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COCKROACHES (Order Blattodea)

Very few insects elicit such universally negative reactions in humans as do cockroaches. Cockroaches are a diverse, ancient, cosmopolitan order of scavenging insects and can be found worldwide. The vast majority of cockroaches are beneficial 'sanitary engineers' in their natural environments. Only about a dozen out of an estimated 4,000 cockroach species are true pests of man-made environments. Four species of cockroach are recognized as regular home invaders in the northeast. These are the German cockroach, *Blattella germanica*, the American cockroach, *Periplaneta americana*, the Oriental cockroach, *Blatta orientalis*, and the brown-banded cockroach, *Supella longipalpa*. Cockroach presence in homes is undesirable due to the possibility of insects mechanically contaminating food and preparation surfaces by walking over them. Some cockroaches also excrete an unpleasant odor and certain allergic reactions may be triggered by repeated exposure to cockroach residue (antigens). They are opportunistic predators and were used in the past to hunt down and kill bed bugs.

Description and Life Cycle:

All cockroaches undergo incomplete metamorphosis with 3 life stages: eggs, nymphs that look like a miniature adult, and adults. Clutches of eggs are protected in hard

bean-shaped egg cases called ootheca. Nymphs molt multiple times while developing. Many species of cockroaches possess wings as adults, but they rarely fly. In some species, wings may be reduced or completely absent. Most cockroaches are nocturnal, preferring dark environments. Many are startlingly fast runners, and their ability to detect air currents makes them able to easily anticipate sudden movements and quickly escape. Indoors, cockroaches are capable of developing year-round.



Michael Merchant, Texas Cooperative Extension, Bugwood.org

Fig. 1: German cockroach

The German cockroach (Fig. 1) is not native to the Americas. It is native to northeastern Africa and southeast Asia. It prefers warm and humid areas, such as kitchens and bathrooms. Adults are small, ½ inch long, oval, and light brown. There are

two distinctive black longitudinal stripes behind the head. Females carry their egg cases with them until the eggs are ready to hatch. Thirty to 50 nymphs can hatch from one ootheca, and in optimal humidity and



Fig. 2: American Cockroach

temperature, the nymphs develop quickly; reaching adulthood in six weeks.

The American cockroach (Fig. 2) is not native to the Americas, despite their name. They are native to Africa and the Middle East and were introduced through the slave trade and maritime commerce as early as 1625. It prefers very warm areas and is more often found infesting commercial buildings such as restaurants, bakeries, and grocery stores than private homes. Adults are large, 1 ½ inches long, and are the largest of the northeastern cockroaches. They are brownish-red in color, oval in shape, and have prominent spines on their legs. Both males and females have fully developed wings that extend slightly beyond the length of their body. The brown egg cases are 1/3 inch long and are deposited rather than carried by the females. Nymphs



Fig. 3: Oriental cockroach with ootheca

resemble small adults; their development is slow, between 7 to 12 months.

The Oriental cockroach (Fig. 3) is not native to the Americas. It is native to the Crimean peninsula and the Black and Caspian Seas region. It prefers slightly cooler, moist environments such as cellars and crawl spaces. Adults are 1 to 1 ¼ inches long and very dark brown in color. The male's wings are shorter than the length of the body, the female's wings are absent. Egg cases are deposited by females, not carried.



Fig. 4: Brown-banded cockroach

Nymphs resemble small females, and take between 9 months to 2 years to develop depending on environmental conditions.

The brown-banded cockroach (Fig. 4) is not native to the Americas. It is native to Africa and was introduced from Cuba to Miami in 1903. It prefers warmer temperatures and so may be more likely found near objects producing ambient heat. Adults are about ½ inch long, males are a golden brown and have wings that extend beyond the length of the body. Females are dark brown and their wings do not fully cover the body. Both adults and nymphs have a distinctive pair of cross body yellow-brown bands. Nymphs take about 5 months to mature.

Prevention and Control:

As opportunistic scavengers, cockroaches are well-adapted to many situations. The success that cockroaches will have infesting a home

or commercial building is based on factors such as food availability, shelter, warmth, and water. Resolving or eliminating these factors greatly reduces the risk of large-scale infestation:

Availability of food and water. Cockroaches are scavengers and so will eat a variety of foods but prefer starches and protein. This can include potentially overlooked items such as book binding glue, paper, and insect remains. Properly store all food in refrigerators or airtight containers. Pet food and water bowls, dishes, pots, pans, and utensils should be cleaned immediately after use and not left out overnight. Countertops, food preparation areas, and storage should be regularly cleaned to remove food debris and beverage residue. Waste and recycling bins should be emptied frequently and regularly cleaned of residue.

Temperature and moisture. Cockroaches thrive in high humidity and temperatures. Repair or replace leaking pipes and address standing water issues. Running a dehumidifier in humid areas such as basements can make them less attractive to cockroaches.

Shelter. Cockroaches prefer protected and dark areas. Reducing overall clutter in a home or workspace will reduce the number of areas cockroaches can hide in. Caulk or seal openings around pipe entrance points and cracks or holes in walls to prevent access.

There are many products available to homeowners for cockroach monitoring and control; these should always be used in tandem with the above prevention and sanitation practices for best results. Boric acid baits are a commonly available solution. Aerosol pesticide applications are not recommended near or on areas that food is stored or prepared. Always carefully read and follow label directions.

If a cockroach infestation is particularly difficult to control, a professional Pest Management Professional (PMP) may be needed. PMPs have access to a wider variety of control methods and equipment that can deliver treatments to hard to reach areas such as wall voids.

Harmless cockroach ‘visitors’:

Wood roaches (genus *Parcoblatta*, 12 species) are native to North America and are found in forests, where they feed on dead and rotting wood. The winged males are golden brown, about $\frac{3}{4}$ inch long, and are occasionally found wandering inside homes during the summer, usually in bathrooms. Wood roaches are attracted to lights left on overnight. Bathrooms tend to attract the cockroaches because of higher humidity and the presence of a nightlight. These insects do not infest homes or reproduce indoors; females are wingless and never enter homes. Wood roaches do not require extermination, although physical exclusion, making sure windows and screens are properly fitted and free of rips or holes will prevent them from entering.

The spotted Mediterranean cockroach *Ectobius pallidus* is not native to the Americas. It is native to England, most of Europe, and North Africa. It has become more frequently reported in Connecticut since 2010. These very small $\frac{1}{4}$ to $\frac{1}{2}$ inch long cockroaches are pale cream in color and their back and wings are covered in small brown spots. They were first recorded in Cape Cod in the 1940’s and have very slowly been spreading south along the New England coast. Home invasions of this small forest-dwelling cockroach are infrequent, and they do not breed indoors. Physical exclusion is the best way to prevent them (and other outdoor-dwelling insects) from entering homes.