

HOTWGPS Newsletter

Volume 11 Issue 7

July 2019

Meeting

Our next regularly scheduled meeting will be July 16th at 6:30 PM. We will meet at Harv and Georgia's home. Besides seeing a wonderful pond and enjoying a meal provided by our hosts, we will also have a fun and informative talk about bees. Melissa & Albert Mullins, and Cheryl Foster, will let us know how to attract bees and why they are important. They will bring some equipment to demo for us such as a bee suit, a smoker, shipping containers, and a demo hive. You don't want to miss out! We will also be sharing the results of the pond showing survey that many of you have filled out so make plans to join us. Please RSVP by July 13th to drbeckysue@gmail.com.

We will have a field trip SATURDAY, July 27 @ Keith & Marji Johnson's Home 141 Gabriel's Loop, Georgetown, TX 78628 Meet @ 11AM for Pond Viewing followed by host-provided lunch. RSVP by July 16th TO: drbeckysue@gmail.com



From Neil Sperry's newsletter
Question of the Week: June 20, 2019

"How can I eliminate chiggers? They're eating me alive."

I have an answer that may surprise you, but as you think about it, I believe you'll agree with me.

I've been asked this by a good many people, some who have already had the pleasure of encountering these tiny pests, and others who simply don't want to as they head out for their upcoming holiday picnics.

My concern is that as it turns really hot and dry, chiggers are going to proliferate. I've always found them to be a real issue from May through mid-July, or later in years with abundant early summer rainfall. So their time is at hand.

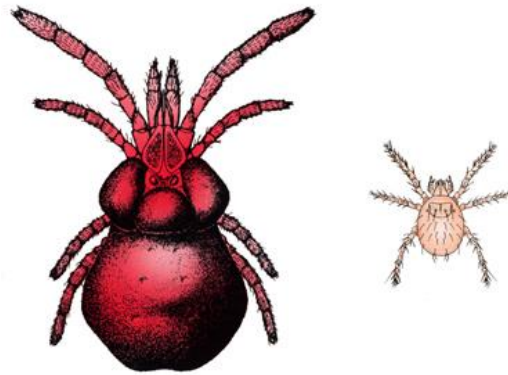


Illustration: Adult chigger on left and larval stage (the predatory form) on right. From Texas A&M information by Dr. Mike Merchant, Texas AgriLife Extension entomologist

Only the newly hatched larva is parasitic. After a blood meal the almost invisible larva leaves its host and becomes a predator of tiny arthropods in the soil. (Modified from Michener 1946)

Chiggers are microscopic mites (8 legs, as opposed to insects' 6 legs). They hide in tall vegetation and weeds and in Bermuda grass

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lawns that are seldom mowed. You'll rarely see them being a problem in St. Augustine turf. As you walk through the grass and weeds they climb onto your shoes and clothes (or arms if you're pulling weeds) and start their climb.

Several hours later you'll start feeling the bites and severe itching. Initially they'll be under the elastic in your socks, then up your calves. Within 12 to 18 hours you'll find a ring of them biting you beneath the elastic band in your underwear – anywhere your clothing constricts.

The best thing you can do if you fear you might have been in an area infested with chiggers is to take a hot shower as quickly as possible. Use lots of suds with your soap and scrub vigorously. Use one of the chigger ointments or anti-itch creams to help stop the irritation. It should go away within a couple of days.

Dr. Mike Merchant, himself a sufferer of chigger attacks, is a respected entomologist with Texas AgriLife Extension of Texas A&M. Mike referenced a study in Nebraska a few years ago that found bifenthrin gave the best control of chiggers (96 percent) when sprayed in urban lawns and landscapes. [Here is a link](#) to Mike's story.

My own personal means of dealing with chiggers when the grandkids and I go outside is to protect ourselves simply by applying DEET insect repellent to our ankles, calves and arms before we go outside. Then we apply additional sprays to

the outside of our clothes as double coverage. We are also protected against mosquitoes by the DEET, an added bonus. I feel like it's easier to protect ourselves than it is to spray the entire landscape and lawn area in which we might find ourselves.

Posted by Neil Sperry



AquaNooga tips of the week

6/11/19

One of the most common mistakes water gardeners make is over-cleaning your biological filters. The media in your filter is home for beneficial bacteria. Cleaning too well (especially if using chlorinated water) removes much of the bacteria and it has to reestablish for the filter to operate at its maximum efficiency. To clean a filter, all you need do is lightly rinse the media. You just want to remove any debris that is restricting the flow. A good way to clean many types of media is to slosh it in a tub of pond water or rain water. Fiber media can also be knocked against a surface to remove some debris. If you have multiple types or layers of media, you also rotate which get cleaned to help ensure strong bacterial colonies.

6/25/19

Does your water feature use an auto-fill device to keep the water level up? If so, it is a good idea to periodically turn this off for a couple of days as it can hide a leak. If your

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pond has a leak and is continually being topped off with chlorinated water it can cause serious problems for your fish and biological filtration.

From the pond guy blog 6/16/19

Why do koi have barbels?

Asked by: Janice of Clear Creek, KY



A: Koi have been growing trendy whiskers way before the hipsters made it cool! Those whiskers—or barbels—are a defining characteristic of the fish. Here's what they are, what they do, and why the popular pond fish has them.

Super-Sensing Organ

Barbels are sensory organs not unlike whiskers in mammals. Rather than being used for tactile sensing, however, a fish's barbels are used for taste. Koi, along with catfish, goatfish, hagfish, sturgeon,

zebrafish, some species of shark and other carp, have barbels. They use these taste bud-covered organs to search for food in murky water.

Tasting Without Ingesting

Koi and other carp have four barbels, with two on each side of the koi's mouth (termed "maxillary barbels"). The top two appear shorter than the lower two, but they all serve the same purpose: taste debris without actually ingesting it. Being omnivorous scavengers that forage along murky pond and river bottoms, it's a good survival skill to have.

Weird Appendages

As spring approaches and you start feeding your finned pals some **Spring and Fall Fish Food**, take a closer look at these weird appendages. Most koi (except those with mutations) have barbels—even koi fry have them! So go grab a [pond net](#), catch a koi or fingerling, and look closely to see them.

As with hipsters and their whiskers, they probably won't like you playing with their barbels. But they're still fun to look at!



Aquanooga tip Tuesday, June 18, 2019

Want to fight back against mosquitoes?

Here are a few tips to help in the battle.

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Install a water garden. Yes, that's right; I said "install a water garden." It is a common misconception of non-pond owners that water gardens breed mosquitoes. But, water gardens are not an additional concern for the increase of a mosquito population. In fact, a water garden helps fight against mosquitoes. Bodies of water are a natural attractant of dragonflies and damselflies. These creatures are often called Mosquito Hawks. The average dragonfly consumes hundreds of mosquitoes per day. Dragonfly larva also eat mosquito larva. Also, most water gardens contain fish. The fish eat the mosquito larva that may still end up in the pond.

Empty anything in your yard that is holding water unnecessarily. This is where most residential mosquito problems originate. Downspouts, pots, toys, tarps, etc. collect water and provide the perfect breeding ground for mosquitoes.

Treat other areas with biological mosquito control. Mosquito Dunks, and Microbe Lift's Biological Mosquito Control are all natural biological treatments that you can add to any water that needs it. These areas include fountains without fish, birdbaths, low areas of the yard that puddle, etc.

Mosquitoes have always been annoying and in recent years the concerns of disease such as West Nile have brought a new level of concern to mosquito control. Fortunately, there are simple ways to help reduce the mosquito population in your yard.



This from Science News

Honeybees infect wild bumblebees through shared flowers

Domestic beehives linked to spike in viral infections in nearby bumblebee populations

Date: June 26, 2019

Source: University of Vermont

Summary:

Viruses in managed honeybees are spilling over to wild bumblebee populations through the shared use of flowers, a first-of-its-kind study reveals. This research suggests commercial apiaries may need to be kept away from areas where there are vulnerable native pollinator species, like the endangered rusty patched bumblebee.



Honeybee on flower (stock image).

Credit: © Antony Cooper / Adobe Stock

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Many species of wild bumblebees are in decline -- and new research shows that diseases spread by domestic honeybees may be a major culprit.

Several of the viruses associated with bumblebees' trouble are moving from managed bees in apiaries to nearby populations of wild bumblebees -- "and we show this spillover is likely occurring through flowers that both kinds of bees share," says Samantha Alger, a scientist at the University of Vermont who led the new research.

"Many wild pollinators are in trouble and this finding could help us protect bumblebees," she says. "This has implications for how we manage domestic bees and where we locate them."

The first-of-its-kind study was published June 26 in the journal *PLOS ONE*.

Virus Hunters

Around the globe, the importance of wild pollinators has been gaining attention as diseases and declines in managed honeybees threaten key crops. Less well understood is that many of the threats to honeybees (*Apis mellifera*) -- including land degradation, certain pesticides, and diseases -- also threaten native bees, such as the rusty patched bumblebee, recently listed under the Endangered Species Act; it has declined by nearly 90% but was once an excellent pollinator of cranberries, plums, apples and other agricultural plants.

The research team -- three scientists from the University of Vermont and one from the University of Florida -- explored 19 sites across Vermont. They discovered that two well-known RNA viruses found in honeybees -- deformed wing virus and black queen cell virus -- were higher in bumblebees collected less than 300 meters from commercial beehives. The scientists also discovered that active infections of the deformed wing virus were higher near these commercial apiaries but no deformed wing virus was found in the bumblebees they collected where foraging honeybees and apiaries were absent.

Most impressive, the team detected viruses on 19% of the flowers they sampled from sites near apiaries. "I thought this was going to be like looking for a needle in a haystack. What are the chances that you're going to pick a flower and find a bee virus on it?" says Alger. "Finding this many was surprising." In contrast, the scientists didn't detect any bee viruses on flowers sampled more than one kilometer from commercial beehives.

The UVM scientists -- including Alger and co-author Alex Burnham, a doctoral student -- and other bee experts have for some years suspected that RNA viruses might move from honeybees to bumblebees through shared flowers. But -- with the exception of one small study in a single apiary -- the degree to which these viruses can be "horizontally transmitted," the scientists write, with flowers as the bridge, has not been examined until now.

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Taken together, these results strongly suggest that "viruses in managed honeybees are spilling over to wild bumblebee populations and that flowers are an important route," says Alison Brody, a professor in UVM's Department of Biology, and senior author on the new *PLOS* study. "Careful monitoring and treating of diseased honeybee colonies could protect wild bees from these viruses as well as other pathogens or parasites."

Just Like Chicken?

Alger -- an expert beekeeper and researcher in UVM's Department of Plant & Soil Science and Gund Institute for Environment -- is deeply concerned about the long-distance transport of large numbers of honeybees for commercial pollination. "Big operators put hives on flatbed trucks and move them to California to pollinate almonds and then onto Texas for another crop," she says -- carrying their diseases wherever they go. And between bouts of work on monoculture farm fields, commercial bees are often taken to more pristine natural habitats "to rest and recover, where there is diverse, better forage," says Alger.

"This research suggests that we might want to keep apiaries outside of areas where there are vulnerable pollinator species, like the rusty patched bumblebees," Alger says, "especially because we have so much more to learn about what these viruses are actually doing to bumblebees."

Honeybees are an important part of modern agriculture, but "they're non-native. They're livestock animals," Alger says. "A huge misconception in the public is that honeybees serve as the iconic image for pollinator conservation. That's ridiculous. It's like making chickens the iconic image of bird conservation."

Story Source:

Materials provided by **University of Vermont**.

Note: Content may be edited for style and length.

Journal Reference:

Samantha A. Alger, P. Alexander Burnham, Humberto F. Boncristiani, Alison K. Brody. **RNA virus spillover from managed honeybees (*Apis mellifera*) to wild bumblebees (*Bombus* spp.)**. *PLOS ONE*, 2019; 14 (6): e0217822 DOI: 10.1371/journal.pone.0217822



The following is an article from the North Texas Water Garden Society's 2019 Pond Tour Guide

Water Testing

Kevin Fuess

NOTE: this is a condensed version of water quality parameters intended to give the reader an introduction to why we should test our pond water. Unfortunately, there is not enough room here to completely cover each of the topics. This would become a chemistry book rather than Pond Tour Guide --what fun!

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Water testing is one of the main topics when considering water quality in our ponds. It is also one of the most neglected tasks we face with our water gardens.

I know once you read this you're going to run out and buy all of the test materials and set up a special place to do your testing. No? Well, I would at least like to see every pond owner be comfortable with their ability to test the water should the need arise.

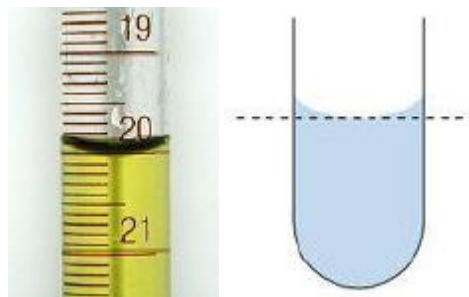
The Method:

1. Rinse test vial with water to be tested.
2. Add the designated amount of water to vial. Note some tests require different amounts of water.

Be sure to check the instructions that come with the kit.

- a. Most kits come with pre-marked tubes for water needed for the test.
- b. Be sure you understand how to read the water level in the test tube as shown below.
- c. For a more accurate test I recommend the use of a syringe to provide the proper amount of test water.

3. Add the appropriate reagent(s)
 - a. Hold the reagent bottle straight up when dispensing into the test tube – do not hold at an angle.
4. Place the cap on the test tube to mix – do not use the tip of your finger.
5. Compare to the color chart provided with your test kit.
6. Rinse the test tube after completion – preferably with distilled water.



Reading your test tube/vial.



This is a good tool to use for putting the water to be tested into the tube.

What are we testing for?

pH: preferred range 7.0 – 8.5 but 6.5 – 9.0 is acceptable

Possibly the most misunderstood component of our pond water chemistry. I can't tell you how many times someone has contacted me and said *"My pond or fish has a problem with (insert issue here), but my pH is fine. What is wrong?"*

In most cases a single pH reading tells you little, or nothing, about the state of your pond. The exception being, if your water is typically at or above 8 and you get a reading of 6 or below you will have experienced a pH crash*. What we are looking for in pH is

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stability at whatever is normal for your pond. So, what is normal? The pond water pH will typically settle at + .5 of the water used to fill the pond. i.e. if your tap water has a pH of 8, your pond will settle somewhere from 7.5 to 8.5. The goal in testing pH is to watch for changes that might indicate that a pH crash may occur. Unfortunately, this can happen very rapidly. There is, however, a much better way to monitor and predict this:

Total Alkalinity (KH): desired range 50 – 200 ppm.

Source: most often from the water used to fill the pond.

If you are going to only run one test – this is the one to do.

Alkalinity is the substance that maintains the pH level at whatever level is normal for your pond. If the alkalinity level is within the above range, the pH will be stable. A reading at the lower end or below 50ppm will indicate that a pH crash* is about to occur. This is also the easiest of the water tests to perform. In most tests you are looking at slight changes in color and comparing to a chart. With the KH test the water turns blue with the first drop of reagent. You then continue adding and counting drops of reagent until the water suddenly turns yellow.

If you do regular water changes the total alkalinity level will typically remain in the safe range. In an emergency you can add baking soda at the rate of ½# per 500 gallons of water.

Nitrogen cycle: Ammonia Nitrite Nitrate

Ammonia: desired test reading 0

Source: primarily from the fish and to a lesser degree any decaying organic debris.

This is the first test to indicate that the bio-converter portion of the filter is working properly.

The ammonia will have been broken down through biological activity to produce nitrite.

Note: do not test for ammonia during the first 2 hours after feeding your fish.

Nitrite: desired reading 0

Source: biological conversion from ammonia.

This is the second test that the bio-converter is working. Another set of bacteria will break this down to produce nitrate. **Nitrate:** relatively benign.

This is the end product of the nitrogen cycle and is not considered a necessary test. Control of nitrate is accomplished through regular water changes as well as use by the plants in a water garden.

How often should you test your water?

1. Any time your fish are acting different.
2. Daily would be a bit excessive. Unless there has been a change to the pond such as adding a lot of fish at one time or you are working with a quarantine tank.
3. Weekly if you are seeing changes in the water.
4. If everything is stable in the pond, monthly is a reasonable time frame.

I was asked once about the need for accuracy when performing the tests. So, let's look at that. Most of the tests we perform only require 5 ml of water. If the water sample is .1 ml short or over the margin of error is 2%. You probably would not be able to see the difference in the results. However,

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the reagent used in the test is typically 5 drops. One additional drop (which is very easy to do) creates an error of 20%. Striving to maintain accuracy in both the water sample and reagents will give you the most reliable results.

*pH Crash

This is a condition where the pH drops below 7 and has been observed to go as low as 4.4. This occurs when the total alkalinity has been consumed through normal biological activity, improper addition of acidic substances or the addition of excessive rain water.

GOOD; ammonia is less toxic at lower pH levels

BAD; the drop in pH will affect the biological activity in the bio-converter. Ammonia will immediately begin to accumulate so drastic changes are stressful on the fish.

The pH scale, 0 – 14 is a negative base 10 logarithmic scale. Simply put, a pH drop from 8 to 6 is a one-hundred-fold difference

UGLY; increasing the total alkalinity and thus the pH without first testing and treating for ammonia can kill your fish.



Pond Vac

As a reminder, this is a “Members Only” benefit. You can rent this super-duper pond cleaning machine very reasonably! John Enders is the “official pond Vac keeper”. Call him 254-848-9596 or send him an

email at jenders@aol.com to schedule your time with the machine. One note of caution when using the pond Vac, watch how much water you are removing from your pond!! It works so well sucking up the “yuk” that one can easily forget how much water is also being removed! That is the voice of experience talking!!



Please support these businesses who have agreed to give our members a discount at their stores

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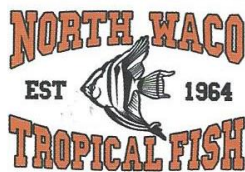
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