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Cluster Fly

Pollenia rudis

LOW RISK

INDICATOR:
INVESTIGATE ENVIRONMENT

GENERAL INFORMATION

The cluster fly is widely distributed throughout Europe, Canada, and the United States excepting the states that border on the Gulf of Mexico. The name reflects the species' habit of forming compact clusters of hibernating adult flies.

Cluster flies typically live outdoors and enter structures seeking harbourage to overwinter in the fall, and they often aggregate in secluded and sometimes inaccessible spaces, such as wall cavities, attics, and false ceilings where they are known to seek out the warmest areas. Typically, cluster flies attempt to invade the same structure year after year; however, they do not reproduce within these structures. Their presence within a structure indicates mechanical failures in protecting the building's envelope. The best method to prevent and control cluster flies is to exclude them from entering the structure. While cluster flies do not pose significant threats to cultural heritage collections, their defecations can stain interior décor and decorative arts, and their corpses can become food for other types of pests particularly Dermestid beetles.

SIGNS OF INFESTATION

Small clusters of mature flies are typically encountered in structures during the fall, when they enter to hibernate, and also during the spring, when they attempt to leave the structure. Unfortunately, once cluster flies have entered a structure to overwinter, they can be very difficult to locate and control. Hibernating individuals can be stimulated into activity by warmth such as by the activation of a furnace. Once stimulated, cluster flies will seek light, and they are often found climbing on windows and panes.



DIAGNOSTIC MORPHOLOGY

Adults:

- Adults are 3/8 inch long (8 mm) and slightly larger than the house fly.
- Dark grey non-metallic thorax lacking distinct stripes but with numerous, short, golden hairs which may be lost in older specimens.
- Dorsum of thorax has three diffuse, longitudinal, black bars that are not conspicuous.
- Veins in wings are bent forward near the tips.
- The wing tips overlap when in rest.

Immature Stage:

- Larvae have soft, maggot-like bodies, and are whitish in color.
- Larvae are rarely seen because their instar life stages are spent as a parasitoid to earthworm hosts, emerging as adult flies.



FOOD SOURCES

Adult cluster flies do not pose substantial risks to cultural heritage collections because their food sources are found outdoors including ripe fruits and the nectar of flowers. Moreover, cluster flies are not believed to be a health hazard to humans because they are not attracted to human foods. Earthworms are the sole food source of cluster fly larvae (maggots).

LIFE CYCLE

Cluster flies hatch from eggs and pupate outdoors. Their life cycle begins when female cluster flies lay their eggs loosely on damp soil and in loam. After about a week, the larvae hatch, and after about another week the larvae seek out and parasitically invade an earthworm host (*Allolobophora*) which serves as its food source. Once they become fully grown, cluster flies bore their way out of their hosts, and then pupate into an adult flies in the soil. Depending on weather conditions, two generations are normal but up to four are possible. Adult cluster flies enter buildings in search of harbourage in order to overwinter during the fall.

CONTROL & TREATMENT

Cluster fly infestations indicate failures in protecting the building's envelope as they gain access from the exterior through small gaps and voids. Typically, they tend to cluster on the exterior of a building in large numbers prior to crawling into the harbourages. Pest management strategies stress prevention and the use of mechanical and physical barriers to close and seal potential access points. Although total exclusion may not be achievable (especially in historic properties), best practices ought to include filling cracks and other potential access points with wire mesh. Once cluster flies have entered a

structure to overwinter, they are best removed through HEPA vacuuming as their defecations and their crushed corpses can leave stains. It also is highly advisable to HEPA vacuum their dead bodies as they can serve as a food source for Dermestid beetles. Moreover, the use of chemical treatments to kill cluster fly infestations inside of wall voids that are inaccessible to HEPA vacuuming is highly discouraged.

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Fact Sheet: Cigarette beetle

Photo credit: Malcolm Storey, Male - dorsal view - close-up - highly enlarged - white background, Encyclopedia of Life: http://eol.org/data_objects/27020433.

Photo credit: Malcolm Storey, Female - lateral and dorsal views, Encyclopedia of Life: http://media.eol.org/content/2012/12/05/10/91744_orig.jpg.

Sources:

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