

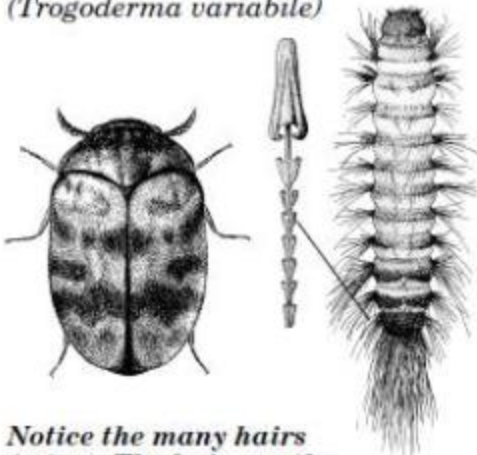


Pat Kelley, BCE

Bad Bugs: Warehouse Beetle

Warehouse Beetle

(Trogoderma variabile)



Notice the many hairs (setae). The hairs on the rear of the larva are called the guard hairs and are shaped like tiny arrows to protect the larvae from behind. These hairs can become lodged in small animals and infants' throats and cause serious medical problems.

If there is an insect that is truly a voracious feeder and a potential health hazard to humans and young animals, the Warehouse beetle falls into that category because of the long list of foods that it attacks. Next to the dreaded quarantine pest, the Khapra beetle, it is the most serious stored product insect pest with respect to health.

Imagine an insect that can live for three years without food or water. Imagine an insect that can live in a freezer for five days. Imagine an insect that can hide in cracks only to emerge to cause havoc with a museum collection or a

complaining customer. That is the nature of the Warehouse beetle.

Let's take a close look at this common stored product insect:

The Warehouse beetle prefers feeding on animal protein. This could be anything from road kill to dog food to powdered cheese and milk. The beetle will feed on plant material but a dead insect or mouse would be its preferred food source. You will often find Warehouse beetles (*Trogoderma spp.*) feeding on dead insects. It is important to empty these lights on a regular basis.

The larva (see figure) of the Warehouse beetle is approximately 1/4-inch-long. Larval color varies from yellowish/white to dark brown as the larvae mature. Warehouse beetle larvae have two different tones of hairs on the posterior end. These guard hairs protect them against attack from the rear. The Warehouse beetle has about 1,706 hastisetae hairs and about 2,196 spicisetae hairs according to a publication by George Okumura. Since a larva sheds its hairs during each molt, the damage of this pest insect comes from the 1000's of these pointed hairs that escape and enter a finished food product as an insect fragment. These insect fragments then can be swallowed by humans, young horses or pets and get lodged in their throats.

Health Hazard

Okumura (1967) mentioned two medical reports

Case #1: “The establishment of a case of canthariasis in an infant in Indiana was based upon the following information: Two larval specimens of *Trogoderma* were submitted for identification. The specimens were collected in the stool of a four-month-old baby boy who was ill. Live larval *Trogoderma* were submitted later from packages from the same lot of high-protein baby cereal which had been fed to the child.”

Later a consulting doctor further explained: “As far as I know the symptoms in the Indiana infant with ulcerative colitis were attributed to the beetle larvae of *Trogoderma glabrum* (closely related to Warehouse beetle).”

Case #2: “The case of a four-month old baby boy in California was similar to the Indiana case. Here the baby was fed a high-protein baby cereal in which the larvae of *Trogoderma ornatum* was later found. (One live, one dead, and two cast skins) were taken from the original package of the baby cereal. According to the mother, the baby became ill two or three days after eating the cereal. The baby did not vomit, but had mild diarrhea. The interviewed mother stated: ‘the baby showed signs of varying degrees of digestive distress, culminating in a severe outbreak of screaming and crying and absolute refusal to eat. Anytime it was offered food it became rigid and red, and arching his body and screaming, evidently in pain).’”



Photo: Warehouse Beetle, Patrick Kelley, Insects Limited

The doctor did not administer medication and after a couple of days the baby recovered.

Identification

There are 16 species of *Trogoderma*. The female adults are twice the size as the male beetles. They are members of the Dermestidae family that also includes Carpet beetles. However, they are not a Carpet beetle. When inspecting it is often easy to spot the cast skins. This is much like a snake that sheds its skin. The adults are about 1/8 inch and dark in color with yellowing mottling on the wing covers (elytra). This mottling can take on various shapes even within the same species.

The larvae is the damaging stage and can overwinter in wasp nests and mud-dapper nests feeding on old insect carcasses and guano. During the spring months when plants are flowering, it is common to see *Trogoderma* adults on plants collecting pollen and looking for a mate.

Small white flowering bushes like spirea are very attractive to Dermestids. The adults have distinct antennae that other beetles lack.

For a positive identification of this or any stored product insect, Insects Limited, Inc. can provide this laboratory service.

Pheromones

The pheromone for the Warehouse beetle and other *Trogoderma* species is very effective in monitoring for the presence or absence of this pest insect. The pheromone lure lasts for 2-3 months and should be placed at least 50 feet from an open door or vent. Traps should be placed outdoors to detect pressure from the surrounding area. It is not uncommon to capture 1000 *Trogoderma* adult males in one trap in the summer months. By examining the hairs (setae) on these captured beetles one can often detect hitchhiking food particles like cheese, milk powder, fish meal or pollen. This will give an indication where this pest insect was crawling last.

Pheromone traps should be placed at eye level on vertical support beams. A date when the pheromone was last replaced should be written on the trap. Each trap should be examined every week on the same day and captured insects should be removed and recorded. An important pest management tip for *Trogoderma* pheromones is that the male beetle emerges 5-7 days before the female beetle. The pheromone trap captures only males. This allows an advanced warning to when a new

generation of Warehouse beetles is emerging from the pupa stage. The other important tip is that the Warehouse beetle adults don't fly until the temperature is about 73° F. (23° C). So, you may have Warehouse beetles and still not be capturing them in traps until the temperature is warm.



David Mueller, BCE

A Gatekeeper Approach – Part 2

In case you missed it: [The Gatekeeper Approach Part 1](#)

Part 2 of a 3-part series on *The Gatekeeper Approach*



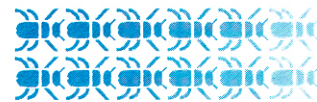
If a shipment is found to contain stored product pests, it should be rejected and sent back to the supplier. If this is impossible, this load should be placed in quarantine inside a truck trailer, a fumigation chamber, or an isolated site in the warehouse. A timely decision is needed regarding treatment and disposal of these products.

The maintenance department, clean-up crews, and fork truck operators can be of valuable assistance in stopping pests from becoming established. Care should be taken to include these people in IPM training programs. I am always amazed when you empower people with

knowledge how they will help you find the problem areas.

Products such as bird seed, nuts, pasta, and pet food are highly attractive to insect pests. Products positioned next to these items may also become infested. If the items have a high moisture content or high protein value, they can be easy targets for stored product pests. Skilled pest managers that service retail food must be aware of the potential for these items to become infested. Some areas of a grocery store near the frozen food section are several degrees cooler than other areas within the store. Positioning potentially suspect grain-based products near this area may not stop insect growth, but it could slow it down. This is an example of IPM.

Most retail food stores have more pest infestations today than in the past. The lack of good sanitation coupled with the inability to apply the Gatekeeper Approach leaves many grocery and large department stores swarming with Indian meal moths and crawling with saw-toothed grain beetles. It is quite frustrating for food manufacturers to receive customer complaints about insects in their products, when their manufacturing facilities are spotless.



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