

## Plunkett's Pest Control

Through integrated pest management, our technicians use what they know about each pest's biology, habits, and preferences to prevent that pest from becoming a problem. All pests need food, a hiding place, suitable temperatures, and moisture. Therefore, preventive efforts may include rodent proofing a building, asking for clutter to be removed, ensuring that all spills are cleaned up, and so on. If problems still arise, they are treated using targeted, low-impact methods.

Since our technicians provide preventive maintenance, do not be alarmed if you see a technician in the area. It does not necessarily mean there is an ongoing pest issue. You can even help the technician by keeping all exterior doors shut, ensuring that your living area is clean and free of clutter, cleaning up all spills as soon as they occur, and storing food in sealed containers.

The following bulletin includes the most common pests found in university settings. Please refer to each pest for specific information and prevention tips.

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### Mice and Rats

The house mouse is dusky gray in color. Its body is about 3 ½ inches long. Its tail is semi-naked and scaly, and is about as long as its body. Its feet are small in proportion to its body, and its eyes are also relatively small. It weighs only between ½ ounce and one ounce when fully grown.



*House Mouse*

The Norway rat is usually brown above and lighter-colored beneath. An adult will typically measure 12-18 inches from nose to tail tip and may weigh just over a pound. Its tail is semi-naked and conspicuously ringed. It has a blunt nose, close-set ears, and large feet. It also has a head that is disproportionately large.

Good housekeeping is the best protection against mice and rats. Frequent cleaning not only removes some of the crumbs, spills, and other material rodents use for food; it also enables you to see the signs of a rodent infestation (droppings, gnawing on food packages) before the problem gets out of hand.



*Norway Rat*

Another important preventive technique is to look around the outside of your residence for any holes, gaps, or cracks bigger than 1/4". Believe it or not, that's all mice need to invade your home! Doors should fit tightly at the bottom and should not be left open. Look also where pipes, electrical and phone lines enter the house, since mice can squeeze through these openings as well. Any gap or hole bigger than 1/4" should be repaired with an appropriate material. Steel wool can be used to close small cracks and gaps; concrete or sheet metal might be needed to repair other gaps.

## Fruit Flies

Fruit flies are usually dull brownish or tan in color, often with red eyes and a striped pattern on the abdomen. They are between 1/10" and 1/8" long.

Fruit flies lay their eggs in any fermenting liquid. This might be found in overripe fruit; spilled sweet liquids such as beverage syrup or soda; rotting vegetables; a dirty wet mop; or scum in a stagnant drain. In commercial or institutional buildings participating in recycling programs, fruit flies might breed in or around recycling bins, or in the recycled cans and bottles themselves.



*Fruit Fly*

Some other areas which might offer ideal conditions for fruit flies to lay eggs include: cracks of tile floors that are constantly wet, especially if grout is missing or damaged; along and underneath hidden beverage lines; in the bottoms of trash cans; and in mops and mop closets.

You can prevent fruit flies by maintaining a clean, sanitary environment. This means cleaning up spilled liquids, rinsing and storing mops properly, sorting and removing spoiled food and maintaining clean floor drains and grout.

The key to controlling fruit flies and other small flies is cleaning up and/or removing the breeding source. No amount of treatment will solve the issue without first cleaning the area.

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## Cockroaches

The type of cockroach most commonly found in residential and commercial establishments is the **German cockroach**. This roach is identified by its small size (about 1/2" long), flattened shape, reddish-brown color, and by the presence of two dark longitudinal stripes behind the head.



*German Cockroach*

Another type of roach sometimes found in university settings is the **American cockroach**. This roach is identified by its large size (about 1 1/2 inch long), flattened shape, reddish-brown color and by the presence of a pale yellowish border around its pronotum (the shield behind its head).

### Prevention

Roaches need food, water, and a place to hide in order to survive. Anything you can do to limit the availability of food, water, and hiding places will help to prevent cockroach infestation. Keep kitchen surfaces clean and free of deposits of food and grease. Clean up any spills as soon as they happen, and pay particular attention to the forgotten areas behind the refrigerator and range. Limit the amount of hiding places you provide for invading roaches by discarding unneeded clutter. Wash pots, pans, and dishes after every use.



*American Cockroach*

American cockroaches also love to spend time in sewers and steam tunnels. Even when American roaches are found in warm basements, mechanical rooms, or mop closets, look for a sewer connection. An easy way to help prevent cockroach entry into buildings from the sewer is to keep the u-bend of every floor drain filled with water. The American cockroaches will not be able to penetrate the water and will be excluded from the area. Furthermore, all steam pipes and sewer lines should be inspected to make sure that there are no cracks into which American roaches may enter or exit.

## Bed Bugs

Bed bugs are small (1/5" across), flat, mahogany-colored insects that feed on the blood of humans and other warm-blooded animals. They are nocturnal, feeding on people as they sleep. By day, bed bugs hide in cracks and crevices of the bed, bed frame, and other furnishings near the bed. The bite of a bed bug typically causes a mosquito bite-like welt, which may be more or less noticeable depending on the host's sensitivity, allergies, and the number of times they are bitten.



*Bed Bug*

## Why Are Bed Bugs a Problem in Dormitories?

People who live in dormitories typically don't spend all their time in one place. For example, college students may visit their family or travel abroad for a period of time during vacations, and then return to the dorm. In this way, people may spread a bed bug infestation from one domicile to another. The temporary nature of dormitories lends itself to the easy transfer of people, furnishings, and – unfortunately – bed bugs. And the fact that dormitory rooms are stacked on top of one another and side-by-side in a building with many dwelling units makes it easy for bed bugs to spread throughout a building.

## How Can You Help?

Residents can help by being on the lookout for bed bugs every day. When making the bed, turning mattresses, etc., residents can do the following things:

- Inspect sheets, pillowcases, mattresses, and box springs for blood smears left by crushed bed bugs.
- If you find bed bugs, or insects suspected of being bed bugs, are found, immediately notify the building management and save a specimen of any bugs you find.
- If you visit relatives or travel, wash and dry clothes before going away, and before putting them back in your room. Inspect your luggage carefully upon your return.
- Be wary of used or discarded furniture! You never know why the previous owner tossed it.

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## Box Elder Bugs

Box elder bugs are insects that live and breed outdoors. They normally feed on the seeds of box elder trees (a kind of maple), but they may also feed on other kinds of maple. They cause problems for building occupants when they enter wall voids seeking places to overwinter.

To prevent these insects from entering your residence, make sure all windows and doors, as well as their screens, are tightly caulked around the edges and that no doors are propped open.

As anyone who has experienced these insects knows, box elder bugs can be a real nuisance crawling and flying around inside. Luckily, they do not feed inside, nor can they reproduce inside, but they can cause staining with their fecal pellets.



*Box Elder Bug*

## Spiders

Spiders are easily recognized by the presence of eight legs and only two body regions (a head and a combined thorax and abdomen called a cephalothorax). By contrast, insects have six legs and three distinct body regions (head, thorax and abdomen).

You can prevent your living space from being attractive to spiders by keeping it as free as possible from clutter. Discourage spiders from setting up housekeeping in your home by periodically knocking down their webs; actual spiders can be swatted, or sucked up with a vacuum cleaner.



*Yellow Sac Spider*

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## Ants

Ants appear inside of buildings for one of **three reasons**:

1. The building is situated on top of their nest, and the ants have no choice but to emerge through the basement slab or foundation and into the building.
2. The ants are living outdoors, and they come inside looking for food, water, or both.
3. The ants are nesting inside of the building, often in a wall void.



*Pavement Ant*

The first scenario described above is often true of pavement ants, which are the most frequently seen ants infesting houses built upon slabs (without basements), institutional buildings, and commercial structures. The ants, which live underneath the concrete slab, emerge through cracks, expansion joints and other openings in the slab, and find their way into the building. Other ants build mound nests outdoors, and come inside in search of food or water.

Since several species of ants enter buildings in search of food and water, anything that can be done to prevent them from getting inside will help. Tree branches, shrubs, and any other plantings that are in contact with the building should be trimmed back. Ants sometimes follow telephone, electrical and other utility lines into a building, so the holes where these lines enter the building should be tightly sealed.

In the case of ants entering a building through cracks in the slab, it may be necessary to seal expansion joints and other cracks, as well as the holes through which water supply pipes, sewer lines, bath traps and other utility lines come through the slab.

Ants are skilled at finding any spilled food or beverage residues, so anyplace food or water might be found should be kept very clean. This includes not only kitchens, but also bedrooms, bathrooms, office kitchenettes and cafeterias, recycling bins, vending machine areas and trash containers. If food and water are hard to find, the ants will usually move on.

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## Fall Invaders

Just as their name suggests, fall invaders are a specific group of insects that can become a nuisance in the fall. On warm fall days, these insects gather in large numbers on the sunny side of buildings and begin to enter buildings in search of a place to overwinter. They may also become a nuisance on unseasonably warm days during the winter when they “wake up” and begin to move around. Although these insects are usually seen in large numbers, it is important to note that they are harmless and can be easily removed with a vacuum.

Two common fall invaders include box elder bugs and multi-colored Asian lady beetles.

### Box Elder Bugs

Box elder bugs are insects that live and breed outdoors. They normally feed on the seeds of box elder trees (a kind of maple), but may also feed on other kinds of maple. They frequently gather in large numbers on the sides of buildings on warm fall days and can cause problems for building occupants when they enter wall voids seeking places to overwinter.

To prevent these insects from entering your residence, make sure all windows and doors, as well as their screens, are tightly caulked around the edges and that no doors or unscreened windows are propped open.

Box elder bugs cannot feed inside, nor can they reproduce inside, but they can cause staining with their fecal pellets. If you find these in your home, they can be easily removed with a vacuum cleaner.



Box Elder Bug

### Multi-Colored Asian Lady Beetles

Multi-colored Asian lady beetles are harmless—they do not breed indoors or eat fabrics or foodstuffs – but can be a nuisance when they occur in large numbers. Like boxelder bugs, they gather on buildings in late summer and early fall seeking sites in which to overwinter. They may also become active on warm days during winter.

Asian multicolored lady beetles live outside all summer and eat primarily aphids, mealybugs, mites, and other insects, making them a beneficial insect.

To prevent these insects from entering your residence, make sure all windows and doors, as well as their screens, are tightly caulked around the edges and that no doors or unscreened windows are propped open.

If you find these in your home, they can be easily removed with a vacuum cleaner.



Multi-Colored Asian Lady Beetle

## IDENTIFICATION

**Paper Wasps:** In the summer, paper wasps are easy to identify by their single-layer, open nest. The wasps themselves are yellow and black, with a slender, pinched waist, a tapered abdomen, and a mostly hairless body.

They are the easiest of the wasps to control because their nest, a downward-facing, single paper comb, is fully exposed; and there are usually fewer than two dozen individuals associated with a single nest.

**Yellow Jackets:** Yellow jackets are yellow with black bands across their abdomen and, unlike paper wasps, do not have the tapered abdomen and “pinched” waist. They are somewhat more robustly built.

Yellow jackets typically build their nests inside of cavities, such as the hollow foundation blocks of houses and abandoned burrows of rodents or other animals in the ground.



Paper Wasps and Nest



Yellow Jacket

## BIOLOGY

In the spring, a single female wasp establishes a paper nest and lays eggs in it. Her first offspring help her to expand the nest and lay more eggs, but a single wasp nest never gets very big. There are seldom more than a dozen or two individual wasps on a paper wasp nest. By contrast, a yellow jacket nest consists of multiple layers of combs inside of a football-shaped paper envelope that may contain thousands of individual insects.

When you see umbrella-shaped paper nests hanging beneath an eave or gable, these are often paper wasps. Wasps emerging from a hole in the ground, or from a hole in the side of a house or landscape feature, are usually yellow jackets.

As the weather gets cooler in fall, paper wasps and yellow jackets abandon their nests. During this time, you might see large numbers of wasps sunning themselves on the warm sides of buildings. These are female wasps that are looking for a sheltered, sun-warmed place in which to spend the winter. These inseminated females might seek refuge in a naturally occurring place such as a rock crevice or a tree hole; or they might take cover in the wall or foundation voids of a building. This behavior is referred to “overwintering”. At this time, females are not in nest-defending mode, and are unlikely to sting anyone unless they are directly attacked. If you leave them alone, they won’t sting. Additionally, since there is no nest, there is no reason to treat these wasps.

Sometimes, on warm or sunny days in later winter and early spring, overwintering female paper wasps “wake up” and begin to stir around sluggishly. If you find overwintering wasps indoors, they can be sucked up with a vacuum cleaner or swatted with a rolled-up magazine. Because there is no established nest, it is not possible to treat for these wasps at this time. In a few weeks, they’ll go back outside and live their lives in the great outdoors, where they belong. In a few more weeks, they will have established nests, which we can treat and easily destroy.

In spring, the inseminated female wasps – this year’s queens – emerge fully to the outside and begin seeking a suitable place to build their nest. For several weeks in spring, female wasps will fly around lazily, bouncing up against buildings and investigating them for possible nesting sites or for openings that might lead to a good nest-building location.

Paper wasps seek overhangs, eaves, and other places where they can fasten their single-layer, downward-facing paper nest. Yellow jacket queens will look for holes in the ground, gaps behind landscape feature, or openings in the sides of buildings as suitable places in which to establish a nest. Wasps will not re-use a nest from the previous year.

This behavior will last until consistently warm weather arrives, probably sometime during May. Female wasps seeking nest-building sites are not in the nest-defending mode, and therefore they are unlikely to sting anyone unless they are directly attacked. If you leave them alone, they won’t sting.

**Once nests are established and populations of wasps are seen entering and leaving a hole or crevice on a regular basis, or visible nests can be identified on eaves and overhangs, Plunkett’s technicians can easily and safely eliminate the nests and the wasps in or on the nests.**