4 MANAGEMENT PRACTICES FOR HOUSEHOLD PESTS

Managing pests in homes can be a challenge. The first step is to determine what kind of pest(s) you have and the potential damage they can cause. Next you need to plan a strategy for managing them, choosing the best tactics for your situation. Non-chemical methods of pest management are often very effective. Good sanitation practices and general upkeep of the home can help prevent outbreaks.

Sealing openings that allow access to your home can do much to keep pest problems at bay. It often helps to seal openings around pipes, wires, doors, and windows using caulk or putty or to install tight-fitting screens and weather stripping. Insects often gain access from under the door, so check to see that the door sweep on the bottom of exterior doors forms a tight seal.

Vacuum frequently to prevent accumulations of food crumbs and lint. If you are vacuuming up pests, empty the vacuum bag promptly. Keep food in sealed containers and do not let fruits and vegetables spoil. Dispose of infested foodstuffs. Keep garbage in closed containers and empty them on a regular basis, daily if possible. Do not let pet food sit out for long periods of time.

Moisture may encourage some household insects. Keep areas under sinks and cabinets, basements, and soil near foundations relatively dry.

Eliminate hiding places by removing clutter, sweeping out corners of garages and storage areas, repairing cracks, and filling in crevices in walls and floors. Dispose of paper bags or other items that might harbor pests.

Remove or trim vegetation close to the house and eliminate contact between wood and soil. Change exterior lighting to minimize attracting insects.

Store firewood and scrap lumber away from the house because they can provide a home for carpenter ants and other pests.

If you are having difficulty managing a household pest problem yourself, another option is to hire a pest management company, pest control operator (PCO), or exterminator. Look for a company that uses least toxic pest management practices. You will need to describe the pest problem and possibly collect and keep samples of pest insects. Indicate where and when the pests have been seen, what you have done to try to remedy the situation, and what the results have been. To be successful in managing the pest, it is important to follow all recommendations made by the pest management company, especially making repairs and maintaining the structure.

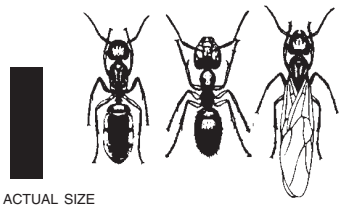
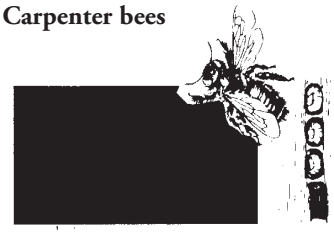
Specific nonchemical management practices for household pests are listed in Table 2. Pesticide guidelines are

Table 2. Annoying pests inside the home

Insect	*Biological notes and recommended cultural management*
Ants  ACTUAL SIZE	Frequently attracted from outdoor colonies by greasy or sweet food. Keep food covered or refrigerated. Thoroughly clean areas where ants occur or gather. Search for routes of entry and seal with caulking compound. Ant traps containing baits of boric acid or other poisons attract pest to poison without need for applying poison throughout environment. Keep traps out of reach of children and pets. Newer baits offer ants a choice of protein food or sweet food. When using these baits and traps do not clean near area where baits are placed because chemical foraging trails can be erased, making traps and baits useless. Although useful for some species, traps do not work for all ants. Ants sometimes nest in wall voids. If problem persists, you may want to consult a PCO.* See also Carpenter ants.
Bark beetles	Small cylindrical beetles that are red, brown, or black. They enter homes in firewood. Keep firewood outdoors; bring in only what will be used within a few days.
Bedbugs  ACTUAL SIZE	Wingless insects that usually attack and take a blood meal at night. These pests remain hidden near sleeping place during daylight hours. Take beds apart and vacuum mattresses, especially around seams and tufts. Thoroughly vacuum bedstead and floor, concentrating on baseboards, cracks, and crevices. Dispose of vacuum bag contents before storing machines. Clean infested bedding before reuse. Do not treat bedding with any chemical; wash in hot water with detergent and place in hot dryer for 20 minutes to kill bedbugs. Repeat cleanup procedure periodically if bedbugs persist. Bedbugs may be introduced

*PCO = pest control operator

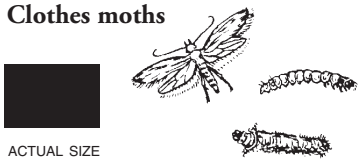
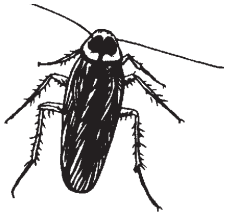
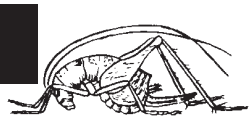
Table 2. Annoying pests inside the home *(continued)*

Insect	*Biological notes and recommended cultural management*
Bedbugs *(continued)*	with used beds, bedding, and furniture. Check carefully before bringing into home. Bedbugs can sometimes be carried by bats. Eliminate bats from structure (see Table 7, Wildlife damage management methods).
Bird mites	Tiny, eight-legged critters that may bite people. They enter home from bird nests in attics, on windowsills, and in eaves by creeping or being blown through ventilators, windows, or other openings. Screen birds from common nesting areas on buildings. Wear rubber gloves to remove nests and clean up area. Avoid breathing "fecal dust." Remove nests. Clean infested surfaces with warm, soapy water to remove mites. Wash bedding in hot water with detergent or dry in hot clothes dryer for 20 minutes to kill mites.
Booklice/paperlice 	Small, transparent insects about 1 mm in size that feed on sizing of paper stored at high humidities and warm temperatures. If possible, do not store books, paper, or cardboard in damp areas. Ventilate and dry infested areas using a fan to increase air circulation or possibly a dehumidifier.
Boxelder bugs 	Outdoor pests of boxelder that overwinter indoors. Damage occurs when smashed bugs stain fabric or paint. Locate and close or seal openings through which bugs enter. Vacuum or sweep up and destroy bugs.
Carpenter ants 	Structurally damaging pests that excavate galleries for nesting in wood. New infestations are nearly always associated with wet or moist wood, but infestation may continue after wood is dried. Moisture problems often occur around windows, chimneys, plumbing, and porches. Coarse sawdust is sometimes seen near nest site. For control, locate and eliminate ants in nest; a vacuum cleaner can be used. Eliminate causes of wet wood. Fix leaks in roof and pipes; clean out clogged rain gutters; remove stumps, logs, and woodpiles from areas adjacent to buildings. If moisture problems continue, ants will return. Insecticides (see Part II) can provide temporary relief. Baits may eliminate a colony, but if conditions are conducive, more may move in at a later time.
Carpenter bees 	Bees bore holes for nesting in face boards of porches, windows, and door frames. See Chapter 6, "Management of Annoying Pests Outside the Home."
Carpet beetles 	Black or variegated beetles that are often first observed on windowsills in spring. Larvae are covered with golden brown hair and are found infesting wool, hair, feathers, leather, mounted "trophy" animals, and dead insects. They may be associated with mice if there is a mouse problem. Moths are tan to gold-colored and small (3–4 mm long). Vacuum wool lint and pet hair from between floorboards; remove accumulations of dead insects from attic areas. Store only clean woolens. Dry-cleaning kills carpet beetles. Protect uninfested goods by storing in tight containers. When heavy infestation occurs, you may need to consult a PCO.*

*PCO = pest control operator

continued

Table 2. Annoying pests inside the home *(continued)*

Insect	*Biological notes and recommended cultural management*
Clothes moths  ACTUAL SIZE	Larvae feed on fabric containing wool or other animal fibers. Silken feeding tubes or hard protective cases are often found on fabrics. Brush infested articles and air them outdoors in a sunny location and/or dry-clean them. Vacuum wool lint from between floorboards. Protect uninfested goods by storing in tight containers. Cedar-lined chests and closets are effective in repelling moths but should be lightly sanded to release oils after a year or two of use. For a severe infestation, you may need to consult a PCO.*
Clover mites  ACTUAL SIZE	Eight-legged, reddish or brownish creatures, smaller than a pinhead. In late fall, mites seek protected overwintering sites either under shingles or siding; thousands may enter homes from nearby vegetation. Some may enter when activity begins in spring. They are a nuisance pest and, if crushed, leave a red stain that is especially noticeable on white surfaces. Caulk or weather-strip openings where mites enter; keep windows closed tightly during fall migration. Clean areas where mites accumulate with warm soapy water or use a vacuum cleaner, remembering to empty bag after use.
Cluster flies  ACTUAL SIZE	Large (6 mm long), awkward, noisy flies that blunder about lights and windows, colliding with many objects, often dropping to floor to lie on their backs and spin noisily until exhausted. Vacuuming up flies is helpful. When done vacuuming, place vacuum bag into plastic bag and into freezer or outdoors if cold enough. Do not store vacuum in closet without disposing of flies or blocking their exit. Flyswatters are useful especially if only a few flies are present. Close entry routes when possible. Dispose of dead flies to avoid infestations of carpet beetles and other insects that feed on dead insects.
Cockroaches/waterbugs  ACTUAL SIZE	Broad, flat insects with six long legs; adults range from 1/2 to 2 inches in length, depending on species, They hide during the day in warm, moist, dark places and come out to forage at night. They prefer starchy or sugary foods but will feed on milk, soda, beer, cheese, meat, pastry, grain products, bookbindings, and dead insects. When disturbed, cockroaches run rapidly for hiding places. Because they are often attracted by food residue and garbage, wash dishes promptly, seal food containers tightly, clean residue on jars and surfaces, and mop up spills. Repair water leaks and sweating pipes. Remove clutter, which provides hiding places. In apartments it may be helpful to place window screening over heating ducts, grating, and other places where roaches can enter. Caulk to repair holes and cracks in walls. Use sticky traps to aid in control. Place them in corners and in areas where roaches have been observed. Baits and insect growth regulators (IGRs) are also available in some traps. To find hiding places, enter a dark room quietly, turn on the lights, and watch where roaches run. They typically hide beneath kitchen sinks and under and behind appliances. Shed skin and feces from cockroaches may cause asthma and/or allergic reaction in children.
Crickets  ACTUAL SIZE	Usually enter dwellings in late summer when vegetation becomes scarce or after crops have been harvested. A few species are commonly found in basements. Remove accumulations of moist debris from basement and ground-floor entrances and windows. Be sure doors fit well and are kept closed during autumn months. Keep storage areas clean and dry. Sticky roach traps may help catch crickets.
Drain flies	See Moth flies.

*PCO = pest control operator

Table 2. Annoying pests inside the home *(continued)*

Insect	*Biological notes and recommended cultural management*
Drosophila (vinegar flies, pomace flies, or fruit flies) 	Small flies (approx. 2 mm long) with red-orange eyes, seen around kitchen. Larvae feed on spoiled fruits and vegetables. Discard garbage regularly; discard all spoiled fruit. Be patient—flies may be present for a few days after food source is removed. **Home remedy****: a trap can be constructed by using a canning jar equipped with a paper funnel. Bits of banana sprinkled with yeast make a good bait that will last about two weeks. Larvae in trap can be killed with hot tap water at least 150º F. Commercial traps using vinegars or other baits may be purchased.
Earwigs 	Light to dark brown insects (12- to 20-mm long); most distinctive feature is pair of forceps on tip of abdomen. Generally feed as scavengers on dead insects and rotting plant material. Keep entrance areas dry and clear of decaying vegetation; keep storage areas of clear damp newspapers or carpets. Repair damaged window screens and doors. Inspect home-grown vegetables or flowers before bringing into kitchen. Vacuum or sweep up insects and dispose of outdoors. Also see Table 6, Annoying pests outside the home.
Elm leaf beetles 	Outdoor pests of elm that overwinter indoors, usually in attics, unused chimneys, and barns. Repair and caulk openings near elms. Remove by hand with vacuum or by sweeping up; dispose of beetles outdoors. Open attic windows to allow release in spring.
Fleas 	Small, brown insects that jump and bite humans as well as animals. Usually noticed when a pet is removed from the home for a period of time. Flea larvae feed on detritus, shed skin, hair from animals, and feces of adult fleas. Check pet bedding often in warm weather; populations are often concentrated where pets sleep. Limit area used as bedding. Thoroughly clean hair, bits of food, and debris from animals' sleeping quarters. Thoroughly clean or discard animal bedding and treat animal. Flea-comb pets regularly. For questions about flea control on pets, check with your veterinarian. Vacuuming daily can help control fleas. See Table 6 for outdoor treatment. For persistent problems you may want to consult a PCO.*
Flour and grain beetles 	Usually discovered when an infested package is opened or when small brown beetles appear in kitchen near containers of stored grain products, pet food, or birdseed. Discard infested food; clean shelves and cupboards thoroughly. Remove food and dishes; vacuum and scrub storage areas. Store products in tightly sealed containers and inspect stored food regularly or refrigerate or keep in freezer. Keep fresh supplies in tightly closed jars or cans. Keep birdseed and pet foods in tightly closed containers.
Flour and grain moths 	Indian meal moth is most commonly encountered species. Larvae feed in flour and grain products, dried fruits, nuts, and dried pet and fish food. When mature, they can crawl up walls to ceiling to pupate. Destroy infested food. Clean shelves and cupboards thoroughly; remove food and dishes, remembering to clean upper corners as well. If larvae have climbed walls, also carefully clean area where walls and ceiling meet. Keep fresh supplies in tightly closed jars or cans or keep birdseed and pet foods in closed containers. Be alert for flying moths. Use flyswatter as needed. Pheromone traps can be helpful in catching remaining stray male moths.
Fruit flies	See Drosophila.

*PCO = pest control operator

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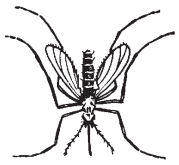
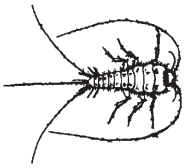
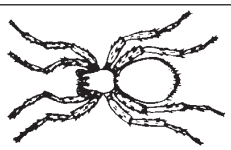
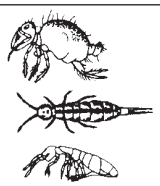
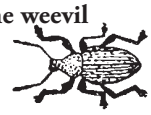
Table 2. Annoying pests inside the home *(continued)*

Insect	*Biological notes and recommended cultural management*
Fungus gnats  ACTUAL SIZE	Small, dark-colored flies often seen in home around flowerpots. Larvae feed on decaying organic matter. When houseplants are source, remove and discard growing media; repot in sterile media (see Table 5, Houseplant pest management). Clean up spills of organic matter indoors.
Grain mites/cheese mites/ mold mites	Pale grayish-white, microscopic (1/50 in., 0.5 mm) arthropods with numerous long hairs on legs and back. Occasionally increase so rapidly that grain, grain products, dried fruits, and dried vegetable matter seem alive with them. Feed primarily on microscopic mold or fungi that may grow on stored food. Clean up accumulated food debris, vacuum cabinet shelves, cracks, and crevices; avoid prolonged storage of susceptible material; and do not store in warm, humid areas.
Ground beetles	Medium-sized beetle that may accidentally get into houses. Size and color may vary with species. Beneficial outdoors where they feed on other insects. Remove with broom and dustpan or vacuum. Discard outdoors.
Head lice  ACTUAL SIZE	Infestations are transmitted by children in school or by other people in close contact. Do not share combs, brushes, hats, or scarves. To kill eggs, dry-clean clothing or wash in hot water and detergent at 125° F for 10 minutes. Treatment of person must be recommended by a physician.
House dust mites/Dust mites	Microscopic, insect-like critters found in houses and other buildings that people frequent. Often found on mattresses, carpets, and upholstered furniture; they thrive in warm, moist conditions. Feed on shed scales from human skin and other similar debris. Waste particles from mites may cause reactions in allergic people. Consult your allergist or medical doctor. Avoid overhumidification and keep dust to a minimum. Dust-proof covers may be recommended in certain situations as may removal of carpeting, curtains, and venetian blinds.
House flies  ACTUAL SIZE	Gray-bodied fly (5–6 mm long) with checkered abdomen, black stripes on thorax, and slightly hairy appearance. Summertime pests that breed in manure, garbage, and fermenting crop wastes. Dangerous principally because may carry and spread disease germs that may be in material where they breed, feed, or walk. Use screens, keep food covered, and dispose of garbage frequently. Spread piles of grass clippings or other rich decaying organic matter to dry. Clean up pet dung in yard because it can become a breeding site. Avoid using doors for entering or exiting house downwind of food odors where flies have accumulated. A flyswatter is very useful for dealing with flies indoors. Sticky flypaper is useful in some situations. Home electric light traps not very effective.
Indian meal moth	See Flour and grain moths.
Lady beetles, lady bugs	Small to medium-sized, hemispherical beetles; usually reddish-orange with black spots, 8–10 mm long, two-toned wing color—outer portion brick red, inner part gray to yellow-gray. May become nuisance pests when overwintering in homes and buildings. Heat in homes and buildings warms them and they become active crawling on walls and ceilings or moving to sunny windows. Vacuum or sweep up gently and deposit outside. Seal entrances as appropriate with caulk, screening, etc.
Millipedes  ACTUAL SIZE	Elongate, segmented, wormlike creatures with two pairs of legs per body segment. Usually found in moist areas such as basements, near patio doors, or in garages. Generally feed outdoors on decaying vegetable matter. Sweep up and dispose of outdoors. See Table 6, Annoying pests outside the home.

Table 2. Annoying pests inside the home *(continued)*

Insect	*Biological notes and recommended cultural management*
Mosquitoes  ACTUAL SIZE 	Biting insects that suck blood from people and animals. Larvae are aquatic. Keep doors and windows tightly screened and closed to prevent entry into home. Drain tin cans, old tires, and other water containers to reduce breeding sites. Keep house gutters free of moist leaves and debris. Community control may be necessary. If problem persists even in winter, check for indoor water sources that were not drained. Home electric light traps not very effective.
Moth flies (drain flies)  ACTUAL SIZE 	Woolly, stout-bodied (up to 2 mm long) flies commonly seen around drains or in sinks; breed in grease and soap scum in drains. To clean up breeding sites scrape pipes with wire brush to remove slime in which moths may lay eggs. Use drain-cleaning product, caustic followed by commercial bleach to rinse one day later. *Note: never combine chlorine and ammonia because deadly fumes are produced.* Use flyswatter to kill adults.
Old house borer	Often damages new buildings. Prefers sapwood of pine and spruce. Larvae may be heard rasping or "ticking" while feeding in wood. Professional control often necessary.
Powderpost beetles	Powder or very fine sawdust on or beneath wood and small round or oval shot holes in wood surfaces indicate infestation. Well-finished, painted, or other finished dry wood is seldom attacked. Keep wood dry; keep moisture and humidity levels low wherever possible. Reinfestation rarely occurs in dry, seasoned wood. Repaint or refinish surfaces as necessary.
Silverfish and firebrats  ACTUAL SIZE 	Shiny, silver grey, or mottled gray insects with three long, tail-like structures on hind end. Silverfish prefer moisture; firebrats prefer warm, dry areas such as furnace room in apartments. Active at night and hide during the day. Eat foods and other materials high in protein or starch (e.g., glue or paste, bookbindings, starch in clothing, and rayon fabrics.) Remove residues of high-protein foods. Store valued books, papers, or clothing in dry areas or in sealed heavy plastic bags. Seal cracks and crevices. Special caulking is available for sealing around pipes.
Sowbugs and pillbugs  ACTUAL SIZE 	Fat, dark gray, hard-shelled crustaceans, usually found in moist areas around the home but occasionally enter basements and garages. Roll into a ball when disturbed. Sowbugs are lighter in color, softer shelled, and do not roll into complete ball like pillbugs do. Repair cracks in foundation; caulk around basement windows and other entryways. Keep ground-level entrance areas free of rotting leaves and debris; trim shrubs or other planting to promote air circulation and drying. Control same as for millipedes.
Spiders  ACTUAL SIZE 	Keep spiders out with proper screening and weather stripping. Remove indoor webs and spiders with broom; discard outdoors. This may take some time, but eventually spiders will be controlled. Control insects on which spiders feed.
Springtails ACTUAL SIZE 	Minute insects, abundant in most soils, with forked appendage on abdomen that enables them to jump. Feed on algae, fungi, and decayed vegetable matter. Occasionally found in damp places such as kitchen, basements, bathrooms, around drains, and in soil of potted plants. Keep areas dry where possible; correct moisture problems. Repot houseplants in sterile soil (see Soil Sterilization in Chapter 2).
Strawberry root weevil and black vine weevil  ACTUAL SIZE 	Plant-feeding insects that occasionally invade buildings, becoming nuisances. They do not cause damage indoors. Block entry routes with caulking material.

continued

Table 2. Annoying pests inside the home *(continued)*

Insect	*Biological notes and recommended cultural management*
Subterranean termites  ACTUAL SIZE	Social insects that live almost entirely inside wood on which they feed. If wood is not in contact with ground, termites can build mud tunnels over obstacles to reach it. Use termite-resistant construction methods. Refer to USDA Bulletin 64, *Subterranean Termites.* When infestation is discovered, professional help is usually needed. Effective insecticides are restricted for application by certified applicators only.
Ticks  ACTUAL SIZE	Usually enter home on dog or other pet. After feeding, they drop off host and hide in cracks and crevices, under rugs, and behind baseboards. Can transmit serious diseases to both humans and animals. Control treatment should begin with pet; check with your local veterinarian.
Wasps and hornets  ACTUAL SIZE	Stinging insects that often build nests near occupied dwellings and may become nuisance or danger to those allergic to their sting. Social insects—many individuals live in same nest. Check periodically around outside of house during early summer to spot and treat small nests. By August and September, wasp populations are at their highest and individuals sometimes enter houses accidentally. Use screens in buildings and screen ventilators to attics. If one or two enter, use a flyswatter. Use caution—insects indoors may be irritated and can sting. Also see Chapter 6, "Management of Annoying Pests Outside the Home."
Western conifer seed bug	Leaf-footed bug that overwinters in homes and buildings and becomes active when warmed up. Screen attic and wall vents to prevent entry. Caulk gaps and holes in siding; tighten loose-fitting screens, windows, and doors to prevent entry. Remove by hand (wear gloves) or with vacuum cleaner.

FURTHER READING

Common Sense Pest Control Quarterly. Bio-Integral Resource Center newsletter. P.O. Box 7414, Berkeley, Calif. 94707.

Controlling Household Pests. USDA Home and Garden Bulletin 96, Washington, D.C. 31 pp.

Hansen, M. 1993. *Pest Control for Home and Garden*. Consumer Reports Books, Yonkers, N.Y. 372 pp.

IPM Practitioner Bio-Integral Resource Center newsletter. P.O. Box 7414, Berkeley, Calif. 94707.

Mallis, A. 1982. *Handbook of Pest Control*. 6th ed. Franzak & Foster Co., Cleveland, Ohio. 1101 pp.

Managing the Cluster Fly. Insect and Plant Disease Diagnostic Laboratory fact sheet. Insect and Plant Disease Diagnostic Laboratory, Dept. of Entomology, Comstock Hall, Cornell University, Ithaca, N.Y. 2 pp.

Olkowski, W., S. Daar, and H. Olkowski. 1991. *Common Sense Pest Control: Least Toxic Solutions for Your Home, Garden, Pets, and Community*. Taunton Press, Newtown, Conn. 715 pp.

Subterranean Termites. USDA Home and Garden Bulletin 64, Washington, D.C. 30 pp.

Fact sheets on specific pests may be available. Check with your local Cooperative Extension office.