

## CASE STUDY REPORT

# PHORID FLIES IN A RESTAURANT



## Introduction

Small flies are a common pest of restaurants due to the amount of water and organic material that are associated with preparation and waste handling. Structural infesting flies will breed in moist organic matter in different stages of decomposition. Common areas within a restaurant of concern can include: Floor drains which are not properly cleaned and maintained, dumpster/ compactors and other refuse handling containers, floors with deteriorating grouting and/or deteriorating epoxy sealants, garbage disposal units associated with dish washers units, and beverage dispensers lines and drain trays

Maintaining these areas is key to control and limiting fly numbers. On occasion, pipe and equipment breaks in the waste handling system can result in a small fly problem. In this case study, we will discuss where structural problems lead to a small fly infestation.

## Challenge

A coffee shop was experiencing a chronic problem with small flies in the serving and back storage areas of the store. Store management increased cleaning efforts in an attempt to remove any breeding sites present in the food preparation, drains and dishwashing areas. Despite the cleaning efforts, the fly problem persisted. The fly was identified as a phorid fly. Phorid flies look similar in appearance to another potential small fly pest of structures, the small fruit fly or *Drosophila melanogaster*. They are tan in color but lack the red eye color of a small *Drosophila* fruit fly. They have a humped back appearance and are sometimes called hump backed flies for this reason. They average 1/8' in length and are exceptionally capable of moving through small cracks and crevices. Other distinguishing characteristics include the wing venation which is pronounced along the top margin of the wing and an enlarged and flattened

femur on the last pair of legs. The femur is the first leg segment, closest to the body and looks similar to the leg of a grasshopper or flea, modified for jumping. In fact these flies will do small hops prior to flight. This hopping behavior can be one more clue to the identity of this pest. The phorid fly has tremendous reproductive potential and can build up large numbers in a short period of time. An adult female can deposit about 40 eggs in a 12 hour period and lay approximately 500 eggs in her lifetime. The eggs are laid near the source of decaying organic matter and the complete life cycle can take as little as 14 days under ideal conditions. As with many flies, the immature stages can be found in different locations than the adults. The eggs and larvae will be found in the moist organic material. The pupae will be found in a dry location, up to several feet from the breeding site and the adults can be found both near and far away from the breeding source.

## Investigation

Upon investigation, it was noted that the flies were particularly heavy near a grease trap located in the back service area and an adjoining storage area which lead down a series of steps to a crawl space. Upon opening the door to the crawl space, large numbers of phorid flies were observed. The crawl space was entered and it was determined that the grease trap had been leaking and had been contaminating the soil of the crawl space with moist organic material. Phorid flies were breeding in contaminated soil in the crawl space.

## Solution

The grease trap was repaired to stem the flow of organic material into the crawl space below it. The soil then needed to be removed to eliminate the breeding source. This required

the movement of large quantities of soil from a fairly restricted sized opening an occurred over a period of several days. Despite the removal of large quantities of soil, the fly population did continue in smaller numbers but the flies were still present. An aerosol device which released a small quantity of a non-residual pesticide through a metered system was installed in the crawl space to control the adult flies. This device would release a small dose of insecticide on a fifteen minute cycle. This aerosol metering device was serviced and maintained for several months until no further fly activity was observed.

## Summary

The coffee shop was located in a historic section of a Mid-western town where there were many older structures. As buildings age, structural integrity can become an issue and contribute to pest problems. In this particular situation, because there was a crawl space, it was actually easier to remedy the contaminated soil issue than had the leak occurred sub slab. Phorid and another small fly, the drain fly can be found in situations where pipes leak sub slab, contaminate soil and result in heavy populations in the spaces above. In those situations, sections of the concrete slab must be opened, pipes repaired and soil removed. This can cause a fairly significant disruption in business and at a very high cost. Sub slab fly infestations are one of the most costly pest problems we encounter. Phorid flies are extremely capable of moving through soil and small cracks and crevices. The fact that despite the removal of yards of soil without the complete resolution of the problem is an indication of magnitude of their capabilities to survive deep in the soil with small quantities of organic material. The use of a metered aerosol timed device in the crawl space was useful in eliminating the few remaining flies.