



NORTHWEST CENTER FOR
ALTERNATIVES TO PESTICIDES

10 Tips to Manage Clothes Moths



Case-Bearing Clothes Moth | Photo: Patrick Clement

Introduction

If you've found furrows, holes or threadbare spots in your woollens you've likely got clothes moths. This damage is most likely caused by the webbing clothes moth, *Tineola bisselliella*, which is widespread in the U.S. or the less common case-bearing or casemaking clothes moth, *Tinea pellionella*.^{1,2}

Signs of damage: furrows on the surface, bare spots and holes. Casemaking moths can reduce feathers in stored pillows or quilts to piles of frass (excrement).

10 Tips to Manage Clothes Moths

I. Wearing & Airing

Clothes moths are primarily a storage pest problem. You won't find damage on sweaters and other clothing that are worn regularly or rugs that are often cleaned. **Prevent clothes moth damage by periodically airing, brushing, and shaking things like blankets, rugs, or clothes made with wool, fur, or feathers.**² Thorough brushing can destroy eggs and expose caterpillars. Be sure to brush along seams, cuffs, and collars as well as in folds and pockets. It's good to do this outside where bright sunlight will trigger caterpillars to fall off.³

2. Cleaning & Storage

Since clothes moths are attracted to soiled woollens or furs, **items should be thoroughly cleaned before storing them away.** Wool or wool blend sweaters, scarves, blankets etc. should be thoroughly cleaned by washing, steam cleaning, or dry cleaning (look for "green" cleaners).¹ Furs should be professionally cleaned. Furs can successfully be kept in commercial cold storage.³ If furs are already infested, temperatures below 40° F will make caterpillars inactive but won't kill

them.^{2,3,4} Rugs and furniture can be aired and brushed or steam cleaned. Some companies specialize in washing and drying valuable area rugs.

Store items in good plastic bags or tight fitting containers, and seal containers with good quality tape.^{2,4,5} (Cardboard boxes can be difficult to seal). Tape all openings, joints and seams and make sure that there are no holes in the container.^{2,4} Tests showed that Ziploc bags were vulnerable unless they were sealed with tape.² Young larvae are so tiny that they can theoretically get through any space larger than 0.1 mm.⁵ Carefully inspect susceptible items at least once a year.⁴

3. Vacuuming

Good housekeeping is important for both preventing and controlling clothes moth infestations, and your vacuum cleaner and crevice tool are the best tools for cleaning.^{1,3} When combating an infestation, be sure to discard the vacuum bag after vacuuming.³

Clothes moths are attracted to places where hair, fur, and lint accumulate, so you should regularly vacuum:

- Cracks and crevices in flooring, baseboards, shelves, drawers, closets, and spaces behind bookshelves, filing cabinets, and chests.
- In and around air ducts and vents.
- Under furniture that doesn't get moved much. Focus especially on wool rugs and carpets that are partially covered.
- Drapes, carpets, rugs, pet bedding and furniture.^{2,3,4}

4. Exclusion

How to keep clothes moths out of your house:

- When you bring home used clothing and furniture, quarantine and clean susceptible items.⁶
- Clothes moths sometimes take up residence in abandoned nests of birds, wasps and rodents. Remove or clean up nests in and around the house.⁴
- Make sure the screens on windows and doors fit tightly and are in good repair.

5. Heat

Clothes moths can be killed by heating an infested article for 30 minutes (or more) at temperatures above 120°F.^{3,5} You can "heat-treat" a closet by using a space heater. First, remove everything from the infested closet. Then place the space heater on the floor in the middle of the closet and turn it up to the highest setting. Use a thermometer to make sure the closet temperature gets up to 120°F and stays there for 4 hours.⁶

In some parts of the country, storing woolens and other articles in uninsulated attics during a summer heat wave could help protect these items from clothes moths. If temperatures remain high enough for a long enough period, clothes moths would be killed.²

6. Cold

Clothes moths are not easily killed by cold temperatures.² For example, woolens stored in unheated storage areas where temperatures remain below freezing for long periods can still harbor clothes moth infestations.⁴ Cold storage temperatures used to protect furs won't kill caterpillars but will make them inactive.²

Some sources suggest that a sudden change in temperature from warm to cold would make cold treatment more effective.^{2,5}

Two sources offer the following method to kill clothes moths: put infested items in a plastic bag, press out the air (to reduce condensation) and seal, and put in your freezer for several days.^{1,3}

7. Repellents

Cedar oil (*Juniperus virginiana*) at high concentrations can kill small caterpillars, but does not affect larger ones. The oil in cedar chests dissipates after three years, but a well-made chest could still help exclude clothes moths.⁵

Several dried plants and botanical oils have been tested for repellency to clothes moths. Among them, dried lemon verbena, French marigold, and pennyroyal, as well as the oils of clove, lavender, and patchouli have shown some repellent properties. However none were 100 percent effective. While scattering herbal sachets throughout a storage container might help, they can't be relied upon to completely protect stored items.²

8. Dry Ice Fumigation

Household items infested with clothes moths that cannot be washed or disinfested by other means, can be fumigated using dry ice (frozen carbon dioxide). Place the item in a 30-gallon heavy duty plastic bag (4 mil) along with a one-half to one pound piece of dry ice. Do not let the dry ice touch your skin! Loosely seal the bag and allow the dry ice to completely vaporize. After the dry ice is gone, seal the bag tightly and let it sit for another 3 to 4 days. Proper fumigation will kill all life stages.³

9. Pheromone Traps

You can purchase sticky pheromone traps that attract only male webbing clothes moths (but not casemaking moths). **These traps can help monitor for the presence of webbing clothes moths, but don't contribute significantly to reducing numbers of moths.**



Photo: Michael F. Potter

10. Low Humidity

Clothes moths thrive at 75 percent relative humidity, and it's hard for them to survive in less than 20 to 30 percent relative humidity. This suggests the **possibility of reducing humidity levels.** In any case, be sure items are dry before storing.⁵

Identification & Life Cycle

How to Identify Clothes Moths

Clothes moth habits can be helpful in distinguishing them from pantry moths. **Clothes moths have a distinctive fluttering compared to the straighter flight of pantry moths.**^{2,3} Clothes moths avoid light and are likely to be found in dark areas where woolens are stored. When disturbed, clothes moths try to hide by flying to a dark corner or by hopping or running for cover.^{1,3,4} Moths flying around the kitchen are most likely to be pantry moths.²

Adult webbing and casemaking moths are about 1/4 inch long and have a wingspan of about 1/2 inch.^{1,3,4,5} The body of the **webbing clothes moth is golden or buff-colored with a satiny sheen** and the head has a tuft of reddish hairs.¹ **The casemaking moth is browner in color**, usually with 3 dark spots on the wings (although on older moths these may be rubbed off), and light colored hairs on its head.^{2,3}

The eggs of both species are tiny, less than 1/24 of an inch (1 mm) long.^{1,2} **The caterpillars (larvae) have white or cream bodies and brown to black heads and are about 1/2 inch long when fully grown.**^{1,4,5}



Adult Webbing Clothes Moth
Photo: Michael F. Potter

Webbing clothes moth caterpillars spin silken tunnels or mats that they usually hide under while they feed.¹ Casemaking moth caterpillars spin a cigar-shaped case around themselves that they always carry with them as they feed.^{1,2,3} **The cases can be difficult to see because they take on color of the materials being consumed.**^{3,4}

Photos to the right: Michael F. Potter
Top: Casemaking Clothes Moth Larva with Tubular Case
Bottom: Webbing Clothes Moth Larva

Life Cycle

Female webbing clothes moths lay between 40-50 eggs with a sticky substance that glues the eggs to the fabric.^{1,3,5} After a time the caterpillars hatch and begin feeding on nearby woolens.⁵ **The caterpillar stage (larval stage) lasts 5 weeks to over 2 years** depending upon environmental conditions.^{1,3,5} **It's the caterpillar stage of the moth that does the damage.** They feed on wool, hair and feathers found in household items such as furs, blankets, upholstery, pillows, piano felts, clothing, carpets, brush bristles and synthetic fabrics that are blended with wool.^{1,2} **The caterpillars target areas that are soiled by food, beverages, perspiration, and urine.** These residues provide nutrients that the caterpillars need; they can't complete their development on clean materials.²

They pupate in silken cocoons for a week to 4 weeks.³ Once they emerge as moths, they mate and begin the cycle over again. In a typical scenario, the time span from egg to egg is between 4 to 5 months.³

Female casemaking moths lay 100 to 300 eggs.⁴ The caterpillar stage lasts for about 50 days.



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