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Webbing Clothes Moth *Tineola bisselliella* (Hummel)



GENERAL INFORMATION

Of the two common species of clothes moth, the cosmopolitan *Tineola bisselliella* is the more common species in North America. Only the larval stage is responsible for damage to materials because the adults lack functional, chewing mouthparts. Usually, clothes moth larvae do not wander like carpet beetle larvae, however they can occasionally be found away from rugs or textiles and feeding on dust or other materials of animal origin. Since the larvae have an aversion to light, damage is most often concentrated in dark areas, crevices or creases. Examples of this could be; under furniture and cushions, where carpets and textiles are folded and in garments under collars, cuffs and folds. Adult clothes will attempt to hide when disturbed and will often run, hop or fly short distances to escape. They dislike sunlight but are attracted to certain wavelengths on the light spectrum. They have been known to land on the wall adjacent to certain lamps or fly in front of the television screen during the evening. The males are much more active fliers than the females they seek out to mate with. Males and females can penetrate through surprisingly narrow cracks as they find their way in storage cabinets and boxes.

SIGNS OF INFESTATION

Webbing clothes moth infestations are often detected on damaged textiles and rugs by the presence of a scattered silken webbing spun from the mouthparts of the larvae. The webbing clothes moth larva spins silk and creates feeding tubes composed of webbing and frass. The tubes create beneficial micro-environments for the larvae as well as concealing them from predators.



DIAGNOSTIC MORPHOLOGY

Adults:

- Straw, buff or yellow-tan in color
- Approximately 6 to 11 mm (1/4 to 1/2 inch) long
- Wingspread approx. 11 mm (1/2 inch)
- Wings folded and fringed with hairs
- Wings golden-yellow with satiny sheen
- Antennae long and slender
- Upright tuft of hairs on the head is coppery to reddish-gold color



Larval Stage:



- Whitish with a brown to black head
- The last instar (stage) reaches a length of 11 mm (1/2 inch)

Webbing clothes moth infestations appear far more messy than those of the casemaking clothes moth *Tinea pellionella*. The holes of the clothes moth damage made by the larvae appear to be scattered about the garment and are generally small. Threadbare spots caused where fibers are chewed in carpeting are also indicative of infestation. On animal mounts, clumps of hair will begin to fall away from the skin.

FOOD SOURCES

Clothes moth larvae feed on woolens, mohair, feathers, fur, hair, lint, felt, dead insects, dust, and other materials composed of natural animal fibers. Infestations occur in clothing, carpets, rugs, furs, fabrics, blankets, stored wool products, upholstery, piano felts, fishmeal, milk powder, and brush bristles. The caterpillar may feed on textiles composed of vegetable origin or synthetics if the fabrics are mixed with wool.

Synthetics, cottons and other plant materials are generally not attacked by webbing clothes moth unless these items are stained with food, body oils, sweat or urine and are in direct contact with woolens or other natural animal fibers. The larvae can obtain valuable nutrients through the stained material in certain situations.



LIFE CYCLE

Female webbing clothes moths lay from 40 to 50 small, pinhead-sized white eggs on or near potential food sources. Eggs have an exterior gelatinous material that aids in adhering to woolen threads so they can not be dislodged. The eggs hatch within an average of 4 to 10 days in higher temperatures, but can take as long as 3 weeks in cool temperatures. The eggs cannot remain dormant for long periods of time. The length of the larval stage can vary from 35 days to 2 years depending on the availability of food as well as temperature. When ready to pupate, the larva may wander away from the food source to find crevices but are more likely to pupate within the food source itself. Depending on temperature, the period required for adult emergence from the pupae can be as brief as 8-10 days in the summer or as long as 3-4 weeks in the winter. Adult moths do not feed and live for about a month.

CONTROL & TREATMENT

Monitoring for webbing clothes moth should be performed using sex pheromone lures specific for this species. When a source of infestation is located, the object should be covered in a sealed plastic wrap prior to moving to prevent the spread of the moths within the structure. Large area rugs should also be rolled up and covered in plastic prior to movement. Areas near sources of infestation should be vacuumed in detail. The vacuum debris collection bag should be frozen or discarded afterward. A residual insecticide may need to be used in adjacent cracks and crevices if the vacuum is unable to adequately reach these areas. Treatment of objects can include freezing or anoxia using the standards set in the "Solutions" section of museumpests.net.

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Fact Sheet: Webbing Clothes Moth

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- Adult webbing clothes moth image in lower left corner of page 1 is courtesy of Patrick Kelley, Insects Limited, Inc.
- Image of webbing clothes moth pupal case on black wool is courtesy of Patrick Kelley, Insects Limited, Inc.
Note: the pupal case is covered in frass produced by the caterpillar