



## ORIENTAL COCKROACHES

*Blatta orientalis* L.

### INTRODUCTION

Cockroaches are among the most common of insects. Fossil evidence indicates that cockroaches have been on earth for over 300 million years. They are considered one of the most successful groups of animals. Because cockroaches are so adaptable, they have successfully adjusted to living with humans. About 3,500 species of cockroaches exist worldwide, with 55 species found in the United States. Only four species are common pests in Pennsylvania structures. These are the German, brown-banded, Oriental, and American cockroaches. A fifth species, the Pennsylvania wood cockroach is an occasional nuisance pest in some locations.

### DESCRIPTION

Oriental cockroaches are often called water bugs because of their preference for dark, damp, and cool areas such as those under sinks and washing machines, and in damp basements. This species, which is less wary and more sluggish than the others, of concern because it often travels through sewer pipes and lives on filth.

Adult Oriental cockroaches are about one inch in length (Fig. 1). Both male and female adults are very dark brown, nearly black; their bodies usually have a somewhat greasy sheen. Females have small, functionless, rudimentary wing pads and broader, heavier bodies. Males have wings that cover only about three-quarters of their abdomen. Males are apparently unable to fly.

Nymphs and adults have similar habits and are found with decaying organic matter indoors and out. Indoors, Oriental cockroaches prefer dark, moist areas such as under porches, sewers, drains, crawl spaces, dark, damp basements, and floor drains. They can be found outdoors in abandoned cisterns and water valve pits; in yards; beneath leaves; in bark mulch around shrubs, flowers, and foundations; in dumps, stone walls, and crawl spaces; and in garbage and trash dumps and trash chutes. Both nymphs and adults are sluggish and are usually situated at or below ground level indoors. They are seldom found on walls, in high cupboards, or in the upper floors of buildings. At times large numbers occur in one great mass around leaks in the basement or crawl space areas of homes. Oriental cockroaches are generally found outdoors during warm weather, but in periods of drought there may be considerable movement into structures, apparently in search of higher humidity. They may enter the home in food packages and

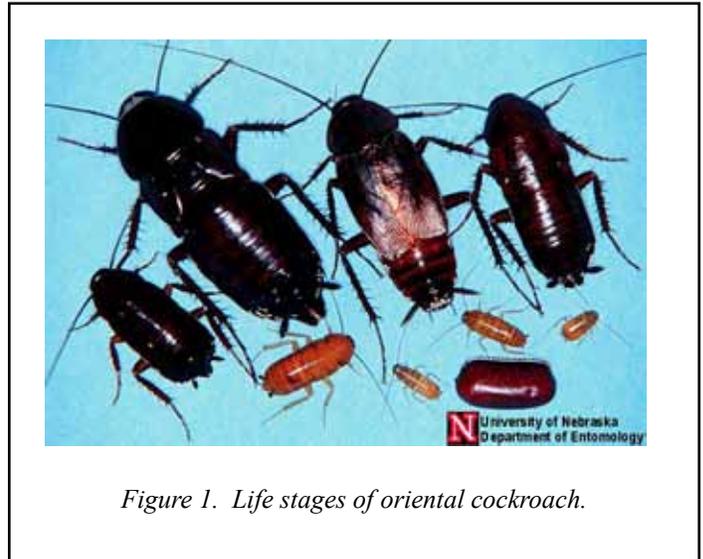


Figure 1. Life stages of oriental cockroach.

laundry, or merely come in under the door or through air ducts, garbage chutes, or ventilators.

### LIFE HISTORY

The Oriental cockroach has three developmental stages: egg, nymph, and adult. Eggs are laid in capsules, which the female carries for about 30 hours and then drops onto a protected surface near a food supply. The female does not glue the egg capsule to the surface.

Females produce an average of eight capsules, each containing 16 eggs that hatch in about 60 days under room temperature conditions. Nymphs molt from seven to ten times; nymphal stages usually take 24 to 130 weeks to complete. The life span of an adult female is 5 to 26 weeks with approximately 200 offspring. Unlike the other house-infesting species, the Oriental cockroach generally has a seasonal developmental cycle. The peak number of adults usually appears in late spring or early summer. By late summer and early fall, this number has become quite low, owing to natural mortality and the hatching of nymphs.

### INJURY/ DAMAGES

Oriental cockroaches feed on all kinds of filth, rubbish, and other decaying organic matter. They seem especially fond of garbage and the contents of discarded tin cans. If water is available, they can live for a month without food; without water they die within two

weeks. The most important aspect of cockroach damage derives from their habit of feeding and harboring in damp and unsanitary places such as sewers, garbage disposals, kitchens, bathrooms, and indoor storage areas. Filth from these sources is spread by cockroaches to food supplies, food preparation surfaces, dishes, utensils, and other surfaces. Cockroaches contaminate far more food than they are able to eat.

Cockroaches in general produce odorous secretions from various points in their bodies. Such secretions can affect the flavors of various foods. When cockroach populations are high, these secretions may result in a characteristic odor in the general region of the infestation. Disease-producing organisms such as bacteria, protozoa, and viruses have been found in their bodies.

Different forms of gastroenteritis (food poisoning, dysentery, diarrhea, etc.) appear to be the principal diseases transmitted by Oriental cockroaches. The insects carry these disease-causing organisms on their legs and bodies and deposit the organisms on food and utensils as they forage. Cockroach excrement and cast skins also contain a number of allergens, to which many people exhibit allergic responses such as skin rashes, watery eyes, congestion of nasal passages, asthma, and sneezing.

## MANAGEMENT STRATEGIES

**Survey** - To control Oriental cockroaches, it is important to do a thorough inspection. A cockroach survey (trapping) is sometimes necessary to determine the extent of an infestation, because even a thorough inspection will not reveal all cockroach harborages or areas where they forage most actively at night. Surveys are particularly useful in houses and buildings where there is a moderate to heavy level of infestation.

Cockroach surveys involve placing sticky traps at strategic locations within the building. Whenever possible place survey traps either against a wall or in a corner of the floor. Most commercially available traps come complete with bait to encourage cockroaches to enter. One week of trapping at a sufficient number of trapping sites usually provides enough information for more complete and effective control.

**Sanitation, Structural Modifications, and Repairs** - Modifying the interior environment—removing food, moisture, and harborages for cockroaches—is the first step in treatment. Eliminating cockroach harborages involves caulking in closets and cabinets, caulking under the sink, etc., or making similar structural repairs in the kitchen, bathroom, and other areas of the house.

Oriental cockroaches may move into dwellings from the outside. Recent research has been conducted on the movement of Oriental cockroaches under, around, and into homes from harborages in crawl spaces and cinder block foundations. The research has shown that these cockroaches frequently move into the home along plumbing (e.g., up through the floor from underneath the crawl space) and under door or window jams. The use of screening, caulking and similar items may be useful in tightening the exterior to deter entry by the cockroaches.

**Chemical Control** - Dusts such as boric acid, silica aerogel, and diatomaceous earth can be applied to voids and other harborages such as cracks and crevices. Do not apply dusts to wet or damp areas. Dusts should be applied lightly because heavy deposits may repel cockroaches. Do not place dusts where children or pets could come into contact with them. Take care to keep children away from areas treated with boric acid. Take precautions to assure that the dusts do not contaminate food.

Perimeter insecticide sprays may aid in the reduction of Oriental cockroaches entering homes from the exterior. Sprays should be applied as to create a continuous barrier around the structure. Use only those materials labeled for this type of application.

The use of residual sprays or aerosol foggers within a structure is of little value in controlling Oriental cockroaches. In fact, these applications may disperse the cockroaches making control difficult and lengthy.

Baiting can be an effective method to control or eliminate cockroaches from a structure. Baits containing hydramethylnon, fipronil, sulfluramid, boric acid, or abamectin should provide a high level of control when applied to those areas where cockroaches harbor. Care should be taken to closely follow the label instructions for use.

## WARNING

Pesticides are poisonous. Read and follow directions and safety precautions on labels. Handle carefully and store in original labeled containers out of the reach of children, pets, and livestock. Dispose of empty containers right away, in a safe manner and place. Do not contaminate forage, streams, or ponds.

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