



Over The Garden Gate

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My Battle with Voles or not “Making a Mountain out of a VOLE Hill”

Terri Andrews

First some Background... I took pride in my beautiful rose bushes and enjoyed viewing them from my patio. But one day, one of the roses looked like it had the beginnings of a disease. Under close examination, I couldn't tell for sure what was affecting it. Maybe a blight? The next day it was dead, and the rose next to it was showing the same symptoms. I tugged on the shrub and it came out of the ground with no effort at all. The roots were gone!

I took a good look around my property and found a few tunnels. There were signs that more plants may be affected. I had VOLES! Our garden was going to be on the upcoming Garden Walk, so you can imagine the panic I was in.

I reviewed my Master Gardener handbook for solutions, and here are some of the facts:



The Meadow Mole

There are two types of voles in our area: **Meadow Mice** (*Microtus pennsylvanicus*) has coarse fur and larger eyes. The **Pine Vole** (*Microtus pinetorum*) (also called Orchard Mice) has short fine fur and indistinct eyes. Both are small mouselike rodents. With all the time I spend in my garden, I've only seen one, and it was so fast to retreat that I couldn't identify which type it was.

Habitat

Voles burrow beneath the soil surface (they favor soft soil) 1-2' deep. I find this amazing since I have hard-clay soil, but they have no problem burrowing through it. The shallower tunnels are just beneath their food source of roots, and they nest in deeper tunnels. Voles are commonly found near

woodland areas which is why I may have more activity than other properties in my area since one-half of my property is wooded. Voles are not to be confused with MOLES, which eat grubs and insects in the ground, NOT plants. Moles can be more easily controlled by traps or killing underground insects and grubs with insecticides and, consequently, removing their food source.

You can estimate that ten voles will occupy a range within 50' range of a nest. They are less active in cold and dry weather.

Diet

Voles are herbivores and will consume primarily roots, tubers, and bulb. Luckily, daffodils (my favorite spring plant) are not favored by voles.

However, if their favorite food is scarce or
See VOLES, 5

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Rufous Hummingbird, Georgia's Winter Visitor

Keith Collier

The sight of hummingbirds dancing about the feeder during the summer is a spectacle to see. Both young and old appreciate these tiny blurs as they travel from flower to flower. But what happens to these little creatures in the winter? Does Georgia even have a hummingbird population that overwinters in Georgia? I thought they all flew south for the winter, like our two-legged neighbors to the north. Let's discuss a few interesting facts about the hummingbirds that pass through Georgia.

Georgia is home to 11 potential hummingbird species during the year: The ruby-throated (*Archilochus colubris*), black-chinned (*Archilochus alexandri*), rufous (*Selasphorus rufus*), calliope (*Selasphorus calliope*), magnificent (*Eugenes fulgens*), Allen's (*Selasphorus sasin*), Anna's (*Calypte anna*), broad-billed (*Cynanthus latirostris*), green violet-ear (*Colibri thalassinus*), green-breasted mango (*Anthracothorax prevostii*), and broad-tailed hummingbird (*Selasphorus platycercus*).

Except for the ruby-throated and rufous, the other nine species appear on only rare occasions. The Georgia Department of Natural Resources reported recently just three sighting - ever - of Anna's hummingbird in Georgia.

The ruby-throated hummingbirds leave our area in late October. They prefer the warm climate of Central America, and most get there by flying across the Gulf of Mexico. Some stay in North America along the Gulf Coast, parts of the southern Atlantic coast, and at the tip of Florida; these are usually birds from farther north rather than birds that spent the summer there. This tiny friend is the only hummingbird known to breed east of the Mississippi River and breeds as far west as eastern Texas and Oklahoma

and north to Minnesota.

Rufous hummingbirds, with their reddish-brown or brownish-red faces, are the only other species of hummingbird that regularly visit Georgia. Unlike the ruby-throated hummingbirds, which migrate to Georgia and the rest of the eastern United States



Photo courtesy of Tom Talbot

Rufous Hummingbird, *Selasphorus rufus*, regularly visits Georgia.

during the breeding season, rufous hummingbirds only show themselves in Georgia during the winter. (Here is a fun fact. The wing-beat frequency of a rufous hummingbird can be as much as 52–62 wing-beats per second. Per second! Wow, that is genuinely phenomenal.)

Should rufous hummingbirds decide to hang around through our winters, here are a few tips to keep them happy:

- Prepare your hummingbird nectar in your kitchen. There is no need for red dye as the red colors on the feeder attract them for you. The best solution consists of one part sugar to four parts water. This solution imitates the sugar concentration of the nectar found in flowers. Boil the water for two to three minutes before adding sugar. Cool and store the mixture in a refrigerator until you are ready to use it.
- Select a feeder that is easy to clean

and does not drip. Change nectar every two to three days or before it gets cloudy, and periodically clean feeders, making sure that mold and bacteria do not develop. Soak the feeders in a solution of one-part bleach and ten parts water. Thoroughly rinse the feeders before using them again.

- Here is an important reminder: Keep at least one feeder up throughout the year. You cannot keep hummingbirds from migrating by leaving feeders up during the fall and winter seasons. Hummingbirds migrate due to the shortening of daylight hours, not food availability.
- Homeowners who are the most successful at attracting hummingbirds combine the use of feeders and hummingbird food plants. Plan plantings so that nectar-producing plants are blooming throughout the growing season. Also, these flowers will attract insects and provide a much-needed protein source for hummingbirds.
- Lastly, North Georgia is bear country, and black bears seek food to pack on fat reserves for the winter. Bird feeders and hummingbird feeders are easy pickings for a hungry bear. While it is annoying to bring your feeders in at night, you can lessen the possibility of attracting a hungry bear.

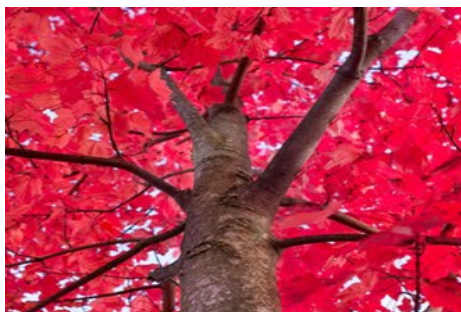
What The Heck?

Ontogeny/Phylogeny What's the difference?

Ontogeny refers to the development or development history of an individual organism, while *phylogeny* refers to the study of relationships among different groups of organisms and their evolutionary development.

Anthocyanins: More Than What Meets the Eye

Vic Flock



Here in North Georgia, as we move from the hot days of summer to the cool (sometimes cold) days of fall, we make preparations by packing away our summer gear and unpacking our heavier clothing. Deciduous plants too must prepare for winter. They must move from photosynthetic and reproductive factories to winter storage facilities. This time of transition in plants is beautifully expressed by the French poet, Albert Camus, “Autumn is a second spring when every leaf is a flower.”

We know behind these brilliant displays of senescent leaves are water soluble pigments called *anthocyanins*. But more than producing this display of red during the fall, anthocyanins are present throughout the ontogeny of many deciduous plants. Anthocyanins appear in emerging buds and juvenile leaves, painting both of these red as well. Since production of anthocyanins is very expensive to plants, what benefit do they offer plants in exchange for their production?

Several researchers have claimed anthocyanins offer a wide range of benefits to plants to include reduction in environmental stressors brought on by drought, heavy metals, salts, severe cold temperatures, herbivore wounding, pathogen infection, intense visible light and UV-B radiationⁱ. One re-

searcher refers to anthocyanins as “the Swiss Army knife of the plant kingdom” because of their wide range of stress reduction capabilitiesⁱⁱ. Additional research discounts the role of anthocyanins as having such far-ranging capabilities against these diverse environmental stressors. An emerging consensus among researchers presents the role of anthocyanins as another photoprotection agent, particularly against cold-induced photoinhibitionⁱⁱⁱ.

Two better known factors for photoprotection of leaves are the waxy cuticle that reflects the majority of light from leaves, and certain carotenoids that dissipate excess light energy during times of higher light intensity (the xanthophyll cycle). Photoprotection of leaves looms largest when high-light intensity is combined with low temperatures. These two conditions are both present in the spring—when leaf buds emerge and become developing juvenile leaves—and in the fall—when senescent leaves break down as the plant scavenges as much sugars, amino acids and elements before the leaf drops off the plant.

During the spring, the waxy cuticle is not fully formed to protect juvenile leaves. The overall reflectance of light from juvenile leaf surfaces is low until enough of the protective cuticle is formed during leaf development. Conversely, the presence of anthocyanins is highest when the leaf first emerges and gradually reduces as the cuticle develops along with the expanding leaf. When the leaf has fully developed, particularly its waxy cuti-

cle, anthocyanins have mostly disappeared.

At the other end of the life span of deciduous leaves, during the fall as the waxy cuticle break down, anthocyanin accumulation once again increases to help carotenoids prevent photoinhibition as higher light levels combine with lower temperatures.

What we see in the spring as red buds and red juvenile leaves, and in the fall as brilliant vermilion landscapes is more than what meets the eye. They are the by-products of the accumulation of anthocyanins fulfilling their role in protecting leaves at the beginning and end of the life span of deciduous leaves.



ⁱ“Environmental Significance of Anthocyanins in Plant Stress Responses”, Linda Chalker-Scott; *Photochemistry and Photobiology*, 1999, 70(1): 1-9

ⁱⁱ“Nature’s Swiss Army Knife: The Diverse Protective Roles of Anthocyanins in Leaves,” Kevin S. Gould; *Journal of Biomedicine and Biotechnology*, 2004 Dec. 1; 2004(5): 314-320

ⁱⁱⁱ“The Ecophysiology of Foliar Anthocyanins,” Donald C. Close and Christopher L. Beadle; *The Botanical Review*, December 16, 2003; 69(2): 149-161 (reprint from the *New York Botanical Garden Press*)

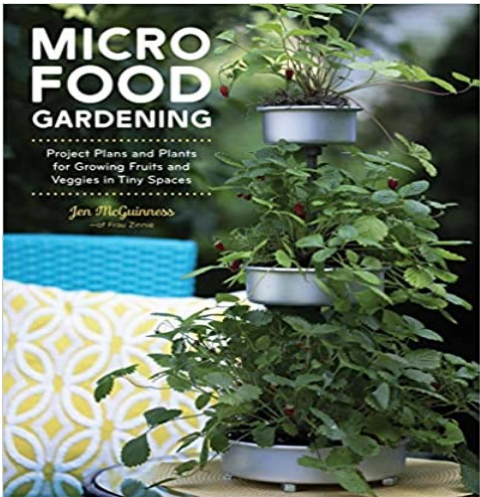
Book Review

Go Micro For Homegrown Harvests, No Matter How Small a Garden You Have

Karin Hicks

Not everyone has room to grow full-sized tomato plants or melon vines that take up lots of real estate in a garden, but everyone has space for a micro tomato or dwarf watermelon vine that does not grow longer than four feet. In *Micro Food Gardening*, author Jen McGuinness introduces readers to a world of miniature edible plants and dozens of DIY projects for growing them.

Micro food gardening is different from raised bed or container gardening because it focuses on plants that stay very compact, allowing you to grow edibles even if you only have a small patio or front porch. Micro food includes vegetables, fruits, herbs and flowers that are generally 18” or smaller when the plant reaches harvest size. Some plants, such as vines, may grow larger but still produce mini-size fruits. Today, there are many compact



and dwarf varieties of edibles available.

From miniature herbs and salad greens to baby beets and mini cabbages, micro gardening offers a surprisingly diverse and delicious array of edible opportunities. This book offers step-by-step instructions for a plethora of DIY micro-food gardening projects using many materials you probably

already have. Some projects detailed in the book include a window box of mini potatoes, a wine box spice garden, and a small space omelet garden for cooking up the perfect breakfast.

Jen provides lots of advice on plant selection and growing tips throughout the book along with full color photos. *Micro Food Gardening* shows you the joys of growing fresh, organic food, no matter how small a space you have. Growing petit varieties is also a great way to get children interested in gardening, and projects such as muffin pan basil and edible flowers in coffee cans are highlighted in the book.

Micro Food Gardening, Project Plans and Plants for Growing Fruits and Veggies in Tiny Spaces by Jen McGuinness (ISBN 9780760369838) is available at any of your favorite retailers.

‘Tis the Season to...

Rick Freeland

Zone 7

- Set transplants of cool-weather vegetables
- Prune cane fruits
- Plant winter pansies and fall annuals (calendula, dianthus, ornamental cabbage and kale)
- Plant peonies
- Continue harvesting herbs and flowers for drying

- Plant fall-blooming bulbs
- Divide peonies, bearded irises, and other spring and summer-blooming perennials
- Order and plant sweet pea seedlings
- Plant herbs and groundcovers as weather cools

Zone 8

- Plant bareroot trees and shrubs
- Order and plant sweet pea seedlings
- Set out second crops of tomato and pepper plants
- Sow seeds of green beans, squash, pumpkins and cucumbers

- Divide bearded irises and other overcrowded spring-and summer-blooming perennials
- Prune cane fruits
- Continue to harvest herbs and flowers for drying
- Sow seeds of perennials and keep soil moist if rainfall is scarce
- Start cool-weather vegetables from seed now or set out store-bought transplants later in October
- Plant winter pansies and fall annuals (calendula, dianthus, ornamental cabbage and kale)

VOLES, continued from 1

populations get too high, they will begin to feed on bark and roots of trees. Voles also eat seeds, nuts, grains, leaves and fruit.

Damage

Voles are hard to control. They breed several times a year, and the gestation period is 21 days. The average number of offspring is three to seven, so a serious infestation can happen quickly. You'll see disruptions in the soil and then plants that appear to have a blight or are desiccated. The plant will die very quickly as a result of having no water or ability to photosynthesize. Also, the tunnels are unsightly and require time and work to restore your garden.

It's hard to believe that these small creatures whose claws are comparatively insignificant to their overall size can dig tunnels so quickly.

Solutions

I tried dozens of strategies that did not work very well. I used traps, mothballs, flattened tunnels (great way to release frustrations but not very effective as a deterrent), flooding the tunnels with water, and capsaicin granules, etc. The Master Gardener Handbook suggests trapping voles until they no longer appear. I admit I wasn't patient enough to rely on this method, and I didn't want to dispose of the ones I might catch. Then I gave my cat detailed instructions and photographs of the voles to capture and promised "Temptations Treats" as a reward. If he ever caught one, I never saw any evidence of it.

What **has** worked...every new plant that goes in my garden gets surrounded by PermaTil which provides a



Photo by aaalawncare.com

Voles damage lawns and gardens by digging deep tunnels.

physical barrier. The voles do not like to dig through it, and it provides excellent drainage in our clay soil. I also do not plant their favorite foods if I can help it.

Then I found a vole deterrent product, solar powered ultrasonic stakes, that work very well. Apollo is the best ultrasonic product I've used, and it's available on Amazon. They are pricey (app. \$12. each). They work by emitting a high pitched sound into the ground for three seconds followed by silence for 30 seconds and repeats the pattern indefinitely. This drives the voles crazy (payback time!), and they leave the area. The stakes should be placed near the tunnels and outward from the damaged area at the recommended distance for optimum coverage.

However, future generations will make their way back into your garden over time, so I order more stakes if I see signs of them returning. The only issue with these stakes is they need to be pulled during a heavy rain because they will get water in the battery case and be ruined. If they are exposed to

some light rain or your sprinkler system, just open the device and pour the water out. I've been able to save some that way.

So far, these are the only two products that have kept the voles at bay and me sane. I hope this helps even one gardener to NOT experience the grief these little rodents caused me!

Now my "Vole Mountain" is only an occasional bump in the road or garden.

A Favorite...the Autumn Fern

Pat Bishop

If you have space in a shady spot, consider the evergreen fern that I have discovered: autumn fern, *Dryopteris erythrosora*. The fern's orange and copper fronds that grow to shiny green fill my garden with enticing colors all year round. They grow to about 24" high and adorn the garden beds with changing beauty. Resistant to most pests, they are low in maintenance. The fronds also make beautiful fillers for flower arrangements. In my garden, the autumn fern is a border that adds interest year round.



Are You a Hortoholic?

Terri Andrews

My college professor used the term “Hortoholic” describing his students who were apparently addicted to horticulture. We laughed, thinking we were just normal students passionate in our choice of study. As the class progressed, I realized why he called us “Hortoholics.”

The college greenhouse needed to be cleared of plants because the next day it was being cleaned and pressure washed. I said I would be happy to take a few plants home because I couldn't very well let these plants go astray, could I? I could certainly give them a good home. Mind you, I just told my husband that I was finished planting our spring garden (much to his relief) with all the beautiful plants it could hold.

I still brought home no less than 75 plants and seedlings!!! So did some of the other students. There was no problem cleaning out the greenhouse.

I am a Hortoholic.

There are some signs and symptoms of this ‘disorder’ that may help you know whether you are indeed suffering from this yourself:

- Do you buy plants without having

any idea where you're going to plant them?

- When you buy something at the nursery, does the staff automatically know which vehicle to load it in?
- Do you have nurseries in your phone contact list?
- Are the most worn shoes in your closet your garden clogs?
- Do you jump for joy when the gardening magazine arrives in the mail?
- Do you secure someone to water your garden before finding someone to feed your pets when going on vacation?
- Do customers in the nursery section of a store assume you work there as you're weeding the inventory?
- Do you buy plants near death on the clearance rack and proclaim “I can save this”?
- Does your spouse automatically drop you off in front of the gardening section of the store without asking first?
- Have you purchased a vehicle primarily based on its capacity to hold plants?



Cartoon by Chris Madden

- Does the smell of deer repellent not seem so unpleasant anymore?

If you answered yes to most of these questions, you may be a Hortoholic too!

What can you do about it? Nothing. But you are not alone! There are over 70 million households in the U.S. that garden as a hobby, ranging from vegetable gardens to pollinator habitats and everything in-between. Community gardens in this country now total 29,000 and are increasing. There are 86,000 Master Gardeners in the USA, and they contribute over 5.6 million volunteer hours in our communities educating the public and making this a more beautiful place to live.

So know that you are part of a great group of people who love horticulture and enjoy sharing it with others.

Editor's Note—Pat Bishop

Hello! I am excited to become the new editor of *Over the Garden Gate*. Rick has certainly set the bar for me to follow, and I thank him for his continued advice to this newbie.

I invite you to share your ideas with us. Some thoughts to share:

Have you experienced a gardening problem that you have solved? Or maybe not!

How do you manage the annuals or perennials that you most enjoy?

How do you care for your favorite tree?

How have you “mastered” vegetables?

What topic interests you for the season?

What is your favorite garden, or better yet, who is your favorite gardener?

If you are shy about putting your words into writing, please contact me, and perhaps we can work together to share your ideas.

In preparing this edition, I have learned about hummingbirds in Georgia, the turning

of the fall leaves, and the pesky vole. I've also laughed along with Terri, recognizing myself as a “hortoholic.”

I hope that you will help us all learn, help us all see the joy and challenges of gardening, help us all become better gardeners.

Our next edition is scheduled for winter, and I look forward to your sharing of ideas and inspirations.

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Happy Gardening! Pat Bishop