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PESTWEST ENVIRONMENTAL

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NEWSLETTER 411

Don't Think That Ants Can't!

By Dr. Stuart Mitchell

Living is social colonies that are generally established in decaying wood or soil, ants are one of the most pestiferous challenges for pest management professionals. Since generally thought of as a nuisance pest, don't think that ants can't be a significant threat to food safety and health!

Possibly cue foraging into food service areas, ants can populate and contaminate stored commodities, food preparation equipment, utensils, and surfaces. Secondary mechanical contamination or infection may also result. For example, if ants are actively foraging within a hospital and locate patients with IV drug infusions, infection control protocols are violated and serious patient comorbidities may result.

Critical inspection skills beyond visual observations are essential. Information based determination of the pest ant species will provide behavioral boundaries that can isolate the source of an infestation. Evidences of ant infestations can be gleaned from important sources.

Types of information.

- ☑ Species present
- ☑ Location
- ☑ Numbers
- ☑ Scope of infestation
- ☑ Information on the structure (potential entry routes)
- ☑ Hygiene and housekeeping requirements
- ☑ Risk to public health
- ☑ Proposed control methods
- ☑ Exclusion recommendations

Visible evidence. Passive and active monitors can provide tangible evidence of pest activity. In addition, monitors serve as an archive of pest pressures. Sticky traps can gauge the extent of an infestation prior to a treatment as well as success post-treatment.

Information evidence. Prior information on the property can include historical sightings reported or declared from memory by inhabitants. Even though inhabitant sightings are a source of information, physical inspections must confirm the accuracy of such reports (types of pests, numbers, timescale, etc.) due to vagaries of human memory. Written or recorded informational sources are the best corroborating evidences.

Physical inspections allow for a risk assessment to be determined prior to any potential treatment. In addition, a quality control function is carried out to reconcile the success of, and/or indicate modifications to, the cyclic pest management model.

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For your information…

To distinguish among the stinging Hymenopterans, we can use specific evidences of appearance, habits, nests, and feeding behavior. See the *most wanted offenders* chart below.

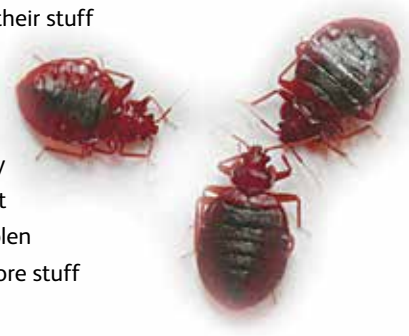
INSECT	APPEARANCE	HABITS	NESTS	FEEDING BEHAVIOR
Ants	Thin waists; wingless (except reproductives) can bite and/or sting.	Workers search singly or in lines on soil surface, plants, or structures.	Ground nests under stones, sidewalks, or in soil.	Scavengers, predators, and herbivores.
Bees	Robust bodies with thick waists, hairy and winged workers and reproductives.	Noisy fliers, sting in defense of nest.	Hives, trees, or structures.	Collect pollen and nectar; feed pollen to young and share food with adults.
Paper wasps	Long bodies with thin waists.	Colonial; search vegetation for prey and visit flowers for nectar.	Single comb attached to structures; made from chewed vegetation (paper) like upside-down umbrellas.	Feed developing young in cells.
Solitary wasps	Thin or thick waists.	Visit flowers and vegetation, docile.	Mud or holes in ground.	Predators; provision nests with prey for young.
Hornets	Large (wingspan to 3 inches).	Not aggressive.	Multilayered aerial carton with brown envelope.	Predatory on cicadas, bees, and flies.
Yellowjackets	Robust and colorful.	Rapid fliers, and capable of multiple stings, socially large colonies defended aggressively.	Multilayered carton mostly in the ground with some aerial or structural.	Mostly beneficial predators, but can scavenge and become pestiferous.

Here, There, Everywhere!

By Dr. Stuart Mitchell

Defined as a public health nuisance, bed bug, Cimex lectularius, behavior favors agoraphobia and nocturnal activity. Host intimate and feeding upon blood, bed bug infestations are morally repugnant. When present, here, there, and everywhere, bed bugs pose a significant threat to occupant health and wellbeing.

Phoresy, from the Greek *phorēsis* or "being carried," is a strategy of dispersal where one animal is carried to a new location by another animal in the quest for food. Bed bug ecology favors such a strategy. Dispersal is efficiently facilitated within the belongings (stuff) of people moving from one location to another.



- People like stuff
- People especially like their stuff
- People make stuff
- People buy stuff
- People sell stuff
- People give stuff away
- Peoples' stuff gets lost
- Peoples' stuff gets stolen
- People accumulate more stuff
- People store stuff
- People move stuff
- People take stuff with them
- People ship stuff
- Peoples' stuff mixes with other peoples' stuff
- People throw stuff away and other people take the stuff
- People want more stuff
- People can occasionally *"put 10 pounds of stuff in a 5 pound bucket of stuff!"**

Knowing the more curious types of bed bug *refugia points* (bed bug resting sites) is essential. Any *standard operating procedures* (SOPs) or *best management practices* (BPMs) *must note and address the detail of the "here, there, and everywhere of bed bugs in stuff!"* Following are a few considerations (author's experiences).

- Poorly serviced bed bug monitors (active or passive)
- Books, magazines, newspapers, and stacks of undisturbed paper
- Coat hangers
- Clothing folds and shoes (worn or stored)
- Eye glasses and jewelry
- Crutches and walking cane appliance interiors
- Wheel chairs and motorized scooters
- Artificial limb interiors (prosthetics)
- On the person of non-ambulatory persons (including skin folds and orifices, bandaged areas, and catheters)
- Prescription bottles/containers
- Cigarette packages
- Empty beverage containers
- Pet cages, cat litter boxes, and food/water dishes
- On the bodies of companion animals (under pet collars)

As an opportunistic infestation structurally takes hold and develops, bed bugs can refuge in any number of items that people possess. Overtime, dispersal prevention and infestation elimination can be extremely challenging.

DIPTEROLOGY

By Dr. Stuart Mitchell

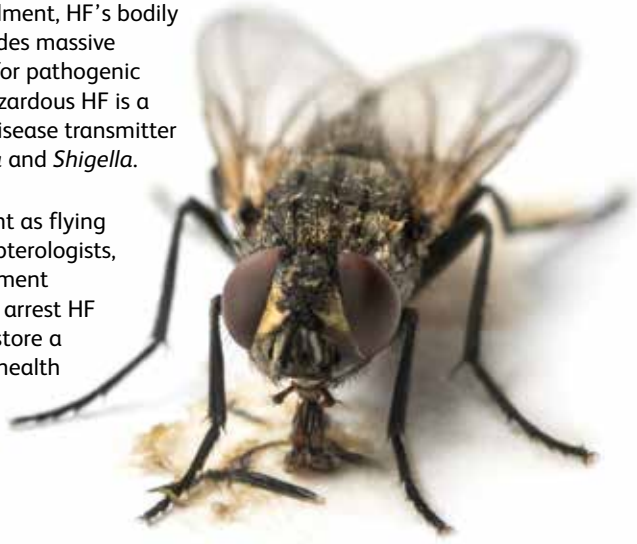
Dipterology is the study of true flies in the order Diptera (from the Greek, di or two, and ptera or wings). One must be a Dipterologist to develop a House fly (HF), Musca domestica, offender pest profile (a behavioral and investigative tool to assist pest management detectives to accurately predict and profile the characteristics of the pest).

Criminally cosmopolitan, sinisterly synanthropic (associated with humans), and malevolently multivoltine (many generations), HF is a flying infection. 4-8 mm long with four thoracic longitudinal stripes, adults are drawn to disease containing organic media.

Occuring in the foregut, HF starch digestion occurs via salivary amylase (enzyme converting starch to malt sugar). Ultimate digestion of carbohydrates occurs on midgut cell surfaces via membrane bound maltase. Low pH (acidity or alkalinity of a solution on a scale of 0 to 14 [<7=acidity, 7=neutrality, and >7=alkalinity]) or acidity within the midgut usually kills bacteria within ingested media. Trypsin (breaks proteins) works in the midgut.

With chaetiferous (covered with hairs) concealment, HF's bodily exterior provides massive surface area for pathogenic loads. The hazardous HF is a mechanical disease transmitter of *Salmonella* and *Shigella*.

HF harassment as flying infections! Dipterologists, pest management professionals, arrest HF felons and restore a lawful public health environment.



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