THE DIRT

UF IFAS Extension UNIVERSITY of FLORIDA

FLORIDA MASTER GARDENER VOLUNTEER

January 2023, Issue 32

A quarterly online magazine published for Master Gardeners in support of the educational mission of UF/IFAS Extension Service.

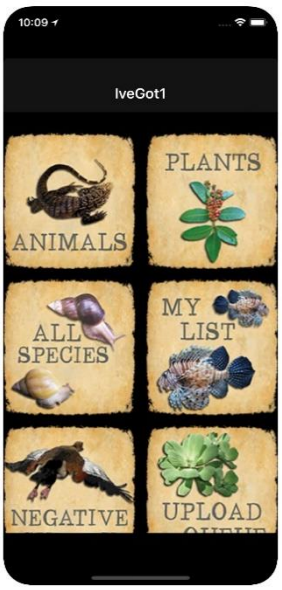
PINELLAS MASTER GARDENER MAGAZINE

Contents

January 2023 Issue

Happy 2023 fellow Master Gardener Volunteers! This issue of The Dirt has some great articles. I hope you find it entertaining and educational. Thanks to all the contributors, and to all of you Master Gardener Volunteers for everything you do. Enjoy!

Reporting Invasive Plants and Animals



By Linda Smock, Master Gardener Volunteer

There's an app for that!

Yes, you can report invasive plants and animals from anywhere you have an internet connection, using an app on your phone. You just need to visit the Apple app store or Google Play and search for **Ivegot1**

If you prefer, you could photograph the plant or animal and report it later from the comfort of home on your computer.

As Master Gardeners, we have become aware of the extensive spread of invasive species, many of which were brought to our state for landscaping, agriculture, or pet trade. Some have hitchhiked rides on products being shipped to us, such as in the mulch of plants grown in other countries or lizards hopping on ships coming from countries to the south of us. Some of our most common plants here in Pinellas County were used by landscapers because of their fast

growth and beautiful foliage, not realizing that they were creating a nightmare for future generations, and in the process harming our native plants and animals.

The website www.IveGot1.org provides you with a quick and easy opportunity to report invasives that you identify in any part of the state. This partnership between several agencies provides multiple ways of sending in your report. You can select what you are most likely to use. An app on your phone is convenient and easy but you can just as easily wait until you are home and report it using your computer. With either, you need to register with your name and contact information. You will be asked to provide the name or a detailed description of the species along with a photo. You will also need to provide the date you saw it and a good description of the location such as the GPS coordinates or the street address. The habitat description will need to be added.

It's that simple. You can make our environment a better place by taking this easy step.

Citrus Greening

By Susan Ladwig, Master Gardener Volunteer. Photo credits: Susan Ladwig

The house next door has a very nice-looking orange tree (*Citrus x sinensis*). From my driveway, I could see its nice form, and it is a good-sized tree, so it has been there for quite a few years.

When I looked at the tree more closely, I could see that many of the leaves are deformed, curled in on themselves like potato chips.

I noticed the tree had quite a few oranges, and a full-size orange was laying in the grass. I didn't want to see an orange just rot there, so I adopted it. Sadly, when I got it home and sliced it, it was quite awful. The fruit tasted very sour, though it was not dried out and looked normal, though I have never grown my own oranges to compare them to. I decided to investigate the sad state of the orange tree next door.

Citrus greening, also known as Huanglongbing, is thought to be caused by the bacterium *Candidatus Liberibacter asiaticus.* The bacteria affect trees by blocking the phloem and limiting its ability to take up nutrients. This causes the tree to decline, indicated by the leaf mottling, curling, and yellowing. The leaf mottling can be distinguished from nutrient deficiency mottling since it is not symmetric. The infected leaves can be thicker and leathery. The fruit of an affected tree can be small and strangely shaped, and have brown seeds. The fruit tastes bitter or sometimes salty.

The bacteria are carried by the Asian citrus psyllid (ACP), or *Diaphorina citri*. The psyllid was first discovered in south Florida in 1998. Citrus greening was discovered in south Florida in 2005.The bacteria can eventually kill the tree, though the fruit damage is the worst impact for the citrus industry.

In early January of 2022, the U.S. Department of Agriculture forecast that Florida citrus growers would produce 16% less fruit than the previous growing season. According to Michael Sparks, the CEO of Florida Citrus Mutual, 95% of Florida oranges are used to produce about half of the orange juice Americans drink. Consumers are definitely paying a lot more for their orange juice, but the economic impact on agriculture in Florida is huge. Citrus production is an $8.6 billion business in Florida.

Understandably, farmers are trying desperately to find a solution. The USDA National Institute of Food and Agriculture (NIFA) has initiated the Emergency Citrus Disease Research and Extension Program to work on the problem. The UF Citrus Research and Education center was awarded $2.2 million in late 2021 to support their research. UF/IFAS is also involved in other multi-million-dollar research projects to fight greening. The research focuses on several areas:

- managing HLB once a tree is sick
- stopping the spread by altering the bacteria transmission mechanism
- developing HLB-resistant trees

The researchers are testing various means to prevent transmission. One test involves netting to prevent the insects from landing on the trees. Another test involves coating trees with kaolin to keep the insects off.

Gardeners and farmers alike will keep working and hoping to find a solution, for economic and aesthetic reasons. The effect of greening on the citrus industry is another example of the dangers of invasive pests and disease affecting far too many important and beneficial plants.

Holiday Lights at the Florida Botanical Garden

By Carol Zieres, Master Gardener Volunteer

More than 60 children, accompanied by parents and grandparents – from toddlers in strollers to young teenagers stopped by the Extension booth to plant a red salvia (*Salvia coccinea*) seedling in a ready-made "to-go" cup of prepared soil. All expressed an appreciation of the importance of planting more Florida native plants in their home landscape. The seedlings were donated by a neighborhood nursery.

Master Gardeners, Joanne Kliesh from Clearwater and Carol Zieres from Safety Harbor volunteered on a chilly December evening at the Florida Botanical Gardens Children's Urban AG Expo during the annual Holiday Lights display

The Humble Bumble Bee

By Linda Smock, Master Gardener Volunteer

If you've worked around flowers, you've likely worked alongside of a bumble bee. These colorful insects are a little larger than a honeybee and five species can be found Florida. They fascinate scientists and lay people because of their ability to fly with very small wings and a heavy body.

Their colors and body shape make them of interest to cartoonists and artists who have made them popular in many ways.

Bumble bees belong to the genus *Bombus* which is in the Apidae family. They are related to many other bees found throughout Florida including honeybees, digger bees, carpenter bees, stingless bees, and orchid bees. They are social and form colonies, but smaller than the honeybee, with only 50 to 500 per colony. They create their colonies annually in the spring after the fertilized queen overwinters in the ground, using rodent holes that are no longer active or cavities under roots in trees.

Bumble bees are especially beneficial to Florida gardeners and farmers because they can pollinate some plants that will not release their pollen to honeybees and other native bees. This includes blueberries, peppers, and tomatoes (tomatoes are also self-pollinating and can be pollinated by the wind). The bumble bee vibrates the flower and releases the tightly held pollen.

Bumble bees are more efficient than honeybees also, and thus of great value to the farmer. The tongues of some species are longer than those of honeybees and allows them to pollinate deeper flowers including red clover much more effectively. Their vibration also helps with this and leads to them being two and a half times more efficient than honeybees.

What can you do to help the bumblebee population? Provide native plants for them! They don't limit themselves to the plants other bees cannot pollinate, but happily pollinate any plant with welcoming flowers. Their favorites and the most nutritious for them are our native plants.

For more information, see:

- The Bumble Bee – One of Florida's Vital Pollinators by Judy Biss, UF/IFAS
- The Pollinating Power of Bumble Bees by Molly Jameson, UF/IFAS

Adult bumble bee. Photo: UF/IFAS

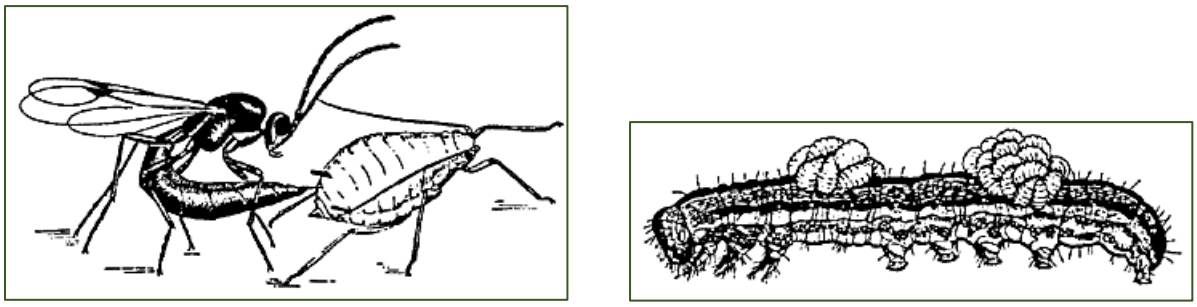
Book Review, *Endless Forms, The Secret World of Wasps*

By Ellen Mahany, Master Gardener Volunteer

As the January deadline for submitting articles to *The Dirt* approached, I had read only about one-fourth of Seirin Sumner's *Endless Forms, The Secret World of Wasps*, which I had planned to review. In the 75 pages I have read, this world-leading behavioral ecologist links wasp-venom chemicals with common pesticides, Covid 19, and medications and antibiotics, which is more than enough valuable information for this educational article.

The wasp is the ancestor of both other members of the Hymenoptera order, the bee and the ant. With 100,000 thousand known species of great diversity, the wasp is by far the largest component of the order. Much of what I have read so far focuses on the tiny, solitary parasitoid wasps, comprising 80 percent of wasp species.

Parasitoid wasps lay their eggs in or on other invertebrates, while injecting them with numbing venom from their ovipositor. *Bradykinins*, a key component in their venom that creates inflammation, causes the muscles of the injected victim to contract more slowly, disrupting the neurotransmitters in the nervous system. The prey becomes paralyzed, allowing the larvae to thrive within or on a living host. Depending on the species, they force their way out of the host either as adults or when they are ready to enter the pupa stage.



A parasitic wasp deposits its eggs within an aphid. Clusters of wasp larvae develop on a caterpillar. Credit: United States Department of Agriculture

Bradykinins disrupt neurone pathways in wasps' prey in the same way as neonicotinoids in common pesticides affect treated insects. There is overwhelming proof that these widely sprayed chemicals are partly responsible for the declining invertebrate population. Those of us with pollinator gardens have long known that wasps contribute to biological control; moreover, wasps are now employed extensively for biocontrol in agriculture. Unlike pesticides, which blanket an environment with poison, wasps' venom injected into crop-eating pests does not affect beneficial invertebrates or the wildlife consuming them. An added advantage is that adult wasps are excellent pollinators.

The inflammation caused by bradykinins helps to explain the severe symptoms of Covid19, caused by the virus SARS-CoV-2. Under normal conditions, two enzymes that regulate blood pressure, ACE and ACE 2, are in balance. The Covid virus disrupts the balance by reducing levels of ACE. Quoting the author, "These Ace enzymes degrade bradykinins and, as a result of

this imbalance bradykinins start to build up, causing inflammation in virus-infected cells and their neighbors. This has been termed a 'bradykinin storm,' because of a positive feedback loop: inflamed cells trigger changes in bradykinin levels and receptors, leading to even greater inflammation."

The promotion of inflammation by bradykinins has benefits as well. It is one of the venom components used to treat medical conditions. It is prescribed for intensive care patients to accelerate the delivery of drugs throughout the cardio-vascular system. To treat high blood pressure, drugs that stimulate bradykinins are used to cause vasodilation, the process of opening arteries.

Another useful toxic peptide in wasp venom, *mastoparan*, is being studied for its anti-microbial, anti-viral properties for use in cancer treatment. The challenges are its toxicity and its rapid degrading in the blood, which excludes treating specific cells. Venom components are also widely used to treat rheumatoid arthritis, tendonitis and other inflammatory diseases.

Is it possible the beneficial contributions of this unpopular insect may increase its likeability? The sting of a wasp can send its recipient to the hospital. In rare cases, death may occur. Sumner clarifies that these stings come from aggressive social wasps, not the solitary parasitic wasps.

Diachasmimorpha longicaudata (Ashmead) wasp ovipositing into Caribbean fruit fly larvae Credit: Jeffrey Lotz. UF/IFAS Extension

I recommend *Endless Forms* as a stimulating read for my fellow Master Gardener Volunteers and look forward to submitting a second review of this book for the next issue of *The Dirt.*

St. Petersburg Presents Award to Pinellas Master Gardener

By Jay Gould, Master Gardener Volunteer

The Saint Petersburg City Beautiful Commission presented the 2021 Peggy Allen Award to Master Gardener Volunteer Jay Gould during a ceremony on December 13, 2022 at Sunken Gardens in Saint Petersburg.

Jay has been gardening on his small city lot since 2001. The current configuration includes ten raised vegetable beds surrounding a large pool in the backyard. The front yard is dedicated to multiple native plant areas. In addition to native coffee (*Psychotria nervosa*) , beauty berry (*Callicarpa americana*), Simpson stopper (*Myrcianthes fragrans*) shrubs, his garden also includes three varieties of native grasses to add borders and accents.

Jay would be pleased to share his environment with anyone interested in a tour. Contact Jay at yardveg1401@gmail.com.

Peggy Allen Award

Peggy Allen was a charter member of the City Beautiful Commission and is the first member that was appointed a member for life. She graciously served on the commission for 30 years. Through her volunteer efforts, she encouraged good landscape design and promoted the introduction of plants that provided perpetual beauty, leaving an indelible mark on the city.

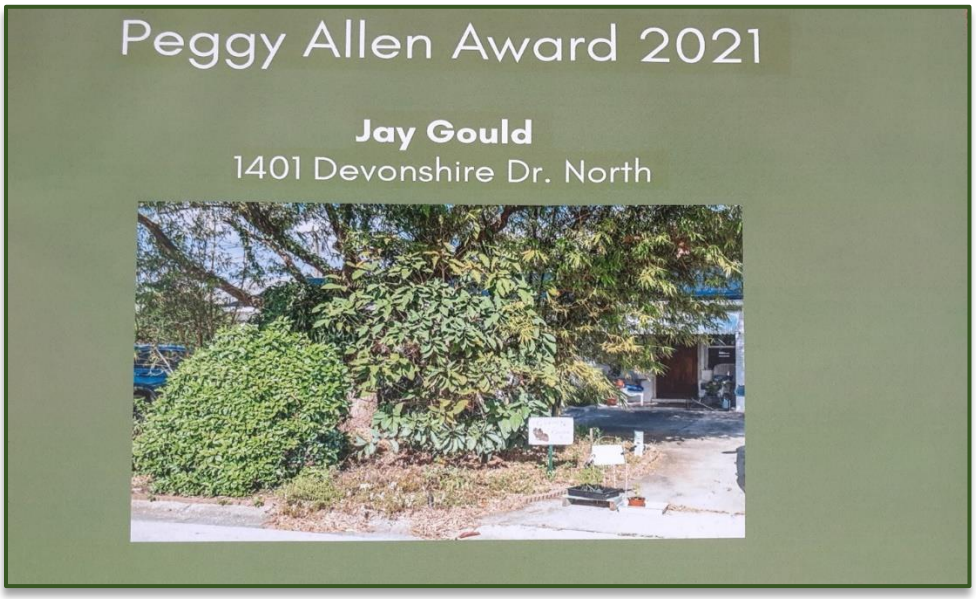
The Peggy Allen Award honors the private initiative of groups and organizations whose volunteer efforts enhance the natural beauty of St. Petersburg and promote public stewardship of environmental resources.

Eligibility:
1. Recognizes the volunteer efforts of groups or organizations.
2. Projects must be within the city limits.

Criteria:
1. The efforts have added to the natural beauty of the city.
2. The accomplishments promote the spirit of volunteerism.
3. There is ongoing maintenance of the project(s)

Source:
https://www.stpete.org/government/boards___committees/city_beautiful_commission.php

Jay Gould, left, accepts the Peggy Allen Award from Chris Pully, Vice Chair of St. Petersburg's City Beautiful Commission.



Jay Gould's garden, as shown in the program for St. Petersburg's City Beautiful Award ceremony program.
Both photos reprinted with permission from the Parks Commission of the City of St. Petersburg.

The 2nd Annual Florida Native Plant Symposium

by Margaret Gates and Jan Rosser – Master Gardeners and FBGF education committee members.

We are pleased and excited to announce that the Florida Native Plant Symposium will be held Sat. March 25, 2023 at the Florida Botanical Gardens (FBG). Our first symposium in 2022 was a great success and so we decided to do it again.

This upcoming event has an enthusiastic committee made up of six Master Gardeners and members of the FBG Foundation's education committee. Other event volunteers will also consist of Master Gardeners.

Theresa Badurek, Urban Horticulture Agent, UF/IFAS Extension, Pinellas County will open the event and engage the audience with some native plant trivia.

James Stevenson, IFAS extension specialist, will present the morning keynote with *"Native to You: Your Landscape, Your Ecosystem."*

Dr. Jaret Daniels, Associate Professor of Entomology at the University of Florida and the Director of the McGuire Center for Lepidoptera and Biodiversity at the Florida Museum of Natural History, will keynote on *"Butterflies – Charismatic Linchpins for Biodiversity Conservation.*

The four breakout sessions all have interesting diverse topics and engaging presenters.

Naturally, there will be a native plant sale! Also, informational tables will be on display down "Eco Alley" – the walkway to the auditorium. Not to be forgotten is a delicious box lunch and gourmet coffee! What can be better than a picnic in the gardens?

Registration for participants opens January 15. Volunteer registration opens February 15.

General admission is $75, which includes lunch; Foundation members pay $50, also including lunch.

(*Before you say "Ouch", look at what all is included! The full schedule is listed at the bottom of the link.)*

https://www.flbgfoundation.org/symposium

Submit Your Articles and Pictures to The Dirt

The Dirt is published January, April, June, and October for Master Gardeners by Master Gardeners. The deadline for the next issue is **April 8**. If you would like to submit an article or photo feature, see the following guidelines:

- Articles should be 250 to 300 words.
- The topic can be anything you would like to share to educate your fellow gardeners.
- You may send pictures, poetry, or garden-related articles.
- Submit only Word documents, not PDF, so that edits are possible.
- Send tips or information about a community or Master Gardener project for a potential article.
- Send photos as attachments and include proper attribution.
- Send submissions to Susan Ladwig at ladwig.susan@gmail.com

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Graphics: Paula MacDonald

Advisor: Theresa Badurek, Master Gardener Coordinator and Urban Horticulture Extension Agent. The advisor reviews and approves all submissions prior to publication.

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