



# Trouble in

*Krohn Conservatory is a haven for plantscapes such as this.*

Baits are the weapon of choice in one indoor urban park.

# Paradise

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Contributor

The air is so humid, you can almost reach out and touch it. Large, glistening drops of water hang from every leaf and vine. Sunlight filters through an overhead canopy of 40-foot banana trees, figs and other tropical foliage, while a cool, 20-foot waterfall plays a liquid concerto as it pours into a small, rocky-shored stream full of colorful tropical fish.

Where is this exotic-sounding location? South America? Deepest, darkest Africa? How about Cincinnati, Ohio, in the grips of a cold and frosty February! Welcome to the Cincinnati Park's Krohn Conservatory, one of the country's most beautiful and successful indoor urban park settings.

Last year, though, there was trouble in paradise. Tropical insects (namely, Surinam, Australian and American cockroaches) were breeding at a phenomenal rate. The ant population was so high, they were eating the cocoons for the city's annual butterfly show. It was almost of plague proportions—one could even hear the scurrying of insects through the ground cover and leaf mulch.

The situation became serious when it was apparent that the cockroaches were devouring the conservatory's collection of exotic and expensive flowers, but when the insects started to compete for employees' and guests' lunches,

Cincinnati Parks engineer Gerald Checco approached Cincinnati-based Scherzinger Termite and Pest Control to design an integrated pest management (IPM) program.

#### Wanted: Professionals

The Krohn Conservatory's problem was not unique among similar type facilities. Office atriums, greenhouses, retail stores, zoological parks and other conservatories face the challenges of keeping unwanted pests at bay, while maintaining delicate, valuable exotic plant and animal species in a public setting. At times, the Krohn staff used natural biological controls, such as parasitic wasps and other predators, to control such pests as white fly, scale and other botanical pests. However, they knew this was an emergency situation, and

only an IPM professional could address this level of infestation.

Bery Pannkuk, Scherzinger's pest control manager, discussed several options with Krohn's director, Ruth Ann Spears.

"She voiced concerns that the springtime rental season was an important source of revenue for the parks, with weddings and other functions often hosted during the evening hours," Pannkuk recalls.

"Sometimes, the roaches would descend on catered food like a swarm of locusts," Spears adds.

Pannkuk knew an IPM approach would be the most practical solution, but with the warm weather approaching, a "quick knockdown" was imperative until other applications and procedures could be worked out and implemented.

#### Weighing the Options

Traditional approaches were ruled out almost immediately by Pannkuk, for a wide variety of concerns. For instance, phytotoxicity could occur, which is damage to plants exposed to chemicals and ultraviolet (UV) light. Traditional pesticide usage in an open public facility was another concern of the Cincinnati Park Board. Also, as host to the city's annual Butterfly Show, trace amounts of residual pesticides would likely damage the live butterflies used throughout the Conservatory's eight-week event.

Traditional materials in any formulation could have had adverse

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Scherzinger's Jody Brodberger places granular bait in a tray.

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effects on the Krohn's collection of lizards and tropical fish. Other inhabitants such as local songbirds, while not official residents of the Krohn, could also be exposed to pesticide poisoning. In addition, residual life for more traditional pesticides would be greatly limited, due to the 10,000 gallons of water administered each day for the Krohn's plant collection.

Pannkuk also ruled out insect growth regulators (IGRs) because of the Butterfly Show. Thousands of chrysalises (cocoons) would soon be purchased, cared for, hatched and eventually released for the public show, and the IGRs' potential for affecting the continuing life cycle of

the butterfly could not be risked.

After carefully weighing all of the options, Pannkuk decided that baiting was the only solution. After some trial and error, Pannkuk decided to use Maxforce granular insect bait.

## The Battle Plan

Pannkuk decided that his service would be divided into two phases. Phase one, the initial monitoring, would determine the placement of the baits and the Krohn's plant watering schedule. A little moisture is, in fact, an attractant, but Pannkuk didn't want the Krohn's staff to wash the bait away.

Staff members of the Krohn agreed that watering during the

cooler winter and early spring months could be held off for 48 hours each week. Early Saturday mornings were chosen because this would give the Scherzinger service technicians several hours to place the bait according to the results of the monitoring. Watering would then commence on Monday mornings without stressing the plants.

The second phase would be to keep the pest pressure and populations from rebounding back to the current unacceptable levels. A fixed schedule of in-place bait stations would have to be developed to allow free access to the baits, and ease of service. Shelter from water and work disturbing the materials was also necessary.

Sticky trap monitors were placed in 23 locations, covering all areas of the Krohn Conservatory. These monitors, baited with peanut butter and chocolate candy, were placed at the Krohn after hours to prevent employees and the public from tampering with or moving the stations. Pannkuk wanted to record the numbers of cockroaches, and their movement patterns. Monitors were placed on a Wednesday evening, with the baiting scheduled for the following Saturday morning.

The results of the first phase of monitoring were intimidating, to say the least. On several of the monitors, there were no sticky areas left. Adults were so numerous and hungry that they started eating each other. In addition to the cockroaches, other pests, such as mice and crazy ants (*Paratrechina longicornis*) were present. The crazy ant numbers were enormous, far too many to count on several of the monitors.

By figuring the number of stations and the number of square feet that each monitor was covering, Pannkuk estimated that the cockroach population was approximately 14,000 to 20,000 insects. Crazy ant colonies have fairly small numbers (about 2,000 per colony), and are considered a pest by the employees of the Krohn



The conservatory posed a challenge for cockroach control, with so much traffic filtering through daily.

because they farm aphids and relocate scale on a regular basis. These ants were found in all locations and at all levels, including arboreal (tree-living) colonies in tree branches and rock formations. Pannkuk estimates several hundred individual ant colonies at the Conservatory.

Joe Barile, Maxforce's national technical director, was contacted for additional information concerning this unique application and infestation. The Clorox Co., makers of Maxforce, donated enough Maxforce insect bait to complete the initial phase of the program. Barile helped Pannkuk plan a schedule to maximize the effect of the baiting program.

On Saturday morning, 60 placements of bait (approximately two ounces each) were placed around the facility. Scherzinger Route Supervisor Jay Brodberger reported that the cockroaches approached the trays immediately, even before the techni-

#### A Short War

As it turned out, however, it was a rather short war, with victory coming decisively for Pannkuk. The next Wednesday morning, the staff at the Conservatory reported enormous numbers of dead and dying cockroaches throughout the facility. No baiting was done the following

*The initial numbers of cockroach and crazy ant populations caught on the glue boards was astounding.*



## The real test would come during an elaborate catered wedding and reception held at the Krohn that evening.

cians had left the area. Along some of the inaccessible areas, the bait was applied according to label directions in a broadcast-type application.

To check the acceptance of the bait stations, all sites were inspected the next day. Every bit of the bait was gone. The results were somewhat alarming, and the thought that the initial population was underestimated was of concern to Pannkuk. In addition, because of the larger cockroaches, Barile believed that the initial "knockdown" would not be seen for at least five to seven days.

A little more than a week later, the same schedule was followed, with the same results.

Saturday, but the monitoring showed a drastic decrease in the number of insects trapped. Still, though, there were too many ants to count.

By the third week of monitoring, however, the number of cockroaches trapped was at 14, and even the population of ants was greatly reduced. Pannkuk's final baiting was done a week later, and the next day's inspection revealed very little bait consumed.

The results kept getting better; as week five of monitoring trapped two Australian nymphs and only 15 ants. Pannkuk was satisfied at the results, but the real test would come during

an elaborate catered wedding and reception held at the Krohn that evening. Happily, the Krohn's staff reported no cockroaches seen during the affair. They also reported that the Krohn's collection of beautiful flowers were no longer being eaten by the insects. At the end of the monitoring program (week 10), only a single Australian cockroach and three crazy ants were trapped.

#### Project Update

It's been about a year since Pannkuk met the challenge of ridding the Krohn Conservatory of its "plague-like" infestation of cockroaches and ants. The insect population at the Krohn Conservatory remains low, thanks to Scherzinger's maintenance program of both the Krohn and its supply nursery, located in another part of Cincinnati.

The B&G Co., Plumsteadville, Pa., recently developed an in-ground bait station designed for using different insect baits. Approximately 100 of these stations were donated to help the Cincinnati Parks System develop an ongoing program. Sixty-three in-ground stations filled with the Maxforce were placed in the soil and around other workstations inside the Krohn Conservatory. Scherzinger conducts a monthly service during the peak insect pressure months of April through September, and every other month during the cooler months.

In fact, word is getting around about Scherzinger's success, because the company landed two new substantial "green" accounts in the last year. Pannkuk believes that, due to the acceptance of the bait, the populations of both the larger cockroach species and the crazy ants have been kept under control. That's good news for the Krohn Conservatory, its staff—and the butterflies! **PC**

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