

# Stored Product Pests

Department of Entomology

## INSECT PESTS OF HOME STORED FOODS

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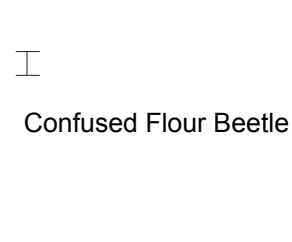
Many kinds of cereal products and other foods stored in kitchen cabinets or elsewhere in the home may become infested with insects or other organisms commonly referred to as "pantry pests." Practically all dried food products commonly found in the home are susceptible, including birdseed and dry pet foods. Pantry pests eat or contaminate food, thus making it unfit for humans. They may also be annoying, in that they often leave the infested food and crawl or fly about the house. To eliminate infestations, it is necessary to identify the pest and then find and destroy or treat infested materials. Listed and illustrated below by groups are the most common pests of stored food products in Indiana.

### GRAIN AND FLOUR BEETLES

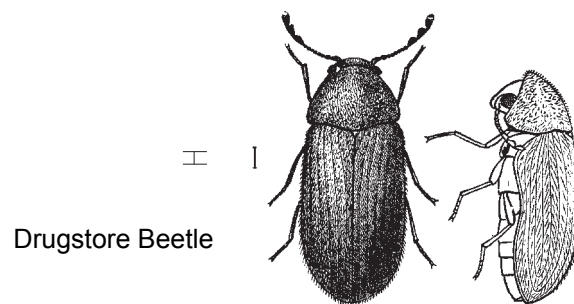
Sometimes collectively called "bran bugs," these reddish-brown beetles are usually less than 1/8 inch long. Their small, wormlike larvae (growing stages) are yellowish-white with brown heads. Larvae of the first four species illustrated are elongate and tubular; those of the latter two species are somewhat C-shaped in appearance and appear rather hairy. The larvae are usually found in infested material, whereas adult beetles often crawl about the kitchen or other areas as well as feed in the infested material.



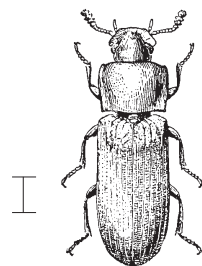
Cigarette Beetle



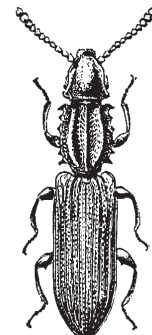
Confused Flour Beetle



Drugstore Beetle



Red Flour Beetle



Saw-Toothed Grain Beetle

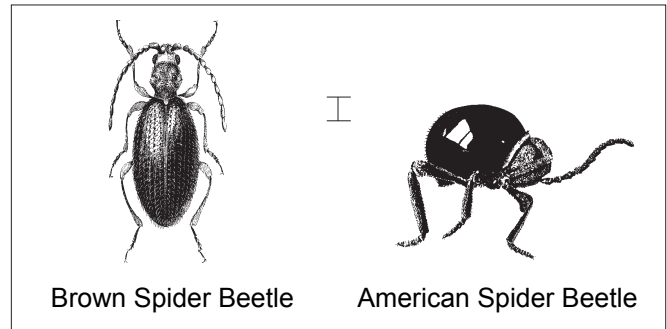
**NOTE:** I Indicates relative size through this whole publication

**DERMESTID BEETLES**

Members of this family are generally scavengers and feed on a great variety of products of both plant and animal origin including leather, furs, skins, dried meat products, woolen and silk materials, cheese and cereal grain products. Dermestids may be divided into three groups based on the type of food preferred. Larder beetles prefer products of animal origin, such as dried meats and cheese. Only occasionally are they found in food materials of plant origin. Carpet beetles also prefer products of animal origin but may be found throughout the house feeding on carpets, upholstery, clothing, and even on accumulations of lint. Their invasion of stored food products is more or less accidental. Cabinet beetles prefer cereal grain products and are the most common pantry pests of the group. Larval stages of these beetles do most of the damage. Adults are thought to feed mainly on flower pollen outdoors but may feed on stored products to some extent.

**SPIDER BEETLES**

Several species of spider beetles (long legs and a general spider-like appearance) may be found infesting all types of stored food products. Both the C-shaped, grub-like larvae and the adults feed on the infested material.

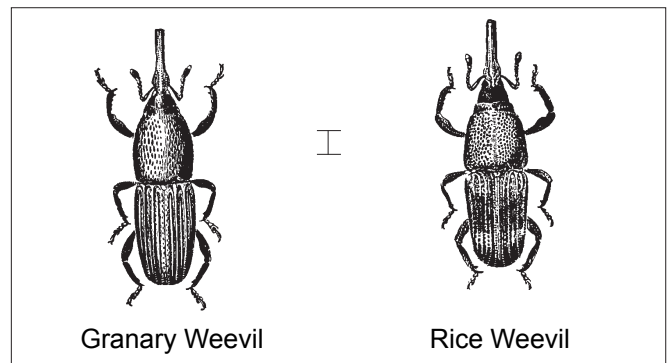


Brown Spider Beetle

American Spider Beetle

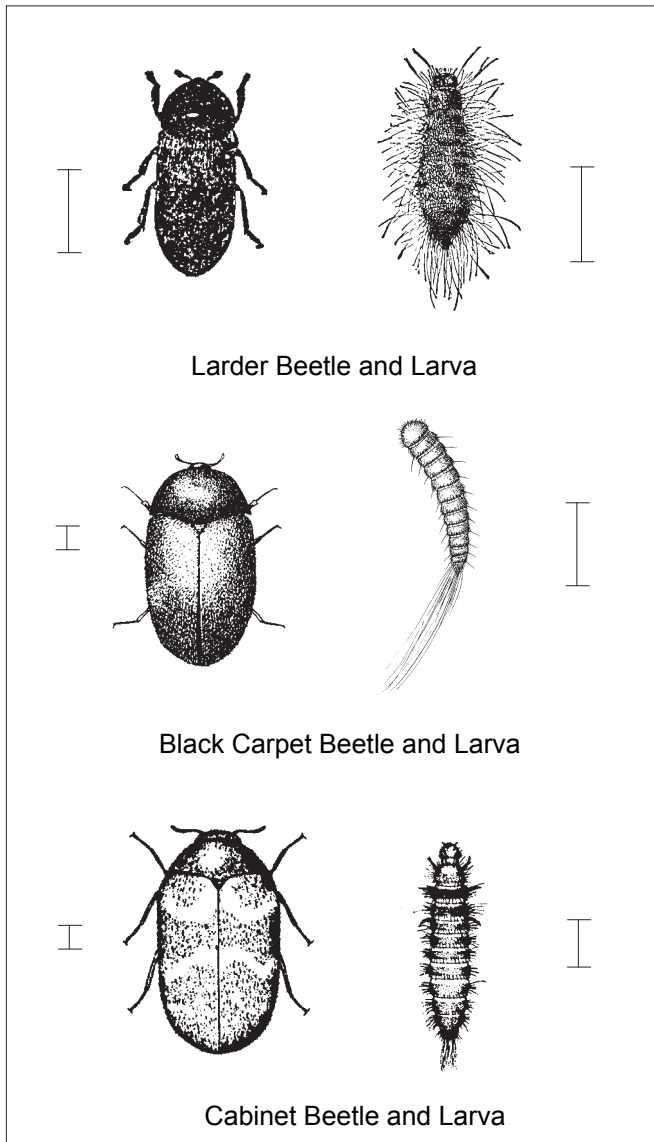
**GRAIN WEEVILS**

These beetles, which have long snouts, feed primarily on stored whole grain but may feed to some extent on other plant matter. Their larvae are small, white, legless grubs that feed and develop inside individual kernels.



Granary Weevil

Rice Weevil



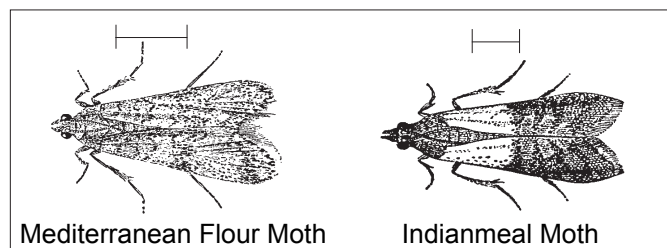
Larder Beetle and Larva

Black Carpet Beetle and Larva

Cabinet Beetle and Larva

**FLOUR MOTHS**

These are small moths with a wingspan of about 1/2 inch. Of the two more common species, the Indianmeal moth's forewings have a coppery color on the outer two-thirds and whitish-gray at the basal (head) end, while the Mediterranean flour moth's forewings are a pale gray with transverse wavy black lines. The larvae of both species are pinkish-white and web together the materials (grain products) in which they develop. The adult moths fly about the house near the site of the infestation, but are non-feeding. The mature larvae may also leave their food and crawl about cupboards, walls, and ceilings looking for a place to pupate.

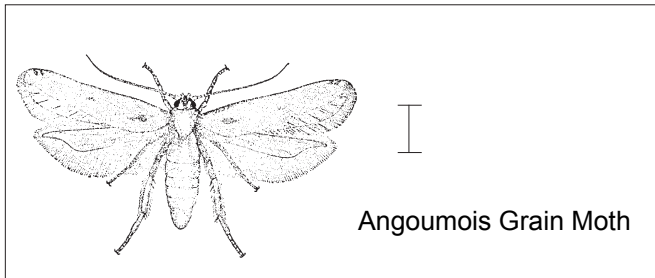


Mediterranean Flour Moth

Indianmeal Moth

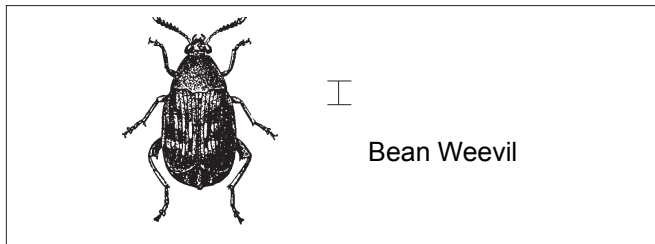
### ANGOUMOIS GRAIN MOTH

These are tiny moths similar in size and color to clothes moths. They may be seen flying about the house in the daytime, whereas clothes moths shun light. The larvae develop within kernels of grain such as popcorn. Adult moths do not feed.



### BEAN AND PEA WEEVILS

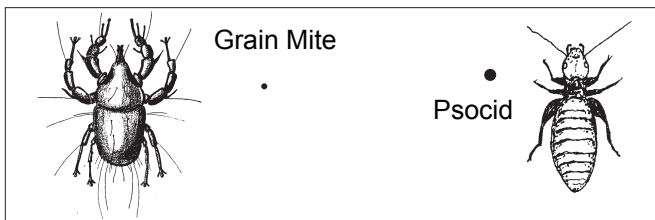
These are brownish-colored, short, stout-bodied beetles flecked with patches of black, gray, and white. The larvae develop within dried beans and peas.



### MISCELLANEOUS PESTS

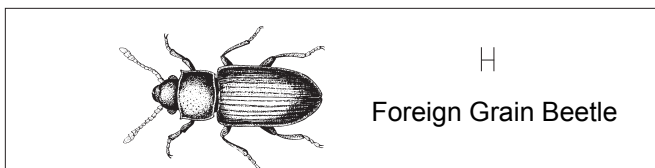
#### Mites & Psocids

A number of other pests, such as tiny scavenger mites and book-lice, may also infest stored food products. This is particularly true if the food is stored under moist conditions.



#### Foreign Grain Beetle

This robust, brown beetle can occasionally be found feeding on moist or moldy grain, but is more likely found in newly constructed homes where the wood has not completely dried. Given time, this beetle should disappear on its own.



### PREVENTION

The following procedures will help prevent infestations.

1. Purchase dried food in packages that can be used up in a short time. Keep foods in storage less than two to four months, if possible. Use older packages before newer ones, and opened packages before unopened ones.

2. When purchasing packaged foods, be certain that the containers are not broken or unsealed. Check the packaging date to be assured of the freshness of the food. Packages with clear plastic or wax paper coverings should be checked for the presence of insects. (Foods are sometimes infested before being brought into the home.)

3. Store dried foods in insect-proof containers, such as screw-top glass, heavy plastic, or metal containers. This will prevent entry or escape of insects. Ordinary metal kitchen canisters are generally not tight enough to exclude insects. Some plastic containers with very tight fitting lids may be acceptable. Cardboard, paper, or plastic wrapping will not prevent insect infestations.

4. Storing dried foods in a home freezer will prevent pests from developing.

5. Keep food storage areas clean and do not allow crumbs or food particles to accumulate, as exposed food will attract insects. Cleanliness is also important in areas where pet food and birdseed are stored.

### STEPS IN CONTROLLING BEETLES AND FLOUR MOTHS

1. Determine sources of infestation by carefully examining all susceptible foods. Properly dispose of any that are heavily infested. Small amounts of highly susceptible foods can be kept in the refrigerator.

2. If infested material has further value or if infestation is questionable, heat the material in shallow pans in the oven at 130°F for at least 30 minutes or place in a deep-freeze at 0°F for four days.

3. Empty and vacuum cabinets and shelves to pick up loose infested material; then wash them with soap and hot water.

4. Routine use of insecticides within food storage areas such as pantries and cabinets is not recommended and normally will give little additional control in the absence of an extensive cleaning program. Some household formulations of pyrethrins are labeled for use as crack and crevice treatments near food storage areas. There are also some formulations of pyrethroid insecticides that allow general use in the home and may help manage insects that are widely dispersed. **Never allow insecticides to come in direct contact with food or food utensils.** Remove all food and utensils during insecticide treatment to avoid accidental contamination. Treatment of cracks and crevices is more effective since insects may hide in these locations. **Always read and follow label directions when using pesticides!** This is extremely important when

treatments are made around foodstuffs or food handling areas. Only products labeled specifically for use around food storage areas may be used for controlling insect pests around areas where food is stored.

5. If pesticides are applied, cover shelves with clean fresh paper or foil before replacing food or cooking utensils, etc.

6. Avoid spillage and keep storage spaces clean.

7. Control moths or beetles flying around indoors by using a "flying insect" household aerosol insecticide. Total release aerosols containing synergized pyrethrins are also available for this use.

Insects infesting ornaments and decorations made from plant or animal products can be killed by placing the items in a freezer for three or four days. Insects in these items may also be killed by placing them in airtight containers along with aerosol fogs of the insecticides mentioned above. Leave the treated container closed for at least eight hours. Retreatment may be necessary if all insects are not killed. Be careful when using plastic containers as some chemicals may react adversely with certain plastic materials. Pretesting the container with the insecticide to be used is always a sound practice.

Caution -- if insects continue to appear, check other rooms in the home for possible sources. Tree seeds blown into ventilators or around windows may harbor these pests. Dermestids (carpet beetles) will develop in many products, including feathers, silk, wool, fur, stuffed animal skins, dead insects, lint, and many other materials.

If insect problems persist, seek help from a commercial pest control manager.

## PHEROMONE TRAPS

Although not recommended for pest elimination in the home, pheromone traps are readily available in retail stores for the Indianmeal moth (flour moths) and some beetles. Pheromone traps designed for the Indianmeal moth usually only capture males (not females) and will not attract beetles. They will not eliminate an infestation, only sanitation and removal of infested products will accomplish complete control.

Use pheromone traps only after the source of the infestation has been removed to detect male moths that may remain in the house. Pheromones are chemicals (in this case a sex attractant) produced by an organism to affect the behavior of other members of the same species. The sex pheromone attracts adult male moths into the trap where they get stuck on the sticky sides. Moth traps designed to attract both sexes are available but must be combined with excellent sanitation for satisfactory results. Combination traps (moths and beetles) are sometime available in certain local markets. Beetle aggregation pheromone and food attractants are combined with moth pheromone to create multiple species traps. These traps are most effective for monitoring the effectiveness of your sanitation program, rather than control.

To monitor, place the traps in the area of a previous infestation and check them weekly. Most traps remain effective for about 3 months. Whenever you catch a new batch of moths in traps, it is time to inspect packages again.

READ AND FOLLOW ALL LABEL INSTRUCTIONS. THIS INCLUDES DIRECTIONS FOR USE, PRECAUTIONARY STATEMENTS (HAZARDS TO HUMANS, DOMESTIC ANIMALS, AND ENDANGERED SPECIES), ENVIRONMENTAL HAZARDS, RATES OF APPLICATION, NUMBER OF APPLICATIONS, REENTRY INTERVALS, HARVEST RESTRICTIONS, STORAGE AND DISPOSAL, AND ANY SPECIFIC WARNINGS AND/OR PRECAUTIONS FOR SAFE HANDLING OF THE PESTICIDE.

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