

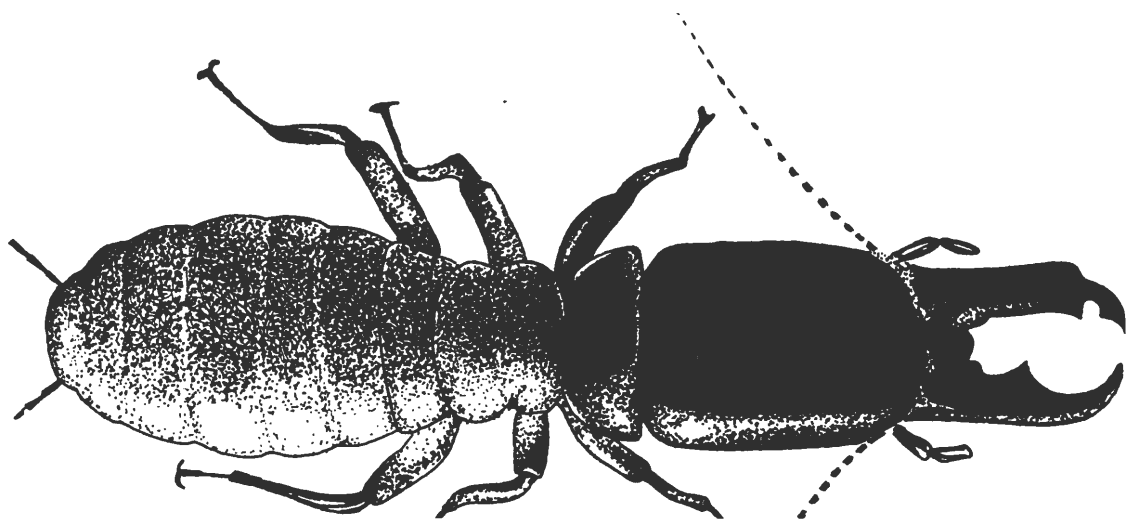
HOUSEHOLD INSECTS AND THEIR CONTROL

Cooperative Extension Service

College of Agriculture

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Extension Bulletin 472



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The U.S. Environmental Protection Agency (EPA) announced Dec. 24, 1975 the suspension of products containing chlordane and heptachlor for most agricultural and home uses. This stops all production for these uses; however, stocks produced prior to July 29, 1975 can be sold and used in accordance with label directions. Uses of importance in Washington which were not suspended include use of chlordane for root weevils on strawberries, use of heptachlor for narcissus bulb fly and seed treatments, and use of both chlordane and heptachlor in sub-surface ground applications for termites and dipping of roots or tops of non-food plants.

The College of Agriculture at WSU will continue its current recommendations for suspended uses of chlordane and heptachlor through 1976 in accordance with EPA's decision to permit continued sale and use of those chemicals produced prior to July 29, 1975. EPA has decided it is environmentally safer to allow continued use of existing stocks than attempting to retrieve and dispose of them.

HOUSEHOLD INSECTS and their control

J. T. Pennell and A. H. Retan, Extension Entomologists

INSECTS FIND THEIR WAY into our home no matter how careful we are with our housekeeping. Some of these insects damage foods, clothing, rugs, furniture, or woodwork. Others carry diseases. Some merely irritate us.

Many household insects are controlled easily. To get rid of others, such as termites and carpet beetles, you need considerable persistence and effort. Good housekeeping and thorough sanitation are highly important as aids to control or prevent infestations of many kinds of household pests.

This bulletin presents information to the homeowner. If pest infestations in the home are too complex or severe for the homeowner to deal with, he should obtain the services of a professional pest control operator. If the homeowner decides to use a pesticide—a chemical which kills pests—he must select the correct formulation. Formulation is the way or form in which the active chemical is “packaged” for convenient application. Chemicals formulated for use on agricultural crops may be too hazardous for home use. Formulations for use inside homes may severely damage ornamentals and garden vegetables because of the type of solvents present. *Carefully follow directions on the label of the pesticide container. Do not use a pesticide in any manner that is not described on the label.*

In this bulletin insecticides are suggested for use by the active ingredient, not by brand names. Check the label on the container for active ingredients before you buy an insecticide. In general, do not use oil-based solutions around asphalt or vinyl tile floors.

If there is a sudden invasion of flying insects into a

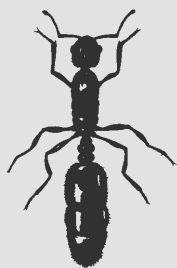
home, control may be possible by using a space spray containing pyrethrins. This type of spray is most effective when it can be applied directly onto the insects. Pyrethrins break down rapidly and are not generally satisfactory where long-lasting control is necessary or where insects cannot be sprayed directly. More persistent or residual insecticides are needed to control such insects as cockroaches, ants, and termites which can seldom be sprayed or dusted directly. Satisfactory control of these insects depends on placing an insecticide deposit where they will come into contact with it hours, days, or perhaps weeks later.

ANTS

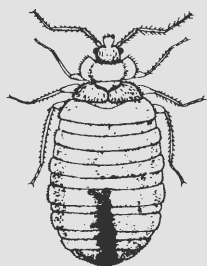
Several kinds of ants enter homes and infest food supplies. Some species prefer sweet foods; others prefer grease and meats.

Termites are sometimes mistaken for ants, but they do not have narrow waists like true ants.

CONTROL—Use home and garden pesticide formulations containing **CHLORDANE**. Read the label directions carefully. If ants are troublesome inside the house, make sure the label indicates the formulation can be used inside the house and will not stain home furnishings. Apply the insecticide where the ants are, or where they will contact it. Try to locate the center of the infestation. The ants may be nesting outside the house. Try to locate where most of the ants are and apply the chlordane directly onto and around this area. If the chlordane formulation is to be used outdoors, check its suitability for use on growing plants; *do not apply to food plants*.



House Ant



Bed Bug

BED BUGS

The mature bed bug is a flat, wingless, brown insect between $\frac{1}{4}$ and $\frac{3}{8}$ inch long. Bed bugs feed by piercing the skin and sucking blood. They appear in homes at all seasons of the year, usually hiding during the day and feeding at night.

Bed bugs may be carried into homes in clothing, baggage, or second-hand furniture. They do migrate from room to room but ordinarily not from home to home.

When not feeding, bed bugs hide in the tufts of seams of mattresses, in cracks and crevices of the bedstead, or in upholstered furniture. As they become more numerous, they scatter and hide behind baseboards, window and door casings, pictures or picture moldings, loosened wallpaper, or cracks in plaster.

CONTROL—A spray or aerosol bomb containing MALATHION, DICHLORVOS (DDVP or Vapona), or PYRETHRINS should be effective. Apply the insecticide carefully to tufts and seams of mattresses. Under no circumstances should mattresses be soaked with spray. Spray lightly over the frames and springs of beds. Also spray cracks in floors and around baseboards and other areas where bedbugs may hide. Two or more treatments at intervals of 2 to 6 weeks may be required.

BOXELDER BUGS

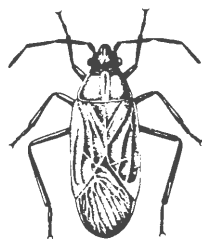
Boxelder bugs are about $\frac{1}{2}$ inch long, from brown to black, and with red lines running along the back. The adults spend the winter around buildings and in hollow stumps and other sheltered places. During warm spring days they may gather in large numbers on sunny sides of buildings and occasionally enter homes. They cause no damage in the home but can be a nuisance. They often appear in large numbers on the trunks and around the bases of boxelder and maple trees.

CONTROL—Indoors use a household formulation containing either PYRETHRINS or ROTENONE. Direct these insecticides onto the bugs. Outdoors a spray containing CHLORDANE or LINDANE can be used. Apply the spray around the base of box elder or maple trees, or wherever in the garden the bugs are numerous. Read and follow the insecticide label directions carefully.

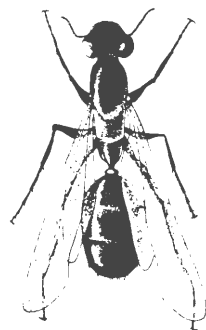
CARPENTER ANTS

Carpenter ants are large, and black. They tunnel in logs, stumps, and hollow trees. They become serious pests when they move indoors and tunnel in building timbers.

These ants are frequently confused with the damp-wood termite. Both insects live in colonies and mine wood. However, carpenter ants bore in wood solely to



Boxelder Bug



Winged Carpenter Ant

provide living quarters and do not feed on it. They expel their borings as a "fibrous sawdust" from their mines.

The workers of carpenter ants are wingless, long legged, wasp waisted, black or reddish black, and about $\frac{1}{2}$ inch long. The winged ants resemble workers in shape and color, but are about $\frac{3}{4}$ inch long and have four wings. The front pair of wings is much larger than the hind pair. Winged ants swarm on warm days in the spring to start new colonies.

Usually carpenter ants enter a house through openings about the foundations. They seem to prefer moist, rotting timbers, but may mine sound, dry wood any place in a house. Among the commonly mined portions are porch pillars and supporting timbers, sills, girders, joists, studs, and window and door casings.

CONTROL—Carpenter ants may be controlled by spraying or dusting **CHLORDANE** around house foundations and other areas of infestation and by applying it to lawns and shrubbery. Use a dust or a spray made from a wettable powder on lawns and shrubs. Try to locate where the ants are nesting. This is sometimes outside the house, often in a tree stump, or maybe inside the house in one of the structural timbers. Apply insecticide where it will come into contact with the ants. You often need patience and persistence to get an infestation under control; it may take time and several insecticide applications.

CARPET BEETLES

Several kinds of carpet beetles are found in homes. Only the larvae—longish, oval, immature insects with brownish or black bristles—cause damage. They feed on rugs, feathers, clothing, and various foods. Damage from these insects can be distinguished from that caused by clothes moths by the absence of webbing spun by moths. Cast larval skins also help identify their work.

Larvae of the carpet beetle are brown and their bodies are covered with hairs. The adults are black, mottled brown, or white and about $\frac{3}{16}$ inch long. In the spring they collect at windows in an effort to get outside and feed on pollen of spirea, goldenrod, and other plants.



*Varied Carpet Beetle
Mature Larva*

CONTROL—Larvae of carpet beetles wander around and may scatter from attic to basement. They can live on hair, lint, and other materials which accumulate in corners, in cracks under flooring, under radiators, and in similar places. Thoroughly clean as many of these places as possible. Discarded fur pieces, rugs, feathers, and fleece-lined slippers provide ideal breeding places. Remove such materials and spray infested areas.

Use household insecticide formulations containing **CHLORDANE**, **PYRETHRINS** or **ROTENONE** around baseboards, along the edges of rugs, and around window frames. Try to examine and vacuum the undersides of rugs at least once a year. Carefully examine from time to time any furs, hair-pieces, or hides brought into the house. Clothes can be protected to a large measure by storing in closed clean containers with mothballs. Mothballs or naphthalene flakes are preventive, they are not a satisfactory means of destroying an already established infestation.



*Varied Carpet Beetle
Adult*

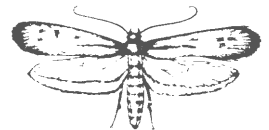
CLOTHES MOTHS

Two common species of clothes moths are the webbing clothes moth and the case-making moth. Both feed mainly on wool, silk, fur, hair, and feathers. The moths are small—about $\frac{1}{4}$ inch long with a wingspread of about $\frac{1}{2}$ inch. The adult webbing clothes moth is buff colored. The case-making clothes moth is similar, but has indistinct dark spots on the wings.

Moths do not feed on cotton, linen, rayon, or other fabrics of vegetable origin, though they can damage such fabrics soiled with foodstuffs. Only the larvae cause damage since the adult moths do not feed.

CONTROL—The first step in control is to locate the source of the infestation. It may be in fleece-lined slippers, wool rugs and blankets, flannel pants, a wool sweater, a fur piece, or an accumulation of lint. Furniture upholstered with hair or wool stuffing can also harbor moth larvae.

Treat infested areas with household insecticides containing **CHLORDANE**, **DIAZINON**, **MALATHION**, **PYRETHRINS** or **ROTENONE**. Store clothes in closed containers with mothballs.



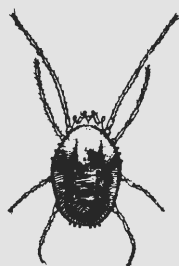
*Case-Making Clothes Moth
Adult*



*Case-Making Clothes Moth
Larva*

CLOVER MITES

Clover mites are not usually pests in homes, but occasionally they move into houses in large numbers. They do not bite humans or animals or damage home structures, but they can be annoying when crawling over the skin. When squashed they will stain walls and furnishings.



Clover Mite

They are somewhat oval in shape, usually reddish brown, and about 3/100 inch long. Clover mites swarm over outer walls of buildings, particularly those with sunny exposures, and make their way indoors through cracks and crevices around windows, doors, foundations, and the like. Invasions usually occur in the spring or the fall.

CONTROL—To prevent entry into homes, treat outside windows, doors, and ventilators with formulation containing DICOFOL (Kelthane), DIAZINON (one of trade materials is known as Spectracide), or MALATHION.

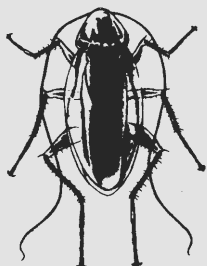
A lawn-free strip 18 to 24 inches wide around the dwelling may reduce mite infestations in the home. Flowers, such as zinnia, marigold, salvia, roses, chrysanthemums, and petunias, which are not attractive to clover mites, may be planted in the strip.

COCKROACHES

Cockroaches are among our most disagreeable household insects. Several kinds, including the American, Oriental, German, and brown-banded cockroach, are found in homes. The different species vary from 3/8 to 1 1/2 inches in length and from tan to black in color. They are rather flat, fast-running insects which are active at night and hide during the day.

Cockroaches contaminate food and often leave a disagreeable odor on food over which they crawl. They are general feeders and in addition to most foods they chew book bindings, stamps, paper, and even starched clothing.

CONTROL—Cleanliness—not leaving food scraps around—is perhaps the most important step in controlling cockroaches. Formulations containing CHLORDANE or DIAZINON applied as residual treatments to the places where cockroaches crawl or hide, are widely used for roach control. PYRETHRINS are sometimes used to



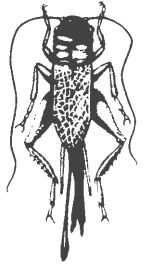
American Cockroach

“flush” the insects out from beneath stoves and refrigerators to where they will contact surfaces treated with more residual compounds. Do not allow chlordane or diazinon to contact food, dishes, or other kitchen utensils. Repeat treatments as needed.

CRICKETS

Field crickets sometimes enter houses although they rarely become very abundant. Their chirping may annoy you and they may chew holes in clothing and household fabrics.

CONTROL—Use a household formulation of CHLORDANE on floors along the baseboard. Repeat applications may be needed if crickets continue to be a problem. Try to close off places where crickets are entering the house.

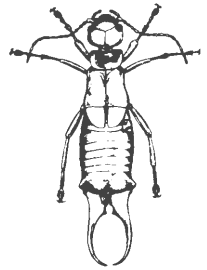


Field Cricket

EARWIGS

The European earwig is more annoying than damaging in the home. They usually enter homes hidden in flowers, vegetables, or newspapers and may crawl under doors or through open windows. Earwigs are various shades of brown and $\frac{1}{2}$ to $\frac{3}{4}$ inch long.

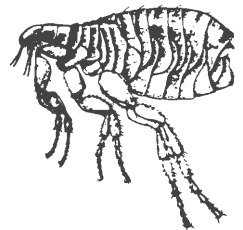
CONTROL—Earwigs can be destroyed outdoors by spraying or dusting infested areas with formulations containing CHLORDANE or DIAZINON or CARBARYL [Sevin]. Direct special attention to treating areas around dahlias and other places where earwigs are known to hide. Several treatments during the summer may be needed. Commercial earwig baits for use outdoors may also be used.



European Earwig

FLEAS

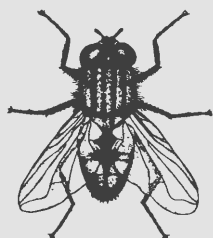
Fleas which infest homes usually come from cats and dogs. The same fleas will bite people. Adult fleas are small, wingless, dark reddish-brown insects. They have narrow bodies and legs well developed for jumping. The small, whitish, hairy, legless larvae feed on dried animal matter in cracks in the floor, under carpets, under porches where pets sleep, or any place they can obtain food. Lawns are also occasionally infested with fleas, particularly in warm humid areas.



Cat Flea

CONTROL—Treat infested pets and their sleeping quarters with MALATHION, PYRETHRINS, ROTENONE or CARBARYL [Sevin].

Commercial flea powders are readily available. Commercial pet “flea collars” are also available; read label directions carefully. Infested lawns and kennel areas may be treated with MALATHION; several treatments may be needed.



House Fly

FLIES

Several kinds of flies infest homes. Among the more important are the house fly, face fly, green bottle fly, fruit fly, stable fly, the lesser house fly, blowflies, and cluster fly.

Most of the flies found in homes breed in decaying organic matter. The common house fly reproduces rapidly in such material and may carry germs to the food of man.

CONTROL—Sanitation is the first step in fly control. Keep garbage in tight containers and dispose of it frequently.

Spray outdoor garbage containers with household insect bombs. Check the label of any spray before you use it. Many insecticides have an unpleasant smell; for spraying trash containers inside the house, use only PYRETHRINS.

Eliminate breeding areas, including decaying plant and animal matter and pet manure.

Good window screens and screen doors are very important. Treat them several times during the fly season. Also spray favored resting places, such as window sills, ceilings, or walls.

PYRETHRIN aerosol bombs may also be used for a quick knock-down of flies as a space spray, that is, sprayed into the air so that the flies pick up the insecticide as they fly through the spray mist. Keep food, dishes, and utensils under cover when space spraying.

If only a few flies are in a room, a fly swatter may be the simplest way to dispose of them.

Cluster flies are parasitic on earthworms and control of the maggots is not practical. To prevent the adult flies from entering the home in the fall, close all openings through which they enter, such as sash cord channels. Fill all cracks around windows. Use aerosols containing PYRETHRINS or ALLETHRIN as needed indoors.

GOLDEN BUPRESTID

Oval-shaped holes in fir, pine, or spruce siding, window casements, flooring, or other parts of the home indicate activity of one of the flatheaded borers. The most common of these is the golden buprestid. The adult is about $\frac{3}{4}$ inch long and iridescent gold-green or blue-green with outside wings edged with a copper margin.

The adult beetle lays its eggs on trees, preferably those that are dead or dying, or in the cracks of freshly sawn lumber. Most of the infestations in lumber occur before manufacture. The mines or tunnels may be from 3 to 15 feet long and the larvae may live in the wood for 15 or 20 years before they transform into beetles and emerge.

CONTROL—This insect is very difficult to control in the home because of the long period the larva remains in the wood, the length of the tunnels, and the fact that infestations are not usually evident until the adult emerges from the wood. However, infestations seldom cause serious structural weakness. Exit holes in flooring or other exposed wood may be filled with plastic wood where advisable. Later, if no new emergence occurs, the damaged wood may be replaced.

HOUSE CENTIPEDES

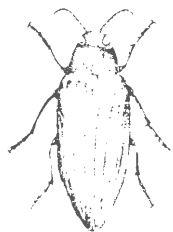
The house centipede has a wormlike body an inch or more long with a pair of long, slender antennae and 15 pairs of legs. It runs rapidly, holding its body above the surface over which it moves.

House centipedes feed upon cockroaches, flies, spiders, moths, and other small insects. They thrive in damp basements and often find their way to the upper floors.

CONTROL—Since house centipedes feed on other insects, they should be regarded as beneficial. If, however,



*Flatheaded Borer
Larva*

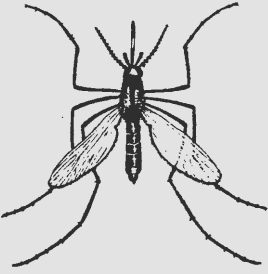


*Golden Buprestid
Adult*



House Centipede

they are considered a nuisance, a direct spray from a household insect bomb will kill individuals.



Mosquito

MOSQUITOES

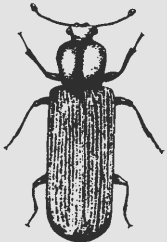
Several kinds of mosquitoes are pests of man and are found around homes. Some species transmit malaria and others transmit encephalitis to men and horses. All mosquitos breed in nonflowing water and their eggs will not hatch unless moistened with water. The larvae must have water to develop.

CONTROL—The first step in controlling mosquitoes is to eliminate their breeding areas. Remove from the yard all unneeded cans, pails, jars, tires, or other subjects which may hold water. Containers for storing water should be tightly covered. Keep small streams near your home free from debris or vegetation which slows the flow of the water. If possible, drain or fill depressions where water collects.

Permanent ponds or pools which do not provide humans, animals, or poultry with drinking water, or which do not contain desirable fish, may be sprayed with MALATHION several times during the mosquito season. Kerosene or fuel oil alone may also be applied. Do not use any insecticide on pools or ponds until you are certain as to what the water is used for and you have determined the pesticide you plan to use is registered for your particular situation. Household insecticides containing ROTENONE will kill fish, as will many other pesticides, so check first before treating any body of water with pesticides for mosquito control.

Mosquitoes inside the home can be killed by direct spraying with one of the household insect aerosol bombs containing PYRETHRINS or ROTENONE.

Repellents containing DEET, 612, or INDALONE will protect humans from mosquito bites for 1 to 5 hours. Use only according to the label directions.



Powder Post Beetle —

POWDER POST BEETLES

These beetles reduce wood to a powder-like dust which becomes evident as the infestation increases. The insects are usually brought into the home in hardwood lumber

used for flooring, furniture, or implement handles. Ash, oak, pecan, and hickory can become infested in lumber stock piles and the infestation may continue after the lumber is used in the home.

CONTROL—The area of beetle infestation is usually limited. Apply LINDANE or CHLORDANE to the infested area from an aerosol spray can, or spray or paint on. Several applications may be necessary.

Heating small hardwood articles in an oven at 130° F. for 1½ hours will also kill the insects. Use of heat, however, may warp or crack the wood, loosen joints, or injure the finish.

PSOCIDS OR BOOKLICE

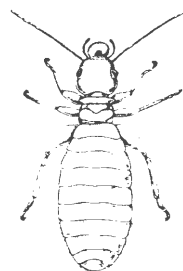
Psocids are soft-bodied, flat insects about 1/16 inch long. They are white or grayish white. Because of their small size and color, they are often not noticed. They occasionally appear in starch, cereals, flour, and sugar and may be annoying when they increase to large numbers. They are most likely to be found in damp, dark, warm, poorly ventilated rooms.

CONTROL—Dry out areas where you find booklice. These insects are seldom a problem in dry buildings. Spray areas where booklice are numerous with household insecticide containing PYRETHRINS or ROTENONE. Destroy infested foods and eliminate dampness in food storage areas where possible. Store food in tight moisture-proof containers.

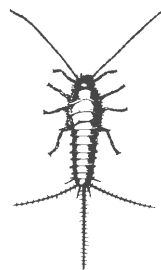
SILVERFISH AND FIREBRATS

Silverfish and firebrats are wingless, fast-running, scaly insects about ½ inch long. Their bodies taper evenly from head to tail and they have a pair of long antennae or feelers on the head and three long filaments that protrude from the tail.

Silverfish are shiny and silver or pearl gray. They prefer warm and damp places, but may be found in almost any part of the home. Firebrats are similar in appearance, but mottled tan, and are most abundant around furnaces and heated water pipes. These insects feed at night on wallpaper, book bindings, rayon fabrics, and starched clothing.

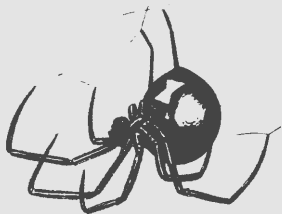


Common Booklouse



Silverfish

CONTROL—Treat areas over which silverfish and firebrats crawl with a household insecticide formulation containing PYRETHRINS, ROTENONE, or CHLORDANE. Several treatments may be necessary.



Black Widow Female

SPIDERS

Spiders, unlike true insects, have four pairs of legs and no antennae or feelers. Except for black widow spiders, most spiders found in homes do more good than harm although they are nuisances when numerous.

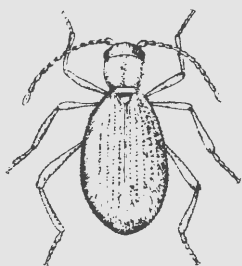
The black widow spider is dangerously poisonous. The female has a rounded, shiny, black body and usually an orange or red hourglass design on the underside of the body. The male is much smaller with stripes of white and pale brown along the sides. Young spiders of both sexes have additional light markings. Black widow spiders build loose irregular webs in protected dark corners of basements, garages, and outhouses and under stones and wood piles.

CONTROL—Most spiders are harmless and should be left alone, or at most, captured in a jar and released outside the home. Tightly screened windows and doors help keep spiders from entering homes. If necessary, direct spraying with any household insect aerosol bomb will kill individual spiders.

SPIDER BEETLES

Several kinds of spider beetles occasionally infest homes, but rarely become numerous enough to cause concern. They are about 1/7 inch long and reddish to pale brown with or without white markings. They feed on cereals, cereal products, seeds, wool, and furs.

CONTROL—Spray spider beetles with any household insect spray or aerosol bomb containing PYRETHRINS or ROTENONE. Destroy infested goods.



Spider Beetle

TERMITES

Control of termites is often rather difficult and it is advisable to have an inspection and cost estimate by a reliable pest control operator before attempting a control program.

Subterranean Termites

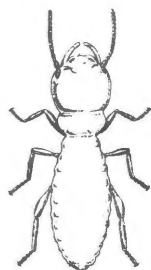
Termites are social insects that live in nests or colonies in the soil. They often destroy woodwork in buildings.

Each colony is made up of classes—reproductives, workers, and soldiers. Adult workers and soldiers are wingless and grayish white. They live within their tunnels in wood and soil. The reproductive adults have brown or black bodies and two pairs of long wings of equal length. Termites can be distinguished from ants by the equal length of their two pairs of wings and by their thick waistlines as contrasted to the narrow waistlines of ants.

The winged termites, about $\frac{3}{8}$ inch long, swarm in early spring or fall. Often this is the first sign that a home is infested. Other signs of termites are the shelter tubes or runways on the surfaces of foundation walls. Termites may be present, however, even though no shelter tubes are found.

CONTROL—Termites must be close both to the soil with its moisture, in which they live, and to the wood or wood products on which they feed. They are most likely to infest soil beneath basementless buildings where there is poor drainage and ventilation. The first step in controlling termites is to break permanently their contact with the soil or other sources of moisture, such as leaky pipes. Structural changes, replacement of infested wood, mechanical barriers, and soil poisons will usually do the job. Make sure none of the wood in the structure is in contact with the ground.

Every termite infestation is different and requires individual treatment. Termite infestations in slab-on-ground construction often create particularly difficult control problems. Soil treatment with **CHLORDANE** is effective for 5 to 10 years when applied to soil outside the house in a narrow strip along the basement walls. Do not apply to water-soaked or frozen soils. Remove and burn badly damaged infested wood, and the wood immediately surrounding the infested spot. Lightly spray or brush the fresh replacement wood with a household formulation of **CHLORDANE**. For all termite control chemicals, read carefully and obey instructions on the label of the pesticide container. For exact recommendations see EM 3318, "Control of Insect and Mite Pests of Home and Garden."



*Western
Subterranean Termite
Worker*

BASEMENTLESS HOUSES—For infestations along foundation walls of basementless buildings, dig a trench along the inside of the wall 6 to 8 inches wide and a few inches deep, taking care not to go below the top of the footings. Along the outside, dig a trench 6 to 8 inches wide and 15 inches deep. Never dig the trench below the footing, but extend it along the wall 4 to 5 feet in each direction beyond the area of the termite infestation.

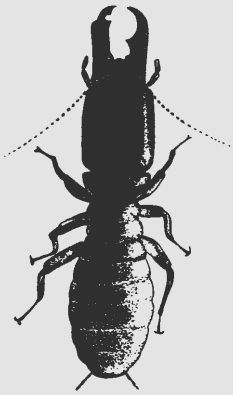
Use 2 gallons of diluted insecticide per 5 linear feet of trench along the interior foundation walls. Use 2 or 2½ gallons per 5 linear feet along the exterior. Pour or sprinkle some of the insecticide in the bottom of the trench, add a few inches of soil, and then more of the solution and soil until the trench has been filled.

HOUSES WITH BASEMENTS—Where infestations occur along exterior foundation walls in homes having full basements, dig a trench 6 to 8 inches wide and about 30 inches deep along the wall. Extend it 4 to 5 feet in each direction beyond the area of termite infestation. Then use a crowbar, pipe, or rod to drill holes in the bottom of the trench down to the area near the footing. Make the holes about an inch in diameter and a foot apart. This will give better distribution of the chemical in the soil. Use 1 gallon of diluted insecticide for each linear foot of trench and apply as suggested for basementless houses.

SLAB-ON-GROUND CONSTRUCTION—For termite infestations occurring beneath concrete floor slabs on ground, it is suggested that you call on a pest control operator. Such infestations are often very difficult to control, the more so if radiant heat is involved.

Damp-Wood Termites

These termites, unlike the subterranean types, enter directly into dampened wood through decayed spots, cracks, or holes at swarming time. They do not require moist soil in order to exist. They do, however, require considerable moisture for their development and usually attack decaying wood exposed to considerable dampness. Although damp-wood termites usually occur in decaying wood, they can extend their workings into sound wood. They are much larger than the subterranean termite, the



*Common Damp-Wood Termite
Soldier*

nymphs $\frac{1}{2}$ inch long and the soldiers $\frac{3}{4}$ inch.

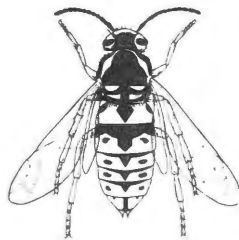
CONTROL—Replace infested wood and correct the conditions which permitted excessive moisture. Provide adequate drainage or use materials other than wood in foundation areas which cannot be protected from excessive moisture. Use creosote-impregnated wood for house foundations and other moist areas where wood is likely to be subject to termite attack. **CHLORDANE** dust or spray applied on and into termite-infested areas will aid control.

WASPS, YELLOW JACKETS, HORNETS, AND BEES

Wasps, hornets, and yellow jackets often enter attics or nest around homes during the summer. Bees occasionally nest inside the walls of buildings.

CONTROL—If you can locate the nests of wasps, hornets, or yellow jackets, and these are bothersome to you, the nest can be sprayed. The nest may be in a tree or shrub, in a hole in the ground, or on the outside or inside of a building. Spray the nest with **CHLORDANE** or **CARBARYL** (Sevin) in the cool of evening when the insects are mostly in the nest and are less active. Aerosol bombs containing **DICHLORVOS** (DDVP or Vapona) or **BAYGON** are also very effective. Be sure to not treat extensively if applying indoors.

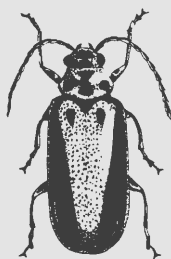
To destroy bees nesting in walls of buildings, use a household aerosol bomb containing **DICHLORVOS** (DDVP or Vapona), **BAYGON**, or **LINDANE**, or a spray containing **CARBARYL** (Sevin), or **LINDANE**. Direct the insecticide onto or near the nest. Do this when it is cool, at night or early evening. After you no longer see bees entering or leaving the entrance to the nest, remove and destroy honey, combs, and nest material. The honey may contain some of the insecticide used. Close the entrance used by the bees to prevent reuse.



Yellow Jacket

OTHER INSECTS THAT INVADE HOMES

Strawberry root weevils, grass weevils, elm leaf beetles, lady beetles, face flies and several other kinds of insects



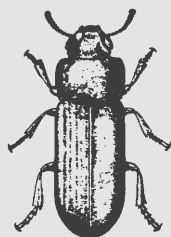
Elm Leaf Beetle

often invade the home in sufficient numbers to become pests, although they cause no damage indoors. Most of these insects usually become a problem in the fall when they are apparently seeking a place to overwinter.

CONTROL—The problem is best dealt with by sweeping up the insects and placing them in a strong container in the garbage can. Individual insects can be sprayed with a spot treatment from a household insecticide bomb containing PYRETHRINS or ROTENONE. Many of the weevils are difficult to kill with insecticides.

INSECTS THAT DEVELOP IN STORED FOODS

Several kinds of beetles, weevils, and moths infest flour, cereals, spices, and other dry food products in the home. Such foods are perfect for insect infestation, as temperatures are usually ideal and food ample.



Confused Flour Beetle

Flour Beetles

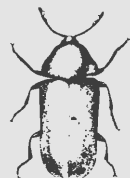
Adult flour beetles are about $\frac{1}{8}$ inch long, smooth, and reddish brown. The larvae are about $\frac{1}{4}$ inch long with white to yellow bodies and black heads. These insects infest flour, cereal products, and other stored foods. Infestations often develop in food products which are used infrequently and remain on hand for long periods.



Granary Weevil

Granary and Rice Weevils

Granary and rice weevils are similar in appearance and habits. The adult weevils are about $\frac{1}{8}$ inch long, dark brown, cylindrical, and have rather long snouts or beaks. The larvae are white, legless grubs. These insects prefer whole grain, but will also feed on spaghetti, macaroni, and similar foods.



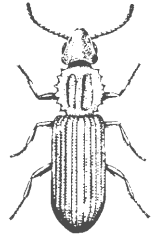
Drug Store Beetle

Drug Store Beetles

Drug store beetles are small, robust, oval, and light brown. They have sharply bent-down heads and this gives them a humped appearance when viewed from the side. The beetles are usually about $\frac{1}{10}$ inch long. They feed on drugs, pepper, spices, cereals, and other processed foods.

Saw-Toothed Grain Beetles

The saw-toothed grain beetle is about $\frac{1}{8}$ inch long, dark brown, slender, and flat. It has a row of saw-tooth projections along each side of the body section just behind the head. The larvae, which are quite active, are yellowish white with brown markings, about $\frac{1}{8}$ inch in length, and have well developed legs. This insect feeds on cereals, cereal products, nuts, dried fruits, and other products.



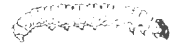
Saw-Toothed Grain Beetle

Flour and Meal Moths

The two most common species of flour and meal moths found in homes are the Indian meal moth and the Mediterranean flour moth. The Indian meal moth is pale gray with metallic, copper-colored markings on the tip two-thirds of the forewings. The Mediterranean flour moth is gray, has forewings with wavy black lines, and dusky white hind wings with darker margins. The larvae of these moths, which are white or pinkish, spin webbing through the food they infest. They eat cereal and cereal products, dried fruits, chocolate, candies, shelled nuts, and similar foods.



*Indian Meal Moth
Adult*



*Indian Meal Moth
Larva*

CONTROL.—The first step in controlling insects that infest stored foods is to find the infested material and destroy it. Remove all foods from cupboard shelves and clean and thoroughly spray the storage area with any household spray containing PYRETHRINS. Thorough cleanup and scrub-out of shelves and cupboards with warm water and detergent is important. Allow scrubbed shelves to dry before spraying. Do not get spray on food, dishes, or cooking utensils.

Food which has been exposed but shows no signs of infestation may be placed in shallow pans and heated in an oven for one-half hour at 140° F. Prop the oven door open slightly to prevent scorching the food. Thorough freezing will also destroy an infestation. Store uninfested or heat-treated foods in containers with tight-fitting lids until infestations have been eliminated.

USE INSECTICIDES WITH CAUTION

Most insecticides are poisonous to people and animals. *Be sure to read and follow the directions on the label.*

Keep insecticides where children and pets cannot reach them. Do not use insecticides on pets unless recommended. Do not contaminate food, dishes, silverware, or cooking utensils with insecticides. Do not store them with or near food. Do not breathe spray mist or dust.

Most solutions of household insecticides are inflammable and must not be used near open flame or heat. If insecticide is spilled on the skin, wash it off promptly with soap and water. Change and launder your clothes if you spill insecticide on them. Keep children and pets and foodstuffs off sprayed surfaces that have not dried.

When you have finished applying an insecticide, bury any leftover insecticide which has been diluted with water. Clean the sprayer, duster, or paint brush and wash all exposed surfaces of the body with soap and water.

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Use of a trade name does not imply endorsement of any particular product.