

The Master Gardening Bench



The Manatee County Master Gardener Newsletter
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WHICH WAY DOES THE WIND BLOW?

By Rob Hinz, Master Gardener 2016

Hurricanes! First responders often say, it is not *if* a hurricane will strike but *when* it will strike. Hurricanes or tropical storms often have bad connotations. However, they may also have beneficial impacts. The southeastern coast and Gulf coast of the United States have been hit by such storms as Andrew, Charlie, Hugo, Ivan, Katrina, and Rita. These storms cultivate bad memories: heavy rains, widespread flooding, storm surge, and strong winds creating destruction of property and loss of human, plant and animal life.

One of nature's challenges, the hurricane, has a profound impact to the ecological environment. Both negative and positive effects accompany hurricanes, but generally, the disastrous effects are emphasized while the positive effects are overlooked.

Strong winds are a major effect of hurricanes. Wind can break, uproot, and defoliate trees thereby destroying habitat for a variety of animal species. Invasive plant seeds can be disbursed for many miles by the winds, but winds also can disburse seeds of native plants. Damaged trees that do not fall (snags) provide new habitat for wildlife. Downed trees can open up areas to sunlight and allow sun-loving species a chance to thrive and diversify. Winds may help to clean the environment of invasive trees since native trees are generally more tolerant of hurricane winds.

Heavy rainfall from hurricanes can produce flooding. These rains can uproot trees and plants which decompose and may lead to low levels of oxygen in wetlands and fish kills. Although these are negative effects of heavy rainfall, there are also positive effects.

With heavy rainfall comes drought relief. Forest fires can be quenched. Large amounts of rain can clean out lagoons. Water builds up in streams, floodplains, and rivers, depositing nutrient rich sediment into bays and estuaries allowing for new plants and animals to flourish.

The combined action of wind and waves are a major force on the environment. Together, they cause cooler water from the depths to be brought up, thus helping prevent new hurricanes from developing. They can damage coral reefs, but at the same time, the cooler waters can bring welcome relief to the reef. The wave action can clear macroalgae from limestone, giving corals a new habitat for growth.

Hurricanes can erode beaches and destroy nests and beach habitats for animals, but they can also build up beaches in other areas, creating new habitats. Barrier islands benefit from sand deposits. Without this action, barrier islands have the potential for disappearing under the sea. The mixing action of wind and waves also stirs up the waters and can disperse red tide and cyanobacteria blooms.

Hurricanes have been an active and permanent part of our environment for the many decades of our inhabitation of Florida. Their winds, waves, and rains are destructive -- especially with the increasing population and development of coastal areas. However, hurricanes can provide new opportunities for regeneration and knowledge. We can observe new habitats and recovering habitats.

<http://edis.ifas.ufl.edu/fr173> - Wind and Trees: Lessons Learned From Hurricanes.



Q: One of my garden club members needs to know what this is and I do not know. Can you identify this for her?

C., Bradenton



A: This is Scarlet Ladies Tresses or Beaked Ladies Tresses orchid, *Sacola lanceolata*, a Florida native. Did this just pop up in her yard? I think that yards that are "native," not covered over in sod for years and years, have a better chance of this native spontaneously appearing. I am pretty sure at one time these were common before we covered over the native land in turf.

Following is a link to information about the orchid:

http://lee.ifas.ufl.edu/Hort/GardenPubsAZ/Scarlet_Ladies%27_Tresses.pdf.

Master Gardener Karen Holleran answers your email questions at ManateeMG@gmail.com. Or visit our Plant Diagnostic Clinic Monday through Friday (closed Wednesdays) from 9:00 A.M. to 4:00 P.M. at 1303 17th St. W., Palmetto, FL. Or call us with questions at 941-722-4524 and ask for a Master Gardener.

Coconut Coir: A Viable Alternative for a Soilless Growing Medium

By Jim Haupt, Master Gardener 2015

Sphagnum peat is used primarily by the Florida nursery industry and home gardeners as a soilless growing medium. Peat improves drainage, aeration, and water-holding capacity, but has a low pH and usually requires lime in the potting medium. The largest source of sphagnum peat is Canada, but shipping costs, coupled with the need for heavy machinery and labor add to the cost. Wetland ecologists assert that peat is harvested at non-sustainable rates. Peat bogs hold tremendous amounts of carbon, and since bogs must be drained to extract peat, large quantities of sequestered carbon dioxide are released into the atmosphere.

Coconut coir, an excellent alternative, is a renewable, reusable, and sustainable resource. A by-product of the coconut industry, waste-grade coir is sieved in order to remove the fiber from husks into coir dust, then compressed and sold in the form of disks, bricks, and bales. Coir is easy to wet, and has a 60% water holding capacity, a 40% air-filling capacity, and a stabilized pH range of 5.5 to 6.8. Coir is rich in potassium and micronutrients including Fe, Cu, Zn, and Mn. Coir is also free of pathogens, twigs, and weed seeds.

Since the source of coir is near tidal waters, it can be high in soluble salts, so leaching with water is recommended. By developing and utilizing nutrient-rich organic media like coir, we can also reduce fertilization and irrigation rates.



Aedes Aegypti

Mosquito Central: "The Bench" Interviews Mark Latham, Director of Manatee County Mosquito Control

By Amy L. Stripe, Master Gardener 2008



Psorophora ciliata

On a busy afternoon in late June, Mark Latham answered my questions.

The Bench: *We're having a bumper crop of mosquitoes this year! In my yard, which is surrounded by swales and dry retention areas for storm water runoff, I am being bombarded by mosquitoes every day I'm in the garden!*

Latham: Unfortunately, the areas you refer to - that are man-made to filter out pollutants that could enter our waterways - are perfect habitats for mosquitoes that lay their eggs on dry areas subject to periodic flooding. This includes the pasture mosquito (*Ochlerotatus nigromaculis*) - a large black-and-white striped mosquito that rests in long grass - and the "Gallinipper" (*Psorophora ciliata*), which is our largest species.

The Bench: *What about our common backyard mosquito, Aedes aegypti, which is considered a container-breeding mosquito?*

Latham: *Aedes aegypti* doesn't utilize large flooded areas, but will lay eggs above the waterline in man-made containers of any kind that can hold water. Once the container fills with water, they will hatch. A container with even one-fourth inch of water can breed hundreds of mosquitoes. One of the only natural containers utilized by these mosquitoes is the tank bromeliad, which is favored as a landscape plant by many gardeners.

The Bench: *I frequently see your trucks in my neighborhood during the rainy season. What are they doing?*

Latham: This would be one of our "ditch" trucks, usually carrying tanks on the back. The driver is checking swales and ditches for "rafts" of eggs that are laid on the surface of the water by certain mosquito species, and gauging landing rates. A landing rate is how many mosquitoes land on him as he stands there. In other words, how dense is the adult mosquito population at that location.

The Bench: *Yikes!*

Latham: Right! Some guys have easier locations in the county than others, but guys that work Terra Ceia Bay or Port Manatee experience some impressive landing rates.

The Bench: *So what pesticide is the truck applying?*

Latham: Usually a biological agent called Bti (*Bacillus thuringiensis israelensis*) that only targets mosquito larvae. It comes in a granular as well as a spray liquid form. We also apply this from helicopters, but only in the granular form since liquid tends to get hung up in tree canopies and may not reach the target areas. We apply 40 thousand pounds of granular Bti a year in our county. Homeowners will recognize this product as "Mosquito Dunks" or "Mosquito Bits." It is effective on most floodwater mosquitoes, including *A. aegypti*, but less so on *Culex* species. *Culex* breed in freshwater, such as containers and ditches, and vector St. Louis encephalitis and West Nile virus.

The Bench: *You must have an arsenal of chemicals for adult mosquitoes and an extensive research program. How does that work?*

Latham: Our research is ongoing and known throughout the world, actually. We conduct frequent field trials because mosquitoes develop resistance to chemicals.

In terms of controlling adults, we only spray any broad-spectrum insecticide after sunset. Sunset is when mosquitoes are most active and most other insects - including bees - have turned in for the night. Mosquitoes operate at peak humidity, disliking full sun and preferring shady conditions.

As a footnote, we do monitor the effect of any insecticide we use on the general insect population, not just mosquitoes.

The Bench: *How do you monitor mosquito-borne diseases in our county?*

Latham: Once a week we take blood tests from our "sentinel" chickens, located at various locations in our county. Chickens allow us to detect St. Louis encephalitis, Eastern equine encephalitis and West Nile virus since these viruses occur naturally in the bird populations and are transmitted primarily by bird-feeding mosquito species. (Man and horses are considered "accidental dead-end hosts" for these viruses.) But for viruses only cycled between mosquitoes and humans (dengue, chikungunya, zika), we rely on our county health department reporting to us people who have displayed symptoms. So we are always behind the curve on these.

Luckily, the *A. aegypti* mosquito carrying these "human only" viruses is a weak flyer, traveling just a few hundred feet in its lifetime, so we can easily target it. On the other hand, given its skittish nature, it usually takes multiple small samples off of potentially many different people to get a full "blood meal" which is why it is an "efficient" carrier of these diseases. In other words, it's bound to hit upon an infected individual in its quest for food, and spread it to others.

So far in our county, all cases of zika, dengue, and chikungunya have been brought in from abroad, meaning people were infected whilst overseas.

The Bench: *What should homeowners know about controlling mosquitoes?*

Latham: Exclusion of mosquitoes is the key: anywhere you could have standing water is a threat. Think about tank bromeliads (those that hold water), rainwater collectors that are not tightly sealed or filtered, saucers under potted plants, and gutters that are blocked (especially those in shady locations where tree leaves could have clogged them.) Remember pet bowls, birdbaths, spare tires, boats, tarps, and buckets.

Mark is a medical entomologist. He comes to our county via Cambridge University (U.K.) with much time spent in the American tropics. Mark invites anyone with questions to call Manatee County Mosquito Control, 941-981-3895 or visit <http://manateemosquito.com>.

Plant Patents & Trademarks

By John Dawson, Master Gardener 2007

Everyone knows that patents can protect inventions. But did you know that plants could be patented as well? Plants like orchids, roses, fruit, hibiscus and just about any plant that can be asexually reproduced can be protected via patents.

In 1930 the U.S. patent office began issuing patents for plants. Plants can be patented when they are created by **manipulation by man (breeding)** or when found as a **naturally-occurring sport** (genetic mutation) that is **further propagated by grafting or air layering** (asexual propagation). Ruby Red grapefruit is a good example of a sport of a pink grapefruit that was patented. Species plants obviously can never be patented as they reoccur naturally.

For plants designed for large commercial sale, the **name** of the new plant / fruit can be protected through **trademark**. Plant patents can last for 20 years, but trademarks can be kept as long as the owner maintains the trademark. As it happens the Ruby Red is trademarked as well as patented.

To simplify, **patents protect processes** whereas **trademarks protect brand names**.

If you purchase a hybrid plant that is under a current patent, you may not propagate it for your own use nor can you sell a propagated plant or its fruit without the consent of the patent holder. Some plant labels may show a plant patent (PP) number like PP12345 to indicate it is protected. It may also come with the warning "Propagation Strictly Prohibited."

The PP number will help you identify the patent holder and their contact information (on the Patent Office website,) in case you wish to ask permission to propagate. Once the patent runs out, you can then legally propagate and sell as you wish. However, if the plant still has a maintained trademark name, you cannot sell it using that name.

For example, Pink Lady™ apple is a trademarked name. The actual patent for the original apple lapsed in 2012, but the trademark is still protected, so you can propagate the tree and sell the tree and the apple, but you can't sell them as Pink Lady™.

Every year Master Gardeners propagate hundreds of plants and we have to be sure we do not violate law by selling patented plants at our annual Plant Fair. So how can we tell if the plant you are propagating is under patent?

Say you want to propagate a Ginger Gold apple tree. Go to the patent office website at <http://patft.uspto.gov/>. Click on "Quick Search." You will see "Term 1" and "Term 2." Under "Term 1" put in **Ginger Gold**, under "Term 2" put in **apple**, then select years 1790 to present. The results will show that a patent under the name Clyde Harvey lapsed on December 5, 1989.

If Ginger Gold were still under trademark, it would appear as "Ginger Gold™". The entire patent application is available for viewing, providing the parenting information of any hybrid. If you cross-pollinate the same parents and obtain a replicate through seed, it is still under the same patent as if you were taking cuttings, air layering, or grafting.

For more information on patents and trademarks, go to: <http://www.uspto.gov/web/offices/pac/mpep/s2701.html>.

The University of New Hampshire Law School has a lot of information on plant patents and has a directory of all plant patents from 1931 to 1996. It shows the first plant patent went to Henry Bosenberg on 8/16/1931 for his 'The New Dawn' rose. Go to: <http://www.ipmall.info/content/plant-patent-directory-legislation-and-articles-interest>.



Mangroves and Blue Carbon

By Norma Kisida, Master Gardener 2012

It has long been recognized that the mangrove community plays many important environmental roles. Some of these include protecting the coastline from strong winds and waves, providing a buffer zone that minimizes coastal damage from storms and hurricanes and preventing shoreline erosion. Mangroves also help prevent pollution of water and protect offshore sea grass and coral reef communities. They provide essential breeding and nursery habitats for marine organisms as well as many birds. Recently more research and attention has been paid to the role that mangroves and the surrounding environment play in carbon sequestration and storage.

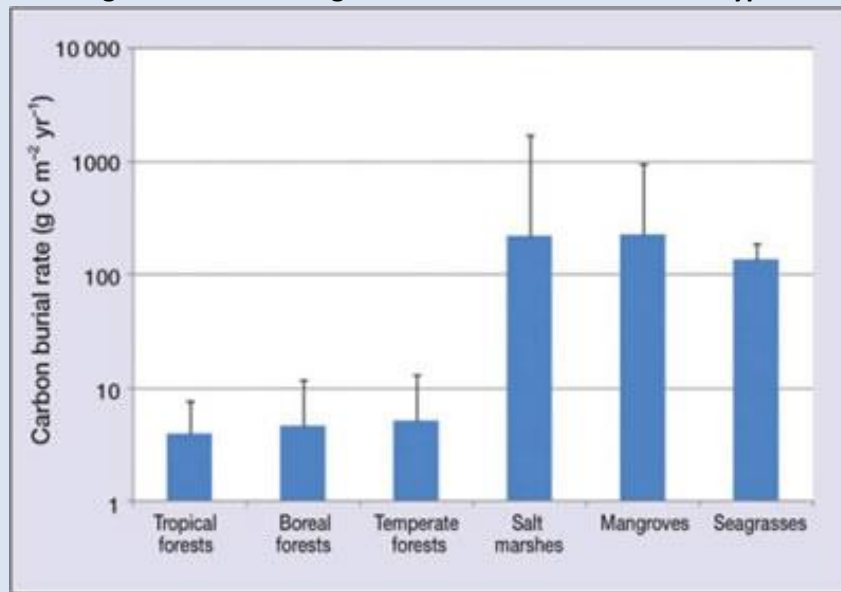
Carbon dioxide is an important greenhouse gas that may contribute to climate change as well as ocean acidification. Transferring carbon from the atmosphere and storing it long term in plant materials or sediment (carbon sequestration) helps offset emissions from natural and human-related activities such as the combustion of fossil fuels. Forests have a vital role by absorbing carbon dioxide during photosynthesis and storing carbon both above and below ground. “**Blue carbon**” is a

term recently used to describe the carbon captured by oceans and coastal ecosystems and stored in the form of biomass and sediments from mangroves, salt marshes, sea grasses, and potentially algae. Although these vegetated coastal ecosystems are not nearly as large an area when compared to terrestrial ecosystems, they are extremely productive at cycling carbon quickly and storing large amounts long term.

Mangrove forests have complex root systems and low oxygen conditions with slow decay rates which allow much carbon to accumulate in the soil (see table below). The monetary value of carbon fixation by mangroves forests is tremendous, estimated to be over \$21,000 per acre per year in 2012 dollars (Source: National Graphic).



Figure: Carbon Storage Abilities of Different Habitat Types



Mean long-term rates of C sequestration ($\text{g C m}^{-2} \text{ yr}^{-1}$) in soils in terrestrial forests and sediments in vegetated coastal ecosystems. Error bars indicate maximum rates of accumulation. Note the logarithmic scale of the y axis.

(Source: Mcleod et al. 2011. A blueprint for blue carbon: toward an improved understanding of the role of vegetated coastal habitats in sequestering CO₂. *Frontiers in Ecology* 9(10): 552-560, [DOI](#).)

Unfortunately mangroves have recently experienced rapid deforestation worldwide and these blue carbon sinks are being lost at critical rates. When mangrove forests are destroyed, the stored carbon is released back into the atmosphere. While natural events can damage mangroves, the biggest threat is shoreline development and removal of mangroves.

Research by the Florida Marine Research Institute has documented considerable loss over the years in the Tampa Bay area as well as other Florida coastal communities with most of these losses attributed to human activities.

There are state and local ordinances to protect our mangrove forests. Local laws vary so check with officials in your area before taking action affecting mangroves and surrounding environment to determine if a permit is required.

For further information:

A blueprint for blue carbon: toward an improved understanding of the role of vegetated coastal habitats in sequestering CO₂
<http://onlinelibrary.wiley.com/doi/10.1890/110004/full>

Mangroves among the most carbon-rich forests in the tropics; Coastal trees key to lowering greenhouse gases-
<https://www.sciencedaily.com/releases/2011/04/110404173247.htm>

Coastal Blue Carbon -
<http://www.habitat.noaa.gov/coastalbluecarbon.htm>
<http://edis.ifas.ufl.edu/in195>

Mangroves - <http://edis.ifas.ufl.edu/in195>



T-O-B-A-C-C-O:

The Good, the Bad, and the Ugly

By Nancy O. Porter, Master Gardener 2014

Dating as far back as the 1600's, the tobacco plant was used to produce a pesticide: nicotine. With the tobacco industry's recent decline, scientists are searching for new uses of tobacco. This is where its use as a natural pesticide might come back into play.

Some are hoping a "green" pesticide industry based on tobacco could offer a financial boost to tobacco farmers and be an environmentally friendly pest control. Tobacco bio-oil may have an added value and become a more selective form of pesticide than the current ones in use, such as neonicotinoids.

The group of insecticides that are chemically related to nicotine are known as neonicotinoids. An easy translation of neonicotinoids is "new nicotine-like insecticides". There are many varieties of these on the market. Nicotine in its pure form is toxic to humans, thus the development of neonicotinoids.

At first, the neonicotinoids were hailed for being friendly to many of our beneficial insects, including bees. But, this claim has been recently questioned. While neonicotinoids might have a lower level of contamination on the nectar and pollen, they negatively impact bee reproduction and longevity according to recent studies.

Water solubility is partly why neonicotinoid insecticides are so popular. The plants take it in through their roots and this reduces some risks of the insecticide floating from the target site to another.

As Roseanne Rosanna Danna used to say, "If it's not one thing, it's another." Even with this better news from the American Chemical Society, there is still reason to be somewhat concerned about tobacco smoke in and around the garden.

Firstly, if you are a smoker and a gardener, you need to

know that you can cause the spread of tobacco mosaic virus to some plants. Tomatoes and peppers are some of the virus' easiest targets, also marigolds and snapdragons. Then, there is squash, plantains, and spinach!

Some studies show that nicotine also affects the growth of plants; actually, this has been the subject of quite a few high school science experiments. While the plants initially grow faster, in the long run they wither and die. If you were provided with a diet of carbon monoxide, arsenic, ammonia, and butane, how long would you thrive?

Finally, there are considerations for your houseplants and/or your small garden. Smoke from cigarettes, whether yours or your neighbor's, can have an adverse effect. The smoke reduces the amount of carbon dioxide plants take in and can clog up pores on the leaves and stems. It can build up and leave a residue that will block the sun's light and slow the process of photosynthesis.

Tobacco smoke can even penetrate the floors and walls of an apartment complex, especially if it is an older building. Who knew? So, if you are concerned with your health and that of your plants, you might want to move where smoking is discouraged.

And if that is not enough, the chemicals from the smoke can build up in the soil and prohibit the intake of the nutrients from the soil. Even if you water your plants the proper amount and put them in the right spot for sun, the leaves will begin to shrivel up and fall off. Goodness knows, we have enough trouble with the heat and bugs, than to have to deal with a tobacco problem too!

Texas A&M Agrilife Extension, [Insects in the City](#), **What is a neonicotinoid?**





August

CALENDAR OF EVENTS

Date	Time	Event
1 st Saturday	10:00 a.m.-1:00 p.m.	Ask a Master Gardener – Island Library – 5701 Marina Drive, Holmes Beach. Visit the Extension Master Gardener information table and get answers to your gardening questions.
2 nd & 4 th Saturday	10:00 a.m.-1:00 p.m.	Ask a Master Gardener – Rocky Bluff Library – 6750 US Highway 301 N., Ellenton. Visit the Extension Master Gardener information table and get answers to your gardening questions.
2 nd Saturday	10:00 a.m.-1:00 p.m.	Ask a Master Gardener – South Manatee Library – 6081 26 th Street West, Bradenton. Visit the Extension Master Gardener information table and get answers to your gardening questions.
Tuesday August 8	11:00 a.m.-2:00 p.m.	Air Potato Beetle Rally and Open House - Manatee County residents are invited to visit the Manatee County Agriculture and Extension office to learn more about the invasive air potato vine and a biological control, the air potato leaf beetle. Receive a free supply of beetles for use on your property. For those who have registered, your beetles will be set aside for pick-up during the event. All others will be on a first-come-first served basis. Limited supply of beetles. If the supply of beetles is depleted before you arrive, they will be shipped to you. Register online at https://airpotatobeetle.eventbrite.com/ or call (941) 722-4524.
Saturday August 12	10:00 a.m.-Noon	Florida's Bromeliads: A Story of Wind Dispersal and Survival - All of Florida's native bromeliads have arrived here as wind-dispersed seeds and, luckily for us, belong to families of bromeliads that have no spines. Florida's forests are uniquely adorned with beautiful bromeliads of different forms, including the most unique of all - Spanish moss. But there are other species that can add beauty, color, and a southern appearance to landscape trees. We'll look at all of Florida's native bromeliads and learn about their growing conditions. Maybe you'll decide to add some to your landscape and enrich your yard's diversity. Register online at http://manatee.ifas.ufl.edu or call the Extension Master Gardeners at (941) 722-4524.
Tuesday August 15	10:00 a.m.	Monthly Guided Tours of the Master Gardener Educational Gardens - Join us for a guided tour lasting about one hour. The gardens illustrate a variety of garden styles and techniques, demonstrate Florida-Friendly Landscaping™ principles, educate residents about plants that perform well in Florida landscapes, and inspire garden visitors to follow recommended gardening practices at home. Register by calling the Extension Master Gardener Plant Diagnostic Clinic (941) 722-4524.
Saturday August 26	9:00 a.m.-Noon	Fall Vegetable Gardening - Find out what type of vegetable garden will work for you and get it ready for fall planting! This workshop covers the basics from the ground up, including soils and amendments, plant selection, fertilizing, and pest management. Receive one vegetable seedling. Register online at http://manatee.ifas.ufl.edu or call the Extension Master Gardeners, (941) 722-4524. \$5 fee for materials
Saturday August 26	10:00 a.m.-Noon	A Florida-Friendly Combo: Rain Barrels and Composting - Learn about how to use stormwater runoff productively and learn how to recycle your yard waste and vegetable scraps to create compost. Rain barrels and composting units can be purchased after the class for \$40.00 each, cash or check only please. Register online at http://manatee.ifas.ufl.edu or call the Extension Master Gardeners, (941) 722-4524.

Save the Date!

Saturday October 7, 2017 ~ 8:00 a.m. to 1:00 p.m.

2017 Master Gardener Plant Fair



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