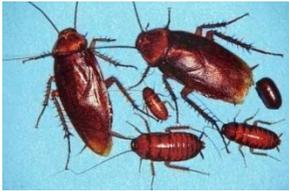


Appendix 1f

Cockroaches

Cockroaches probably are the most common insect associated with human dwellings. Fortunately, here in the Northwest, cockroach infestations are relatively uncommon but still do occur. Five species are fairly common in Oregon around homes. These are the American roach, the oriental roach, the German roach, the brown-banded roach, and one that normally does not invade homes, the native wood roach.



American Cockroach



Oriental roach



German Cockroach



Brown-banded Cockroach

Besides their importance as nuisance, roaches may transmit, by direct contamination of our food, many important diseases and parasites. They also may be responsible for disabling allergic reactions in sensitive individuals.

Natural History

Roaches are light brown to almost black insects with long antennae. Some are wingless, those with wings rarely fly. Their movement is often described as "scurrying". The young look much like adults but are smaller and wingless. The egg case is capsule-like. Roaches will eat all kinds of food, both human food and refuse. They are extremely adaptable and capable of invading almost any habitat. Once established, they can be very difficult to eliminate.

Roaches tend to congregate in preferred harborage sites. While not strictly a nest, the harborage does provide protection, especially for the young. The protection afforded by the harborage is one reason why roach populations can build so dramatically.

Control

Severe infestations may require the experience of a professional pest control operator (PCO). Sticky traps can be used to assess a roach population but are not effective at control. Effective control depends on (1) sanitation and (2) use of residual (longlasting) insecticides. Furthermore, pesticides work best when the toxicant is placed or carried to the roach harborage.

While it may be possible to rid a single family house of roaches, it is often impossible to completely eliminate them from a multi-family dwelling or neighborhood. So, be realistic in your expectations.

Insecticides used for roach control come in a variety of forms or formulations. There are low-toxicity dusts, useful for indoor treatments along baseboards and under cabinets. "Crack and crevice" sprays that are useful for spot treatments, and encapsulated insecticides for longer residual control. Poison baits and traps that can be purchased in any lawn and garden store as well.

Monitoring Cockroaches

[Traps](#) offer the best way to monitor cockroach populations. By placing traps in several locations and inspecting them regularly, you can identify the areas of most severe infestation and know where to concentrate control efforts. Traps also can be very helpful in evaluating the effectiveness of control strategies. Available retail cockroach sticky traps work well. These traps are open-ended and are lined inside with a sticky material.

To be effective, traps must be placed where cockroaches are likely to encounter them when foraging. The best places are at the junctions of floors and walls and close to sites where cockroaches are suspected; good potential monitoring sites can be determined by accumulations of [fecal matter](#) (e.g., dark spots or smears), cast skins, egg cases, and live or dead cockroaches. [Place traps](#) in all corners of the room to give you an idea where roaches are entering. In the kitchen put traps against walls behind the stove and the refrigerator and in cabinets. Number the traps so you can keep records for each trap separately. [Check the traps](#) daily for several days until it is apparent where the greatest number of roaches are caught; usually this is within the first 24 hours of placing a trap—after that cockroaches may become wary of the trap. Discard sticky traps by placing them in a sealed plastic bag in the trash. Keep records of roaches trapped in different locations before and after you initiate a management program to evaluate its success.

Other Methods

You can also track a cockroach infestation by using a [flashlight](#) to inspect cracks, underneath counters, around water heaters, and in other dark locations. A [small mirror](#) on a long handle can be useful in hard-to-see areas. Look for live and dead cockroaches, cast skins, egg capsules, and droppings, all of which aid in identification and are evidence of an infestation.

Sanitation

Cockroaches thrive where food and water are available to them. Even tiny amounts of crumbs or liquids caught between cracks provide a food source. Important sanitation measures include the following:

- Store food in insect-proof containers such as glass jars or resealable plastic containers.
- Keep garbage and trash in containers with tight-fitting lids and use liners. Keep trash cans away from doorways. Remove trash, newspapers, magazines, piles of paper bags, rags, boxes, and other items that provide hiding places and harborage.
- Eliminate plumbing leaks and correct other sources of free moisture. Increase ventilation where condensation is a problem.
- Vacuum cracks and crevices to remove food and debris. Be sure surfaces where food or beverages have been spilled are cleaned up immediately. Vacuuming also removes cockroaches, shed skins, and egg capsules. Removing cockroaches reduces their numbers and slows development. Vacuumed cockroaches and debris should be destroyed. Because bits of cuticle and droppings may cause allergies, it is recommended that the vacuum cleaner have a HEPA (high efficiency particulate absorber) filter or triple filters.

Exclusion and Removal of Hiding Places

During the day cockroaches hide around water heaters, in cupboard cracks, stoves, crawl spaces, outdoor vegetation, and many other dark locations. They invade kitchens and other areas at night. Limiting hiding areas or avenues of access to living areas is an essential part of an effective management strategy. False-bottom cupboards, hollow walls, and similar areas are common cockroach refuges. Prevent access to the inside of buildings through cracks, conduits, under doors, or through other structural flaws.

Limit Access

Take the following measures if observation or trapping shows roaches are migrating into a building from outdoors or other areas of the building:

- Seal cracks and other openings to the outside.
- Use weather stripping on doors and windows.
- Look for other methods of entry, such as from items being brought into the building, especially appliances, furniture, and items that were recently in storage. Check items brought into the facility by parents, volunteers and children (diaper bags, wipe containers, lunch boxes, blankets)
- Inspect food deliveries before putting them in kitchens.
- Locate and seal cracks inside the treatment area where cockroaches can hide.

PROTOCOL FOR TREATING COCKROACHES

Threshold: Classrooms and other public areas: 0

A. When staff observe a small number of roaches (2 or less) they must:

- 1st) Thoroughly clean area where roaches were seen
- 2nd) Lay additional sticky monitoring traps as directed above in areas where roaches are seen
- 3rd) Determine if you have a family, staff or volunteer in the facility that has a roach problem at home.
- 4th) Jot down the action taken in the Pest Log

B. Kitchen or Custodial staff will:

- 1st) Check for leaks in plumbing and report to maintenance any issues found
- 2nd) Seal up any crack/hole seen in the vicinity of the roach (what can be done in less than 15 minutes)
- 3rd) Assist in thoroughly cleaning the area where roaches were seen

C. If the roaches come back or there are more than a small number (2 - 10 cockroaches):

- 1st) Track down the source of infestation (families or staff with roach infestations, check items brought into the center from home)
- 2nd) Review sanitation, trash handling, clutter; vacuum and clean rooms
- 3rd) Contact the Health Director to initiate a letter to be sent home to families in the center
- 4th) Notify Health & Safety Coordinator that baits are needed to be applied.
- 5th) Jot down the action taken in the Pest Log

When to use baits:

To avoid a proliferation of cockroaches and/or unnecessary applications of pesticides, the routine use of roach baits is not permitted without first:

- 1) Educating staff on sanitation, monitoring, and exclusion as the primary means to control the roach.
- 2) Establishing an acceptable pest population density (2 roaches).
- 3) Improving sanitation (e.g. cleaning up crumbs and other food sources) and structural remediation (sealing up cracks or holes), eliminating the source of how the cockroaches are being brought into the facility (diaper bags, wipe containers, book bags, lunch boxes, blankets).
- 4) Following 1, 2, and 3 above.

If the use of a low-impact pesticide baits are deemed necessary, they will be placed in childproof containers, and used only in areas that are out of sight and reach of children/students. Small amounts of low-impact pesticide gels or pastes may also be placed in cracks and crevices or low-impact pesticide dusts may be sprayed into wall voids.

Staff must be informed that sanitation is important to ensure the effectiveness of any baits that are used. Roaches are less likely to take a bait if there are more attractive food and water sources nearby.