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Beetles Infesting Woolens

Figure 1. Black carpet beetle. *Top* – adult beetle. *Bottom* – larva. (Clemson University - USDA Cooperative Extension Slide Series, www.Bugwood.org)

Figure 2. *Anthrenus flayipes*, adult (*top*) and larva (*bottom left*) (Clemson University - USDA Cooperative Extension Slide Series, www.Bugwood.org)

Injury: Furnishings and clothing made of wool, and of fur, feathers, or hair, are subject to damage by insects. The most serious insect pests of such articles are beetles known collectively as carpet beetles. Damage may range from the clipping of an occasional fiber, which only slightly weakens the fabric and may go entirely unnoticed, to the total destruction of articles left undisturbed for many months or years. Fabrics made of a combination of wool with synthetic fibers are not immune to damage.

Actual feeding upon wool fiber is done only by the beetle larvae -- the presence of adult beetles is simply an indication of an infestation in the dwelling and that woolens should be inspected. The adult beetles themselves usually feed outdoors, on flower pollen.

The feeding of carpet beetle larvae can be differentiated from the feeding of clothes moths by the fact that the beetles spin no webbing, a tell-tale sign of clothes moths. Where carpet beetle feeding is light, damage may therefore go unnoticed, or the fabric may ravel when only a single thread has been severed.

Description: There are several kinds of carpet beetles that attack woolens. The most frequently encountered carpet beetle in New York State is the Black carpet beetle, *Attagenus unicolor* (also known as *Attagenus megatoma*). The adult beetle (**Fig.** 1) is dull black in color, is elliptical in outline, about 1/4 inch long, and the antennae and legs are brown. The larva can be larger, and may grow to a length of 1/2 inch before entering the pupal stage. The larva is somewhat carrot-shaped, and bears a tail of long brown hairs. Its body is covered with golden brown hair only slightly lighter in color than the tail.

Other species commonly found in homes in New York include: *Anthrenus scrophulariae*, sometimes called the Common or Old-fashioned carpet beetle, the Furniture carpet beetle, *Anthrenus flavipes* (**Fig. 2**), and the Varied carpet beetle, *Anthrenus verbasci*.(**Fig. 3**). These species are very difficult to tell apart, being similar in appearance and habits. Both larvae and adults of these species are somewhat shorter and more robust in general appearance than the black carpet beetle. The larvae may be no more than 1/4 inch long when full grown, and they are covered with rather long dark brown hairs. These features lead to the use of the term "buffalo moth" in referring to the larvae. Adults are less than 1/4 inch in length, and look mottled, due to scales of dull white, yellow, dark gray and reddish-brown color occurring in a diffuse pattern.

Life History: In areas of the home where temperatures are held at a comfortably warm level throughout the year, carpet beetles develop in an uninterrupted cycle. When woolens are stored in an unheated portion of the house, development slows or stops during the winter months, the insects passing the colder season as larvae. In the spring, as temperatures rise, the pupal stage occurs. The insects are inactive during this period of transformation, which may last for 1 to 4 weeks. Then, adult beetles emerge, lay eggs on a fiber appropriate for larval feeding, and seek the outdoors and flowers on which to feed upon pollen.

A single female may deposit fifty eggs or more. In 7-14 days the eggs hatch and the larvae begin their destructive feeding. They avoid light during this period of growth, pausing on occasion to shed their skins as they develop. Sixty days to nearly a year may be spent in this destructive form, depending upon the conditions of food and temperature. The pupal

Figure 3. *Anthrenus verbasci* adult. (Tom Murray, www.pbase.com/tmurray74)

stage again occurs, and with the emergence of the adult, the life cycle is completed. Thus, as many as four generations, or as few as one, may be passed in a year.

Management

Sources of infestation: The list of materials upon which carpet beetles can feed successfully is extensive. It includes such diverse substances as meal and flour, peas and beans, animal dandruff, dead insects, leather, dried meats, silk, powdered milk, and dog food, as well as the natural food substance of wool, fur, hair, and feathers mentioned previously. Eggs, larvae, pupae, and adults may be brought into the home in any of these substances. Before the infestation is discovered, the active forms (larvae and adults) may have distributed themselves in such places as the lint collected behind baseboards, in air ducts, in the stuffing of furniture, and in the bristles of old paint brushes. From these unsuspected locations, carpet beetles may continue to re-infest valued woolens for long periods of time.

The first step is careful examination of all susceptible products, inspecting for the beetles or the larvae and removing them if found. A vacuum cleaner is a very good tool for removing these. Regular vacuum cleaning of carpets, with careful attention to areas beneath low and heavy furniture, is important if they have spread from the closet. Even with bare floors, areas where lint may accumulate in cracks should be vacuumed regularly, and furnace air ducts should be kept lint and dust free insofar as is possible. Discard or empty vacuum bags or seal the nozzle, so insects cannot crawl back out during storage of the vacuum cleaner.

The relatively long life cycle of the carpet beetles is an advantage in prevention of damage, because regular brushings and frequent use of woolens tend to expose and kill eggs, larvae, and pupae before damaging numbers accumulate. Sometimes discarding an infested item, especially if it cannot be cleaned, is the best way to eliminate infestation.

For carpets, steam cleaning is often effective in removing and/or killing the carpet beetle larvae, pupae, or adults. Infested clothes and furs should be professionally dried cleaned.

Valuable furs and other garments or items of animal origin are sometimes stored in cold closets by dry cleaners. If the items of concern fit into this category, you should check with local establishments to see if they offer this service.

Mothproofing in the manufacture of woolens is of great value, and may last for the life of the product.

Cleaned products for storage should be placed in containers that can be sealed tightly. Small larvae can enter through very small openings. Most closets and trunks are not adequate to protect woolens for long periods of time.
Occasionally, in heavy infestations, insecticide treatment may be necessary. However, before any treatment is applied, it is important that the area be thoroughly vacuumed. An insecticidal dust can be used for crack and crevice treatment. Diatomaceous earth is a product less toxic to humans than some other pesticides.

Pesticides labeled for use against carpet beetles in New York State in 2011 include: diatomaceous earth, bifenthrin, beta-cyfluthrin, lambda-cyhalothrin, and permethrin. These are registered for use against carpet beetles as residual sprays for the corners of closets and such places, not direct use on fabrics. Spot treatment of carpets may be made with residual sprays. Emulsifiable concentrates work best on rugs and carpets. Be sure to read the label thoroughly before applying any insecticide to be sure it can be used inside the home, and on the items you want to use it on. Some sprays may discolor carpeting; be sure to test on a small area first. Where heavy infestation occurs, you may need to enlist the services of a professional.

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The Pesticide Management Education Program (PMEP), in cooperation with the New York State Department of Environmental Conservation (NYSDEC), maintains a web site with a searchable database for pesticide products currently registered in New York State. Individuals who have Internet access can locate currently registered products containing the active ingredients suggested above at http://pims.psur.cornell.edu/ (NYS PIMS).

be directed to the appropriate Cornell Cooperative Extension specialist or your regional DEC office. Read the Label before Applying Any Pesticide.

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