with a floating row cover. This is a lightweight blanket that still permits water and sunlight in and can be removed when you are ready to harvest.



Of course, you can handpick the larvae and adults off too and destroy them. Research has indicated that mulching your plants (when feasible) with straw may not only make it more difficult for beetles to find the plants but may encourage natural predators (such as ladybugs and lacewings) that will feed on the eggs and larvae. And creating a deep, plastic-lined V-shaped trench around your potatoes will also help too, as it will reduce the number of beetles that reach your plants once they've emerged from the soil. Some of the beetles will fall in and be unable to get out.

Of course, you can also plant early-maturing varieties such as Yukon Golds that will be larger and more resilient before the bulk of the Colorado Potato Beetles become problematic. If you'd like other hints and tips on how to combat these troublesome critters, please don't hesitate to give us a call!

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## Quick Tip:

### Go Ahead, Dig In The Dirt!

**Silvia Caracciolo, Extension Master Gardener Volunteer**

If you don't like to wear gloves, before beginning to work in the garden - scrape a bar of soap with your fingernails first. It makes cleaning those nails a lot faster and easier!



Photo Courtesy Marshall Warren

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## Garden Visits

### "A garden for every child. Every child in a garden."

**Silvia Caracciolo, Extension Master Gardener Volunteer**

Imagine a classroom in a garden where well-kept plants thrive, flourish and grow along with the young minds that tend to them. It is inspiring to realize what can be gained by students who have the opportunity to participate in a school garden. After working with some school gardens, I wanted to know more about their history in the United States.

Toward the end of the 19th century, school gardens inspired by those in Europe were first developed in the U.S. The Puritan work ethic of the time along with the belief that the fresh air, physical exertion, character building and hands-on study of nature would be beneficial to children gave birth to the school garden

movement here in America. With the Industrial Revolution came urban growth and educators' concern for city children deprived of the benefits of nature. With the beginning of WWI came a need to help with the war effort by having schools help grow food. Combining these two concerns, the Bureau of Education, which was within the Department of the Interior, created the United States School Garden Army with funding from the War Department in 1917. Its motto was "A garden for every child. Every child in a garden". With the creation of this "army", school gardens became a patriotic movement as well as an educational movement.

These students took away lifelong skills and applied them later in life. A second need for a gardening movement arose during WWII and the "Food for Freedom" gardening campaigns began. It is believed that

Victory Gardens were established as a direct result of adults who participated in the U.S. School Garden Army during WWI. Patriotism and gardening combined again, resulting in 21 million Victory Gardens providing approximately 40% of all fruits and vegetables consumed during WWII!

School gardens are just as important to education and the future health of our children today. Educators, school volunteers, and eight Extension Master Gardener Volunteers are committed to pull curriculum outdoors in four gardens during and after school hours in Johnston County. Vegetables, herbs, butterfly and caterpillar gardens have been established to build a better understanding of the relationship between successful pollination and gardens. These students see a direct relationship from garden to table. At one school, the cafeteria personnel prepare the crops for the students to eat. At another school, the children take home part of their crop to cook at home. A teacher reported it is hard to keep them out of the garden and some had never had their hands in garden soil before! Their pride bursts when the crops are harvested!



Photo Courtesy of John Lampe

A feeling of ownership of the garden provides each student with a sense of responsibility and develops lifelong skills. Through hands-on experience, students gain basic knowledge of natural sciences, mathematical computations and are exposed to the concepts of proportions, percentages, averages, geometry, production, consumption, economics and more. This all contributes to the development of an assortment of important skills, including vocational skills. From their experience of preparing the garden and maintaining the beds, students gain an understanding of agriculture and the work that is involved in bringing food to grocery store shelves. A better understanding and appreciation of good nutritional choices is gained from the experience of growing and tasting the fruits of their labor.

So many life-long lessons can be cultivated in a school garden!

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## Monthly Garden Tasks

### May Garden Tasks

#### LAWN CARE

- Don't fertilize cool-season turfgrass (fescue, bluegrass). It has been growing actively all winter, and it will begin to go dormant as summer heats up. Let it slow down naturally, and it will be better able to withstand the heat and drought of summer. Call for a Lawn Maintenance Calendar for your type of turf. It tells you how to care for your lawn month by month - such things as fertilization, mowing and watering. <http://www.turfinfo.ncsu.edu/turfgrasses>
- Most of the weeds you see now are winter annuals. The time to control these was last August. In a couple of weeks, the weather will be too hot for these winter annuals, and they will start dying. Don't waste your time and money to spray them with herbicide. The best thing to do is mow them before they produce and spread seed. Put it on your calendar to spray for them in August.
- Warm-season grasses such as Bermuda, Zoysia or Centipede can be planted now. Mow cool-season grasses, such as Fescues, at a height of 3- 3 1/2 inches to help them survive hot, dry periods.

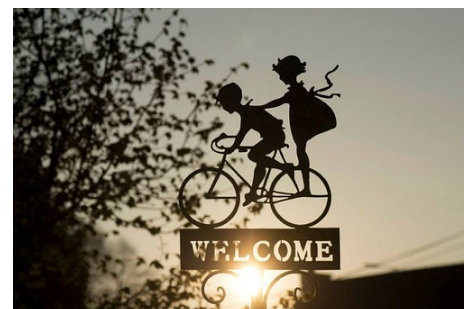


Photo Courtesy of Pixabay

#### TREES, SHRUBS and ORNAMENTALS

- Pinch your plants. Use your index finger and thumbnail to break out the lead growth at tips of branches. Pinched plants have shorter, sturdier stems, more lateral branching and more blooms. Pinch back mums, zinnia, salvia, cockscomb (celosia), petunias, marigolds, snapdragons, and garden

phlox.

- It's time to plant summer beauties such as gladiolus, dahlias, caladiums, cannas and all those colorful bedding plants.
- Dead or diseased limbs on woody ornamentals should be apparent by now. Prune them out.
- Stake floppy plants, such as peonies, dahlias, and Boltonia (Michaelmas daisy), while they're small so they'll have support when they need it. After plants have grown large, they are difficult to stake.
- Cut roses properly. Removing too much wood and foliage when cutting flowers can seriously weaken your rosebushes, especially during the first year. Leave 2-3 well developed leaves (groups of five leaflets, not three) between the cut and the main stem.
- Grow great bearded iris by giving them excellent drainage, fertile soil, sunshine, and beds free of competing weeds and grass. Divide frequently (in August) for larger and finer blooms.
- Prune spring-flowering shrubs after they bloom. The best time to prune azalea, rhododendron, forsythia, spirea, flowering quince, kerria, pieris, and weigela is just as flowers begin to fade. Don't wait till summer, or you'll cut off next year's flower buds. To keep your shrubs ever young, prune one-third of the oldest canes back to the ground each year.
- Prune wisteria frequently throughout the summer to control vegetative growth and get better blooms next spring.
- Keep dogwoods healthy. Spot anthracnose and powdery mildew are two major disease problems that show up on dogwood trees in late spring and summer. To help dogwoods overcome diseases keep them watered, maintain soil fertility, and clean up fallen leaves to minimize the spread of the disease.
- MULCH! Prepare for dry summer weather and control weeds at the same time by using a layer of mulch 2-3 inches thick.
- Banish bermudagrass (wiregrass) from your planting beds. Keep it pulled to prevent it from overrunning your garden.
- Plant seeds of annual vines such as moonflower, scarlet runner beans or passionflower. Mix plants with the same growing requirements in your container gardens. Do not mix sun-loving and shade-loving plants together in the same container.

## VEGETABLES & FRUITS

- Plant veggies now that the soil is warm and the danger of frost is past. Sow seeds of beans, squash, cucumbers, and corn. Set out transplants of tomatoes, peppers, eggplant and okra. Pinching also works well for many vegetable plants, including tomatoes and peppers. See ["How to organize a garden"](#)
- Watch for slugs. These soft, slimy, slender pests have a special taste for tender young crops. Holes in leaves or on the leaf margins and a silvery slime trail in the morning indicate a slug feast the previous night. Slugs hide under boards, stones or debris during the day.
- Train and support tomatoes, pole beans, peppers and eggplants. Side dress sweet corn when it is knee-high.
- Make consecutive plantings of beans over a few weeks to extend your harvest.

## LANDSCAPE IDEAS

- Plant vegetables in your flowerbeds! Eggplant, pepper varieties, and cherry tomatoes make colorful additions to the garden. Bush beans and climbing beans have attractive foliage and charming small flowers. Vegetables can also mingle with flowers in pots on a patio or deck.
- Welcome back hummingbirds! Females will be in the area first; the males will follow soon. Salvias, honeysuckles, penstemons, and other tube-shaped flowers, especially red ones, will attract hummingbirds to your garden. Fill feeders with a solution of 1 part sugar to 4 parts water. Wash feeders and replace the food at least twice a week.

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# Cool Connections

[NC Extension Gardener Manual](#)

[Past Issues of Gardeners Dirt](#)





[NCSU Publication Links](#)

[NC Extension Gardening Portal](#)

[NC Extension Plant Database](#)

[Going Native \(Selecting and Planting Native Plants\)](#)

[NCSU Pruning Trees and Shrubs](#)

[Cooperative Extension Search](#)

[Field Guide to the Southern Piedmont](#)



Photo Courtesy of Pixabay

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## Upcoming Events

**\*\*Extension Master Gardeners ONLY\*\***

**NC Extension Master Gardener College Update**

***Improving Your Gardening GPA* -Good Planting Advice  
June 8-11, 2017 at NC State University**

To register, visit [go.ncsu.edu/ncemg-college](http://go.ncsu.edu/ncemg-college). Early registration for \$125 ends on May 21. On May 22, the registration will be \$145. EMGVs can also get subscribed to the NCEMG listserv by visiting [go.ncsu.edu/subscribe-emgv-listserv](http://go.ncsu.edu/subscribe-emgv-listserv) to get updated info send right to their email!

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NEWSLETTER EDITED BY: Marshall Warren and Silvia Caracciolo

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For accommodations for persons with disabilities, contact Bryant Spivey at (919) 989-5380, no later than five business days before the event.

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