Museum Pests

A Quick Guide for Pest Management Professions
Insect Pests

The range of pests found in museums may be different from those found in domestic situations.

Museums divide insect pests into three categories:

• Borers
• Shredders
• Grazers
Borers

- These include the larvae of wood-boring beetles. They damage hardwoods and softwoods, animal-glued plywood, furniture, wicker work, wood-pulp paper and old books.

- Evidence of borer activity includes exit holes, tunnels, frass and adult beetle sightings. Larvae hatch from eggs laid on a favourable substrate. They tunnel into the substrate, and when reaching adulthood, fly out of an exit hole.

Images by Dr Uwe Noldt, Johann Heinrich von Thunen-Institute
Borers

Common furniture beetle, woodworm
*Anobium punctatum*

**Adults**
- 2-9mm
- reddish brown to almost black
- prothorax is hood-like and covers the head
- oval and compact shape

**Larvae**
- 2-5mm
- c-shaped
Powderpost beetle  
*Lytus spp.*

**adults**
- 3-6mm
- dark brown to nearly black
- Flattened, slender, cylindrical body

**larvae**
- c-shaped
- creamy white with dark brown mandible
- have 3 pairs of hairy, spinelike legs immediately behind head

Images by USDA Forest Service Archive, Bugwood.org
Shredders

• Shredders include the larvae of:
  • Webbing clothes moth
  • Case-making clothes moth
  • White-Shouldered house moth
  • Carpet Beetle

• Shredders are pests of keratin, the structural protein of hair, wool, parchment, feathers, skin, horn, nails and hooves. He more soiled and contaminated it is, the better they like it!
Shredders (moths)

Webbing clothes moths leave silken tubes and gritty frass adhered to the surface; they are the most voracious. Case-making clothes moth larvae feed from a case, with no obvious webbing.
Shredders (beetles)

The larvae of dermestid beetles cause irregular shaped holes in protein-based materials. They leave fine frass (the colour of the material on which they are feeding), and larval cast skins. Sightings of adults and/or larvae are common.
Shredders

Webbing clothes moth
*Tineola bisselliella*

**adults**
- 6-11mm
- wingspread approx. 11mm
- wings golden-yellow with satiny sheen
- at rest the wings are folded
- wings are fringed with hairs
- long, slender antennae
- coppery upright tuft of hairs on the head

**larvae**
- cream with a brown head capsule

Courtesy of: Insects Limited
Shredders

Case-making clothes moth
*Tinea pellionella*

**adults**
- 10-14mm wingspan
- buff to golden with a brownish tinge
- three dark spots on each wing
- long and narrow wings fringed with long hairs

**larvae**
- inside silken case it drags around
Shredders

White-shouldered house moth

*Endrosis sarcitrella*

**adults**
- 6-10mm
- white shoulder and prothorax
- greyish-white forewings marked with dark patches
- 10-25mm wingspan
- hind wings narrow towards tips

**larvae**
- approximately 12mm
- white with brownish head

Courtesy of: DBP/CSL
Varied carpet beetle
*Anthrenus verbasci*

**adults**
- 2-3mm
- elytra exhibit irregular pattern of white, brown, and dark yellow scales (blacken with age as scales wear off)

**larvae**
- 0.5-5mm
- covered with dense tufts of hair that extend upright if disturbed
- light and dark brown transverse stripes
- carrot shaped (broader in rear, narrower in front)
**Vodka beetle**  
*Attagenus smirnovi*

**adults**
- 5-8mm
- reddish brown wing case
- black head and thorax
- oval and compact shape

**larvae**
- 1-10mm
- torpedo-shaped and dark
- tuft of bristles at posterior end

*Courtesy of: DBP/CSL*
Black carpet beetle
*Attagenus unicolor*

**adults**
- 5-8mm
- black
- oval and compact shape

**larvae**
- 1-10mm
- orange-rust
- torpedo-shaped
- tuft of bristles at posterior end

Image by Pat Kelley, Insects Unlimited

Museum Pests
and some more shredders.....

Guernsey carpet beetle  
*Anthrenus sarnicus*

Hide beetle  
*Dermestes maculatus*

Biscuit or drugstore beetle  
*Stegobium paniceum*

Warehouse beetle  
*Trogoderma inclusum*
Grazers

- These include:
  - Book Lice
  - Silverfish
  - Cigarette Beetles
  - Cockroaches

Grazers primarily feed on starch and protein. Feeding damage leaves the substrate scratched and eroded. Grazers thrive in damp conditions.
Grazers

Book lice

*Liposcelis bostrychophila*

- 0.5-1mm
- long, slender antennae and chewing mouth parts
- pale brown and translucent
- common species are wingless
- nymphs are similar in appearance to adults but smaller

Courtesy of: DBP/CSL
Silverfish
*Lepisma saccharina*

- 2-15mm
- flattened-fish or carrot-shaped outline
- long segmented antennae
- body covered with scales
- 3 tail-like appendages
- nymphs resemble adults, but smaller and sometimes without scales

Courtesy of: DBP/CSL
Cigarette beetle

*Lasioderma serricorne*

**adults**
- 2-3mm
- oval shaped
- reddish-brown
- wing covers are covered with golden hairs but appear smooth
- head is bent downward at almost a right angle to the body
- antennae are notched like the teeth of a saw

**larvae**
- c shaped
- body is white and covered in long hairs
- head and legs are brown

Courtesy of: DBP/CSL
Museum pests also include common house pests

- Rodents
- Birds
- Wildlife
- Cockroaches
- Termites
- Stinging Insects
- Occasional Invaders
  - Crickets
  - Ground Beetles
More information on museum pest identification can be downloaded from the MuseumPests.net website.  museumpests.net/identification.asp