

Community IPM

Bugs in Strange Places: The Brown-banded Cockroach

Brown-banded cockroaches (*Supella longipalpa*) are similar in size and shape to German cockroaches (*Blattella germanica*), but differ in their markings and, more importantly, in their preferred habitat. Brown-banded cockroaches prefer warm, high, and dry places; German cockroaches live in moist areas (bathroom and kitchen sinks, refrigerators). As a result, the brown-banded cockroach can be found throughout a living space, making inspection and treatment for this pest unique. Additionally, because brown-banded cockroaches are found in rooms other than the kitchen, exposure to cockroach allergens is often higher for this pest. While this cockroach is not common in the Northeast, they are easily introduced on furniture and other transported items.



Brown-banded cockroach adult. Photo: G. Alpert.

Did You Know ... ?

- **Ancient Creatures:** Scientists have found cockroach fossils that date as far back as 300 million years, making cockroaches about 300 times older than humans. The largest fossil, from Ohio, measures nearly 3.5 inches long! Many people believe that cockroaches will outlast humans on planet earth.
- **A Numbers Game:** Roughly 3,500 species of cockroach are identified worldwide, with 70 of those species reported in the United States.
- **Size Matters:** *Megaloblatta longipennis* from Peru, Ecuador and Panama is considered one of the world's largest winged cockroaches: one specimen measured 3.8 inches long and had a wing span of approximately eight inches. The Giant Burrowing Cockroach (*Macropanesthia rhinoceros*) from Australia is the world's heaviest cockroaches, weighing up to 1.2 oz (35 g).



These two egg cases, or ootheca, each contain 16 eggs. Photo: G. Alpert.

Identification

Several pest species of cockroach can be found indoors, and many more non-pest species are found in nature. The brown-banded cockroach is one of the smaller cockroach species, with adults measuring approximately $\frac{1}{2}$ inch in length. It is light to dark brown in color, with two light colored lateral bands across the wings and abdomen. These light bands are present on all stages and both sexes of cockroach, including nymphs (the young stages without wings). Both males and females have wings, but the females' wings are short. When disturbed, males will readily fly, and all life stages may jump before scurrying away.

Biology

The brown-banded cockroach is one of few species that can tolerate, and actually prefers to live in, dry areas. Whereas German and American cockroaches are often found near a moisture source (e.g., kitchen sink), pockets of brown-banded cockroaches can be found anywhere in any room. This includes tables, chairs, dressers, pantries, closets and on the wall behind pictures. For this reason, the brown-banded cockroach is sometimes called the furniture cockroach. This name is informative in describing how the pest is introduced to new areas.

In all life stages, brown-banded cockroaches are attracted to an area by the presence of food. This species can feed on just about anything, but has a distinct preference for starchy items, including glues used to bind furniture, books, and wallpaper. The combination of having a broad diet and the ability to live in dry areas makes this pest difficult to eradicate. Even rooms that are clean or sanitary can provide enough food to sustain a few cockroaches.

Female brown-banded cockroaches carry between 14 and 18 eggs in an external capsule called an ootheca. After one or two days, females attach the capsule in a protected area with a cement-like substance. The nymphs that emerge from these capsules will undergo several molts in a two-month period before reaching sexual maturity and bearing wings. Adults can live up to ten months, with females producing approximately 14 egg capsules or 250 offspring.

Management

The first step in a cockroach management program is proper identification. Pest species differ in their requirements for food and habitat. Knowing which species of cockroach is present will guide your management actions in terms of short-term corrective actions for population reduction, and long-term preventative measures to avoid future problems. For brown-banded cockroaches, short-term population reduction can be achieved with the use of baiting systems and trapping.

However, before a management program can be implemented, an inspection is needed to identify cockroach harborage areas. Cockroaches prefer to hide in tight spaces, including cracks approximately $\frac{1}{4}$ of an inch wide. The brown-banded cockroach prefers to hide in high, dry areas, typically in furniture or behind picture frames. Once harborage areas have been identified, control measures can be more strategically employed.

In general, baiting systems have several advantages over traditional pesticides. Baits are typically semi-solid or solid products that confine active ingredients to small placements, therefore reducing pesticide use. In the case of cockroach control programs, a small amount of bait can have a large impact due to a phenomenon known as horizontal transfer. This occurs when cockroaches consume a lethal dose of a pesticide through the exchange of oral secretions containing the toxicant (emetophagy), when feces are consumed (coprophagy), or when a cockroach carcass is eaten (necrophagy). Baits do not work instantly, and some time may be needed before population numbers decrease. Note: bait avoidance can occur when pesticide sprays are



Brown-banded cockroach nymph. Photo: G. Alpert.



Brown-banded cockroach nymph resting inside a cupboard. Photo: G. Alpert.



Brown-banded cockroach nymphs and fecal stains on a hinged door. Photo: G. Alpert.

used in baiting systems. This is because sprayed pesticides contaminate the bait.

The number of cockroaches present in an area can be assessed with glue traps, and this will determine the amount of bait needed in a control program. In addition, glue traps are an effective population reduction method that helps track pest movements. Comparing trap counts between areas can be used to identify the source of an infestation, and the orientation of trapped cockroaches can suggest the direction of movement.

In areas where other food sources are available, acceptance of bait is reduced due to bait competition. This emphasizes the importance of sanitation and house-keeping practices in cockroach management. Removal of clutter, including stored paper bags, cardboard boxes and items on top of the refrigerator reduce potential harborage areas for cockroaches. Sanitation to remove food crumbs in drawers, toasters and under kitchen appliances reduces available food items.

Additional control measures for cockroaches include the use of temperature extremes. Similar to treatments used for bed bugs, raising room temperatures to 140 °F for several hours is available for cockroach control in some states. For heat sensitive items, such as museum artifacts, cold storage (below freezing for 24 hours) is sometimes used. Desiccant powders and dusts are effective in cockroach control, and are applied behind walls, into wall voids or similar protected spaces. Be certain to read all product labels before making a pesticide application.

Myths and Hoaxes in the Control of Cockroaches

Public concern over pesticide safety has spawned several cockroach control products. Unfortunately, there is little scientific evidence to support the success of these devices. Be wary of the following control devices:

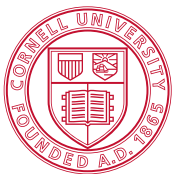
1. **Ultrasonic Devices:** cockroaches are not repelled by ultrasonic sounds. However, these devices do have the potential to disturb dogs and other animals that can hear in this range.
2. **Electromagnetic Devices:** cockroaches are not repelled by these products, which may actually increase activity levels of other insects.
3. **Expensive Electric Traps:** A bigger price tag does not imply better value. Devices that cost up to \$300 can be less effective than a glue board, which costs less than a dollar.

Summary

Brown-banded cockroaches look and behave differently than other small cockroaches, such as the German cockroach. Therefore, correct identification of the pest and a thorough inspection of the premises are needed before developing a management plan. Although brown-banded cockroaches are not common in the northeast, they can be introduced on shipped furniture and other goods.

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