Clothes Moths: Preventing and Controlling Infestations in Your Stash

We spinners love fleeces. We buy them, help shear them, stash them. They are piled many layers deep in our storage spaces. I love and protect my handspun and home processed fleeces, too. My washed fleeces, spin batts, handspun skeins, and finished handmade items nestle together in my studio, time, and mind. My fiber SABLE (Stash Amassed Beyond Life Expectancy) includes many breeds of wool, alpaca, angora, yak, dog hair, bison, goat, llama, bird feathers, antlers, and others. They are safe and snug in my studio, and nothing can hurt them. Or so I thought.

Several years ago I bought a fleece of spectacular soft raw huacaya alpaca from a reputable local breeder. I threw the bag into my closet with other fleeces, unwashed with the top open. Two months later I started drumcarding it, expecting a delightful spinning spree. As I worked, I noticed something I had never seen before. Trapped in the uncarded fiber were tiny white round specks. There were several clusters of them as well as scatterings in the loose fiber. Then I noticed a couple places where the fiber had been twirled into little burritoes roughly half a centimeter in length. Intrigued, I looked closer and pondered their origin. It soon became clear. Crawly movement from tiny white worms disturbed the fiber near the clusters. They were about the size of the burritoes. I saw no moths, but it was obvious what had happened. My life was now INFESTED with the arch enemy of woolaholics: clothes moths!

I removed the portions of the fleece visibly containing the worms and their visible residue and then washed the remainder in hot water. After it dried, I soon finished processing and spinning it, and washed the skeined yarn. And that was that. I scoured my closet for evidence of other bugs and found nothing. From then on I never brought another raw fleece into the house until it had been skirted and washed. Until this spring.

In March, I brought home a batch of luscious award-winning raw suri alpaca locks, which I had hand-picked and sorted by animal into 10 bags. I soon spun and felted some of the raw fiber from each of the bags and saw no evidence of moths. I did not wash them then because I intended to spin them soon. Three months later I opened the bags again planning for a delightful spinning session. I saw in horror the tell-tale signs of egg clusters in 2 of the 10 bags and this time saw the moths as well. The moths were a shimmery white color, roughly a centimeter long. They fluttered around on the exposed fiber but miraculously did not seem to fly away.

I had failed to follow my own rule of bringing in ONLY washed fleeces into the house, though fortunately had not put them into the fleece storeroom. I washed the 5 ounces of infested fiber from one bag in hot water, then simmered it wet in the microwave oven for 15 minutes before drying. I also microwaved the unwashed and dry contents of each of the other suri bags for several minutes per ounce, including the second visibly infested bag. I checked the dozen washed fleeces stored 10 feet away from where the suri bags had sat for many weeks, and they appeared bug-free. If I find moths in them, my studio is doomed.

According to many sources including a fact sheet published by the Colorado State University Extension No. 5.599, (http://www.ext.colostate.edu/pubs/insect/05599.html), there are several types of clothes moths. The caterpillar stage of these moths feeds on animal fibers including fleece, fur, and feathers. They are most attracted to fibers which have not been cleaned, because dirt and perspiration provide salt and vitamins and attract moisture. The caterpillars eat and drink nothing else, so need moderate to high relative humidity levels (above 75%) in order to thrive. The egg incubation period ranges from 2 weeks to many months, depending on humidity and temperature. At room temperatures in humid areas, infestations can grow quickly. The caterpillars eat holes and damage the structure in fabric, create breaks and thin spots in yarn, and contaminate loose fleeces with their residue. The caterpillar stage can last from about 5 weeks to 2 years.

The adult moths do not eat but begin to mate and lay eggs almost immediately after emerging from their cocoons. They can live up to a month, continuing to lay overlapping generations of new larvae. Egg-laden moths typically are not fliers and prefer to crawl in a small vicinity. When they fly, it is an erratic and short flight. They are slightly smaller than pantry moths though look a bit like them. Clothes moths prefer dark and undisturbed conditions so you are not likely to see them flying or clinging to walls.

Clothes moths typically come into the home on infested woolens originating from foreign countries with warmer wetter climates and fewer product controls than the U.S. The C.S.U. article recommends controls such as inspecting items before bringing them home, storing in tight-fitting containers, checking woolens once a year, hanging items instead of drawer storage, washing them before storage, and keeping them in low humidity. To kill the moths, suggestions include placing into a freezer for at least 72 hours, and using pesticides which are toxic not only to the insects but to you as well. Pheromone traps also are available.

My Internet search and the C.S.U. article confirmed some of my experience. Both sources of my infested alpaca were breeders with possible connections to South America, and they stored fleeces from their many animals sometimes for many months and possibly years. Neither of the fleeces showed any signs of moths when I brought them home--this seems the spooky part. The moths did not seem to spread outside of the bags I brought them home in despite being stored in very close proximity to other fleece bags undisturbed for several months. The moths I saw were much larger than the mealy moths in my pantry, and they do not look like the flies and other moths that flitter around my reading light. The moths did not reemerge in my carders, clothes, carpet, or other exposed areas though I did not clean these things. The moths have not come back in the suri bags. I have not found evidence of moths in any other raw fleeces, processed fibers, yarns, rovings, or finished items I have bought and piled together for many years. As far as I know, they are gone. I have, however, seen holey sweaters and wool cone yarn with apparent moth damage at my local thrift store. I may have been lucky over the years because I live in a low-humidity location (Colorado).

I refuse to use mothballs or other toxic aromatic chemicals to protect my fleeces. Also the effectiveness of lavender, cedar chests, and other herbal aromatics is not proven. I doubt the effectiveness of pheromone traps since the moths do not tend to fly very far. Freezing your incoming items is recommended by some, but the timing and recommended temperature seems to be controversial. Some say to freeze, thaw to room temperature, then freeze again, to kill both the adults and newly-hatched larvae. Freezing does not kill the eggs, according to many sources. Because of the variable length of egg and larva life, I do not trust this method unless the fiber can be kept in the freezer until you use and then wash it.

There is another exciting tool which is effective for moth control: your microwave oven. Microwave ovens heat and cook their contents by vibrating water molecules up to boiling temperatures. They can kill wet living things without damaging dry or wet wool materials. According to an article published by the Journal of the American Institute for Conservation (http://cool.conservation-us.org/jaic/articles/jaic21-02-001_2.html), microwave irradiation does indeed kill clothes moths, including their larvae and eggs. The article recommends cooking small quantities of dry wool items for 3 minutes but never more than 10 minutes to avoid fiber damage. This does not heat up your dry fiber, only the wet bug stuff. For things you want to protect but not wash, this is exciting news since the microwave cooking does not damage your fiber materials.

Based on extensive reading, my two experiences dealing with these pests, and many years of collecting and storing fleeces successfully, here are my recommendations for keeping your fleece stash safe from moths:

1) Never bring an unwashed fleece into your home unless you helped shear the animal. Leave it in your garage or outside storage area until you are able to skirt and wash it. Also, do not purchase or store more fleeces than you are able to wash within a couple months.
2) Never assume a fiber piece is uninfested, unless you trust its history and label. Most commercial yarns and the items made with them are permanently mothproofed and are labelled as such. Unfortunately this means they may contain the active ingredient in mothballs which is naphthalene, a toxic substance. New consumer items purchased from a store and professionally processed fibers from a commercial mill probably are not a concern. Beware of unlabeled clothing, rugs, and other natural fiber items found at thrift stores, garage sales, clothes swaps, wool markets, breeders' storerooms, and gifts. Inspect items for moth damage before purchase, including holes, weakened fabric, yarn breaks, eggs and other residue. Do not buy anything showing this damage unless you plan to decontaminate it immediately, and please mention it to the proprietor so they can remove it from sale.
3) Before storage, clean your fiber. Skirt and wash raw fleeces, dry thoroughly, then place in air-tight containers. Perhaps add a Bounce dryer sheet into each container and bag, which inhibits moths. Open the containers periodically to allow the fiber to breathe, check them for moth evidence, then close again. For processed fibers or finished items, use wash water as hot as label washing instructions recommend for clothing and other purchased goods, as well as your own clothes being put away for

the season. Dry clean if hot water washing is not recommended. If you dry clean your items, let them air out in your garage for a week before bringing them inside, to prevent your breathing their toxic vapors.

4) Small things that are hard to wash can be disinfested by cooking in your microwave oven. Check labels, and do not cook things with plastic or metal embellishments such as buttons, zippers, fibers with plastic or metal such as Angelina and sparkly appearance, and other contents that will melt, vaporize, or spark while cooking. If in doubt, do not use this method, or immerse item in water. Remove items and fibers from plastic and metal bags or containers. Then place damp or dry items or fleece in quantities up to a couple or so ounces on your microwave oven tray. Cook on high for about 3-4 minutes per ounce of dry material. Alternatively, immerse item or fiber in water in a glass or porcelain (not plastic or metal) container, bring to boiling and continue boiling for 4 minutes. Let cool before handling to prevent felting.
5) Keep an eye on anything that you have stored in a dark area, especially if you live in an area with moderate to high humidity. Check again every few months. Use things up as you buy them.
6) If you find evidence of moths, immediately remove infested materials from your studio. Wash, dry clean, microwave, or throw them away. Wipe down and/or vacuum all nearby surfaces to remove eggs and live insects, and throw away the vacuum bag. Check all fleeces and fiber materials proximal to where the infested materials were stored and processed. If unsure, throw them away, or disinfest them as discussed above. Alternatively, place the exposed but visually uninfested fleece in a safe place in your garage and check it again in a few weeks or months. If it appears clean, try to use or spin it soon.

I intend never again to have to follow my advice for getting rid of moths, by taking the preventative measures outlined above. If I ever doubt something I am bringing home and don't want to wash it, I plan just to pop it dry in the microwave for a few minutes. If it has metal or plastic, I will immerse it in water and then cook it.

The good news is these little critters are finicky. Even if you don't get rid of all of their eggs, you can hassle them enough that they cannot thrive before you put them and their fleecy home into the wash, carder, sun, wheel, microwave oven, vacuum cleaner, table top, or other place where they might just give up. Happy piling, stashing, and spinning!

Bio: Pat Martinek lives in Golden Colorado with her husband and fiber rabbits and shelties. She learned to spin and weave from a Navajo family when she was in high school, and just after college built a left-handed 4-harness table loom which she has been weaving on for 30 years. She spins, felts, knits, dyes, and weaves just about anything, and then writes poetry about it. You can see what she is up to at her website: TheFyberCafe.com