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# PESTWEST

NEWSLETTER

411

## DID YOU KNOW...

The trap-jaw ant (*Odontomachus bauni*) has the fastest snapping jaw of any animal – over 2000 times faster than the blinking of the human eye.

Honeybees can lift 300 times their own body weight – equivalent to the average person lifting 15 tons.

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## PEST INSPECTIONS: THE RIGHT ANSWERS BEGIN WITH THE RIGHT QUESTIONS

As pest management professionals, we are called upon to conduct pest inspections in varying and challenging environments. Many of these environments are quite dynamic and stratified by changes resulting from the constant activities of people, seasonal or environmental changes, and cultural or business practices.

Your key to a proper results oriented inspection outcome or finding the answers you need begins with asking yourself the right questions. Intuitive inspection questions save you time, solve difficult pest problems efficiently, enhance your professionalism in the eyes of your clients, expand your market, and add to your bottom-line.

### THESE QUESTIONS ARE:

1. Are pests present?
2. How are pests gaining entrance?
3. Where are pests sheltered and reproducing?
4. What favorable environmental factors are attracting pests?
5. How can pest entry, harborage, and attraction be eliminated?

The intelligence gathering process begins with the initial inspection which functions as the starting point for your pest management program. This inspection also serves as your opportunity to learn the process or flow of goods and materials through the facility, whether it be a manufacturing plant, office building, cafeteria, or even someone's home. Once the baseline knowledge

is gained, it continues with the second and successive inspections, defining whether or not new pests are present, and what pest management intervention may be required to mitigate pest pressures.

Inspections must be performed by individuals who are trained, experienced, and knowledgeable about pests and their conducive conditions. A checklist and some common sense may have been enough in the past; however the modern, well educated and professional pest management individual will provide a higher level of inspection competency. This competency is the foundation and of paramount importance with today's service expectations.

Performance of inspections should be conducted with an individual who has a working knowledge of the facility and grounds. This individual would know the staff and the cultural aspects of the operation.

Inspections must focus upon the pests' vulnerabilities within the environment. Vulnerable areas are microclimates favoring a pest's physiological requirements: food, available water, warmth, space, low air movement and egress. You must identify any indicators of current pest infestation and document existing conditions that lend support to pest populations with particular emphasis upon those areas difficult to adequately inspect or treat. Ninety percent of inspection, monitoring, and pest management efforts must focus upon the pests' vulnerable areas.





An often overlooked but important part of the professional inspection will be asking questions of the staff.

As a pest management professional, knowing the right questions will help you obtain the right answers.

**QUESTIONS SHOULD INCLUDE BUT NOT BE LIMITED TO:**

- Was a pest seen?
- Where was the pest seen?
- When was it seen?
- Was there more than one sighting of pests?
- What was done about the pest (any application of materials by employees?)
- What circumstances may have contributed to the pest being present?

**TO PERFORM A RESULTS ORIENTED INSPECTION, YOU NEED THESE ESSENTIAL TOOLS:**

- Mechanical access to all areas of the facility.
- A floor and site map of the facility that graphically indicates the interior, exterior, and extended property.
- A site map is used to graph pest trend areas, deployed equipment, and key operational areas.
- A flashlight greater than 20,000-candle power.
- A tool-belt containing a screwdriver, spatula for crack and crevice inspection, and a mechanic's mirror for seeing around tight corners.
- A proper and duty-rated ladder.
- A hard hat, kneepads, and any site specific or OSHA required PPE.
- A hand lens or lighted monoscope for insect identification and vials for
- Specimen collection.

- Field guide and dichotomous key for proper insect identification.
- A results-oriented inspection will produce a list of recommendations that must be communicated to the responsible facility representative.

**RECOMMENDATIONS CAN INCLUDE:**

- Excluding or sealing doors, windows, or other potential pest entry points.
- Repairation of available water sources from plumbing or drainage.
- Sanitation practices and/or trash management in and around the facility.
- Eliminating pest microclimate harborages by sealing structural cracks and crevices.
- Clutter reduction through process management.
- Use of baits and/or traps where pest populations are indicated.
- When necessary, judicious use of a properly labeled pesticide.
- Selection and maintenance of landscape cultivars that discourage pest presence.
- Evaluation of results and progress of previous inspections.

Documentation is essential to any inspection effort you conduct. No individual inspection form can elaborate all the various environmental situations that you may encounter. Remember, it is essential that any form employed is designed to provide adequate space for detailed recommendations of improvements. The pest management professional will be able to perform over half of their treatment through the proper inspection, documentation, and recommendations to the customer before even looking at an application regimen, thus achieving what may constitute a "green" program, but certainly achieving Intelligent Pest Management.

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# Quick Identification Guide



5-6mm

## Lesser Housefly *Fannia canicularis*

### Features

Grey thorax with three indistinct longitudinal stripes. Abdomen has extensive area of yellow at base.

### Control

PestWest sticky traps and fly killers are effective at controlling the lesser housefly.



7-15mm

## Mosquitoes *Culex spp.*

### Features

Slender, long-legged insect with forward-pointing, piercing and sucking mouthparts. Wingspan 7-15mm.

### Control

PestWest units can be effective at catching mosquitoes.



9-13mm

## Blowfly *Calliphora spp.*

### Features

Thorax and abdomen black/blue in colour and often with a metallic appearance. Wingspan 18-20mm.

### Control

All PestWest fly killers are a very effective step in controlling these pests.



15-20mm

## Wasp *Vespula spp.*

### Features

Black head and thorax, black and yellow patterning on abdomen.

### Control

PestWest sticky traps and electronic fly killers are particularly effective at attracting and controlling wasps.



10mm

## Cluster Fly *Pollenia rudis*

### Features

Large flies, wingspan up to 20mm. Thorax distinctive dark grey/olive colour covered in golden hairs.

### Control

Areas where flies congregate should be treated with residual insecticide. PestWest fly killers are a very effective step in controlling cluster flies.



3-4mm

## Scuttle Fly/Phorid Fly *Megaselia spp.*

### Features

Thorax dark brown/tan with distinctive humped appearance.

### Control

Chameleon® sticky traps and electronic fly killers are extremely effective at attracting and controlling these pests.



5-6mm

## Mushroom/Fungus Fly *Sciara thomae*

### Features

Small insects, wingspan 14-15mm. Black head, thorax and abdomen. Thorax has humped appearance.

### Control

Chameleon® sticky traps are a very effective step in controlling mushroom flies.



1.2-1.5mm

## Biting Midge *Culicoides spp.*

### Features

Dark brown/black in colour. Wingspan 3-4mm. Will swarm in large numbers and inflict bites.

### Control

Insect repellents should be used when outdoors to prevent bites. Chameleon® sticky traps will attract and control midges.



3mm

## Fruit Fly *Drosophila spp.*

### Features

Small yellowish brown with darkly striped abdomen. Prominent red eyes.

### Control

Chameleon® sticky traps are extremely effective at controlling these smaller insects.



6-8mm

## Common Housefly *Musca domestica*

### Features

Thorax grey with four longitudinal dark stripes. Sides of abdomen are yellowish and may be transparent. A dark band covers the final abdomen segments.

### Control

PestWest fly killers and sticky traps will effectively control houseflies.



# A MOTH? A FLY? A MOTH FLY? WHICH IS IT?

As pest management professionals, our pest identification skills and subsequent placement of that pest within its favored environment are constantly challenged. Many times it is difficult to identify some specimens, but in most cases we are very successful at these diagnostic questions. With this in mind, let us look at a rather ubiquitous pest that can provide you with numerous opportunities for service offerings within your market areas, and your existing accounts.



Moth flies (Psychodidae) are indeed flies, not moths. They are smaller flies around 1/8 inch in length including their wings. Usually black in color, at least one species found inside structures has a brown body and wings. Moth flies are mostly gray or gray-black, while the top of prothorax is hairy. Overall, the body and wings of the moth fly are covered with numerous hairs giving it a “moth-like” appearance. Wing veins run parallel to one another.

Moth flies are generically referred to as sewer or drain flies because they are found breeding in drains bringing them into contact with disease-causing bacteria. Therefore the potential exists for these flies to mechanically transfer these

organisms onto food products or into sterile areas within hospitals.

Moth flies undergo complete metamorphosis with the life cycle beginning when the female locates a suitable organoculture in which to place her eggs. Eggs are placed upon the surface of a gelatinous film inside a drain trap or on top of organic matter. Larvae develop inside the gelatinous film and respire by extending a breathing tube up through the film surface. Larvae feed for about 15 days prior to pupating. A life cycle can be completed in as short of time as 8 days, or as long as 24 days, depending on the temperature and humidity.

Investigating, determining, and eliminating breeding sources is key to controlling moth flies. Because moth flies generally reproduce within drains, these are a good place to start your inspection. Larvae are within the moist film that develops upon the inner-surfaces of the drain and trap. Numerous adult flies inside or adjacent to a drain is a strong indication that the drain is infested. Use a spatula to scrape the film off the sides of the drain to examine it for larvae.

Sometimes drain-lines will break beneath slab floors or between floors within commercial structures. Moth flies can reproduce in vast numbers within the organic waste deposited through the break in the pipe under the slab. Adult moth flies emerge into living spaces through cracks and gaps in the slab and back through the drain-line. Determination of whether or not flies are emerging through cracks in a floor or from a drain are completed by placement of small strips of duct tape over the crack or the drain opening. Be sure to leave space between the tape strips to allow air movement for the flies to follow. If flies are emergent, some will become stuck to the indicator tape.

If suspicion is warranted that moth flies are reproducing under a slab, an access must be opened through the slab to observe and verify

a pipe has breached and flies are infesting the organoculture and soil. Organic material and moist soil may extend several inches under the soil surface. Presence of both fly larvae and adults confirms an infesting population.

Sump pump basins or baskets and sewers are generally found within a basement or crawlspace area. These are perfect reproductive resource sites for moth flies, and should be inspected for activity.

Within residential structures, moth flies are found breeding within bathroom drains, especially those for showers. If suspicion is warranted that flies are breeding beneath a shower, a hole can be drilled into the under area of the shower pan and/or the wall behind the shower. If infested, adult flies will begin emerging from the hole within seconds. Moth flies are strongly attracted to light and will fly to the hole drilled through the wall.

- Moth flies will infest crawlspaces. In most cases, a drain-line is leaking into the crawlspace.
- Inspect the crawlspace, looking for adult flies.
- Be sure to check spider webbing for dead moth flies. Never stop looking when one infestation has been identified; numerous breeding sources will be present.

With PestWest’s advanced inspection and auditing tools, environmental range and biological source reduction products, and electronic flying insect management systems, you can deploy a science-based, effective moth fly intervention. In addition, PestWest can provide you with the training you need to develop solid recurrent revenue service programs starting by targeting your existing customer-base.

# Where do these fly larvae get their food?



Dr Moray Anderson BSc(Hons), PhD, FRES, CBiol, FIBiol

**As a professional entomologist working on fly biology I frequently get asked, "What is the point of flies?" After a few angry grunts relating to the fact that flies have been around on this planet for a great deal longer than humans and that I am sure there are many flies sitting around asking their fellow flies, "What is the point of humans?" !! I calm down and give a more measured answer.**

Most species of fly during various stages of their life cycle perform a vital function in the breakdown of different dead organisms, dead vegetation, animal manure and other decaying organic matter.

If you consider the life cycles of most flies the females have sense organs highly adapted to locating decaying organic material. In particular, on their antennae are the sense organs adapted to detecting odors – these are highly focussed on detecting the odors emanating from the rotting material.

Once a suitable site has been located the female then lay eggs. The eggs of most flies are small (0.5 – 1 mm long) white and laid, in batches within the larval food medium.

The larvae emerge from the egg within about 24 – 48 hours and begin to feed upon the material which is surrounding them.

Houseflies, fungus flies, fruit flies, phorid flies, owl midges, etc are all examples of flies which, when you examine a detailed description of their life cycle, you will see that their breeding/feeding sites being described variously as : Rotten fruit, rotten vegetables, soil contaminated with sewage, drains blocked with sewage, broken sewers, in other words all of these are wet organic matter.

The larvae feed upon this organic matter for differing times with the temperature of the ambient environment being a critical factor in determining the length of time spent feeding. The eventual size and reproductive capability of the adults is totally dependant upon the quantity and quality of this larvae diet.

It has been shown in many experiments that the quality and quantity of this larval diet is critical to the eventual size of the adult fly that emerges from the pupal case. No matter what fly has been studied the quality of the larval diet is critical with a good quality and plentiful diet leading to large larvae, large pupae and eventually large adults.

Another feature of the life cycle of the fly which is determined by the quality and quantity of the larval diet are the number of eggs produced by the female flies. Within the ovaries of the adult female flies there are a number of ovarioles and the number of eggs per ovariole is governed by the larval diet.

The wet organic matter exploited which is by flies can be found in and around domestic premises, food handling facilities, retail premises, restaurants etc. in addition to the many site out of doors.

The material does not necessarily have to occupy a great area for it to be exploited by flies. It is particularly important to realise that many of the flies mentioned above have extremely small larvae, 1 – 2 mm in length, and therefore small accumulations of organic matter can support larval development and give rise to the well-fed larvae mentioned above.

In a domestic or commercial kitchen, for example, the small areas which can to be found between tiles on flooring or on work surfaces can act as feeding sites for the larvae of flies such as the fruit fly, phorid fly and owl midge.

Even surfaces, which appear superficially quite clean, can have small locations in which there is an accumulation of old food debris which is sufficient to support larval development.

Within commercial and domestic kitchens and the accumulations of organic matter within which the flies are breeding often take on this unsightly gelatinous appearance if not cleaned regularly and this is exactly what attracts the flies.

The gelatinous texture, indicative of high moisture content, is important to the fly survival. Dehydration is frequently the cause of death of the eggs and the larvae of flies. In fact, all insect stages are prone to dehydration but in particular it is the juvenile stages which are most likely to succumb to drying out. So the substratum in which they feed and are located will suit the flies best if it is extremely moist. Fruit flies, in particular, are often found in near-liquid habitats.

So, just as flies have "a point" in the great scheme of things so do all these little puddles and pools of rotting organic matter you see - they are the breeding and feeding grounds of flies !! Therefore, they should be kept to a minimum in all areas where food is prepared, stored or sold.



*With the use of thorough and targeted cleaning procedures as part of an integrated approach to fly control a large number of fly feeding sites can be eliminated. This in turn, leads to fewer flies within the sensitive areas of the food business and fewer complaints having to be addressed.*

# CDS<sup>TM</sup>

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