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ON THE COVER

American cockroach, *Periplaneta americana*, moves
from sewer to home or hospital with ease. In this
issue, *PestPro* considers the potential for cockroaches
as vectors of human disease. Effective cockroach
management reduces the risk.

American cockroach photo by Bob Adams



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We Are All in This Together

Message from the President of FPMA

Suzanne Graham

WHEN I took office, I pledged to focus on Advocacy and Membership. Little did I know that a global pandemic was merely weeks away and that the Association's strength and our member's resiliency would be put to the test on both fronts!

Florida Pest Management Association in Action

As the COVID-19 situation evolved, our Government Affairs Committee was actively involved in making sure that pest control (exterminators) and landscapers would be declared as essential services. The first order in the state on essential services came out of Miami-Dade County, and exterminators were included.

Shortly thereafter on March 19, the U.S. Department of Homeland Security issued a memorandum declaring exterminators as an essential service and revised it on March 28 to include landscaping.

As this situation unfolded county by county, FPMA headquarters was busy collecting other orders and pushing out information through our website and social media.

On April 1, Governor Ron DeSantis created a statewide Safer at Home order referencing the original Miami-Dade designation, and it was clear we could continue providing our services. In response, we at FPMA drafted, posted and emailed an Essential Services letter for members' employees to use in the field.

WITH THE SAFER AT HOME Order, it was clear that our April Regional Meetings would need to be canceled. Without an outlet for enabling our members to obtain their CEUs, FPMA immediately partnered with the University of Florida to put together a series of webinars, providing CEUs in CORE, GHP, WDO and L&O, the first of which was given on April 6.

These have been very successful, and the gratitude expressed by our members has been extremely gratifying. Depending on the demand, we may extend this program.

Meanwhile, the signing of the Cares Act on March 27 generated another wave of uncertainty and many questions. It had far-reaching impacts on our businesses, from managing human resources under the Families First Coronavirus Response Act and finances through the Paycheck Protection Program (PPP), to loan programs with the Small Business Administration.

Our members were invited to attend webinars by third parties, where HR experts and accountants presented and weighed in on the myriad of scenarios being encountered by pest control companies.

Further Information

As the situation continues to unfold, our website (www.flpma.org) will be the nexus for information and resources. Look under the blue tab on the top of the page, titled COVID-19. To make it easier to find specific information, we have categorized the information by:

- COVID-19 Industry News
- Florida State COVID-19 Breaking News and Information
- COVID-19 Business Toolkit
- COVID-19 General Resources

Unfortunately, the Summer Conference Planning Committee and Executive Committee were faced with a tough decision on whether or not to hold our Summer Conference. It was determined that it would be in the best interest of the Association and our members to renegotiate our contract and postpone the Conference until June 14–17, 2021.

There are still many uncertainties and many topics where our members could benefit from additional guidance and clarification. As we move forward, FPMA will continue to respond to the needs of our members by providing timely information and relevant content. We are here for you. We are listening.

We are all in this together. **PP**

Suzanne Graham
President, FPMA

Check the FDACS website at <https://www.fdacs.gov/Divisions-Offices/Agricultural-Environmental-Services> for any updated information.



Leon County

What an Opportunity for the Pest Management Industry

THE COVID-19 virus started in China, and when I first saw the images coming from Wuhan, I saw their efforts to disinfect the city. People with sprayers went throughout public places spraying disinfectants onto surfaces that might have been contaminated.

I have no idea how important that activity was in helping quell the spread of the virus there, but it certainly did not hurt. When I saw the sprayers they were using, I thought that our pest management industry probably has much better sprayers with better capacity than the ones that were being used in China and elsewhere. Is this an opportunity for the pest management industry to be involved in helping the United States defeat COVID-19?

Coronavirus Concerns

The other day I passed a Starbucks coffee shop. The shop was closed and being disinfected. There was brown paper taped over all the windows, and a truck was parked out in front with disinfectant advertising on the side. The company was evidently going to do a ULV treatment of disinfectant to the interior of the shop and have the disinfectant cover all surfaces to destroy any contaminating virus. I wondered why that was not a pest control truck and why the industry has been so unseen in the face of this current disaster.

The pest management industry is considered an essential business, and the case was made because of the possibility of insects transmitting disease. Of course, we know that cockroaches, ant, flies and other pests can crawl across surfaces and move pathogens from those surfaces to food. They do that very effectively for food-poisoning bacteria and even some viruses.

I have heard nobody speculate that insects could move the COVID-19 virus similarly. If the COVID-19 virus is moved



Two U.S. Army soldiers and a Republic of Korea Army soldier spray a COVID-19-infected area with a solution of disinfectant in Daegu, Republic of Korea, March 13, 2020. The soldiers wear personal protective equipment with the primary function of protecting themselves from the disinfecting agent. U.S. Army photo by Spc. Hayden Hallman, 20th Public Affairs Detachment.

by hand contact as well as by particulates in the air, then it is probable that insects could also move the virus. Proper insect control in these times of coronavirus may also help reduce the spread of the disease. The importance of pest control during these times may be under-appreciated by the public.

New Role for Pest Pros?

So, what can the pest management industry do to help during this time of disaster? The first and most obvious answer would be to apply disinfectant. The second and less obvious answer would be to apply insecticides to control insects that spread disease, whether it is COVID-19 or food-poisoning bacteria.

Why would pest control companies want to spray disinfectants? First, disinfectants are considered pesticides by EPA. Disinfectants are not regulated as typical insecticides and are available to many of the janitorial and cleaning services.

Disinfectants are usually used as wiping applications, which are considered the best way to get rid of COVID-19 on commonly contacted surfaces. The removal

of grime and dirt is part of the decontamination process. So that type of disinfectant application is limited because scrubbing is not something that can be accomplished in large indoor and outdoor contaminated areas. Also, the pest management industry is not really positioned to be able to get into scrubbing surfaces to decontaminate them.

But spraying is something the pest management industry is quite good at accomplishing. Cleaning services do not have the extent of the spraying capacity that exists in the pest management industry. Cleaning services are good at wiping down contaminated surfaces, but not spraying thousands or millions of square feet of interior or exterior space.

In our lab we have an electrostatic sprayer that was designed to disinfect cruise ship staterooms in a minute or less while passengers are being exchanged at ports. It is very similar in design to a ULV sprayer, and some cleaning companies are advertising that sprayer for use in COVID-19 disinfecting. I have not seen pest control companies get very involved in disinfection services.

Find Out More, Fill a Need

What disinfectant should be used? EPA has a list of disinfectants at [epa.gov/coronavirus](https://www.epa.gov/coronavirus), and FDACS has issued guidance in this issue of *PestPro* magazine on the use of disinfectants. Make sure you take a look at the possibilities for your company.

The nation needs the help of the pest management industry. This is an opportunity for the industry to shine like a beacon to help lead our nation out of this pandemic. **PP**

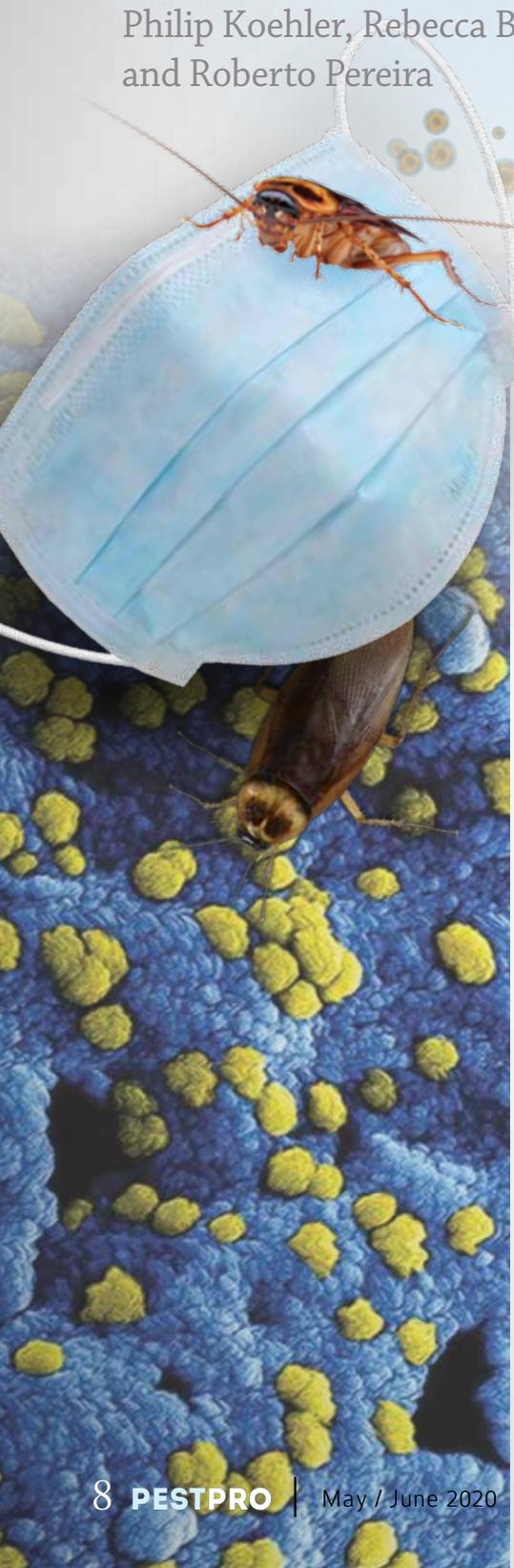
— Dr. Philip Koehler,
Managing Director, *PestPro*

Cockroaches Can Transmit Pathogens, Including Viruses

Philip Koehler, Rebecca Baldwin,
and Roberto Pereira

Transmission electron microscopic (TEM) images of Middle East respiratory syndrome coronavirus (MERS-CoV).

U.S. Centers for Disease Control and Prevention



With the introduction of COVID-19, new terminology emerged in our society. In a time of new concepts like *social distancing* and *mask envy*, the pest management industry provides an *essential service*.

PEST MANAGEMENT is indeed an essential service, since we protect human and animal health. Our industry protects food and structures from pests that can contaminate us and vector diseases.

You may have seen interviews with leaders in the pest management industry answering whether mosquitoes or bed bugs could transmit COVID-19. Their answer is that mosquitoes and bed bugs are unlikely vectors of the disease. The blood-feeding habits of these pests do not lend themselves to the transfer of a respiratory virus like COVID-19.

But what about other pests such as cockroaches?

In general, cockroaches have been ignored as being capable of transmitting human pathogens such as viruses. However, a great deal of research implicates cockroaches in past viral-disease outbreaks. Cockroaches have been proven to acquire, maintain and excrete both viruses and bacteria that can cause disease in humans.

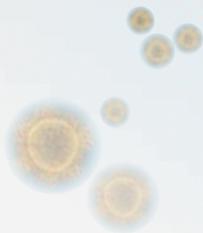
It is too soon to know whether COVID-19 can be mechanically transmitted by cockroaches, but it might be good to look at what we know about cockroaches and disease transmission.

Cockroach Behavior and Diet

Cockroaches are scavengers and feed on a variety of items including human and animal waste, trash, and even one another. With their chewing mouthparts, cockroaches can feed on medical waste that might be contaminated with the COVID-19 virus. With the wax on the exoskeleton, pads on the feet, and through their feces, cockroaches may transmit pathogens they contact during feeding. Because cockroaches have been documented feeding on exudates from eyes, nose and mouth as well as hair and food debris on the faces of sleeping people, they probably could pick up a respiratory pathogen and carry it from one location to another.

Cockroaches are flattened from top to bottom and can fit into small cracks where they touch surfaces on both sides. Cockroaches may congregate in corners where there is reduced airflow and can be found feeding in groups. Most cockroaches are active at night. Some species, such as the German cockroach, are common indoors in kitchens and bathrooms. Another species, the American cockroach, is common in sewers. Cockroaches have running legs, and many adult cockroaches have working wings. They may feed in a dumpster or sewer full of waste, then move to an indoor environment such as a kitchen.

LEFT: Highly magnified respiratory syndrome coronavirus.
U.S. Centers for Disease Control and Prevention



Natural, or biological, transmission: the agent develops and/or propagates within the vector.

Mechanical transmission: the simple transfer of agents from one infected host or a contaminated substrate to a susceptible host.

THE VIRUS THAT CAUSES COVID-19 has been found in the feces of infected people with gastrointestinal infection and in respiratory secretions. Physicians warn that the transmission of COVID-19 is usually associated with small respiratory droplets or contact with contaminated hands or surfaces. They state the virus can remain active for hours to days on surfaces. For instance, according to WebMD the virus can live up to four days on furniture, two to three days on plastic, 24 hours on cardboard, two to eight hours on aluminum, and five days on glass.

Cockroaches contact surfaces, feed on fecal waste, and also feed on secretions around the nose and eyes. Because of their behavior and diet, research may eventually show that cockroaches can mechanically transmit COVID-19 much like humans transmit the virus mechanically through contaminated hands.

Cockroaches as Vectors of Bacteria and Viruses

A **mechanical vector** is an organism that picks up a pathogen from its environment and transfers the pathogen — without the pathogen reproducing — to infect a previously uninfected host. Cockroaches are well known mechanical vectors of bacteria because of past research work with experimentally induced infections.

Cockroaches are known to harbor the bacteria that cause anthrax, Asiatic cholera, diphtheria, pneumonia, tetanus, tuberculosis, plague, and undulant fever. In fact, 40 species of bacteria known to be pathogenic to humans have been found in or on cockroaches. Experimentally, about 20 species of bacteria have been introduced into cockroaches to find a connection between cockroaches and human bacterial disease. *Pseudomonas* bacteria were found to be viable in feces produced by cockroaches for 114 days after infection. But bacterial pathogens are not viruses.

Natural transmission of viral human diseases by cockroaches from human to cockroach to human has not been proven.

However, published data show that cockroaches are certainly potential vectors of viruses. In 1952, German and brownbanded cockroaches were shown to naturally acquire polio virus in residences of paralytic poliomyelitis patients. That study was followed up in 1965 with a laboratory study of discoid cockroaches that showed polio virus could persist in the gastrointestinal tract of cockroaches for as long as 51 days, with only a gradual decline in the amount of virus.

In 2005 a study was conducted to isolate and identify microorganisms of medical importance from German cockroaches in hospitals and residences. In that study 159 cockroaches were collected from hospitals, and 120 were collected from homes. The results of the study concluded that 99.4 percent of cockroaches from hospitals were carrying medically important microorganisms, and 94.2 percent of cockroaches from residences also carried medically important pathogens. The study concluded that cockroaches in hospitals and homes can act as potential vectors of medically important pathogens.

Polio is not a prevalent disease any longer due to effective vaccinations. However, viral hepatitis A, or infectious hepatitis, is still prevalent and causes infection that results in liver inflammation and damage. It is spread through contaminated food or water or contact with someone who is infected.

Between 1956 and 1959, hepatitis A was studied in a housing complex in California that had 20 to 39 percent of the hepatitis A cases in the area. A cockroach control program was implemented, and cockroach populations decreased by 70 percent. The incidence of hepatitis A dropped to 6.6 percent in 1960 and 3.6 percent in 1961.

Studies since then have shown that artificially inoculated cockroaches can acquire, maintain and excrete hepatitis B and coxsackie A viruses. Although data shows a decrease in infection that correlates with management of cockroaches, to date, natural transmission of viral disease by cockroaches is still unproven.

Continued on next page

FURTHER READING

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LEFT: Hospital waste. To be most effective, cockroach management relies on best sanitation practices. Medical waste is of particular concern.



Importance of Cockroach Management

Cockroaches are not only nuisance pests, but public-health pests. They can trigger asthma, especially in children, and can pick up and harbor bacterial and viral pathogens through their feeding behaviors. Through their body shape and tarsal morphology, they have the ability to traverse multiple surfaces and can easily move from location to location. Cockroaches can be transported worldwide through ships, vehicles and airplanes and are associated with human environments including hospitals, restaurants and homes.

Cockroach management is an essential service that the pest management industry provides. To properly manage cockroaches, it is important to identify the species so you can target the method that fits the biology and behavior of the pest. You may also need to recommend changes to the environment to include sealing of plumbing, electrical and light switch plates and closing of gaps around doors to exclude cockroaches from moving from area to area.

A cockroach management plan begins with inspection and identification, so be sure you protect yourself by using PPE when you inspect. As you inspect, take note of how waste is managed. Trash cans, the dolly under the trash cans, and dumpster locations can contribute to cockroach infestations. If you are inspecting a commercial food area, including

hospital kitchens and cafeterias, remember to take along a screwdriver to inspect under the ramps that lead to food warming and cooling areas.

Also, check carefully around the dishwashing areas and be sure the floor drains are scrubbed clean and free of debris. Supply delivery and cardboard storage may also contribute to cockroach infestations, so discourage clients from storing cardboard and have them monitor for cockroaches seen in produce and dry-food deliveries. If using a vacuum to remove large numbers of cockroaches, be sure that you use a HEPA filter.

When applying insecticides such as baits and sprays, be sure to follow the label for application amounts and locations. Baits can quickly dry out in conditioned spaces, so the bead size and shape is important for efficacy.

An integrated approach should be used, and sanitation is very important for continued management. Cockroach proteins can remain stable in the environment for years after the cockroaches have been removed. Customers should be instructed to clean with soap and water and rinse with clean water the areas where cockroaches were harboring.

Contaminated medical waste must be contained and disposed of properly to prevent cockroach access. Used masks, kleenex and gloves are among the items that

need special care upon disposal. Securely bag medical waste for disposal or incinerate according to proper protocol.

Pest Management Matters

For more information on cockroach identification and management guidelines, please see the UF/IFAS publication *General Household Pest Control Applicator Training Manual*, SM-47. It is available through <https://ifasbooks.ifas.ufl.edu/>.

Stay safe, and know you are essential in protecting human health by reducing populations of insect vectors of human pathogens. Your efforts provide protection for the sick and vulnerable population, for the healthcare workers, for our families, and our food supply and distribution.

Pest management also relieves mental anguish triggered by cockroach and other insect pest infestations and encourages sanitation to protect people from pests and pathogens. Pest management is an essential business in the best of times. Its importance only grows when we are all trying to minimize the spread of a deadly virus.

Stay essential, and stay safe! **PP**

Philip Koehler is Endowed Professor, Rebecca Baldwin is Associate Professor, and Roberto Pereira is Research Scientist at UF/IFAS Entomology and Nematology Department.

HOW Does the *Native Plant Movement* Fit Into *Landscape Pest Management*?

Adam Dale

In recent years, there has been growing attention on increasing native plants in urban and residential landscapes. In fact, many argue that there should be *only* native plants in these spaces.

MUCH OF this movement has stemmed from years of research showing that native plant species tend to support more abundant and diverse native insects, which then support insect-feeding animals like birds. So, more native plants equals more plant-feeding insects, which translates to more native birds and a generally more functional ecosystem.

Interestingly, this seems to contradict the general goal of landscape pest management, where we are trying to reduce plant-feeding insects. Right? Well, it depends on the insect.

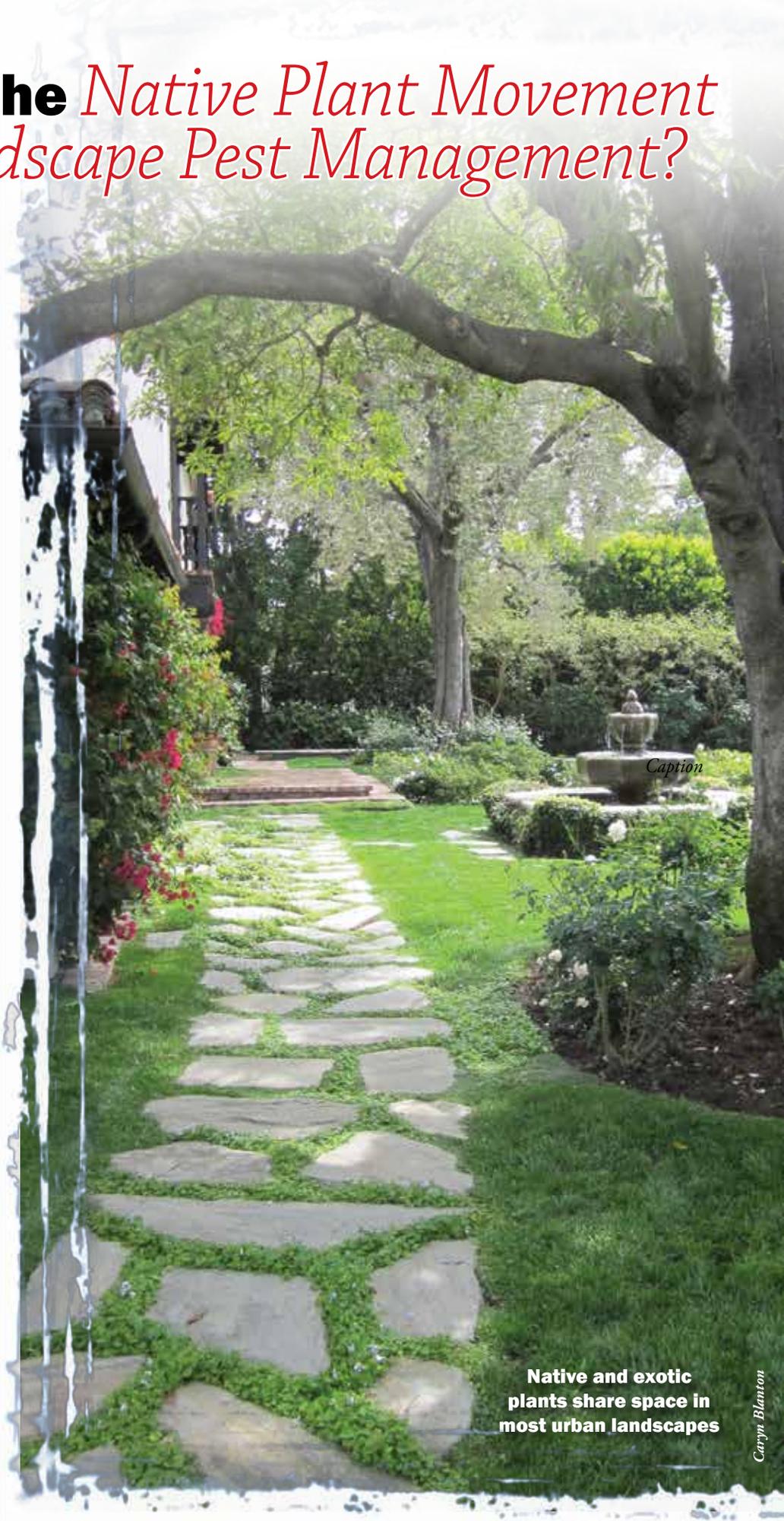
Will All the Insects Run Wild?

Remember, less than 1 percent of insects are actually pests. It is also important to recognize that in nature, plant-feeding insects are everywhere, and they play a critical role in the functioning of ecosystems. But they rarely reach damaging levels because nature has pretty good regulations in place. Just think about the number of times you have seen a scale insect outbreak in a forest compared to that in a residential landscape.

In nature, predators, parasites and pathogens are commonplace and frequently feed upon insect plant pests. In nature, environmental conditions like temperature and plant stress are in balance and keep plant pests from reaching damaging levels. In nature, soils are relatively undisturbed, there are multiple layers of vegetation, and this vegetation is fairly continuous across space.

By definition, urban landscapes are void of many of these natural regulators of insect populations. We have replaced natural vegetation with buildings, roads and plants of our choosing — typically those that look nice. And a growing body of research has shown that these changes we make directly benefit many insect plant pests and harm many beneficial insects. So, solutions to pest and wildlife management in urban areas are complex.

Continued on Page 13



Caryn Blanton

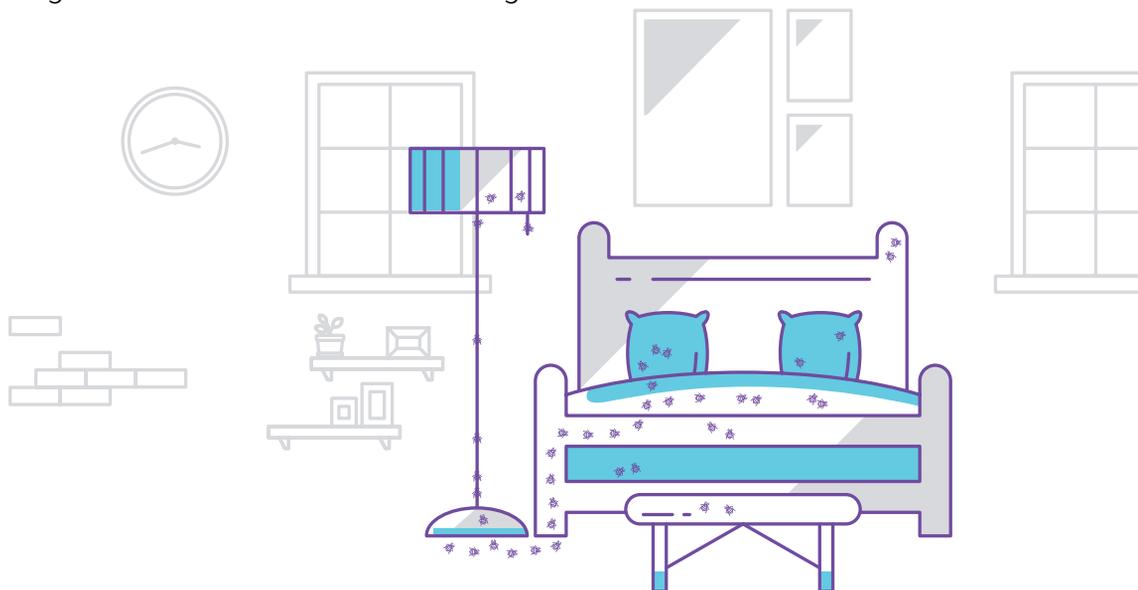
Native and exotic plants share space in most urban landscapes

Caryn Blanton

ASK YOUR CUSTOMER:

HOW MANY BED BUGS
DO YOU
OWN?

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Landscape, continued from Page 11

Native or Exotic?

As anyone who works in the landscape industry will recognize, a large percentage of plants in residential landscapes are not native to that region of the continent or world. On a recent walk with my wife, we identified random plants from each yard we walked past in our neighborhood and determined if they were native or exotic. We were impressed to find that the majority of plants we identified did not originate in North America.

I suspect that the average homeowner would also be surprised to learn the origin of many plants in his or her yard — especially ornamentals that have become staples in southeastern U.S. landscapes like camellias, azaleas or crape myrtles. The list goes on.

A Complex Choice

Ultimately, the choice of native or exotic is much more complex than native or exotic. Several exotic plants can provide valuable services where native species cannot, especially in urban landscapes where no plants are “native.” Characteristics like plant-species identity, plant traits, and the volume of plant material can be more important in determining which insects,

pest or beneficial, will use them. Moreover, the origin of the insect can make a huge difference.

In today’s globally connected world, the introduction and movement of exotic invasive pests has become commonplace. Exotic plant pests literally introduce an often-overlooked challenge when it comes to plant selection. Many plant feeding insects perform best on plant species that are more closely related to their native hosts. For example, in areas affected by emerald ash borer, a native pest of ash trees in Asia, nearly all North American ash species have been wiped out while unrelated species are untouched.

Crape myrtles, *Lagerstroemia* spp., are native to Asia but have become the most common urban tree in several cities throughout the southeastern United States. They only have one key pest, the crapemyrtle aphid, throughout much of their U.S. distribution.

Crape myrtles flower for extended periods of the year and are highly tolerant of stressful urban conditions. Although I would argue they are overplanted, they do well and are an example of an exotic species that provides value in

urban landscapes. However, if there were a native *Lagerstroemia* species, it might provide similar value and be less susceptible to crapemyrtle aphid, which also originated in Asia.

Native vs. Exotic Plants In the Lab

My lab at the University of Florida recently investigated similar relationships between exotic scale insects and their host plants. One of the most important pests of holly and camellia species throughout the Southeast is an armored scale called tea scale, *Fiorinia theae*. This insect is native to Japan and eastern Asia, where it feeds on its namesake, tea, *Camellia sinensis*.

All camellias and some commonly planted holly species are also from Asia. When you compare Chinese holly, American holly, and yaupon holly, tea scale infestations are nearly seven times greater on Chinese holly than the two native holly species. Similarly, average tea scale infestations across three camellia species — all exotic — are 10 times greater than infestations on the native hollies.

Recent work in my lab has also investigated plant susceptibility to the elongate hemlock scale, *Fiorinia externa*, an exotic, armored scale insect

LEFT: Crape myrtle, an Asian import, is a favored exotic plant in the Southeast United States. An aphid also from Asia is the key pest of crape myrtle.

BELOW: Tea scale infests exotic hollies more than native hollies.



Lorraine Graney



Sandor Molnar

that attacks coniferous trees. In its native range, this insect feeds on Japanese hemlock.

Research from the 1980s showed that elongate hemlock scale produces more offspring when developing on Japanese hemlock than eastern hemlock, native to North America.

Similarly, we have found that in the southeastern United States, elongate hemlock scale develops and reproduces much more successfully on species most closely related to hemlocks or plants in the family Pinaceae. Plants evaluated outside of that family were not hosts.

With both tea scale and elongate hemlock scale, when considering closely related plants, native plants are better choices than their exotic hosts — for example, yaupon holly is preferred over Chinese holly.

Continued on Page 28

Guidance to Industry Regarding Disinfectants

EPA-REGISTERED disinfectant products for use against COVID-19 do not require licensure under Chapter 482 Florida Statutes (F.S.) for companies or individuals using disinfectants. However, these types of products must be used in accordance with label directions.

Please be aware that there are different types of antimicrobial pesticides, and it is important to ensure the product that is being applied is appropriate. An antimicrobial pesticide is intended to disinfect, sanitize, reduce, or mitigate growth or development of microbiological organisms or protect inanimate objects, industrial processes or systems, surfaces, water, or other chemical substances from contamination, fouling, or deterioration caused by bacteria, viruses, fungi, protozoa, algae, or slime.

Disinfectants are a specific type of antimicrobial agent that can be used for public health protection dependent on the label claims and instructions. Antimicrobial label directions can be different from other types of pesticide labels, so please ensure all terminology is understood prior to application.

The U.S. Environmental Protection Agency (EPA) released a list of EPA-registered disinfectant products that have qualified for use against SARS-CoV-2, the novel coronavirus that causes COVID-19¹. For additional information from the Centers for Disease Control and Prevention, please see Cleaning and Disinfection Recommendations².

Prior to using any of the EPA listed disinfectants in Florida, please reference the National Pesticide Information Retrieval System³ to ensure that the product is also registered for use in Florida. These products

may be marketed and sold under different brand names, but if they have the same EPA registration number, they are the same product referenced on the EPA list. Some products may even have additional numbers after the EPA registration number (e.g., 10324-105-XXXXX). They are also the same product referenced on the EPA list.

FOR QUESTIONS REGARDING pesticide registration in Florida, please contact the FDACS Bureau of Scientific Evaluation and Technical Assistance, Pesticide Registration Section at (850) 617-7940 or via email at RTS@FDACS.gov. **PP**

Joseph E. Parker is Environmental Consultant at Division of Agricultural Environmental Services, Florida Department of Agriculture and Consumer Services.

¹ <https://www.epa.gov/coronavirus>

² <https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/cleaning-disinfection.html>

³ <http://npispublic.ceris.purdue.edu/>

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Name: George E. Braker

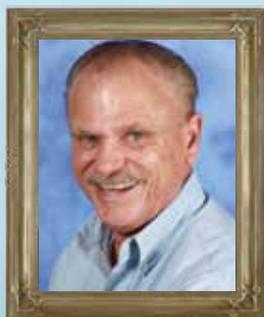
Hometown: Philadelphia, Pennsylvania

Where you live now: Boca Raton, Florida

About your company: I began in the pest control industry in 1978 when I first moved to Florida. In 1985 my wife, Jeanne, and I decided to start our own company, Pest-Away, Inc. We sold our company to Terminix in 2001, where I worked until my recent retirement in February of this year.

First paying job and what you learned from it:

I was 11 years old when I started selling Italian Water Ice and Snow Balls with a buddy of mine. We would get a delivery every morning of a 50-pound block of ice for Snow Balls or a barrel of Italian Water Ice. We would walk up and down streets with our wagon, selling. We did that for three summers.



George E. Braker

Lessons learned: be punctual, do what you say you're going to do, building trust with a friend/partner, making money is great fun.

First break in the pest business: I was a transplant to Florida in 1978 and had not decided on a career choice. I answered an employment ad for a pest control technician.

It was a family-owned company. During my interview, the owner was hesitant to hire someone so new to the area. I told them I would be willing to work two weeks for free in order to prove myself. Because of my offer, they hired me. I was employed there for seven years until they sold the company.

Best business book: Although there are a lot of good business books, I have to credit the trade magazines for up-to-date information and continuing knowledge of pest control and business practices.

Best piece of business advice you received: Always take care of your customers by providing the type of service you are proud of.

What you would tell someone new to the pest business? I would tell new hires not to treat this as just a job, because it can

become a great opportunity for a long career. Listen, learn, and treat people as you would want to be treated.

Where can we find you when you are not at the office?

I retired in February 2020. Because of social distancing and the pandemic, I have only been able to do my early morning walks and bicycle rides with my wife, Jeanne.

We are enjoying planning our future adventures traveling and spending time with family and friends. When the time allows, I would like to get back to playing golf, tennis and hiking.

What is the most important trait you look for when hiring? A positive attitude along with enthusiasm and a professional appearance are qualities I initially look for. **PP**





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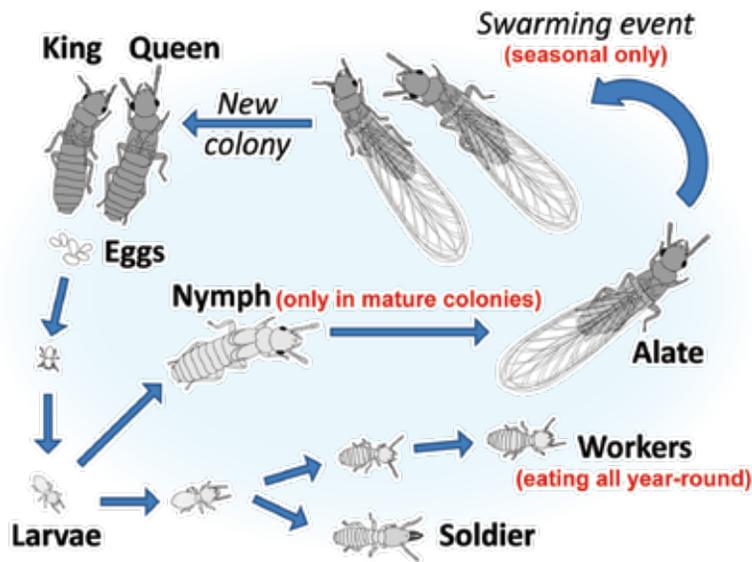
*Always comply with state and company policy regarding PPE

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It's Always TERMITE SEASON in Florida

Thomas Chouvenec



Termite life cycle. While termites are active year-round, alates are only produced seasonally from mature colonies.

Credit: Thomas Chouvenec

“It’s termite season,” is a common headline in Florida during March and April, with the termite-awareness campaign kicking in.

HOWEVER, it is technically always termite season in Florida, for two distinct reasons. First, termite colonies are munching on your house year-round. It does not matter if the alate dispersal flights are just visible during a few weeks of the year, the destruction is still ongoing in the walls, regardless of you knowing about it or not.

Second, depending on where you are in Florida, there is always a species in the middle of its swarming season, no matter what time of year.

Let’s talk about these two aspects and all come to a consensus: *It’s always termite season in Florida.*

Termites are Active Year-Round

It’s Florida! “Winter” does not mean much for wood-eating termites, as the seasonal changes in temperatures never go so low that termites stop being active.

Termites are social insects. They create colonies that, when reaching mature size, can contain from a few thousand to several million individuals, depending on the species.

Workers are the ones eating the wood, while the soldiers are in charge of defending the colony. The king and queen’s sole function is to reproduce and lay eggs. These eggs will hatch into small larvae, which will then molt into workers and soldiers, shown below.

These colonies are providing for their brood all year long. It can take five to seven years for a colony to complete its life cycle and produce winged termites, which will then proceed to swarm in dispersal flights to create new colonies. So, while winged termites are only visible seasonally, the termite colonies are active all the time.

Continued on Page 20



Brett Bultemeier, Pesticide Safety Pro



PESTPRO is always excited to introduce new University of Florida faculty to the industry. Dr. Brett Bultemeier recently joined UF's Pesticide Information Office as an Extension assistant professor.

As part of his role with the PIO, you may see Dr. Bultemeier teaching at industry events and working with our local Extension offices to provide pesticide safety training and information to both structural and restricted-use applicators.

From the time he was six years old, Dr. Bultemeier dreamed of working in the marine biology field. This changed while he was pursuing his undergraduate degree at Manchester University in Indiana in biology and environmental studies.

He completed an internship with a company that managed lakes and ponds in the Upper Midwest and worked with aquatic and invasive plants. After the internship, he shifted his focus to invasive species management, where he pursued a master's and PhD at the University of Florida Center for Aquatic and Invasive Plants.

His master's focused on the plant cabomba, *Cabomba caroliniana*, which is considered a native species to the United States. A different-looking and -behaving strain of cabomba has shown up in the Midwest, and it grows much more like an invasive species.

His research centered on determining if these new cabomba populations differed from the native populations. He examined how they responded to herbicides, in what pH and temperature ranges they grew the best, and pigment concentration.

The literature suggested that northern plants were green and southern plants red because of temperature and sun. However, when the invasive plants were grown in the South, they did not change color.

Beyond testing if the populations were different, which they were, they also tested herbicides to determine what management strategies might be available for the more invasive strain. Tests began in the growth chamber, measuring photosynthetic response to herbicides to select the most likely to succeed in mesocosm trials, and ultimately the field. Through

that testing it was determined that flumioxazin was by far the most effective, and it has become the industry standard in the United States and parts of Australia.

After graduation from UF, Dr. Bultemeier worked for seven years with Clarke, an international product and services company for mosquito and aquatic plant control. He served as the water resources manager, essentially a liaison between operations and sales both internally to the company and to outside customers.

Dr. Bultemeier's responsibilities were largely on the aquatic side, helping to develop and deploy treatment techniques and strategies, as well as training the applicators. After his time at Clarke he worked for Applied Biochemists as the southeastern regional sales manager. Applied Biochemists are primary registrants for several aquatic herbicides and algacides.

During his time there he also worked as liaison between their research team and several universities seeking to enhance control strategies for harmful algae blooms and fisheries production.

“Pesticide safety training is a wide-ranging field that always brings new challenges and new needs, which keeps me engaged and always thinking.”



UF/IFAS
Pesticide Information Office

IN 2019, Dr. Bultemeier knew it was time to return to the institution that gave him so much. He joined the team at the Pesticide Information Office and has taken on new roles and challenges.

He brings a new excitement to pesticide safety training. In his previous positions, he says that he spent more time training pesticide safety than he would have thought and found it to be more engaging than originally assumed.

He is very excited to expand his knowledge into other areas in this new role, particularly structural pest control and the insect side of this industry.

Q&A with Brett Bultemeier

What do you want people to know about the Pesticide Information Office?

The Pesticide Information Office is here to support pesticide professionals around the state in achieving, maintaining and utilizing their licenses to apply pesticides.

The goal is to prepare them for the testing and provide continuing education

to enhance their safety and knowledge in utilizing pesticides. To that end we aim to provide training and support to county extension faculty around the state, as well as within research and teaching programs at the University of Florida.

How have your previous work experiences helped you in your new role?

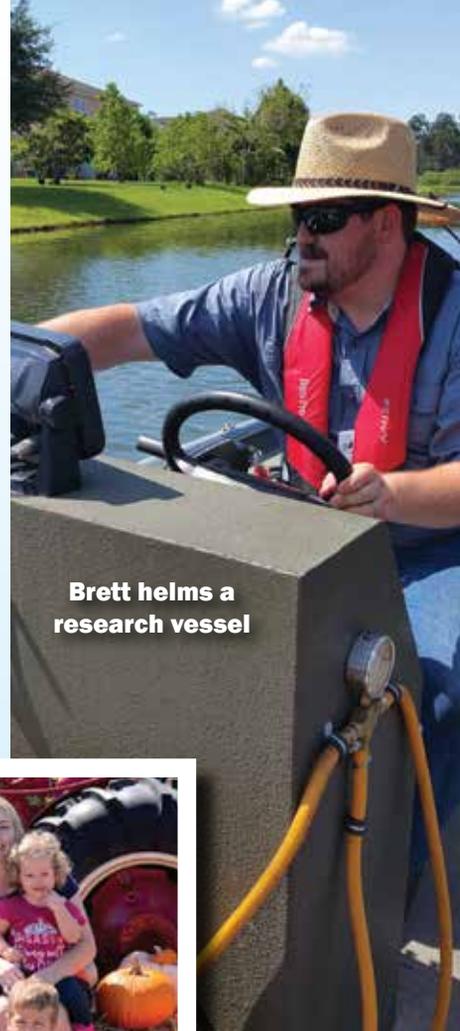
The time spent working in private industry in sales, operations, training, and technical support for pesticides helped shape what I am doing now. Having personally used a variety of products in the field, as well as training personnel in how to use these same products gives me a unique understanding. It allows me to think and approach training differently than those who have never had to “put on the PPE.”

My time in industry had me speaking with a very diverse crowd, from those with little to no knowledge of the subject matter, all the way to subject matter experts, which prepares me for speaking to a diverse crowd across Florida.

What do you enjoy teaching about pesticide safety programs? Why?

I enjoy teaching pesticide safety programs because it forces me to be creative. All too often this material can seem dry and, yes, boring, so it is a unique challenge to liven that up. The material itself doesn't change much, so it means I have to be creative in rethinking new ways to get that information across.

I like a good challenge, and covering pesticide safety material in a way that doesn't put me the presenter or, more importantly, the audience to sleep. **PP**



Brett helms a research vessel



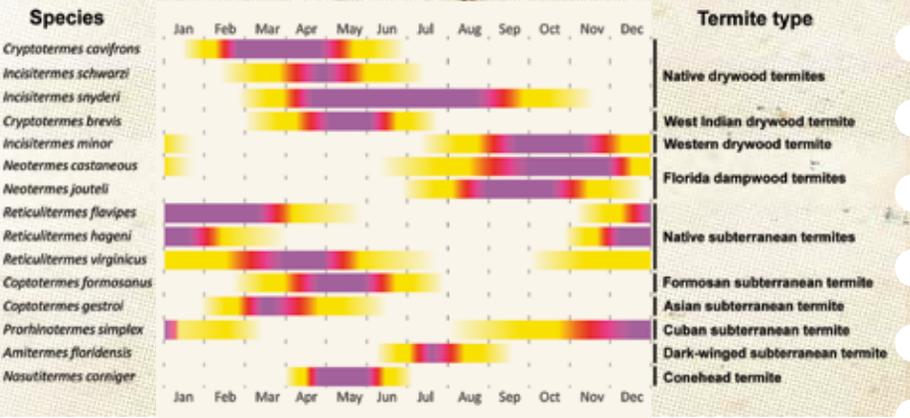
The Bultemeier family

Cabomba caroliniana, subject of Brett's research, is an aquatic invasive plant



Cabomba plant in a fish tank





Termite Dispersal Flight Seasons in Florida

Chart at left: Summary of the swarming season activity of some of the termite species found in Florida. Purple areas indicate high swarming season activity of each given species, while the yellow areas indicate early and late season of the swarming events. Data obtained from FLREC termite collection.

Credit: Rudi Scheffrhan / Thomas Chouenc.

Termite Season, continued from Page 17

ONE ANALOGY OF A TERMITE infestation in a structure is that when many termites are flying inside, it means that your house is on fire. However, the flying termites are just the smoke. The rest of the colony that is still chewing on the house is the actual fire you need to pay attention to.

So while it is common for people to be upset that a few hundred or thousands of winged termites are flying in front of the TV screen, these termites will probably die anyway and will probably not cause any direct damage to the structure.

However, what cannot be seen is a cause for concern: A colony is actively feeding on the structure. If a flight is observed, then this means that there is a mature colony involved, and that the damage to the structure is already probably significant. Good termite prevention practices around the building and regular inspections can help reduce the long-term potential for damage.

Different Species, Different Swarming Seasons

Florida is not like any other state. We have the highest termite diversity in the country, with 21 known established species.

Although not all termite species have the potential to be pests, many of them are a concern for homeowners. Most native drywood and dampwood termites are not really a problem, as they are primarily restricted to feeding on dead parts of trees.

Western drywood and West Indian drywood termites are both invasive to Florida and are important structural pests. Native subterranean termites are a threat statewide. However, in some areas with the invasive Formosan or Asian subterranean termites, the impact of subterranean termites can be much more problematic.

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• Translocates to reach pest harborages	✓		
• Increases gel bait consumption in adult female cockroaches and nymphs	✓		
• Low odor and non-repellent	✓	✓	✓
• Long-lasting residual activity	✓	✓	✓
• Use in food and non-food areas	✓	✓	✓

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**Asian subterranean termite
in flight, March 2020**

To know what kind of termites have been detected in your area, you can always check the interactive UF/IFAS termite map online¹.

Most importantly, it is necessary to confirm the ID of a termite species before applying any pest management solution, as different types of termites require different approaches.

With so many species, and with so many different biological traits, it effectively results in a continuous termite flying season, all year round. However, depending on where and when, it will be a different termite species involved in a swarming event — see chart on facing page.

In addition, depending on the location, a given species may swarm at a slightly different time of the year. For example, the first large swarms of the Formosan subterranean termites in South Florida usually occur in mid- to late April. In north Florida, these swarms will occur with a few weeks' delay because of the tropical gradient that is the Florida peninsula.

Final Thoughts

To conclude, termites in Florida remain a remarkable challenge to homeowners. While termite awareness for the public is only restricted to a couple of months of the year, it is important to be reminded that termites do not just show up for a few days and go back to being absent. They are active all the time, and inspection and prevention remain critical tools to prevent termite damage in the first place.

After all, it is always termite season in Florida. **PP**

Thomas Chauvenc is Assistant Professor in urban entomology specializing in biology, ecology, evolution and control of termites at UF/IFAS Ft. Lauderdale Research and Education Center.

¹<https://frec.ifas.ufl.edu/termites-in-florida/>

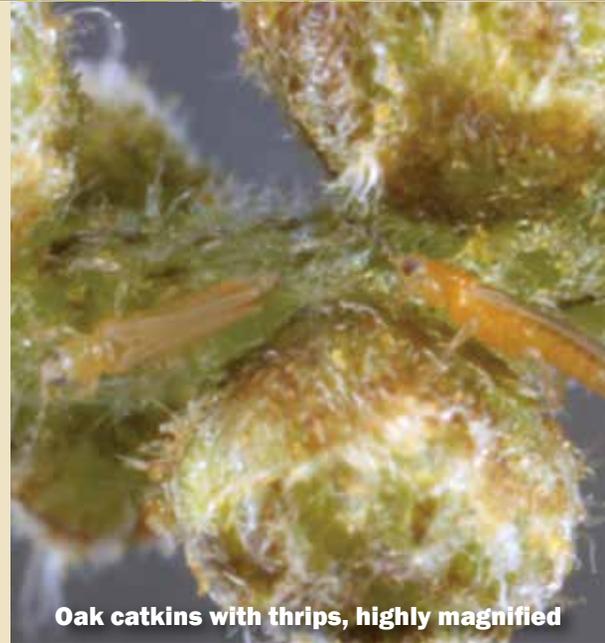
PEST DETECTIVE



**Chill thrips,
highly magnified**



Oak catkins: male flowers



Oak catkins with thrips, highly magnified

Photos by Lyle J. Buss

Thrips: A New Biting Insect?

Lyle J. Buss

YOU ALL are familiar with the usual biting bugs — mosquitoes, no-see-ums, bed bugs, deer flies. In March I started seeing an unusual biter in the Insect ID Lab: thrips. If you do pest management in landscape plants, then you probably are familiar with thrips. Otherwise, you're not likely to notice these tiny insects.

Thrips belong to their own order, Thysanoptera, which means “fringe wing,” referring to the fringe of long hairs surrounding their wings. Their body shape is long and narrow, or cylindrical, and they are usually yellow or brown. However, to see these characters, you're going to need at least a good hand lens, as thrips are tiny. Most are under 1/16-inch long. For a bit of trivia, the word “thrips” is both singular and plural, like “sheep,” so there is no such thing as “a thrip”!

Thrips are good at hiding, and many of them like to live inside flowers. The ones I have been getting complaints about lately are a common species called Florida flower thrips, *Frankliniella bispinosa*, and the problems have involved large oak trees. This doesn't seem normal, but this spring there were high numbers of thrips on the oak catkins. Catkins are the male flowers of the oaks and were responsible for much of the pollen that was in the air and on our vehicles this spring. Thrips were falling out of the oaks onto people below, causing crawling, biting or itching sensations on their skin.

One homeowner with a large oak over her swimming pool was getting lots of thrips in her pool. A commercial building in Gainesville was getting thrips blown in through the air conditioning system. They were getting sucked into an air intake on the roof, probably originating from a nearby large oak.

Thrips don't feed on people, but they can occasionally bite. Usually this occurs when someone brushes against a heavily infested shrub. When a bunch of thrips land on a person, one of them is bound to try a test-bite to see if they are on a suitable host. They quickly realize this isn't the case and leave, but the bite can be noticeable.

Most of the oak catkins have fallen by now, so I don't think many more thrips will be raining down from the oaks. They seem to have moved to various flowers, as almost every flower I check has thrips in it. **PP**

Lyle J. Buss, Scientific Photographer, manages the Insect Identification Lab at the UF/IFAS Entomology and Nematology Department.

RAT CONTROL

Philip Koehler and William H. Kern, Jr.

WHERE there are cities, there are rats. The urban environment that attracts so many people is a perfect breeding ground for rodents.



AROUND THE WORLD, city streets emptied of humans fearing COVID-19 are often occupied by wildlife such as monkeys, sheep and alligators. Rats are among the animals becoming emboldened in the absence of people.

Rats are important rodent pests entering Florida homes and warehouses for food and harborage. These rodents eat any kind of food that people eat. They also contaminate 10 times as much food as they eat, with urine, droppings and hair. They can carry at least 10 different kinds of diseases including bubonic plague, murine typhus, spirochetel jaundice, Leptospirosis, rabies, ratbite fever, and bacterial food poisoning. There is no evidence that rodents can carry COVID-19.

Control Methods

To control rats, implement the following procedures:

RODENTPROOFING

Rodentproofing is changing the structure of buildings in order to prevent entry of rats and mice. In

considering rodentproofing, you must know that:

- ▶ Rats can squeeze through cracks ½ inch wide.
- ▶ Rats can climb the inside of vertical pipes 1½–4 inches in diameter.
- ▶ Rats can climb the outside of vertical pipes up to 3 inches in diameter and any size if within 3 inches of a wall.
- ▶ Rats can jump vertically 36 inches, horizontally 48 inches, and reach horizontally or vertically 15 inches.
- ▶ Rats can jump 8 feet from a tree to a house if the branch is 15 feet above the roof.

Rodentproofing requires the use of rodent-resistant materials. The following materials are considered rodent resistant:

- ▶ Sheet metal, 26 gauge or heavier.
- ▶ Perforated metal, 24 gauge or heavier with openings no more than ¼ inch.
- ▶ Hardware cloth, 19 gauge or heavier with openings no more than ¼ inch.
- ▶ Brick with mortared joints.
- ▶ Cement mortar, 1:3 mixture.
- ▶ Concrete, 1:2:4 mixture.

A gnawing edge is the edge of substances that rats can gnaw through. The gnawing edges must be protected with rodent-resistant materials. Places to rodentproof are edges of doors, windows,

holes where pipes enter buildings, ventilation holes in foundations, roof vents, exhaust fans, and eave vents. Rodents can also enter homes through toilets.

To be effective, rodentproofing must block all possible rodent entry points. During the first two weeks of completing rodentproofing, searching rodents will find breaks in the rodentproofing. Inspect frequently during this time and promptly repair any breaks. It will also be necessary to eliminate the rodents trapped indoors due to rodentproofing.

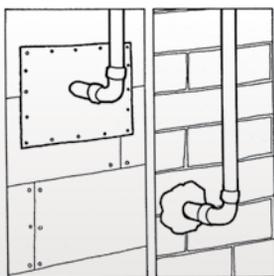
SANITATION

Good housekeeping or sanitation is a basic factor in rodent control. Eliminating food, water and harborage can reduce rodent populations rapidly. To implement sanitation practices:

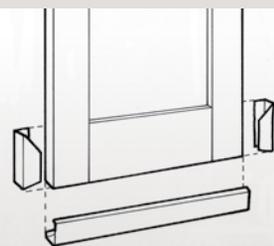
- ▶ Clean up garbage and rubbish.
- ▶ Properly store garbage. Metal garbage cans should have tight-fitting lids.
- ▶ Properly store food. Store raw or prepared foods and refuse indoors in covered, ratproof containers, or in rat-proof rooms.
- ▶ Store pet food and bird seed in rat-proof containers.
- ▶ Remove harborages. Remove piles of rubbish, trash, junk, boxes and protected enclosures.
- ▶ Dry up sources of water.
- ▶ Pick fruits and vegetables when ripe so rodents will not feed on them.



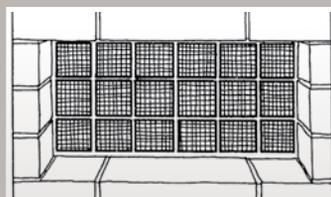
Urban rats



Rodentproofing pipes using sheet metal, left, and concrete



Rodentproofing a door using sheet metal



Rodentproofing a vent



Poison bait blocks ready for outdoor use

Sanitation must be used constantly in rodent control to be effective. Yearly clean-up programs are generally ineffective for rodent control.

TRAPPING

Trapping is an underrated method of controlling rodents. One reason trapping is often overlooked is that snap traps have been around for a long time and are cheap. Traps can be used to eliminate rats where poison baits would be dangerous, to avoid dead-rat odors, and to eliminate bait-shy rats.

It is important to place traps where the rats are. Rats are used to human odors so there is no need to use gloves when handling traps.

Baited traps rely on the rats being attracted for feeding. The bait must compete with other available foods, so no one bait is ever the best bait for all locations. Rodents living on garbage or spoiled food prefer something fresh. The following are some baits that have proven to be successful:

- ▶ Whole nuts
- ▶ Raisins or grapes for roof rats
- ▶ Sardines packed in oil for Norway rats
- ▶ Peanuts or peanut butter
- ▶ Bacon squares
- ▶ Small wads of cotton (they look for nest material).

Continued on Page 26



Claudia Riegel places rat poison bait blocks in New Orleans. Riegel earned her doctorate at UF Entomology and Nematology in 2001

UF Grad Boldly Fights a Rat Battle in New Orleans

IN APRIL, rats in some areas of New Orleans began flooding the streets as their normal food sources, restaurants, closed due to COVID-19. Claudia Riegel, executive director of the New Orleans Mosquito, Termite and Rodent Control Board, said the rats' search for food sent them out into the open.

"Unfortunately, with these businesses being shut down, these rats are hungry," Riegel said.

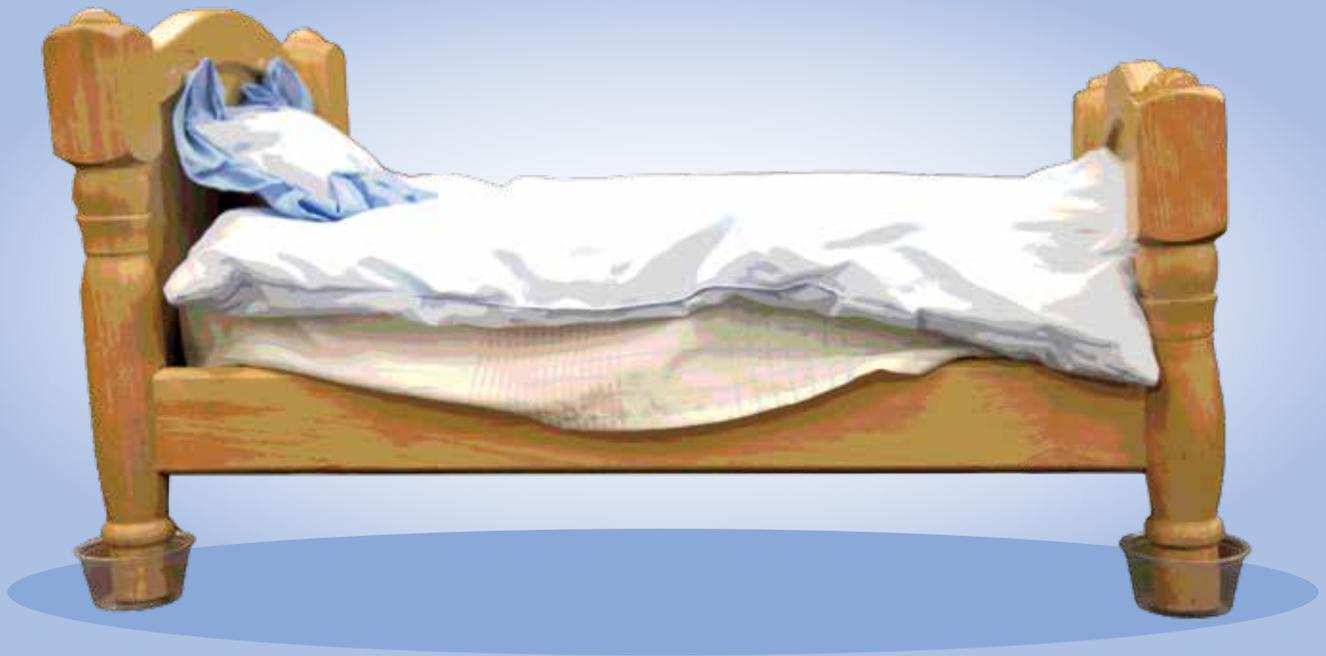
The city increased its use of rat bait in commercial areas on Bourbon Street, into the Central Business District, and down Magazine Street.

"It's maybe about once a quarter," Riegel said of the normal trapping and bait schedule. "So now our plan is to come through on a weekly basis."

"Pest proofing is an important rodent control strategy," according to Riegel. "Look for kickout holes that lead to burrow systems under paved areas."

The next fight is to keep the rats out of neighborhoods. Riegel said residents need to do their part in the sanitation efforts. She said it's common to see residents place garbage bags straight on the curb without placing them in a garbage can, which is a code violation.

"There are pathogens in these rodents," Riegel said. "Fortunately, we ... don't have many disease cases that are related to rodents. But the potential is there."



HOW TO CHECK FOR BED BUGS! With a small bed like this, you can inform customers or the general public about bed bugs and how to check any bed for these pests. The bed bug inspection model is shown here with model bed bug interceptor traps on the floor.

Bed Bug Inspection Model

Brittany Campbell and Rebecca Baldwin

HOW OFTEN have you heard the rhyme “good night, sleep tight, and don’t let the bed bugs bite?”

This rhyme has historical origins when people purportedly had to tighten ropes to support their mattresses. The rhyme still elicits fear in children and adults alike, as bed bugs have resurged worldwide.

Everyone would like a good night’s sleep and would prefer to avoid the piercing-sucking mouthparts of the bed bug. One way to do that is by inspecting your home or travel environment for the presence of live bed bugs, their feces, or their molted skins.

Areas where bed bugs would typically be found should be inspected. This would include

the bed, mattress seams, box springs, behind the headboard, and any cracks and crevices on the bed frame.

Knowing how to identify the signs of bed bugs when you travel will help prevent an accidental introduction of bed bugs into your own home. This article provides details on designing an educational model bed that can be used to demonstrate a bed bug inspection.

How the Bed Bug Inspection Model Works

If you present educational programs at home shows, fairs, or other community activities, the bed bug inspection model is an attractive feature that will lure a crowd. The model bed is comprised of a wooden-frame doll bed with crevices and screws to represent where bed bugs may hide.

The model bed can be decorated by gluing dead bed bugs in corners, cracks and screw holes to model an actual bed infested with bed bugs. Bed bugs tend to harbor in areas of low air flow, so the mattress seams and corners of the bed frame are good areas to decorate with your dead bed bugs. The mattress fabric and linens may also be decorated with wood stain or dark markers to mimic bed bug blood smears and fecal droppings.

A magnifying lens can be attached to any leg of the model bed to encourage visitors to test their observational skills to find the bed bugs and their evidence. Using plastic soufflé cups, model interceptor traps can also be added to demonstrate how a bed bug monitor works. Talcum powder can be added to the traps to demonstrate how the interceptor traps work to prevent bed bugs from climbing out.



Male and female bed bugs

Concluding Comments

Inspecting for bed bugs is a key component for limiting the introduction of bed bugs into the home. This bed bug inspection model is a nice tool to educate the public about bed bug biology and inspection. It is attractive for tabling events and is easy to transport. **PP**

Brittany Campbell is Staff Entomologist and Research Scientist at National Pest Management Association and Rebecca Baldwin is Associate Professor at UF/IFAS Entomology and Nematology Department.

Items Needed to Create a Bed Bug Inspection Model

1. Wooden doll bed
2. Doll bed sheet that can be made from a pillow case
3. Doll bed accessory pillow and blanket
4. A small mattress to fit in the bed frame. This may be purchased from a mattress company or made from foam and fabric
5. Glue
6. Dead bed bugs (in alcohol)
7. Wood stain markers (mahogany and red cedar)
8. Black permanent fine-tip marker
9. Four soufflé cups to mimic bed bug interceptor traps
10. Talcum powder for the inside of the interceptor traps
11. Velcro
12. Magnifying glass
13. Glued and sealed petri dish containing live bed bugs (optional)



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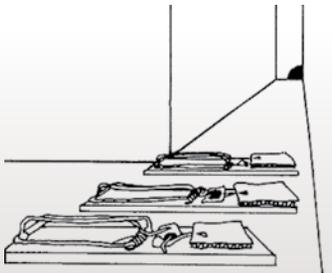
Instructional video on how to make a homemade bed bug trap at <https://www.youtube.com/watch?v=Jjc4CD4U4uQ>

Step-by-step guide at <http://edis.ifas.ufl.edu/in1022>

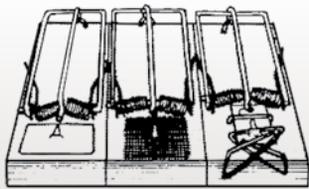
For more information about educational materials and curriculum about bed bugs, please visit <http://sfyl.ifas.ufl.edu/duval/hort-and-pest/commercial-horticulture-bed-bugs/>

Student interns Marissa Burns and Evan Waite in the UF Urban Entomology Lab assisted with the photos and list for this article.

Tamperproof rodent bait stations



Traps at right angle to rat run



Runway traps made from enlarged snaptraps

Rat Control, continued from Page 23

BAITED TRAPS SHOULD be set at right angles to rat runs. Traps can be nailed to rafters and beams to take advantage of areas where rats travel. Set traps along walls, behind furniture, and near holes. Remember to set traps where children and pets will not be hurt.

Runway traps catch rats when they accidentally bump the trigger. Runway traps are available or can be made from snap traps by enlarging the trigger with cardboard, hardware cloth, or screening. There is no bait to go stale, so there is an increased chance of success. In placing runway traps, the trap should be placed at right angles to the wall or along runways. To hold the trap in place on pipes or rafters, use rubber bands, nails, or hose clamps.

Glue boards. Special glue can be placed in pie tins or paper plates. The glues do not harden but will hold a rat in place. Other rats become curious and also get caught. Placing a small piece of bait in the center of a glue board can increase effectiveness. Dusty, wet conditions will impair the trap's effectiveness. Glue boards are better suited for mice and safe

for children and pets. Boards may be cleaned with cooking oil.

Poison Baits. Traps are effective usually when dealing with small numbers of rats or mice. When rats are plentiful or where unsanitary conditions exist with harborage, poison baits are an effective tool to use with trapping.

Poison baits are available as ready-to-use, premixed baits. They come in many forms: parafinized blocks for outdoor use and high humidity areas, treated meal, seeds, or parafinized pellets in bulk or in "place packs" for indoor use.

Water baits are sold as packets of concentrate that are mixed with water. They are administered with a chick fount, available at most feed stores, and are useful in areas where rodent food is abundant but water is in short supply.

Whenever a rodenticide is used, safety must be the first consideration. Poison baits must be placed where they are inaccessible to children, pets, livestock, and wildlife.

Where rodent runs are exposed and in all outdoor situations, tamper-proof bait boxes must be used. A tamper-proof bait box or



Bait box

station must be inaccessible to a four-year old child or a dog. This means that the station cannot be opened and the bait cannot be shaken out.

Bait blocks must be secured inside the station. If loose bait pellets or meal is used, then the station must be secured to the ground so a child, dog or raccoon could not move it. Bait stations should always be placed near where rats live and breed or along travel routes.

About 1 pound of anticoagulant bait should control most rats in and around homes. The baits should be placed in stations with ¼ pound of bait per station. Shallow containers for holding the bait are best. For added effect, water may be provided separately for the rats to drink.

Pick up dead rats wherever they are noticed. A few cases of pet poisoning have been reported when pets feed on dead rats or mice.

When rats die in areas where they cannot be removed, it may be necessary to ventilate the area or use odor absorbent or masking products. Rats are large enough to produce an unpleasant odor up to two to four weeks if they die in inaccessible locations. **PP**

Philip Koehler is Endowed Professor at UF/IFAS Entomology and Nematology Department and William H. Kern, Jr. is Associate Professor at UF/IFAS Entomology and Nematology Department, Ft. Lauderdale Research and Education Center, Davie, Florida.

Adapted from EDIS document ENY-224, *Rat and Mouse Control*.

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Brown marmorated stink bug, *Halyomorpha halys*, on the fruit of a host plant in Japan

Landscape, continued from Page 13

However, a distantly related exotic plant may be more resistant to an insect than a closely related native species. A recent study investigating the role of native and exotic plants in relation to the invasive brown marmorated stink bug found that this invasive insect from Asia preferentially attacks native plant species that are closely related to its Asian host when compared to nearby exotic species.

So, from a pest management perspective, plant selection can determine future pest management needs, but is more complex than native or exotic.

Interestingly, another recent study showed that you need 28 percent more exotic plant cover to support an equal number of insects as native plants. However, sap-feeding insects, the most problematic plant pests in urban landscapes, were 30 percent more abundant on native than exotic plants.

A more recent study found that exotic maple and oak tree species had fewer scale insect pests, but equivalent predator and parasite populations compared to native maple and oak species. Here, exotic species may have pest management value compared to natives while providing similar beneficial wildlife conservation.

Summing Up

In general, having mostly native plant species in your landscape is a best practice because they support wildlife that provide many benefits and can reduce other risks like exotic plant invasion. However, do not select native plants blindly, because some native species are prone to insect pest attack or may be less suitable for stressful urban conditions.

The first step of integrated pest management, or IPM, is identification, and plant selection determines future pest management needs. For many of the reasons I have described, I hope it is now even more apparent why plant and pest identification is a critical component of effective IPM and that plant origin does not override the “right plant, right place” principle. **PP**

Dr. Adam Dale is Assistant Professor at UF/IFAS Entomology and Nematology Department. He can be reached by email at agdale@ufl.edu. More information about his research and Extension programs at the University of Florida can be found at dalelab.org.

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Facts from FDACS: Emergency Order 2020-002

AMID all the issues with COVID-19 there have been a lot of questions about Certificates and License renewals. The following are parts of Commissioner Fried's Emergency Order as it pertains to 482 and 487 Certificates and Licenses.

On March 20, 2020, the Commissioner of Agriculture, Nicole "Nikki" Fried, issued Emergency Order 2020-002, which declares the following:

The imposition of late fees pursuant to the following statutes is hereby suspended for 30 days following the execution of the order:

- 482.071(2)(b), Florida Statutes (F.S.), Pest Control Business License
- 482.072(2)(b), F.S., Pest Control Customer Contact Center
- 482.111(3), F.S., Pest Control Operator's Certificate
- 482.151(5) & (6), F.S., Special ID card for Performance of Fumigation
- 482.156(3), F.S., Limited Certification for Commercial Landscape Maintenance Personnel

- 482.157(3), F.S., Limited Certification for Commercial Wildlife Management Personnel
- 487.049(1), F.S., Any license issued pursuant to 5E-9, F.A.C.

The renewal of licenses or certificates pursuant to the following statutes and associated rules is hereby extended for an additional 30 days following the execution of the order:

- 482.071(2)(c), F.S., Pest Control Business License
- 482.072(2)(c), F.S., Pest Control Customer Contact Center
- 482.111(4), F.S., Pest Control Operator's Certificate
- 482.151(7), F.S., Special ID card for performance of fumigation
- 482.156(3), F.S., Limited Certification for Commercial Landscape Maintenance Personnel
- 482.157(3), F.S., Limited Certification for Commercial Wildlife Management Personnel
- 482.2267(3), F.S., Registry of Persons Requiring Prior Notification of the Application of Pesticides

FDACS will continue to monitor the COVID-19 situation and if needed, the emergency order may be extended.

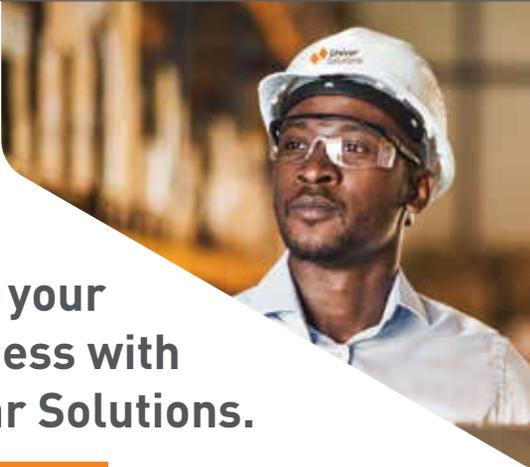
CERTIFIED PEST CONTROL operators still have 180 days from June 1 to renew their certificates. However, after July 2 there is a late fee due of \$50. Only those Chapter 482 F.S. licenses/certificates expiring between the dates allotted in the EO will be granted a 30-day extension.

As for CEUs, they can be obtained online or via programs such as "Go to Meeting" or "Zoom Meetings." IFAS Extension offices are working with FDACS to conduct these types of meetings in lieu of in-person trainings during this time.

My understanding after speaking with Lee, our new attorney, is that only those who have certificates expiring during the designated timeframe of March 20 – April 19 will be awarded a 30-day extension. This EO does not currently include CPOs that expire June 30. **PP**

Report by Paul Mitola, Environmental Consultant

Check the FDACS website at <https://www.fdacs.gov/Divisions-Offices/Agricultural-Environmental-Services> for any updated information.



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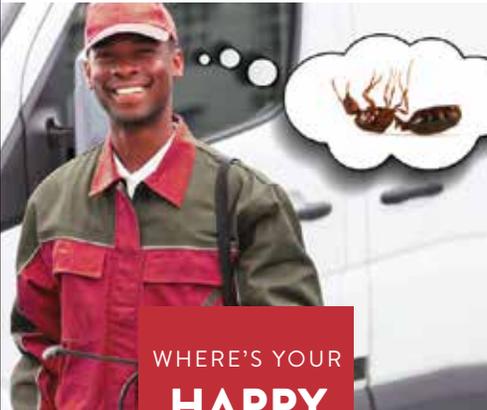
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