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Identifying Clothes Moth Damage and Frass – Part 1

This is part of a two-part article on how to recognize clothes moth damage and frass on wool clothing.

It has been many months since you wore that favorite red sweater of yours, but now that the cooler temperatures have started to creep in you immediately go to look for it in your closet. As you pull it off the shelf, you notice a dirty spot around the collar. Extending it away from you, you now see gaping holes in several areas that were not there before. You scream to yourself, “What Caused This!”.

It is likely that your mind jumps to the conclusion that you have clothes moths, but how can you tell for sure? The first part of this two-part article will lay out what signs to look for that suggest that your damage was caused by clothes moths compared to mechanical damage, damage by carpet beetles or by other means. Part 2 will detail what the appearance of the frass looks like for the webbing clothes moth, and the casemaking clothes moth and how moth frass may appear different than carpet beetle frass.



Webbing clothes moth damage on wool will present itself as silken tubes as seen in the first photo or as frass-covered feeding tubes as seen on the photo above. Occasionally, you might also find cream colored larvae and live and dead adult moths. Photos by E. Estabrook, Insects Limited, Inc.

Part 1: Damage

When you first notice a hole in a sweater or other clothing, the first thing that you should examine is how clean or dirty the area is around the hole. Using a good magnifying glass to closely inspect the area around the hole will make it easier to see some of the detail.



Insect Damage: When insects cause damage, they will almost always leave clues of their presence. When it is clothes moths causing the damage, these clues will be in the form of dirty frass (insect excrement), wisps of silk webbing, feeding tubes, and pupal cases. When the damage is caused by carpet (Dermestid) beetles, the clues will be frass pellets and numerous larval shed skins near the damage. Holes caused by insects feeding on wool will often have a slightly depressed area surrounding the hole where the insect has grazed on the surface of the textile but not all the way through.

Mechanical Damage: If there is no dirt or frass surrounding the hole and the item has not been recently cleaned, there is a good chance that the damage was caused by another means. Mechanically caused holes can form when sharp metal edges on desks, tables or in other work areas snag and cut the fabric as we walk past or lean against these surfaces. If you find multiple articles of your clothing with damage and that damage is all in the same physical spot on the clothing (E.g. All the holes are located just below your belly button or at the same point on your right side, etc.) and there is no evidence of insect activity around the holes, then they were likely caused by a sharp edge that you don't even realize that you came in contact with. It could possibly even be your clothing getting caught in the seatbelt of your car day after day.

Chemical Damage: Another common cause of holes in clothing are chemicals that eat through the fabric. If chemicals, such as bleach or acidic cleaners are accidentally splashed onto clothing or picked up on the clothing as we lean against tables or place our arms on countertops, these can cause the fabric to become brittle and break away. This can leave small or large holes in the clothing itself. Look for signs of discoloration or material that breaks easily away when you touch it.

Excessive Heat Damage: Burn holes caused by cigarette ashes or small embers from a grill or fire can burn or melt holes into clothing without us even knowing it. When this occurs, the area around the inside of the hole may appear black or melted. A simple sniff test may indicate if fire was involved.

Since cotton and synthetic materials are not a food source to clothes moths or carpet beetles, holes in these types of materials will almost always be caused by sharp edges, chemicals, or just plain wear and tear. The exception to this rule can occur when cotton or synthetic fabrics are hanging or laying directly adjacent to heavy populations of clothes moths on wool, feather or other natural fibers. If the cotton or synthetic materials have

human perspiration or food stains on them, these can be attractive to the clothes moth larvae and small areas of damage can occur. In this circumstance the clothes moth larvae are looking for nutrients in the stains such as salt or food nutrients. Cotton and synthetic fabrics are not a food source for insects and the damage should be minimal.



*A close examination of a hole in a sweater reveals a cylindrical pupal case and loose frass indicating that casemaking clothes moth, *Tinea pellionella* caused this damage. Photo by P. Kelley, Insects Limited, Inc.*

Look for Part 2 on how to recognize clothes moth damage and frass on wool clothing in next month's [Fumigants & Pheromones Newsletter](#).