Phorid Fly/Drain Fly

Figure 1. Adult of the phorid fly *Megaselia scalaris.*

Scientific Name: *Megaselia scalaris* (Loew)

Order: Diptera (True Flies)
Family: Phoridae

Identification and Descriptive Features: In many respects phorid flies resemble the more commonly encountered "small fruit flies"/"vinegar flies" (*Drosophila* species) that are often associated with overripe fruit and fermenting materials. Both kinds of flies are about the same, small size (ca. 1/8 inch/3 mm) and have generally the same body form. However, phorid flies tend to more thoroughly disperse through buildings than do small fruit flies, which often are concentrated around the food source.

In side view phorid flies have a pronounced humped area behind the head (an enlarged thorax), leading to their other common name "humpbacked flies". The head of phorid flies is small and the eyes are brown, in contrast to the larger head and reddish eyes of the small fruit flies.

Distribution in Colorado: This is a very common insect found worldwide.

Life History and Habits: Phorid flies develop on an extremely wide variety of decaying materials. Both plant or animal-based materials can be used as foods, such as rotting plants, moist manure, or carrion. However, a particularly common food resource is the mixture of moist organic matter that can accumulate in drains and plumbing. As a result of this habit, yet another name for these insects is "drain flies".

The life cycle of phorid flies is fairly rapidly completed with a generation time of about 3 weeks at typical room temperatures. Females lay batches of their eggs on the food source. Eggs may be laid over a period of 3-4 weeks and each may produce a few hundred eggs in total. The larvae, a tiny maggot, feed on particles of organic matter (including microbes) that are suspended in the fluids associated with the food and their secreted saliva.

When full grown the larvae will wander a short distance to a somewhat drier site to pupate. Adults subsequently emerge to mate and females then lay eggs to complete the life cycle. Phorid fly adults are quite active insects, and may disperse far from the breeding site.

Control of Phorid Flies: Control of phorid flies must focus on eliminating food sources - moist decaying organic matter. If these can be completely removed, or allowed to dry out completely, then these insects will not be able to breed.

Most often phorid flies found in buildings are breeding in sites associated with plumbing. This may be accumulations of organic matter adhering to plumbing or caught in pockets associated with the plumbing. Areas where leaking pipes cause accumulations of water and drain wastes can also be a source of phorid flies.

If phorid flies are in drains then control should involve the use of drain cleaning products that will remove all residual organic matter adhering to pipes or that is caught in the plumbing. This may be done with effective scouring of the plumbing but more often involves the use of drain cleaning products that are designed to remove organic residues. Many products exist for this purpose, some of which involve chemical formulations, others biological materials (e.g., food digesting bacteria), others a combination. If there are cavities in the plumbing where food debris can accumulate, formulations that will expand into these sites (e.g., certain foaming formulations) or otherwise will move into and adhere need to be considered. Liquid drain cleaning products that are poured down the drain my rapidly bypass such sites and not effectively clean these areas. Hot water or disinfectants (e.g., bleach) also are unlikely to effectively eliminate the debris used by phorid flies for breeding.

If the breeding site is associated with a break/leak in plumbing this needs to be identified and corrected. The material that has escaped from the leak should be removed if possible. If it cannot, this material will serve as a suitable breeding site until is entirely consumed or completely dried out.

If phorid flies are developing in crawl spaces or under the foundation one should try to locate the material that is the breeding source and remove it if possible. However, these can be difficult to locate or impossible to access. If the material can not be completely removed the areas should be *thoroughly* dried out to prevent the presence of any sufficiently moist material for breeding. In addition one should try to locate points where the flies are entering living areas and seal them with caulking or other means.

Where it is unclear where the flies are originating it may be useful to use traps in areas to pinpoint concentrations of their activity. The sticky traps widely sold at hardware stores can be used for this purpose. An example of a use would be to place one just above a sink drain, sticky side over the drain, to see if that was a site from which the flies were originating.

Figure 2. Phorid flies caught on a sticky card.

There are no uses of insecticides that would assist this problem. The flies that are present in living areas are a subset of the population that has dispersed from the breeding site. Treating the adults in the building does not address the fundamental source of the problem.