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Copesan is an alliance of regional pest management companies that are united as a single entity for the sole purpose of providing quality pest solutions to businesses with locations throughout North America.

## Springtime Can Bring Pests

By Anil Menon, Technical Training Director; Wil-Kil Pest Control; Madison, Wisconsin

The first good warmth of spring is usually accompanied by the visible presence of nuisance pests that have been overwintering in or near homes or commercial buildings. That means you will probably be receiving calls soon for help from people who see these pests. Pests that show up inside a building in spring may include cluster flies, boxelder bugs, spiders, and Asian ladybeetles trying to find a way back out from their overwintering sites. Asian lady beetles, both males and unmated females, can also be seen flying around looking for an exit. Big carpenter ants may also show up.

Springtails, sometimes known as snow fleas, can be seen outside hopping around on melting snow. Once the snow is gone these tiny wingless insects like to hang around wet mulch. These pests are attracted to moisture. Sowbugs, pillbugs, and millipedes are also seen in wet mulch and are sometimes found in large numbers inside or around building foundations.

So what holistic, environmentally sound IPM methods can you utilize to prevent or manage these pests? The answer lies in proper sanitation, exclusion, and other non-chemical prevention measures. If pesticide use is necessary, it's best that minimal amounts of the best materials for the target pest are used.

An immediate strategy in tackling an Asian ladybeetle problem inside a structure may be as simple as helping them to find their way out. They are known to nip and irritate the skin and, when disturbed, they can secrete a smelly, orange colored fluid that can stain walls and carpets. The easiest way to remove these beetles is to vacuum them up and release them outside. Alternatively, a nylon stocking can be inserted into the extension hose or wand and secured in place with a rubber band and used to collect these insects. Special light traps can be set up to provide temporary relief. Inert dusts can sometimes be used around windows, especially ones with a southern exposure where more beetles are seen. Similar strategies can be followed for boxelder bugs and cluster flies.

Most spiders hatch from egg sacs when the weather gets warm. These spiderlings can also be captured with a vacuum cleaner or glueboards. Although residual insecticides are not usually needed indoors, it may help to provide some degree of control.

To get rid of springtails, the best long-term solutions include allowing outside soil and mulch to dry out and improving indoor ventilation. Most springtails do not thrive in dry conditions. In some cases, chemical control

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may be necessary. But this will provide only temporary control.

When carpenter ants are found to be active within a structure during the winter months, there is a strong possibility that their main nest is inside the home. Once it begins to warm up outside, foraging carpenter ants can be seen around or inside the structure. Facilities near wooded areas are especially vulnerable to these foraging ants. The key to controlling them is to locate and

treat the nest. Finding the nest can sometimes be a challenge, but careful observations will help. Non-repellant pesticides are currently available that work in combination with baits to manage these pests effectively.

The emphasis should be to prevent overwintering insects from returning next year. This involves education. Sealing and closing any potential pest entry points is critical in reducing the pest numbers indoors. For chronic pests, such as

cluster flies and Asian ladybeetles, a carefully timed application of an effective residual insecticide may be necessary during autumn. The application must be directed to the exterior or the building, around the potential entry points.



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## International Congress of Entomology Report

By Eric Smith, Director of Technical Services; Dodson Brothers Pest Control; Lynchburg, Virginia

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Last August I represented Copesan at the 22nd International Congress of Entomology in Brisbane, Australia, a conference held every four years at a different location in the world. This forum provides an extensive information update with a worldwide perspective.

Among the many urban entomology sessions presented, several provided information of interest to pest management professionals and the clients we serve.

Dan Suiter, a University of Georgia entomologist, reported on the use of noviflumuren--a chitin synthesis inhibitor--in a bait formulation for control of Argentine ants. This species is the

#1 ant pest in California and is a major problem in the southeastern United States.

Suder's study determined that there was promise for noviflumuren as an insecticide. His lab results showed an 80 percent reduction in the Argentine ant's immature (larval & pupale) stages within two weeks after application. He reported that the lab results suggested that material should be used early in the season to reduce late season numbers. This is the first time that we've seen this significant amount of reduction in such a short period of time.

The problem in controlling

Argentine ants is that they live in very large, multi-queened colonies. They don't fight amongst themselves or between colonies, so basically one gigantic colony could be spread over one large city, or in the case of California, over the whole state.

Another session dealt with the resurgence of bedbugs. According to Australian entomologist Steve Doggett, Great Britain has had a 10-fold increase of bed bug infestations and Australia also has experienced serious problems. We know that the United States has experienced over a 500% increase over the past few years. Australia also has experienced

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Eric Smith poses next to a Cathedral termite mound found on the Gove Peninsula in the Northern Territory of Australia.

serious bed bug problems.

Doggett reported that bedbugs were found in 35% of rooms that accommodate back packers in Australia; one resort had 36 rooms that were infested. An airport hotel in Brisbane had 26 infested rooms. Another hotel lost over \$100,000 in business in 2004 because of bedbugs. This gives us a world perspective of just how serious the bedbug problem is, especially in the hospitality industry.

Stored Product Pests--a paper presented by Australian entomologist Dave Rees, focused on psocids in bulk grain storage. He investigated *Liposcelis* species, which have greatly increased in

importance in the last decade. In his assessment of control measures, he's trying to understand their biology and behavior. To do that you need effective monitoring techniques and Rees developed an inexpensive 4 x 6 inch corrugated cardboard trap. Because the numbers of psocids vary greatly over the course of a day, he suggests one should place these traps out for a 24-hour period to evaluate the size of the infestation. It seems to be a practical trap that gets the job done.

At another session, S.T. Kamble and R.W. Davis discussed perimeter treatments for subterranean termite control. They reported on

43 infested structures treated with Termidor. The applications were either exterior perimeter treatments only, or exterior perimeter treatments done with a localized interior treatment where there was termite activity. They found 95% of the structures showed no activity when inspected at 18 to 36 months after treatment. The structures that had activity had it in untreated areas. Those treated with both the exterior perimeter and the localized interior treatment showed 100% control. This suggests that, depending on the structure, you can use 19% to 48% less chemical to effectively treat a structure.

There were many other entomological research reports from around the world, so the Congress was an enormously exciting meeting. In addition, I was privileged to observe some of Australia's unusual pests, such as the huge cathedral termite mounds (constructed by *Nasutitermes triodiae*) that are scattered across the northern Australian landscape.



## Pheromone Trapping Programs for Stored Product Pests

By Jeff Weier, Technical Director; Sprague Pest Solutions; Tacoma, Washington

Sex pheromones are powerful chemical attractants produced and emitted by female insects. Insect males sense these chemicals and then zero-in on the unfertilized females for mating. Pheromones of many species are synthetically produced for use in Integrated Pest Management (IPM) programs. Throughout Copesan, we utilize stored product insect pheromones as an important element of our IPM programs.

Sex pheromones are especially good at helping us detect low numbers of insects. Placing a few pheromone traps in a building, trailer, or container can determine the amount of insect activity, if any.

In addition to detection, sex pheromones help the monitoring process, which involves tracking data and determining trends in trap catches. Pheromone traps can be utilized in evaluating increases or decreases in populations, such as after control treatments. Although it's difficult to do, you can sometimes relate the number of insects caught in the trap to the total number of insects in a particular site.

Pheromones can make pest management techniques more effective by helping to determine the source of infestation and target the problem. Localizing the source of infestation is key. This

can be done by simple triangulation. Count the number of moths in the traps and triangulate your way to the source.

Pheromones help reduce populations of stored product insects, such as the Indian Meal Moth (IMM), through intensive mass trappings. Pheromone traps can prevent the IMM populations from growing, and are reducing the overall populations at some sites to the point that the trapping program effectiveness is equivalent to or better than traditional methods of control, such as ULV treatments and fumigations.

We know that pheromone traps capture many male moths seeking unfertilized female moths. However, we don't catch all of them and we catch few, if any, female moths. Obviously, there's more going on than catching male moths. Some research in Europe shows that female moths will leave an area with high pheromone concentrations. So the males tend to exhaust themselves in chasing after the females they believe they have sensed, and may die in the process. And because they are exhausted they are ineffective in mating with a female they do find. Furthermore, there is some data that indicates that late mating in females lowers or stops egg production.

Our pheromone trap program also helps reduce or prevent cross infestation of food products in storage. It also helps reduce the amount of pesticides used, which is the goal of our IPM program, especially in organic situations.

What it can't do is solve the problem of a severe IMM infestation. To do that you must have a plan for a year-long or season-long management program. And it's not a substitute for good sanitation practices. If sanitation gets out of control in a building, there will still be insect activity, and a trapping program will be less effective.

It's also not a substitute for product rotation. If you leave old product in the same area and never rotate it out, the product could become infested, and stay infested, resulting in infestation of other products.

Nor is it a substitute for incoming product inspections. IMM's can enter a building by hitchhiking on a commodity being delivered. There has to be a good job done in inspecting incoming goods. But pheromone traps can help reduce the number of insects.



## Insect Light Traps, an Effective IPM Weapon

By Jim Luck, Technical & Training Director; Schendel Pest Services; Topeka, Kansas

Insect Light Traps (ILTs) have been utilized successfully in the pest management industry for over 40 years. However, their use by pest management companies as weapons in the Integrated Pest Management (IPM) arsenal has grown considerably in importance in recent years. Flying insect problems around the country have now come to the forefront of public health concerns.

plants. When ILTs are strategically positioned, they can help reduce the population of emerging flies and gnats and reduce the risk of them spreading into other areas of the building.

Fly activity begins to increase in the northern areas of the country in April, so March is the time to replace the ILT bulbs. In the southern areas of the country, it's probably necessary to change

lure, or another attractant, can also be added to the glue board to capture more pests (e.g., Indian Meal Moths, Warehouse Beetles, etc.). Insects caught in the glue can also be identified, which is the first step in a good IPM program. The insects caught on a glue board can also be counted for trending purposes.

Disadvantages of ILTs with glue boards are that they may not be as effective as electrocuting ILTs after a week or so. The glue board has a maximum capacity and then it doesn't catch any more insects attracted to the ILT. Under dusty conditions, the glueboards can be rendered ineffective after only a few hours.

There is concern that the use of electrocuting ILTs in a food processing facility, in a restaurant, or where there is exposed food, can possibly cause contamination of exposed food from "exploding" insects. Large pieces of electrocuted insects usually fall into the tray in the bottom of the ILT. Tiny fragments may be "exploded" a few feet away. To be on the safe side, various regulations and standards are used to keep insect fragments from contaminating exposed food. Electrocuting ILTs should not be placed above exposed food and should be at least ten feet away.

## Placement of ILTs is crucial to the successful management of flies and other flying insects.

ILTs are utilized to help reduce the numbers of structural infesting flies and other flying pests that have already invaded a facility. ILTs are very useful in helping lower the numbers of these pest flies in various facilities, including restaurants, commercial kitchens and atrium or common areas of offices and hotels.

Insect Light Traps are also useful in hospital settings and in certain office complexes, where atriums, ponds, and other interior floricultures exist for aesthetic purposes. Fungus gnats are typically found in these areas, breeding in wet potting soil of the

those bulbs twice a year, once in early spring and again in early autumn. ILT bulbs lose a portion of their attractiveness to the insects every month so it's important that the bulbs be at their peak effectiveness during the highest period of flying insect activity.

There are two basic types of ILTs--those that have a glue board inside to catch flying insects that are attracted to the light and those that have an electrocuting grid to electrocute flying insects that are attracted to the light.

ILTs with glue boards generally are more effective than the electrocuting ILTs. A pheromone

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Placement of ILTs is crucial to the successful management of flies and other flying insects. Generally, ILTs should be placed so that they don't increase pest populations by attracting insects from outside the facility. Do not install ILTs within 12-15 feet from a doorway and where they don't have to compete with sunlight (windows) or artificial light. ILTs should be placed so that an invading insect can see it as soon as possible after entering the facility and before the pest reaches exposed food or whatever product that needs to

be protected. Again, location is the key in ILT effectiveness. The primary consideration in ILT placement is the target insect. For different species of insects, ILTs should be placed at different heights. For house flies and filth flies, an ILT should be installed no higher than six feet above the floor and no lower than four feet. This zone is where house flies and filth flies are typically active. For night flying insects, such as moths, midges, mosquitoes, etc., ILTs should be installed higher, because that's where their typical active zone is located.

Now is the time to evaluate your pest management program, including ILTs, which can be an important and effective component of a good IPM program, if they are used properly. Talk to your pest management professional on how to use ILTs properly and how to maximize ILT effectiveness.



Information in this publication was researched and prepared by highly regarded experts within the pest management industry that are part of the Copesan Partnership. Copesan has more technical expertise located throughout North America than any other pest management firm. The IPM Update is a small sampling of that knowledge and expertise we provide to our clients.

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The IPM Update is published every other month by Copesan, 3490 N. 127th Street, Brookfield, WI 53005. Questions about subjects discussed in this issue should be sent to Copesan at our Brookfield address, or emailed to [ipmupdate@copesan.com](mailto:ipmupdate@copesan.com), and will receive a prompt response.

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