



Pests and Pesticides in Child-serving Facilities: An IPM Newsletter

SARS-CoV-2 Pandemic: Pest Management, Disinfecting, and Science Activities

Karen Vail

The SARS-CoV-2 pandemic has changed our definition of normalcy. We are following social distancing (staying at least 6 ft from another person), washing our hands regularly, and not touching our faces to reduce the spread of this virus which has infected 1,918,138 people and caused 123,126 deaths worldwide as of April 15. Those of us not providing essential services are working from home. Most schools have closed their doors for at least several weeks, and probably longer, and school lessons are being taught remotely, if at all. Well, Governor Lee just suggested that schools close for the remainder of the school year. In this issue of our newsletter we address pest management and disinfecting in the school environment under pandemic conditions. Without curriculum to follow, parents are seeking educational activities. We provide one crafty, fun, science-based activity for kids, and we'll give you and your students' a chance to be a part of a research project when we ask you to find and send us odorous house ants. Because we are not currently visiting schools, we've decided to increase the frequency of this newsletter. Please stay safe, sane, and healthy and remember to follow the [CDC guidelines to help slow the spread!](#)

School Pest Management During a Crisis

Karen Vail

Please, please, please realize that it is essential to continue pest management services when school is closed. Food, water and harborage are still available to the pests even if very few humans are present. For instance, food is still stored in the kitchen pantry, water (and potentially food) is still sitting in drains and corrugated cardboard is still present. Hopefully, trash cans were emptied prior to school being vacated and food items in classrooms have been placed in pest-proof containers. Basically, all the recommendations for end of year tasks (<http://schoolipm.utk.edu/documents/newsletters/June%202016.pdf>) need to be followed. If these items were not taken care of, they should be addressed as soon as possible. No one wants to return to a classroom with flies, ants, cockroaches and rodents.

Pest management professionals should be wearing PPE that helps prevents them from transmitting the virus and reduces the risk of them contracting the virus. Pest control decisions during the pandemic will not be as complicated in a school right now as it is in multi-family housing (<https://ag.tennessee.edu/bedbugs/Documents/PestControlCovidFull2.pdf>) because people are not present.

Special Points of Interest

"Do your part, stay apart"

Tennessee Category 7 Pesticide Applicators Under GRC Licensees Allowed to Apply Disinfectants in Schools During Crisis—this means your pest control technician can help disinfect your schools

Send us your odorous house ants!

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For those folks maintaining school property at this time, in addition to checking for pest conducive conditions indoors, it's also an excellent time to start scouting property for outdoor pests, such as fire ants, that pose a threat to the school's occupants. Temperatures should be consistently above 70F before fire ant baits are applied (<https://extension.tennessee.edu/publications/Documents/PB1788.pdf>). We had planned to conduct fire ant bait broadcasting demonstrations this spring and summer, but it appears these will be delayed. If restrictions are lifted, and you would be interested in a fire ant bait demonstration, please email me, kvail@utk.edu.

Dr. Faith Oi, University of Florida (<https://mailchi.mp/b9765a12770a/pmu-news-april-issue?e=42ad1d2960>) explains the importance of the pest control industry:

"The pest control industry protects the public health, mental health and property including critical infrastructure from pests. We protect hospitals, assisted care facilities, nursing homes, schools, every government building, the places you eat, work, and play from pests such as rodents, bed bugs, asthma-triggering cockroaches, medically important stinging insects, wildlife, and pests that contaminate the food supply chain. Pest control services improve and protect our health, the places we live and work, the quality of the air we breathe, the water we drink, and the food we eat. We are the most effective defense against mosquitoes, ticks, rodents, cockroaches, flies, and other public health pests including those that transmit pathogens that cause Zika, Dengue, West Nile, Lyme disease, and a host of food-borne pathogens. We also protect animal health (and yours) by controlling fleas that can carry tapeworm, mosquitoes that carry heartworm, and ticks that transmit numerous pathogens. We are often the first line of defense against invasive species such as the Formosan and Asian termites that damage not only structures, but contents, including paper documents. And we do this while putting your safety first, so you may see us doing some things differently than you are used to."

Category 7 Pesticide Applicators Under GRC Licensees Allowed to Apply Disinfectants During Crisis

Karen Vail

The Tennessee Department of Agriculture will allow, with an emergency exemption through September 30 or 30 days from the end of the emergency declaration, pesticide applicators certified in category 7 and working under a General Pest and Rodent Control (GRC) licensee to apply disinfectants ([https://www.tn.gov/content/dam/tn/agriculture/documents/covid---19/Emergency%20Rules%20-%20Pesticides%20\(1\)%202020.pdf](https://www.tn.gov/content/dam/tn/agriculture/documents/covid---19/Emergency%20Rules%20-%20Pesticides%20(1)%202020.pdf)). This means that the pest management professional servicing your schools is legally able to help disinfectant your school if you need help. This service probably was not a part of the original services contract, so it would require some sort of amendment.

EPA Supports Healthy Indoor Environments in Schools During COVID-19 Pandemic

What follows is a bulletin released by EPA earlier this week which can be found at <https://content.govdelivery.com/accounts/USEPA/IAQ/bulletins/286397f?reqfrom=share>.

The Environmental Protection Agency (EPA) Indoor Air Quality (IAQ) Tools for Schools Program remains fully committed to our stakeholders who are working to ensure that schools are healthy places to work and learn, whether school is in session or not. Below is a set of health and safety resources to consult as you respond to COVID-19 in your facilities:

CDC Guidance:

Please refer to the Centers for Disease Control and Prevention (CDC) website for the most recent updates related to COVID-19 and schools:

[Guidance for Schools and Child Care Programs](#)

[Cleaning and Disinfecting Your Facility](#)

[Interim Guidance for Administrators of US K-12 Schools and Child Care Programs](#)

Helpful Tips for Maintaining Healthy Indoor Environments in Schools:

Whether your school is open or closed, indoor air quality is still an important part of maintaining a healthy indoor environment in schools. Employ the actions and strategies in the [IAQ Tools for Schools](#) and [IAQ Tools for Schools Preventive Maintenance](#) documents, action plans, and checklists. In these documents you'll find tips on:

Routine HVAC Systems Maintenance:

- Ensure school HVAC systems are operating properly, with outdoor ventilation air maintained at or above design minimum values. Determine whether HVAC systems comply with the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 62.1 ventilation requirements at the system level and in the breathing zones of all occupied spaces.
- Employ filtration and gas-phase air cleaning strategies to further improve IAQ, in conjunction with source control strategies and maintaining minimum ventilation rates. Change filters regularly and ensure condensate pans are draining.

Communications: Develop a communications plan with a clear process for addressing occupant concerns. Share your IAQ preventive maintenance program's intent, activities, results, and next steps with your entire school community.

EPA Coronavirus Guidance:

The EPA's latest guidance and [frequently asked questions](#) regarding COVID-19, including topics such as disinfectant products and indoor air concerns, can be found on the [EPA coronavirus website](#).

Disinfectant Products and Procedures: As your custodial and facilities staffs are ramping up cleaning and disinfecting protocols in response to COVID-19, keep these guidance principles in mind to ensure occupant safety:

- Verify that your disinfectant product is on [EPA's list of disinfectants for use against SARS-CoV-2](#), the virus that causes COVID-19.
- Train cleaning/maintenance staff on cleaning products, protocols and procedures. Always read and follow product labels.
- [CDC guidance for cleaning and disinfection for community facilities](#) emphasizes extra focus on high touch surfaces, common areas and shared electronic equipment.
- [ASHRAE has developed proactive guidance](#) to help address COVID-19 concerns with respect to the operation and maintenance of heating, ventilating and air-conditioning systems.

Train and Educate Staff Members:

Watch the IAQ Tools for Schools Webinars. These webinars provide school district staff with the knowledge needed to start, improve or sustain an IAQ management program within their school or school district. View the [web-based trainings](#), including the [Master Class webinars](#) and [Knowledge-to-Action webinars](#).

Make a Pest Animal

We've been working on adapting elementary classroom lessons on school IPM ([Exploring Integrated Pest Management: Activities and Resources for Teaching K-6](#)) for 4-H activities. Here's one for making a pest animal.

Skill Level

K-6th grade

Success Indicator

Learners will be successful if they:

- *learn about the components of a habitat*
- *learn about pests*
- *demonstrate their knowledge through a craft project*

Time Needed

45 minutes to 2 hours depending on time devoted to follow-up activities

Materials List

paper (card stock or tag board are preferable),
craft supplies:
some suggestions-
googly eyes,
pipe cleaners,
tissue paper,
sand,
glitter,
colored paper,
raffia,
feathers,
glue,
markers,
scissors

Introduction to Content

Students use their knowledge of pests and knowledge of habitats to create a pest animal and the habitat it lives in.

Introduction to Methodology

Discuss what makes up a habitat with the students. Then ask them to create a pest animal and the habitat it lives in using craft supplies. Older students write a story with more details.

Terms and Concepts Introduction

A habitat provides an organism with everything to survive. Habitats vary tremendously in terms of size and appearance. Regardless of size or location, a habitat needs to include important things such as food, water, shelter, protection, light and air.

Pests also need these things. In IPM, we use the knowledge of what specific pests need in their habitat to control them. Once we know what they get from a habitat, we can take things away or modify the habitat. In this activity students use their knowledge of habitats to create a pest animal and its habitat.

Setting the Stage and Opening Questions

Step 1: Discussion. Ask: What is a habitat? A place where a living thing lives and gets what it needs to survive. What needs to be in a habitat? Responses may include: food, water, shelter, air, light, space, temperature, humidity, protection from predators, etc. Based on their responses, discuss why each of these things is needed for living things to survive. Remind them of the Friend or Foe Lesson. Ask them what is a pest?

Experience

Step 2: Craft Activity. Tell the students: your task is to create an animal and its habitat out of the art supplies we have brought (or draw.) Keep in mind all of the things needed in a habitat. The animal should also fit into the habitat. For example, if you create a hot-pink animal, then a part of the habitat may need to be hot pink to provide protection for the animal from predators.

Instruct students to write in the top corner of the paper: their name, name of their pest animal, where it lives, what it eats, what eats it (its predator) and why it is a pest. Encourage the students to be creative and descriptive. This does not need to be an existing animal! See the student example.

Step 3: Create a story. (optional) Ask the students to think about the animal they created.

Have them write a story about an adventure or typical day for their animal. Older students should include descriptions of the habitat and how it provides food, water, shelter and other needs for the animal. (See student example).

Share

Younger students should describe their pest animal (name, where it lives, what it eats, what eats it [its predator] and why it is a pest) to the class. The older students can either read their story to the class or hang their story on a bulletin board.

Process

Ask: How many people created the habitat first? How many people created the animal first? What did you need to think about when you created the habitat?

Generalize

All animals require a specific habitat to survive. Habitats can vary tremendously. On earth, animals require food, water, shelter, protection, light and air.

Tips for Engagement

Ask Who is it a pest to (humans, other imaginary animals, etc.)? What makes it a pest?

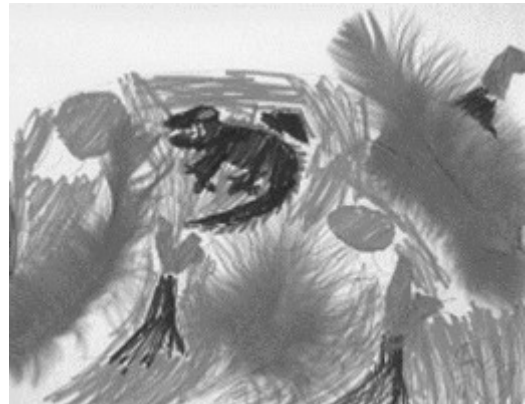
Student Example

The Black, Red-eyed Dragon

by Dezi C.

4th grade, Emerson Elementary Saginaw, Michigan

Name: Black, Red-eyed Dragon
Where it lives: Planet Mercury
What it eats: meat of baby grunts
What eats it: grunts



The Black, Red-eyed Dragon is like a beast. Its habitat is on planet Mercury. It lives on a volcano. Its skin is like an egg. The skin protects its body.

The Black, Red-eyed Dragon eats baby Grunts because that is all there is to eat. Its home is a cave. The Black-Red-eyed Dragon drinks the lava from the volcanoes. Grunts eat Black, Red-eyed Dragons when they are weak. If a Grunt tries to eat it when its healthy, it will fly away.

The Black, Red-eyed Dragon lives for 50 years then it lays eggs. The eggs hatch in 8 months. When its two, it grows spikes on its back. At age 10 its eyes turn red. At age 20, it grows wings and lives on.

Apply

Review key concepts by asking: Who can remind me of one thing that needs to be in a habitat? What would happen to your animal if we took away its food? Water? Shelter? Protection? Create the natural enemy of the pest.

For older students: A major part of IPM is modifying the habitat so the pest can no longer get what it needs there. Ask students to share with the class how they can change the habitat they created so that the animal can't live there anymore. Some solutions include taking away the sources of water and food, changing the temperature, humidity, light, air, or protection, or adding more natural enemies. These are all things we do in IPM with real pests.

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We Need Your Help! Wanted: Members of the Odorous House Ant Colony

Karen Vail

We need odorous house ants (OHAs) from across the state.

Identifying Characteristics:

Workers:

1/8 inch long brown ant, 1-segmented waist, smells like rotten coconut when crushed



AntWeb. Version 8.25.1. California Academy of Science, online at <https://www.antweb.org>. Accessed 15 April 2020.

Males:

also brown, but with wings, small head and large eyes



AntWeb. Version 8.25.1. California Academy of Science, online at <https://www.antweb.org>. Accessed 15 April 2020.

Female reproductives:

larger than workers, with and without wings



AntWeb. Version 8.25.1. California Academy of Science, online at <https://www.antweb.org>. Accessed 15 April 2020.

Likes to live in leaf litter, and under mulch, rocks, landscape timbers and many other things. It does not produce a mound like fire ants and is called an opportunistic nester because it takes advantage of pre-existing voids.



OHA tending scale insects for honeydew, a sugary substance excreted by the scale.. Photo credit: Susan Ellis, Bugwood.org

What does it eat? Outdoors, OHAs feed on dead and living insects, dead animals (including those deposited by the family cat), pet food, plant nectar and liquid excrement (honeydew) from aphids, scales, and other sucking insects. Indoors, they feed on sweets and other human and pet foods. OHAs are often found foraging to water sources and kitchen and bathroom garbage cans.



OHA nest between layers of leaves. Photo credit: Jennifer Chandler, UT E&PP

More information about this species can be found in *W473 Odorous House Ants: The Most Common House-Invading Ant in Tennessee* <https://extension.tennessee.edu/publications/Documents/W473.pdf>

We need your help!

Gary Edwards, a graduate research assistant, is pursuing his Master's degree in the UT Urban IPM Lab. He would like to determine if the native ant, *Tapinoma sessile* (Say), a.k.a the odorous house ant (OHA), is a complex of species disguised as one species. He needs further specimens and is reaching out to you to see if you could send him some OHA workers, and possibly queens and winged males and females, from your area of the state. He'd like a minimum of 40 OHA workers, but will take whatever number you may be so generously able to provide. We prefer the OHA be collected in leaf litter away from your home so they are less likely to have been introduced by human activity.

If you can assist, that's awesome! Please let Gary know (gedward9@utk.edu) so he can prepare for their arrival. The following instructions will help the specimens arrive intact and usable for his research.

1. Collecting

A. Minimizing damage to specimens is requested, so collecting may be tricky as they are very active ants. For those of you without ant collecting experience, he suggests placing an index card smeared with honey near OHA trails, waiting for enough to gather, tapping the ants off the card into a Ziploc bag, sealing the bag and placing it into a freezer. Once the ants are immobilized, but not dead, tap them into an empty plastic vial or similar container and keep them in the refrigerator until they are ready to be shipped.

B. Write the following data on each vial and complete the table below.

Vial #:

Date:

GPS coordinates, latitude and longitude, if possible. For example: 41 25 01.3333N and 120 58 57.3333W. If GPS coordinates are not readily available, then write the street address and city

State/County:

Elevation: 1234 ft etc., if known

Location OHA were found (under rock, foundation/ground interface, mulch, etc.)

Vial #	Date Collected	Latitude (or street address)	Longitude (or city)	State/ County	Elevation (ft)	Location OHA were found
1						
2						
3						

2. Shipping

Place vials with ants and directions with completed table into an envelope and seal.

3. Mail to:

Gary Edwards
Graduate Research Assistant
Department of Entomology and Plant Pathology
University of Tennessee,
2505 E.J. Chapman Drive
370 Plant Biotechnology Bldg.
Knoxville, TN 37996

Include an email address on your form and we'll let you know we received your specimens. If you need identification characteristics of this ant or if you have any questions pertaining to collecting this ant, please contact Gary at gedward9@utk.edu.

Thanks for your help!

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For more information about IPM in Tennessee schools and other facilities, or to view past issues of *Pests and Pesticides in Child-serving Facilities*, please visit <http://schoolipm.utk.edu>

NATIONAL IPM INFORMATION

eXtension's Pest Management In and Around Structures: Urban Integrated Pest Management http://www.extension.org/urban_integrated_pest_management

National School IPM
schoolipm.ifas.ufl.edu/

IPM in Schools Texas
<http://schoolipm.tamu.edu/>

IPM Institute of North America
www.ipminstitute.org/

School IPM PMSP—all schools IPM by 2020 <https://ipminstitute.org/projects/school-ipm-2020/>

National Pest Management Association IPM
www.whatisipm.org/

EPA schools
<http://www2.epa.gov/managing-pests-schools>

For further information about the IPM program at your school or in your county, contact your county Extension Agent or the school IPM Coordinator. For county agent contact information, please visit <https://extension.tennessee.edu/Pages/Office-Locations.aspx>

Precautionary Statement

To protect people and the environment, pesticides should be used safely. This is everyone's responsibility, especially the user. Read and follow label directions carefully before you buy, mix, apply, store or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label.

Disclaimer

This publication contains pesticide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. The label always takes precedence over the recommendations found in this publication.

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