



Pat Kelley, BCE

## Identifying Clothes Moth Damage and Frass – Part 2

This is the second part of a two-part article on how to recognize clothes moth damage and frass on wool clothing. [Part 1 can be found here.](#)



Webbing Clothes Moth Frass

Casemaking Clothes Moth Frass

In the photo above, the clumpy, frass-covered feeding tubes and pupal cases on the left indicate webbing clothes moth, *Tineola bisselliella* damage and the cylindrical pupal cases and loose frass on the right indicate casemaking clothes moth, *Tinea pellionella* damage. Photo by E. Estabrook, Insects Limited, Inc.

### Part 2 Frass:

**Definition** from the Oxford Dictionary: /fras/ *noun*, mid 19th century: from German *Frass*, from *fressen* ‘devour’. = **the excrement of insect larvae.**

It has been many months since you wore that favorite red sweater, but now that the cooler temperatures have started to creep in, you immediately go to look for it. As you pull it from the shelf in your closet, 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?!”.

Your mind likely 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 ([Link to Part 1](#)). Part 2 will detail what the appearance of the frass looks like for the webbing clothes moth, *Tineola bisselliella* and the casemaking clothes moth, *Tinea pellionella* and what the frass from carpet beetles may look like.

Part 2 begins...

Once we have narrowed down the damage done to our clothing to be from insects, it can be beneficial to know which species you are dealing with so you will have a better understanding of your enemy. Knowing the exact species that you are dealing with will give you valuable information to battle this pest. This information includes things such as the length of the life cycle, preferred temperatures and humidity of the insect, and preferential food sources. Knowing this, will also guide you on which pheromone lure you will want to use to monitor for this pest. Frass, by its definition of being excrement of the insect larvae, will often be close in color to the clothing that is the insect’s food source. So, as the examples of a red wool sweater show in the pictures above and below, the frass from the larvae feeding on that sweater will also be red in color.



*Webbing Clothes Moth Frass*

*Casemaking Clothes Moth Frass*

*Webbing clothes moth frass will be held together by silken threads and will appear lumpy and dirty as seen in the photo on the left. Casemaking clothes moth frass will be loose and granular and will easily fall away from the clothing as seen in the frass on the right of the photo above. Photo by E. Estabrook, Insects Limited, Inc.*

**Webbing clothes moth frass:** The frass from the webbing clothes moth *Tineola bisselliella* and the casemaking clothes moth, *Tinea pellionella* is different in appearance. The webbing clothes moth frass is bound together by silk fibers produced by the moth larvae as they feed whereas the casemaking frass is comprised of relatively loose fecal pellets that do not stick together. The webbing clothes moth will create lumpy-looking feeding tunnels covered in their frass and their pupal cases will also be covered in the peppery-looking frass.

**Casemaking clothes moth frass:** The casemaking clothes moth will simply drop their frass on the surface of the wool and the frass will easily fall away if that item is picked up and moved. The casemaking larvae will always carry their protective cylindrical case with them. The pupal case is usually the same color as the fabric they are feeding on. As the larvae feed with their head poking out one side of the case, they will force their fecal pellets out of the other side. The pellets (or frass) will fall onto the surface of the clothing and sit there until gravity knocks them away.

**Carpet beetle frass:** In contrast to the clothes moths, if carpet beetles are causing the damage, we will almost always find the telltale empty shed skins from the larvae on the clothing or directly adjacent to the clothing. Some dermestid beetles will shed the skins up to 20 times as a larva feed and grow prior to them pupating. These empty husks that the larvae leave behind are very light in weight and can be blown away with a small poof of air. The frass itself of carpet beetles can vary in size and shape depending on the species. Some, like the varied carpet beetle, *Anthrenus verbasci* will have oval or

rounded frass while other species of dermestid beetle will have a peppery looking frass.

In any identification of frass that we might undertake, we need to be good detectives and look at every clue that we can see. With a bit of knowledge and a good eye, we can figure out who our enemy might be that is feeding on our wool.



*Signs of dermestid beetle activity on wool will often present itself with the presence of larval shed skins. Some dermestid beetles will shed their skins up to 20 times as a larva and these skins and associated frass will alert you that carpet beetles are the ones causing the damage. Photo by P. Kelley, Insects Limited, Inc.*



*Closeup of dermestid beetle shed skins and peppery frass. Photo by P. Kelley, Insects Limited, Inc.*

# Fumigants & Pheromones

## Fumigation Service & Supply, Inc.



Jeff Waggoner, ACE

## SightTrap – Invaluable Weapon to Combat IMM in Seed Industry

While remote rodent monitoring systems have been all the rage in the industry lately, [Insect's Limited, Inc.](#) has quietly been developing the SightTrap. SightTrap is a remote camera-based insect monitoring device utilizing pheromone to attract species-specific stored product pests into the trap. Much like traditional diamond-shaped pheromone traps, SightTrap uses a glue surface to capture moths and beetles. That's where the fun begins!

SightTrap is the hardware and [ForesightIPM](#) is the software behind the operations. Following an easy installation process, you then tweak the software program to your liking. ForesightIPM delivers the data to your door faster than Amazon Prime (can I say that?). Every day, once a day or multiple times a day if you like, you get a high-resolution image of already identified, counted, and trended insect activity. Additions like temperature and humidity reading overlays and tags like fogging or fumigation are nice visual indicators of when treatments were made and how they affected the trended data.



Terry Wolford, FSS DynamicIPM Services and Ethan Estabrook, BCE, Insects Limited, Inc. with client installing the first SightTrap.

Another added benefit is the consistent unadulterated data that you get from this form of monitoring. Not only can you get hourly or daily data at an affordable cost compared to conventional “analog” monitoring, but you get it consistently and without any interference. When applied to a network of production, distribution sites and retail stores you can see at a glance where your problems are and address them quickly BEFORE you deliver these problems to all of your sites while you wait for your technician to generate a report that may or may not come. The preventative options that can stem from the up to the day data SightTrap provides are many and the reaction time is little. Our long-term objective is to replace the time spent following SOPs on checking devices and replace it with meaningful inspection, reporting, and preventative work that yields results and provides value for our clients beyond what an analog system can deliver.



SightTrap image after just a couple days from deployment.

[FSS](#) is looking forward to the continued advances in remote monitoring systems. Our ability to detect and prevent problems at your facility and safeguard your products and brand is quickly strengthening. Please let your FSS Representative know you are interested in learning more about our DynamicIPM Services and how our “digital” programs can help you look like a hero at the next quality meeting.

# Fumigants & Pheromones

Fumigation Service & Supply, Inc.



Lance Grey

## Bayer RMS Use in the Flour Milling Industry

At two of our weekly milling service accounts, where we have zero tolerance for rodent activity inside the facility, we chose to utilize Bayer's RMS (Remote Monitoring System). Our initial thought was how much time we could convert to inspection by eliminating the need to service devices that have zero activity.

We quickly realized additional findings. A time saver it is but it's so much more than that. Once we downloaded the mobile app on our devices, installed the devices and started reviewed the portal, we quickly found how in depth the program was. By having all the catch info sent to you directly, it helps identify the root cause, and correlate certain products or specific supplier companies that may be bringing rodents into the facility. Since the system provides instant feedback, you can relate catches to changing conditions within a facility. It gives us the ability to track up to the second of a verified catch. We no longer must wait the typical seven days to know if we have activity and risk. Working with the client on a follow up scheme, we address the issue according to their sense of urgency and adjust our services accordingly as part of a DynamicIPM program.

The Bayer RMS allows us to not only know activity within a minute, but also provides great detailed spreadsheets, diagrams of catch locations and times of activity as well. We have had great success so

far in using the program, and our milling clients love that they have full access to the portal and alerts. We want to keep them up to date on activity and leave no guessing when an event occurs.



With this system, it brings the client into our program and improves communication and relationships. We continue to evolve our DynamicIPM Services and remain at the forefront of this kind of technology. As pest control keeps evolving, we feel this will be the new standard in all pest accounts. It gives us and the client a twenty-four hours a day, seven days a week rodent monitoring service.

By: Lance Grey, Toledo Area Manager, FSS



**FSS**  
DynamicIPM Services