



House fly
a common type of filth fly



Fruit fly



Phorid fly
a common drain fly



Moth fly
a common drain fly

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Few bugs are bad! More than 95% of all insect species are beneficial to humans.



Flies Even though we are in winter, it's never too early to start preparing for the presence of flies. On warm days, you may notice a variety of flies present. Flies are scavengers, and the types found in schools are liquid feeders with mouthparts appropriate to sucking and lapping. The main ones we are looking at are associated with structures and include **filth flies, fruit flies, and drain flies**. They can pose an indirect health threat to humans by transferring bacteria and disease-causing organisms to human food.

Filth flies include several species, but the one which is of most concern to school environments in the valley is the house fly. One of the biggest health concerns associated with house flies

lies in the fact that they reproduce in a variety of filth – garbage and animal feces, for example - and then readily feed on almost any available human food. These disease *carriers*, or "*vectors*", shuttle bacteria around on the outside of their body, so only need to land briefly on a snack left out to contaminate the food.

House flies proliferate in kitchen areas for the ready supply of decaying matter on which to breed, and human food on which to feed. They will lay at least 750 eggs per female, and can give rise to over ten generations in a single season. That's a lot of flies!

Dumpsters draw flies of all types. They will breed and feed in the refuse, and adult house flies will fly through open doors/windows seeking your food and a cool resting place. Also, larvae have been found to crawl hundreds of feet away from their breeding site just before the pupal stage. The pupa is a non-feeding form as the fly goes through complete metamorphosis (from maggot to fly).

Keep **doors shut** and make sure open windows have **tight-fitting screens**. Also check outer doors for any light filtering in around edges, and consider installing door sweeps and/or weather stripping as needed. This is one of the biggest points of entry into schools for any pest.

Fruit flies, also called vinegar flies, are attracted to sour and fermenting organic matter. Less than one quarter of an inch long, the common fruit fly originated in tropical Africa and the orient, and their Latin name "*Drosophila*" literally means "lover of dew" as they exist in moist environments. With the help of humans, these red-eyed flies are now found in every continent except Antarctica!

Fruit flies primarily utilize **over ripened or rotting fruit** for their feeding and breeding. The adults are also drawn to moist sugary substrates such as those found among garbage scraps, residues in aluminum cans, bottles, compost heaps, and any moist decaying or fermenting food bits lying about. Though they pose no direct threat to people, fruit flies can transfer bacteria from one kitchen food source to another; for example, from the garbage to your half-eaten apple!

Fruit fly eggs can quickly develop into a fully reproducing adult in as little as ten days. Considering that the female fruit fly lays up to 500 eggs in a lifetime, just a few of these tiny pests can multiply into swarms in just a few weeks.

You must eliminate their food source, which also serves as their reproductive site, to get rid of this pest.

Below are some simple steps you can take to keep

flies far away from your lunch plate:

- 1) Remove any rotten fruit or other attractive vegetation.
- 2) Compost, garbage cans, and dumpsters should have tight-fitting lids and should be cleaned regularly. All garbage receptacles should be located as far from building entrances as possible; otherwise even the cleanest kitchen area can have a consistent source of flies.
- 3) Use good quality trash bags as bin liners.
- 4) Clean up spills rapidly.
- 5) Try to avoid sugary food & drinks in carpeted areas.
- 6) Make sure mops are rinsed thoroughly with clean water and hung with mop head up to dry.
- 7) Follow guidelines for general exclusion. For example, sealing cracks, fitting door sweeps and window screens, etc. Consider that these small flies only require tiny entry points.

Drain flies are best represented in school sites by phorid flies and moth flies. **Phorid flies** are a small yellow to tan colored fly with a hump in their *mid-section*, or “*thorax*”, hence the nickname “humpbacked fly”. A single phorid female lays up to 500 hundred eggs, which develop into adults in as little as 14 days. **Moth flies** are most often grey in color and easily recognized by the hairs covering their wings, body, and antennae, giving them an overall moth-like appearance. A single moth fly female lays 30-100 eggs, which can also develop into reproductive adults in only 14 days.

Unlike the fruit fly, which is associated with fermenting and rotting fruit, phorid and moth flies are real lovers of the **slime layer and organic debris in drains**. They are mainly pests of kitchens, food preparation areas and health care facilities; locations where these flies can easily breed in great numbers due to the abundance of drains. Sink overflows and bathroom drains are present in nearly every building type and usually overlooked in routine cleaning. The gelatinous slime layer on the inside of drains is totally unaffected by bleach water!

Both moth and phorid fly adults are no more than 1/8” long and share many similar habitats so distinguishing them can be difficult, though not always necessary. If you suspect you have one of these two pests **check your drains** first. You can do this easily by placing some duct tape over the drain hole, leaving some of the drain uncovered for an updraft to occur so the little buggers can fly out. Checking the tape daily for up to three days/nights will allow time for flies to get caught on the tape and the problem drain revealed.

Chances are you have additional infestations **wherever moisture collects and food is present**, such as: underneath appliances, in cracks of concrete; in trash containers; in wet mops or brooms; soil of potted plants; wet areas near a leaky pipe.

Phorid flies are perhaps the most difficult to eliminate due to the great diversity of sites in which they can breed, so don't be discouraged if you can't find the site of *infestation (breeding location)*. Some additional sources of organic decaying debris frequented by phorid flies include decaying meat, rotting

vegetables, garbage disposals, and animal feces.

You can discover phorid and moth fly infestations and prevent new ones from occurring by:

- 1) Think clean, and think small! These insects rely on poor sanitation on the smallest scale.
- 2) Cleaning and capping off unused sewage pipes.
- 3) Cleaning clogged sink overflows. Use a bacterial or enzymatic drain cleaner (DF 5000 Gel for example) followed by very hot water, and manual cleaning with a very stiff brush.
- 4) Clean the inside of trash containers regularly and always use a liner.
- 5) Fix water leaks along with any other moisture problems inside as well as outside. Remember: the adult flies may be in one area, but the site of infestation in another place entirely.
- 6) Regularly clean out roof gutters.
- 7) Look for watermarks on ceiling tiles and walls.
- 8) Keep mulch and bark levels in potted plants to a minimum. Don't over water plants.

Flies are very important to the process of decomposition and recycling nutrients back through the ecosystem. Although flies are beneficial to the planet, they may pose a threat to human health and should be managed in the school environment.

Information taken from:

Pest Press – Marc Lame, Indiana University
Hedges, Stoy A. A Field Guide for the Management of Structure-infesting Flies G.I.E. Inc, 1998.
University of Michigan Museum of Zoology Animal Diversity
Website <http://animaldiversity.ummz.umich.edu>
<http://www.pestproducts.com>

YOUR DISTRICT IPM SPECIALIST

A district IPM Specialist is someone appointed to each school district participating in the IPM in Schools program. They are experts in IPM techniques and serve their school community by solving pest problems caused by insects, rodents and weeds. We enjoy a healthier learning environment thanks to the excellent work done by these experts in your district.

Gila River Indian Community's IPM Specialist is **Gary Haebig**. Say hi to your IPM Specialist when you see them!

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