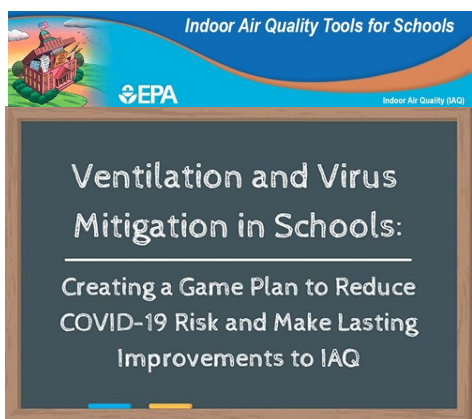




## Pests and Pesticides in Child-serving Facilities: An IPM Newsletter

Learn how to mitigate the risk of virus exposure and ensure healthy air in schools



Date: Thursday, February 25, 2021  
Time: 1:00 p.m. – 2:30 p.m. EST

**REGISTER**

### Special Points of Interest

Spend February 25<sup>th</sup> watching a webinar on improving ventilation and reducing COVID-19 risk in schools!

### This issue

Attend this webinar to learn how to—

- Create a game plan to help mitigate risk of exposure to SARS-CoV-2 in the near term and prioritize the **top 5 IAQ improvements** to ensure healthy air in schools in the long term.
- Assess your current air handling capabilities (e.g., effectiveness of filtration, ability to bring in fresh air, and energy efficiency) and create a plan to improve air quality using a free online risk assessment.
- Equip staff to implement risk reduction strategies and follow technical guidance from the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) to reduce exposure to viruses in schools.
- Replicate best practices from a [recent case study of how D.C. Public Schools](#)—a large, urban district with an older building stock—used federal funds to improve the ventilation, filtration and system monitoring throughout the district.

Learn from these experts!

- **Tracy Washington Enger**, Facilitator, Indoor Environments Division, U.S. Environmental Protection Agency
- **Raj Setty**, P.E., LEED AP, President of Setty, Member of the ASHRAE Schools Technical Task Force
- **Chris Ruch**, Director of Training, National Energy Management Institute
- **Brian Butler**, Executive Program Manager, District of Columbia Department of General Services

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## What are these gnats flying around in my office?

Jennifer Chandler

A couple of years ago while working in my office, a tiny fly kept flying around in my face. I would blow it away only to have it return. My office mates were also complaining about gnats flying around in the office. Had someone failed to remove the garbage or left fruit scraps lying around? These didn't look like fruit flies. It turns out our office was infested with fungus gnats. Various plants that were watered several times per week lined the window sill. If you or someone in an office nearby have potted plants, you may also experience fungus gnats.



Fungus gnat in circle.

Fungus gnats are small dark flies that can infest potting soil and become a nuisance pest if plants are overwatered. Adults are about 1/8 inch long and live for 7-10 days. Adults do not bite, are not strong fliers and will not damage plants. Females lay eggs in moist soil. When the eggs hatch, the larvae feed on fungi and organic matter in the soil and may also feed on plant roots. Larvae typically reach adulthood in 2-3 weeks. In an indoor setting, fungus gnats can be present year-round.

Since most of the fungus gnat's life is spent as a larva in the soil, the most effective control strategy should target the immature life stages. The best strategy is not to overwater indoor plants and make sure the pots have good drainage. Allow the top couple of inches of soil to dry out before watering plants again. It may take weeks to see results so be patient. Remove dead plant material such as fallen leaves from potted plants. Yellow sticky traps can be purchased at a home and garden center and hung near potted plants. Adult fungus gnats are attracted to yellow and will get stuck on the traps. In the case of my office, changing the watering schedule fixed our problem. Most everyone in the office has been working from home due to the pandemic, and the plants left behind only get watered once a week. I haven't seen a fungus gnat for almost a year now. Typically, pesticides are not needed for a fungus gnat infestation. As a reminder, only a certified applicator working under a licensed pest management professional may apply pesticides inside a school. Resist the temptation to pick up a can of pesticide at your local home and garden center to spray any adults flying around.



Fungus gnats are attracted to yellow and will get stuck to the sticky trap when placed nearby.

### References

- Bethke, J. A. and S. H. Dreistadt. 2013. Pest Notes Publication 7448. Fungus Gnats. UC Statewide Integrated Pest Management Program.
- Cranshaw, W. S. and R. A. Cloyd. Fact Sheet No. 5.584. Fungus Gnats as Houseplant and Indoor Pests. Colorado State University Extension.

## UT School IPM Website still on target to be released in March

Karen M. Vail

We are still on target to release the new Child-Serving Facility IPM Website in March. As a reminder, if you've bookmarked [schoolipm.utk.edu](http://schoolipm.utk.edu) you will be fine, but if you included subdirectories, you will not be redirected. One of the biggest changes to the website will be improved visibility of the newsletter—the newsletter will now be available on its own web page. Current issues will be highlighted, the archives will be searchable by month and year and subject matter will be easily found in the list of categories on the left. We will continue to provide the newsletter as a pdf but we will eventually transfer to a blog-like delivery once I learn to use Word Press.

Child-Serving Facility IPM Home Getting Started Resources Training Newsletter Contact

to [utk.edu/coronavirus](http://utk.edu/coronavirus) for the latest updates and student information. For UTIA-specific resources, including event information and county office status, please visit [utia.tennessee.gov](http://utia.tennessee.gov)

### NEWSLETTER

**Recent Posts**

- ▶ [IPM Newsletter – December 2020](#)
- ▶ [IPM Newsletter – October 2020](#)
- ▶ [IPM Newsletter – August 2020](#)
- ▶ [IPM Newsletter – April 2020](#)
- ▶ [IPM Newsletter – February 2020](#)

**Archives**


Select Month

**Categories**

- [Ants](#) (9)
- [Asthma in Schools](#) (5)
- [Bed Bugs](#) (11)
- [Birds](#) (2)
- [Brown Marmorated Stink Bug](#) (1)
- [Brown Recluse Spiders](#) (3)

**IPM Newsletter – December 2020**


Dec 14, 2020

 In this Newsletter: NPIC Provides Disinfectant Information in Spanish We're the Volunteer State and We're Still Looking for Volunteers! Prevent Pest Conducive Conditions when Preparing Classrooms for Winter Break and...

[Disinfectants](#) / [IPM Newsletter](#) / [Training](#) / [Winter Break](#)

**IPM Newsletter – October 2020**

Oct 11, 2020

 In this Newsletter: Last Chance to Treat Fire Ants this Year? We're the Volunteer State and We're Looking for Volunteers! Ticks on School Property? We Want to Hear from You

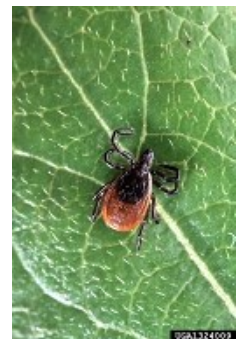
[Fire Ants](#) / [IPM Newsletter](#) / [School IPM Demonstrations](#) / [School IPM Survey](#) / [Ticks](#)

A snapshot of things to come. The new Child-Serving Facility IPM Website's Newsletter page will provide easy access to current issues, archives by month and year and easily accessible subjects found in the list of categories.

## Demonstrations to include tick assessment

Karen M. Vail

In the next few years, we intend to focus on outdoor pests in our school IPM demonstrations. Hickling et al. (2018) revealed that *Ixodes scapularis*, the black-legged tick, is found in nearly all East Tennessee counties. In addition, *Borrelia burgdorferi*, the causative agent of Lyme disease, has been isolated from the black-legged tick in four East TN counties. We'd like to determine the distribution of the black-legged tick on and within East Tennessee school properties and may contact you about dragging for ticks on your property. Ticks are often found in moist shady areas, such as leaf litter accumulations along tree and fence lines so our activities should be concentrated in those areas. We will produce a publication on managing ticks on school property later this year to help with decision-making regarding these pests.



Female black-legged tick, *Ixodes scapularis*. Scott Bauer, USDA Agricultural Research Service, Bugwood.org

# Looking for a free insect- and other arthropod-related educational activity?

## ARTHROPODS!

**A COLORING/LEARNING GUIDE FOR YOUNG NATURALISTS**  
by Matt Bertone

## - DIETS -

**DETRITIVORES** (dee-trite-a-voors): Also known as scavengers or decomposers, these arthropods feed on decaying plants or animals. Also included in this group are arthropods that feed on other decomposers (such as bacteria and fungi) and dung feeders.

**HERBIVORES** (urb-a-voors): These arthropods consume live plants. They may chew on leaves, bore into live wood, suck plants juices, mine leaves or chew on roots. Some even cause plants to grow spectacular homes for them (galls).

**CARNIVORES** (karn-a-voors): These arthropods consume live animals. Some hunt other animals, while others ambush or trap their prey. Many have appendages used to grab victims, while some use venoms to subdue and digest prey.

**PARASITIDS** (para-sit-oids): These arthropods parasitize other animals. They are different from true parasites because they usually kill the host. Adults lay eggs in, on or near the host, where the larvae hatch and (usually) enter the host's body. Larvae feed for some time until they pupate and become adults.

## - DANGEROUS ARTHROPODS -

**NECTIVORES & POLLENIVORES** (neck-tiv-voors & pol-in-a-voors): These arthropods feed on flowers, either drinking the sugary nectar or feeding on the protein-rich pollen grains. Some insects are specially adapted to suck nectar from flowers, having very long mouthparts. Others (such as bees) are adapted to collect and distribute pollen.

**HAEMATOPHAGES** (hee-mat-o-fages): These arthropods consume blood. This may include ectoparasites that live on a host, feeding on its blood (such as fleas or lice), or free-living arthropods that slice or pierce skin to feed on blood. Many blood feeders transmit diseases.

Some arthropods are prepared to defend themselves with venoms. Some of these toxins are merely painful, while others are life-threatening (either being very potent or causing allergic reactions). Arthropods with this symbol should be approached cautiously and should never be provoked to defend themselves. Keeping a distance is good for both you and the arthropod.

Other arthropods with this symbol are potentially life threatening because they can transmit diseases. Care should be taken to avoid getting bitten by any of these animals.

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## - HABITATS -

**TEMPERATE FORESTS** are dominated by broad-leaved trees that shed their leaves during the winter (deciduous). Shrubs, herbaceous undergrowth and mosses are also common in these habitats.

**FIELDS & MEADOWS** are filled with grasses, herbaceous plants and wildflowers. Few trees grow in these open areas.

**DESERTS** receive very little rain and are usually very hot and dry. They are often occupied by succulent plants (such as cacti) and lowgrowing, woody shrubs.

**TROPICAL RAINFORESTS** are known for being hot and humid, and receive large amounts of rain. They are inhabited by many families and species of plants (broadleaf) that are generally green all year long.

**ALPINE/BOREAL HABITATS** are normally cool in the summer and cold to very cold in the winter. They are filled with needle-bearing, evergreen trees and other cold-hardy plants (including lichens that attach to rocks).

**FRESHWATER HABITATS** include marshes, ponds, lakes, streams and rivers. Dominant plants associated with these habitats include freshwater algae, reeds, grasses, water lilies and other plants.

**COASTAL & MARINE HABITATS** are supplied with saltwater, and are dominated by salt-tolerant plants including algae and seaweeds. Some trees (for example mangroves) are also adapted to these habitats. Tiny plankton are a rich source of nutrients in these places.

**CAVES** are always dark, and very nutrient poor. Plants generally do not grow in caves, and nutrients must be brought in by other sources, such as water or animals. Arthropods inhabiting caves are often specially adapted to life in the dark, having small eyes and many touch sensors.

**NOTE:** These are general representatives of the types of habitats in which you will find arthropods. The habitat of a particular arthropod depends on a number of factors, including climate, soil type, altitude and geographic region. Many groups of arthropods also live in multiple habitats (just think about everywhere the common house fly - *Musca domestica* - is found!).

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## - DISTRIBUTION -

Arthropods live everywhere on Earth. They are found on every continent (even Antarctica) and on all islands. They are also found in just about every aquatic habitat, from mountain streams, to the extreme depths of the oceans. Some species of arthropods have limited distributions and can only be found at a particular location on Earth (for example, one family of bee flies - *Megacraspedus* - is only known to live with both in one rock in Africa). Other arthropods, through natural or human actions, have colonized large areas of the earth's surface (for example, the cat flea - *Ctenocephalides felis* - occurs worldwide, no doubt spread through human travel).

Biologists use specific names for areas of the world when talking about the distribution of animals and plants (this of course applies to arthropods, which are animals). These are called biogeographic regions. The following is a list of region names and the familiar areas these regions represent:

- The Nearctic (near-ick) region includes North America and some of North Mexico.
- The Neotropical (neo-trop-ick-ol) region includes S. Mexico, the Caribbean islands, Central America and South America.
- The Afrotropical (af-ro-trop-ick-ol) region includes sub-Saharan Africa, Madagascar and the S. Arabian peninsula.
- The Palearctic (paw-lee-ick-ill) region includes Europe, N. Africa and N. Asia (including the N. Middle-East, China and Japan).
- The Australian (aw-stray-ick-ill) region includes the islands around and including Papua New Guinea, Australia, New Zealand and Tasmania.
- The Oceanic (oh-nee-ick-ill) region includes the islands of the Pacific Ocean.
- The Antarctic (ant-ark-ick) region includes Antarctica.

These regions are generally thought to represent groups of organisms that have similar geographical or evolutionary histories. While many groups of organisms do not strictly abide by these borders, others are restricted to one (or a few) of these regions. For instance, rock crickets (in the insect family Gryllotalpidae) are found only in the Nearctic and Palearctic. Conversely, moss bugs (in the insect family Pellodidae) are only found in the Neotropical and Australian regions. Though these regions define a broad area in which to find a particular arthropod, the habitat in which it lives is perhaps more important for encountering it.

## BIOGEOGRAPHIC REGIONS OF THE WORLD

1. Nearctic
2. Neotropical
3. Afrotropical
4. Palearctic
5. Oriental
6. Australian
7. Oceanic
8. Antarctic (not shown)

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## SCORPIONS

**Florida bark scorpion**  
*Centruroides gracilis*

**CLASS:** Arachnida (arachnids)  
**ORDER:** Scorpiones (scorpions)  
**FAMILY:** Buthidae  
**GENUS:** *Centruroides* (bark scorpions)  
**SPECIES:** *gracilis*

**SIZE:** 2 - 4 inches (50 - 150 mm)  
**DIET:** Arthropods & very small vertebrates  
**HABITAT:** Humid forests/rainforests; under bark and leaf-litter  
**DISTRIBUTION:** Southern USA, Central & South America

**ADDITIONAL INFORMATION:**

- As with all scorpions, the Florida bark scorpion is venomous, though its sting is usually not fatal. Other members of the family Buthidae (both-a-dee) are the most venomous arthropods in the world.
- Females give live birth to many young, who crawl onto her back for protection until they are old enough to fend for themselves.
- Scorpions, like this one, glow (fluoresce) green/yellow/blue under ultra violet (UV) light.
- Scorpions were the first animals to crawl on dry land, coming ashore long before the first vertebrates.

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Here are a few samples of a coloring book for budding naturalists that was produced by Matt Bertone, entomologist at NC State's Plant Disease and Insect Clinic. The book can be downloaded here, <https://drive.google.com/file/d/1PL1USnHQIYJAZBbgQLNROosQq6rZG15c/view>



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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 Pests in the Home  
<https://pestsinthehome.extension.org/>

National School IPM  
[schoolipm.ifas.ufl.edu/](http://schoolipm.ifas.ufl.edu/)

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

IPM Institute of North America  
[www.ipminstitute.org/](http://www.ipminstitute.org/)

School IPM PMSP—all schools IPM by 2020 [https://  
 ipminstitute.org/projects/school-ipm-2020/](https://ipminstitute.org/projects/school-ipm-2020/)

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://utextension.tennessee.edu/office-locations-departments-centers/>

## 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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