



Pest Notes

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"Smarter Than Your Average.....Rat?"

Techniques to Catch Elusive Rodents.

"Oh rats!"

A phrase often used (among others) to express frustration or disappointment with a particular situation. But have you ever wondered, why rats? Why not, "Oh, cockroaches, pigeons, bats?" Well, if you have ever faced a rodent problem, the reason we choose rats is very clear---rats appear to be "smarter" than your average pest and as a result often frustrating to control. A successful program not only requires implementing sound integrated techniques, but also demands your patience, ingenuity, flexibility and maybe a bit of luck.

The following PCT-Online article by Dr. Bobby Corrigan provides outstanding advice to those facing a seemingly hopeless rodent management problem. If, after reading this you still need some advice or maybe encouragement, please give us a call.

Capturing Smart Rats Requires Common Sense And New Ideas

Have you ever had a rat you couldn't capture? Most pest management professionals encounter this problem every so often. On one occasion, for example, it took me three weeks to take out a single rat from a granary. And recently one rat on a commercial jetliner cost nearly a half million dollars in downtime for the airline because the rat did not respond to any control strategy, and the plane had to be fumigated. The industry is full of similar elusive rat stories.

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Living On The Wild Side

Wildlife Pest Management

We have all heard the stories, "Police Chase Bobcat From Neighborhood", "Bats in Belfry Worry Local Congregation", or my personal favorite, "Mountain Lion Found Resting Comfortably in Local Residence." While these headlines may cause you to cringe, you probably are not losing any sleep worrying about it. However, as many of us seek refuge in "nature" to escape the stress of everyday life, we unknowingly enter into the habitat of many animals which in the past were only seen on Mutual of Omaha's Wild Kingdom or in the zoo. Clearly, wildlife pest management is now becoming an area of concern for many.

The following PCT-Online article by Scott McNeely provides an interesting summary of pest wildlife management and techniques for reducing the incidence human-animal interaction. If you are facing a pest wildlife problem, contact your local wildlife control manager, natural resources professional, extension service or give us a call.

Avoiding Mistakes

With the sprawl of urban development and the adaptability of many wildlife species, there has been an increasing demand from the public for professional assistance with human/wildlife conflicts. There are a number of mistakes or accidents that can occur and that should be avoided. Here we'll take a look at potential areas of concern in dealing with these "common wildlife control mistakes" and some ways to avoid them.

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SMART BY NATURE. But what is it about rats which makes them so challenging and difficult to control? Are these troublesome rats "smarter" than the rest of the colony members, and do they "know" how to avoid lethal devices and baits? Let's examine the "smart rat" phenomena a bit closer. The avoidance of strange objects as well as strange animals of the same and other species is actually common throughout the animal kingdom, including among people. This behavior is called neophobia (fear of new). Neophobic behavior serves rodents as a survival strategy. In their natural world, rats are subject to predation once they leave the nest. Their principle means of avoiding predators is their use of familiar pathways under cover and quickness to get to a burrow or other place of concealment. Thus, the rat depends on its previous experience of being able to move quickly and accurately around its living space. In this way, it can run from one point to another using the shortest route and in the least possible time, minimizing its exposure time to predators and danger. So as you might imagine, any sudden changes in the living space is met with suspicion and caution, at least for a time until the rat re-habituates to the changes. Even a new hole (e.g., a bait station) which suddenly appears in a rat's runway will initially be approached very cautiously. From the rat's perspective, the hole may be already occupied by a snake or some other predator. In short, neophobia protects the rat from the consequences of careless curiosity.

Neophobic behavior can also play a part in a rat's feeding behavior, but is somewhat a function of resource availability. For example, if food is abundant and easily accessible, the rodent can afford to ignore the new food for varying lengths of time. Fortunately, for pest control programs, most rats overcome their neophobic reactions to new foods usually in less than a day. But in some granaries, zoos and warehouses where rats and rat colonies have been feeding on the same food for years, it is common for some rats to totally ignore all new baits and traps.

FOOLPROOF TECHNIQUES. So how do we control the elusive, neophobic rat? Below are nine techniques

which have worked for myself and other professionals over the years:

1. When possible, eliminate the food source, even for just one night. When a rat's available food resource disappears (i.e., via starvation) or when a rat population exceeds the food availability, the rats no longer have the option of ignoring foods, new or old. With an instant food shortage, the rats are more likely to turn to your bait or to the bait on the trap.

2. Play the gourmet option. Entice the rat to a new bait station or rat trap by presenting a delectable food item such as fresh meat, fish, shrimp or some similar high quality food. This is no time to go cheap with your baits; callbacks are expensive. Place the bait in a small trail leading toward the bait station or snap trap, as well as on the edges of the device. As the rat habituates to the trail and area, it should eventually interact with the control device.

3. Pre-condition the rat. Leave small pieces of food on both sides next to and on top of an unset trap. In this way, the rat will learn to associate food with the new object. Once feeding has begun, then set the trap. When using a bait station, place a small amount of the enticing food in the entryway, smear a little on the door area, and place some of the bait within the station.

4. Try natural bait. For elusive rats using both exterior and interior areas of buildings, try reducing the rat's neophobic response by offering it one of its natural foods. For Norway rats, American cockroaches can be tied to the traps using dental floss. For roof rats, pieces of snail or snail shells also tied to the triggers have proven effective.

5. Disguise your traps. Disguise a snap trap by filling an empty soda cardboard carton (which holds four six-packs) with sawdust. Bury an unset rat trap beneath the sawdust. Place an enticing food trail leading to the box, and place the food on top of the sawdust including directly over the trigger. Once

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the rat has habituated to the box and is actively taking the food, install only one piece directly to the trap trigger and set the trap. When using glue trays, use the large size and install the trays along rat runways, but keep them covered or use plastic wrap over the glue. Once rat tracks are obvious over the covered glue trap, remove the cover. Be sure to secure the glue trap to the surface in some manner.

6. Identify the rat's scarcest resource. Does the rat have plenty of food, but not much obvious water? Install liquid baits. Or perhaps soft nesting materials (very important to a rodent) are not abundant. Nesting materials (strips of cloth) can be used as baits around traps in the manner as mentioned previously for food baits.

7. Install a sharpshooter. A sharpshooter quietly lying in wait at night is often used to take out the troublesome rat. In persistent cases this is actually one of the most cost-effective approaches.

8. Use tracking powders. Tracking powders have one of their greatest utilities against neophobic rats. The tracking powder can be applied in suspected runways, possible burrow openings, and other areas the rat might travel. Be sure to use only those tracking powders labeled for use around buildings against rats.

9. Use a video camera. Video cameras with low light options and wide-angle lenses can be installed overnight in those areas where the elusive rat is suspected to be active. The camera may record the rat's secretive behaviors and provide the clues needed to trap the rat, or have the sharpshooter stake out an optimal position. With elusive rats, it is wise to invest the time up front. Otherwise, these rats will cause expensive callbacks. The techniques discussed above are more work than smearing peanut butter or tying a piece of hot dog to a trap, and hoping for the best. But they are often your only tools for outsmarting that last "smart" rat.



"The Best Laid Plans Of Mice and Men....."

Successful Rodent Management Depends on Plan Organization and Execution

British author and playwright, W.S. Gilbert (of Gilbert and Sullivan fame) once wrote, " When I went to the Bar as a very young man, (Said I to myself--said I), I'll work on a new and original plan (said I to myself--said I)." While I'm pretty sure that rodent control was not what he had in mind, the idea of planning, organizing and establishing goals early on in the process is very applicable to pest management. Reacting to a pest situation (rather than preventing) without planning appropriately will often lead to failure, particularly with rodents.

The following PCT-Online article by the staff at Pest Control Technology provides useful advice for those who must organize and implement an effective integrated rodent management plan.

Defensive Mechanisms

They scurry around, sneaking under doors and through cracks. They jump, gnaw and eat throughout the day. They bother your customers and maybe even frighten them. They're not Might or Mickey...they're just regular old rodents. More specifically, they are house mice and Norway rats. And many PCOs have to deal with them daily. "Rodents are certainly in the top five" pests PCOs treat for, says Dr. Bobby Corrigan, rodent control specialist, Richmond, Ind.

Controlling rodents doesn't require the use of a lot of pesticides. In fact, controlling them doesn't take a lot of baiting, either. But controlling rodents does require a lot of organization.

"Rodents are all around us," says Corrigan. "Rodents really are wildlife like rabbits and tree squirrels. Rodents are naturally occurring in woods, fields, streams and lakes. Ideally, the best thing (to control) for rodents is to be organized."

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And as homes and businesses expand further into the reaches of the wilderness and undeveloped areas, rodent harborages are being disrupted. People are taking over areas traditionally held by rodents, forcing the rodents to seek out other areas to inhabit.

"With people building into wild areas, they're getting rodents," says Michael Chapman, Western Exterminating, Irvine Calif. "as populations fluctuate, the mice will come in and look for shelter." Also, with El Nino's (Pest Notes: something else we can blame on El Nino like the time it takes me to get to work, why the Yankees have a poor pitching staff, etc.) rash of rain and heat, more rodent infestation problems have surfaced. Many weeds have grown, and as these grasses die, Chapman says, the rodents are more likely to enter peoples' homes.

Corrigan agrees. "Pest populations rise to meet resources. If there are lots of resources available, the population can explode," he says.

Weed control and vegetation management must occur, together with inside treatment, Corrigan says. To prevent rodent infestations, PCOs must analyze possible source points (inside or outside); keep rodents out of buildings by pest-proofing; and monitor for their presence. The most successful rodent control programs begin with thorough inspections and should always be conducted before any control work is started. A good inspection reveals the extent of infestation, harborages, entry points, and the safest, most appropriate and cost-effective control program for the specific situation.

WHO'S WHO. The two most common pest rodents are the Norway rat and the house mouse. The Norway rat is the most important urban rat pest for most parts of the world and is found in every state. The house mouse is the No. 1 rodent pest in most parts of the world. House mice live within cities and towns, as well as away from buildings as field rodents.

Weeds and vegetation are the natural habitat of the commensal rodent, Corrigan says. Weeds are a

natural habitat, while weed seeds and insects serve as a food source. Protein is very important for rodent reproduction, which they get from insects. Carbohydrates are provided from the seeds. Weeds outside of buildings provide cover from hawks, owls, snakes, cats, dogs and other predators. They also serve as sources of water and nesting materials.

In putting together a rodent control program, try to keep bushes away from around the house, recommends Paul Hardy, technical director for Orkin Pest Control in Atlanta. "Don't use ground-hugging plants," he hays. PCOs should also inspect and monitor burrows. They need to take a step back from buildings and look for other possible rodent harborages, Hardy points out.

Experts agree that the best way to control rodents is from the outside of structures. "(We try) to reduce the rodent population that's moving toward the building," Hardy says. "The real trick is to keep the rodents out of the building."

Rodent proofing and an ongoing environmental sanitation program are the best two practices for providing long-term and cost-effective control in a rodent IPM program. Although rodent proofing is perhaps the best way to eliminate a rodent infestation for your customer, many times both property owners and PCOs alike don't try this preventive measure.

INSIDE AND OUT. Hardy says when treating rodent infestations, Orkin professionals use bait stations in three ways: around fence lines and secured with an anticoagulant bait; around the perimeter of the building, locked and secured; and inside the building, in selected areas, for example, in shipping, storage and public areas. Orkin technicians put glueboards in the bait stations and then monitor for rodent activity. Hardy says he prefers to use more IPM techniques than pesticides for controlling rodent infestations.

"There is no advantage in poisoning rodents," he says. "Putting out baits first is not what we do. In fact, it is probably the last."

Chapman says with its many commercial accounts,

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Western also aims to create a "triple perimeter"---at the fence, along the exterior of the building and inside with glueboards and snap traps. And with residential accounts, he says, baits are rarely used, because of liability--the houses may be too close together and in neighborhoods, people are frequently out in their yards. "I don't think (baits are) always necessary in those situations, " he says.

Being organized is a big part of rodent control, Corrigan says. "The best way to prevent rodent infestations is to be organized so you can easily spot their evidence, "he says. "They may be there, but you can't see them." He says PCOs need to pest-proof buildings by closing gaps, including under doors, to 1/4" for mice and 1/2" to exclude rats.

Depending on the availability of food, such as garbage, rodents may move to a location where it's easier to survive. "Sometimes rodents are close to buildings and they move in because of the cold." Corrigan says. "Not that they have to, but it is much easier to move in." Corrigan also says rodents may move into a garage where food is available, such as bird seed and dog food. Chapman agrees, saying that dog food in certain locations may lead to higher rodent populations.

But in addition to using pest control techniques inside the building, an even more important issue may be to prevent the rodents from being able to get inside in the first place. "I see this as a big weakness of our industry, " says Corrigan. "We do a lot of great work on the inside but overlook the outside."

Hardy says that if PCOs do away with the food and water sources, they will frequently eliminate the rodent problem. "Get rid of standing water, monitor outside trails and droppings and stop up all holes," he says.

One of the most important aspects of rodent control is how the PCO or technician goes about his or her treatment. "Once inside, it is important for the service technician and PCO on the job to understand there is

no magic wand," he says. "We allow rodent populations to expand because of how we live. PCOs need to analyze the situation."

Hardy agrees that technicians play a crucial role in the process. "The key to rodent control is the technicians. The technician has to deliberately think If I were a rat, where would I be?" They have to think like a rat," Hardy says.

Chapman says Western discusses rodent control and biology in the technicians' initial training program. The company also uses two videotapes, one addressing how to anchor traps securely and another about rodent-proofing techniques.

While it is important for technicians to be well trained, PCOs need to realize the program to eliminated rodents has many aspects. PCOs should use a methodical approach when controlling rodents--you can't assume anything. Hardy says. So what is the best way eliminate a rodent infestation? Three words, Hardy says. "Monitor, monitor, monitor."

Sidebar: Roof Rats Live The High Life

In several coastal and tropical U.S. cities (for example, San Diego, Houston and Honolulu, the roof rat (or black rat) is the most numerous and most significant rat pest species. Controlling this rodent is different than controlling others because of how its living habits differ from those of other rodents.

"Professionals have to think differently with roof rats. They have to look up in deep, dark crevices because that is where they are," says Bobby Corrigan. "They are different than Norway rats--they're much more secretive."

Roof rats are a tropical species in the United States--they originated from Southeast Asian jungles. Since they are arboreal and lived in treetops, they adapted and acclimated to cities by moving higher up to the roofs of buildings.

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Because roof rats prefer the elevated areas of treetops and roofs, they are by nature more elusive and less dependent on the food and harborage resources of humans. The dense growth of trees, shrubs and vines, woodpiles, sheds, and accumulated yard rubbish all contribute to infestation of this rat.

"Buildings are trees to them," Corrigan says. "They travel on telephone lines and trees. Those are the natural lines of travel."

Michael Chapman, Western Exterminating, Irvine, Calif., agrees. "In California we deal with roof rats, and they are better climbers," he says. "They like vegetation and vegetables, which we have a lot of."

Any vegetation that climbs and provides cover is habitat for roof rats, Corrigan notes. So it becomes important to make sure vines, clinging ivy and the fronds of palm trees that are touching roofs are removed.

Sidebar: Top Ten Rodent Signs

1. Feces (droppings)
2. Gnawing damage
3. Burrows
4. Runways
5. Tracks
6. Grease marks
7. Urine stains
8. Visual sightings of live and dead rodents
9. Rodent sounds
10. Rodent odors (especially for mice)

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What's There? One of the first things that you need to determine when dealing with any wildlife call is the problem animal species that may be present. You must be familiar with the potential wildlife species that may be encountered in your area. In addition, you should be able to identify the evidence that each of these different animals may leave behind such as tracks, droppings, nest material, burrows, gnawing marks, etc.

The property owner who places a call may be able to provide a valuable description of what they have been hearing or seeing. Being able to determine if the customer has been hearing scratching vs. running sounds or activity during the day vs. evening may provide valuable insight into determining the type of "unknown varmint" that's in the wall or attic space. This is especially true in situations where there is limited accessibility to the area where activity is occurring. Failure to interview a customer can result in an incomplete investigation as well as additional work. You should also ask the right questions so that you can obtain information in order to develop a plan of action to address the pest that may be present.

There have been more times than I'd like to admit that I did not make a thorough enough initial inspection. Missing a travel path or secondary potential entry point may result in initial failure to solve a pest concern and require additional trips on site to properly remove or exclude a targeted wildlife species. Most wildlife intervention work does not provide an opportunity for recurring revenue so if you miscalculate the time and materials necessary to address the concern then it can really hit home when looking at the bottom line profitability.

Why They're There. As PCOs, the idea of an animal's need for food, water, shelter and ideal climate should be a commonly known concept.

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Just as these points are true for insects and rodents, they are also applicable to essentially all urban wildlife species that may be encountered. Failure to identify and eliminate a competitive attractant food source such as bird feed, cat food and compost piles can result in extended time on the job and lack of success.

If you are not familiar with different types of construction and the potential points of entry used by different wildlife species then you once again may be on a job site longer than you originally intended. Here are some important tips to keep in mind as you perform wildlife control work.

1. Realistic expectations. We all normally want to close a sale when we are out at the home or business of a potential customer. If there is a wildlife issue you must remember that the recurrence of certain wildlife species can be hard to predict. The time taken to educate the customer is important so that they don't have higher expectations than you will be able to deliver.

2. Sealing them in or out. If there is a question as to whether an animal is using an entrance or den hole and you are considering sealing or filling in the hole, you should always be positive that the entrance is inactive. This can be accomplished by placing some loose wadded paper or even a few sticks in front of the hole or opening. If you don't take the time to do this you may be faced with damage to the interior of a structure or a dead animal within the structure that must be located due to deterioration of the carcass.

3. Trap selection. There can be nothing more frustrating in the use of cage traps than to go out to an account and find thrown--but empty--traps. Animals such as raccoons and ground hogs are capable of turning over cage traps that may then provide them an escape. In certain situations, failure to properly secure a cage trap to a large board can result in an animal escape. When setting cage traps on roofs, failure to use a board under the traps can result in damage

to the roof through the efforts of a trapped animal (such as a raccoon) attempting to "dig out." You must also use the right size trap for your target animal. In many cases it can be difficult to get an animal to investigate a cage trap once it has been "educated" and escaped from a poorly set or an improper sized cage trap.

4. Bait selection. It is important to have a variety of preferred baits and lures available when trapping wildlife. Selection of the best available lure will often greatly impact your success when dealing with certain species of wildlife. If traps are tied up catching non-target animals or the targeted animal isn't interested in the bait or attractant, you may be unsuccessful in solving the problem. If traps or bait are "contaminated" with pesticide or other odors then it is doubtful that you will have consistent success when using those traps.

5. Time of Year. You must take into consideration the time of year that you are called out to an account and how this affects the wildlife species. For example, beavers normally feed heavily on green vegetation during the mid-summer months and many beaver lures are of minimal attractiveness. Given the same site three or four months later the beavers likely will have shifted their feeding preference towards woody vegetation and actively investigate many attractive lures due to the approaching breeding season. In addition, removal of an adult female squirrel that is nesting in an attic may also leave behind young in a nest that should be located and addressed. Failure to investigate this can result in the death of the young squirrels in the attic space and a whole new set of problems.

6. The Right Equipment. Making do and getting by with what you have has to occur at times. If you try to use the wrong type of equipment to get the job done this can often lead to failure. If you fail to place a sufficient number of trapping devices this

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may also extend the time necessary to solve the problem.

7. Handling the Public. This year I was at a residential development within the city limits that had hired an individual to trap beavers that were cutting trees and damming the spillways on several of the neighborhood lakes. Apparently, this "wildlife professional" was unsuccessful with his trapping efforts and took it upon himself to come back out in the evenings to shoot beavers. The neighborhood association decided to fire him and get someone else who could help them. In this case the shooting was illegal because the development was inside the city limits--as well as dangerous because homes surrounded the lake. These actions created a highly visible activity that not only hurt the reputation of this individual but could also cast a negative image on others who are truly wildlife damage control professionals.

8. Non-Target Animals. In providing any type of service work involving wildlife, failure to make a concerted effort to maximize a professional work standard can have serious negative consequences. You must remember that your work may often be carried out "in view of the public's eye." You need to always conduct your work like someone is watching over your shoulder. In reality, there may be one or more individuals that will question the need for you to exclude, relocate or remove wildlife species from any given place. You should always be prepared to address concerns from the public in an informative and professional manner.

9. Wildlife Capture and Release. In many states it's illegal to release certain species of wildlife due to their status as a pest or the danger associated with the spread of rabies. In these cases the captured animals must be euthanized. You should be equipped to handle euthanizing animals as required by law or have arrangements made in advance with an animal shelter or veterinarian to handle this for you.

You don't always need to trap, catch or kill an animal in order to be providing a valuable service for your customers. Many customers simply want the animals

away from their homes and do not want to see them harmed. In some situations you can educate your customer and it may be possible to modify the attractive conditions. You may also be able to simply exclude an animal to solve the wildlife conflict. By doing this you have prevented the need to destroy or relocate the animals. When an animal naturally relocates within its "home range" then its ability to survive increases. If an animal is relocated to a new site then it may have difficulty finding suitable feeding and denning areas. The release site may have a balanced population of that wildlife species already present and additional animals may adversely impact the balance.

If you upset a customer or violate state, local or federal wildlife laws nothing good will come from it in the long run. Once again, if you operate your business as a professional this will contribute to a positive reputation for your business.

10. Safety. Another common mistake that can have serious consequences can occur when working with tools or equipment. Insufficient or faulty equipment that is in poor working condition can have negative consequences. One of the more important tools that are used almost on a daily basis is a ladder. A ladder that is of insufficient height, weight capacity or in poor condition can be a "death trap." Another safety concern that is also frequently overlooked is proper footwear. Hard-soled cleated sole boots worn while walking on a roof provides poor surface contact. This can lead to a slip or fall resulting in injury. In work environments that involve heights the professional should also be equipped and properly trained in the use of fall protection devices.

11. Attics. Due to the habits of many wildlife species associated with homes, gaining access to inspect the attic space is often necessary. These attic spaces may be fully floored, partially floored or totally unfloored. In all cases the wildlife control professional should always watch where he or she is placing his or her feet and watch for loose boards while traveling in attics. Consideration should be given to wearing a "miner's type" head-lamp vs. a hand-held flashlight

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in order to keep your hands free. If work requires that access must be made to the unfloored portion of an attic then a few 1- by 10- or 1- by 12-inch boards can make a difference in safely being able to work in these areas. Stepping from one roof rafter to another is a good way to eventually end up stepping or falling through a ceiling.

12. Crawl Spaces. It is occasionally necessary to enter into crawl spaces for inspections. In these situations a bump hat, coveralls and gloves should all be standard equipment. It is also advisable to wear eye and respiratory protection, especially when working where there may be an accumulation of animal waste (Pest Notes: This is particularly important where rodents, birds, and bats have been observed).

13. Roofs. The wildlife control professional should always wear proper footwear and avoid climbing onto any roof surface without having proper safety equipment in place. It is better to walk away or come back to a job site than it is to be carried away. In certain situations the use of a platform lift, scaffolding or a knuckle boom device may be necessary in order to safely gain access to the area(s) where trapping or exclusion services need to occur. Prior to using these pieces of equipment you should receive training on their use.

14. Animal Contact. Almost all types of wildlife have some means of defending themselves. Failure to wear the proper protective gear while handling, removing and/or releasing animals can result in a possible contact situation. The more you directly handle wildlife then the greater your potential is for a bite or scratch to occur. If you are working with wildlife removal and exclusion you should always maintain a current rabies pre-exposure vaccination. You should also have a good first-aid kit in your vehicle.

15. Odor Release. In dealing with skunks you should always inform your customer that these might be a potential for an odor release. If you capture a skunk in a cage trap it is normally possible to remove the traps containing the animal without having it spray. Using specially designed traps that enclose the trapped skunk, covering the set trap or carrying a tarp with you so that you can cover a trapped skunk prior to moving can aid

in preventing skunks from spraying.

16. Stinging Insects. During the summer and fall months it is likely that you will encounter nests of stinging insects. The key to avoiding getting stung is to constantly be on the alert for the presence of nest sites. You must remember that if you encounter a nest of wasps or hornets while you are on a ladder the potential for injury is greater from falling or jumping off than from getting stung (Pest Notes: Unless, of course, you happen to be allergic to the venom). It is advisable to have several aerosol cans of wasp and hornet spray on your service vehicle.

Conclusion. To avoid making mistakes while conducting urban wildlife interdiction it is essential that you are properly prepared. Your knowledge of the animals and conditions that you may encounter is invaluable. You must also have the proper equipment and tools to get the job done in a safe and effective manner. You must strive to increase your knowledge and consistently practice good safety measures.



Ask the Entomologist Tips for effective pest management

YELLOW JACKET ALERT

Insects Limited, Inc. 2000

Submitted by LTC Nelson Powers, USA

DLA Headquarters

Did you know many experts consider yellow jackets the most dangerous of insects because of their aggressiveness and the prevalence of allergic people? Their constant scavenging of human food puts 'bees' in frequent conflict with people in picnic areas, parks, backyards, patios, etc. Yellow jackets typically build their nests underground, they can produce over 1000 workers in one season. Yellow jackets are present from July through late October.

Tips For Preventing Pain and Suffering From Yellow Jacket Attacks

1. Serve soft drink cups with tops and straws (this will reduce the number of serious stings to the face and throat).
2. During the yellow jacket season, try having your outdoor activities after dark when possible. Or use screened in areas during daylight hours.
3. Don't wave or slap at yellow jackets. This will only aggravate them.
4. Cover all meat and sweets when outdoors.
5. Clean up all fallen fruit under fruit trees.
6. Aggressively clean up food spills around picnic tables and other eating areas.
7. Do not wear perfume or fruity after-shave when outdoors.
8. Change trash can liners often and secure tight-fitting lids on trash cans.
9. Because there may be dozens of active nests in your neighborhood, it is nearly impossible to eradicate the entire 'bee' population.
10. Leave nests and entry holes alone and call a professional pest control company to remove or destroy the nest.



STORED PRODUCT PEST MONITORING

Pheromone Trapping Tips

By David Mueller, BCE

Insects Limited, Inc. 2000

Submitted by LTC Nelson Powers, USA

DLA Headquarters

How do you set a pheromone trapping program in a warehouse?

Tip 1: Since most pheromone trapping programs are designed for monitoring or early detection of pest insects, the traps should be placed on a simple natural grid, using vertical support beams that are normally positioned on a 60' x 40' or 60' x 60' pattern. The Indian meal moth, warehouse beetle, and cigarette beetle sex attractant pheromone will pull male insects from a 30-50' radius. In addition, place traps outdoors around the loading dock area. This can intercept pest insects around open doors and help point out the need for keeping doors closed. No traps should be placed near the doors to prevent unwanted entry.

Tip 2: One way to increase the efficiency of a pheromone trapping program is by using two or more lures in one trap. Two stored product insect pheromones commonly used in the same trap for monitoring purposes are the Indian meal moth and warehouse beetle. They both fly and are often found in the same locations. By using this method you can significantly reduce the amount of time spent checking traps. A third lure often used in these traps is for the cigarette beetle.

Tip 3: Place pheromone traps a little above eye level on a vertical support beam and not the racking. If the warehouse is full at the time of placement, you may have to be inventive and place them in the channels of the vertical support beams marked with a yellow ribbon placed high on the beam to help you locate the trapping locations. You may want to hang the traps high with a long pole and hook to help retrieve it. Also, try placing traps near fire extinguishers/hoses that are required

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to be accessible. If traps become lost or buried, make a note of this in your log.

Tip 4: In order to make sticky pheromone traps last longer, clean out the captured insects after recording the catch. This works especially well in areas that catch small numbers of insects. Bring a popsicle stick of coffee stirrer and a paper towel with you to inspect traps. Use the stick to remove the insects and wipe them on the paper towel. This will allow extraction with minimal mess and helps make it easier to keep track of catches from one week to the next. When replacing lures in traps that don't need to be replaced, it isn't necessary to pull out the old lures. Just add the new one to the trap. This can enhance the effectiveness of the lures if any pheromone is still left. Write the date when the new lures were added to help you keep track of when they will need replacement. Most pheromone lures last for 8-10 weeks indoors.

Remember the key is to save time and be efficient when you check these traps. Make the path simple and accessible. Don't forget to take time to look around the warehouse for other signs of problems (e.g., rodent droppings, excess spider webs, missing door sweeps, excessive temperature gradients, poor personnel practices, old code dated products, insect webbing, spills, excess weeds, etc.).

Head Lice in Schools

George Rambo, PCT-Online
September 2000

What is a PCO's (Pest Control Professional) role in a head lice infestation at a school?

A school problem that crops up every year is head lice. Most recently there has been quite a discussion on a list server for IPM i schools. Because the discussion has been somewhat controversial, I've included some information about head lice so that PCOs can be prepared for questions.

Head lice are treated as a personal problem in most school systems and PCOs should NOT be involved in any pesticide application for them. However, you should

be prepared to offer information or recommendations when it is requested.

There are several formulations of pesticide products that can be used by parents. These products are usually in the form of solutions, shampoos and creams applied topically. There are also several "natural" products recommended for head lice control--everything from olive oil to a product called Lice B Gone (a soap that attacks the glue that secures the nit to the hair, thus making it easier to remove).

Schools usually have a policy that states the child cannot return until they are nit free--free of eggs from the lice. Here is where the rubber hits the road.

Nit removal is time consuming, especially on children with long hair. Pesticide shampoos have to be used effectively and parents still have to use a nit comb to remove nits. Natural products, like olive oil, facilitate combing but still the combing has to be done effectively. Even the Lice B Gone product needs parental attention. The bottom line is that all of these methods work (although there is always a discussion about pesticide-resistant lice), but parent education is necessary.

Educational material should be discussed, especially the time involved in treating and removing nits. Simple-to-follow pictures and a list of expected results should be developed to explain the process. If you are involved in this discussion, information is available from NPMA or the Handbook of Pest Control by Arnold Mallis. Make it available to schools or develop distribution material.



In The News.....

Sacramento County Doctor Stricken With Hantavirus

PCT-Online, September 2000

Sacramento, Calif.--A Sacramento County doctor was recently hospitalized with hantavirus, making it the county's first case since 1996.

The doctor's condition is being withheld by the UC Davis Medical Center, where she is being treated. However, Sacramento County Health Official Gleenah said the diagnosis was made early and doctors, "caught it in time to put her on ventilation and she is still alive, which is quite remarkable."

PCOs should be on alert since hantavirus infections occur from exposure to rodent urine, droppings or saliva. Symptoms occur one to six weeks after exposure to the disease when victims experience fever and aches followed by shortness of breath and coughing. Hospitalization is usually required when the illness reaches this stage and ventilation within 24 hours. At the present time, there is no known cure.

Vicki Kramer, Chief of the vector-borne disease section, California Department of Health Services said rodent traps will be set around the infected doctor's home and in two other counties where the woman has traveled recently to attempt to locate the source of her illness. Kramer said none of the areas are known to be high risk for hantavirus.

California has the second highest number of hantavirus cases in the United States after New Mexico, with 32 reported cases since the virus was discovered in 1993. The case also comes six months after two other reports of hantavirus in Yolo County, California. In April, 41-year-old Alfonso Avarado died from the disease in Yolo County. In the second case, a 21-year-old student at the University of California's Davis campus became ill after cleaning storage facilities in the Four Corners region of New Mexico, a high-risk area for the virus.

Warm Weather Not Major Factor in Malaria Epidemics

Malaria was an important cause of illness and death in 16th and 17th century England during a period known as the "Little Ice Age."

Centers for Disease Control and Prevention Atlanta-- History shows that malaria was common in England and much of Europe until the end of the 19th century. It even flourished during a 150-year period called the "Little Ice Age," clear evidence that factors other than climate affect the spread of a disease seen today as "tropical," according to an article in Emerging Infectious Diseases, CDC's peer-reviewed journal, which tracks new and reemerging infectious diseases.

The world's climate is constantly changing. In the Middle Ages, temperatures in Europe were higher than they are now, but in the 16th century, bitter cold prevailed in a period known as the "Little Ice Age." During that period, malaria (then known as "ague") was common in England and most of Europe. It was described in detail by prominent physicians such as William Harvey and Thomas Sydenham and mentioned by many contemporary British authors, including Shakespeare and Defoe. Cinchona bark was first used to cure the disease in the marshes of Essex near London, in the late 1600s. The essential ingredient, quinine, is still in use.

Malaria continued to be a problem in Europe and North America well into the 20th century. Its decline after World War II came with DDT use. The Office of Malaria Control in War Areas, forerunner of the Centers for Disease Control and Prevention, was founded in 1942 to eliminate malaria from the United States. At that time, the disease still occurred in 36 states.

Today malaria is making a comeback in many parts of the world. Claims that this comeback is due to global warming overlook other important causes, such as population growth and movement, forest clearance, declining public health services,

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(In the News...continued from page 12)

resistance to insecticides and anti-malarial drugs and disruptions from war and natural disasters.

For more information, contact Dr. Paul Reiter at 787-766-6596 (FAX) or by email at ipr1@cdc.gov.

Lady Bugs Linked To Asthma

Reuters News Service-September 2000
Chicago-- Allergists, who have previously linked cockroaches and dust mites to asthma, say Asian Lady Beetles also may be a casual agent for the breathing disorder.

Dr. Hobert Pence, an allergist from Louisville, Ky., presented a case study at the America College of Allergy, Asthma and Immunology's annual meeting, outlining the link between one patient's asthma and a lady bug infestation.

"We think he had asthma because he had an overwhelming exposure to these little critters in his house. We were able to show that he clearly had high levels of allergic antibody in his blood to lady bug proteins," Pence said.

According to the case study, the home involved was infested with thousands of ladybugs and the patient's asthma required treatment twice a day.

Pence said that while this is the first formal case study linking asthma and ladybugs, cases of lady bug-induced allergies are becoming more common.

"They (lady bugs) were thought to be harmless to man, but it's apparent that they are beginning to cause allergic reactions. I think it's (lady bug-induced asthma/allergies) going to be more common," Pence said.

(Pest Notes: While the Doctor's statement's seem to be a bit alarmist, (no doubt looking for additional grant money), it is interesting to note the effect of insect proteins/parts on people with allergies).

Avitrol Banned in New York Cities Exceeding One Million

Amanda Paskiet
PCT-Online, September 8, 2000

New York City- Governor George Pataski signed a bill last Thursday that bans the use of Avitrol in New York cities with populations over one million.

This news will primarily affect Manhattan. Unfortunately, the city has the highest population density in the country with approximately 65,500 people per square mile, as well as highest pigeon population in the state.

Avitrol, a widely-used avicide prevents pigeons from congregating in undesirable areas by causing pigeons affected by the product to display erratic behavior and emit distress calls that frighten other birds of the flock. This behavior is seen as controversial to some animal rights and environmental groups who believe that the product is harmful to birds and other animals.

Kelly Swindle, (Pest Notes: what an unfortunate name) president of Avitrol said the ban will hurt the city's efforts to control diseases since pigeons are often carriers of diseases such as encephalitis, the West Nile virus and cryptococcosis.

'We've lost one of our vital tools in protecting people from these illnesses in this area since now we have one bird we cannot control using Avitrol, " Swindle said.

According to the Centers for Disease Control and Prevention (CDC), cryptococcosis can be fatal to people with low immune systems such as children, the elderly and people with AIDS or HIV. This adds further to the problems to pigeon control since New York has the highest number of AIDS cases in the United States, with over 115,059 cases in the Metropolitan area. In fact, the CDC warns those with AIDS or HIV to stay as far away from pigeons

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(In the News....Continued from page 13)

and pigeon droppings as possible.

"We have argued, fought and spent more money on [pigeon control] in the past year than our total sales in New York because we felt very strongly that the product was needed, " Swindle said.

The Humane Society of the United States (HSUS), on the other hand, vigorously supported the bill claiming Avitrol kills pigeons inhumanely as well as other birds and animals that come in contact with the product.

Swindle said the claim is simply untrue. In fact, a study conducted by animal rights advocate Dr. Harry C. Roswell at University of Ottawa's (Canada) Department of Pathology proved that the chemical does not cause pathological changes in a pigeon's organs that would cause it pain or distress, nor is it intended to kill the birds.

"We are not responsible for human death nor have we ever had a human poisoning with an Avitrol product, " said Swindle.

Unfortunately, the New York ban on Avitrol leaves few alternative avicides to control pigeon populations in the state.

(Pest Notes: While Avitrol certainly is an effective product used in bird management, an integrated program consists of a variety of other techniques. For more information, please contact your local wildlife specialist, extension service or give us a call).

Pest Management Opinions

Controversial Topics in Pest Management

DDT And Chlordane Killed By Politics, Not Science

Harry Katz
PCT-Online

A lie becomes the truth if it is repeated often enough.

This has happened, I believe, with the boomer generation that grew up weaned on the Myth Conception that DDT is a carcinogen. According to Carrol Weil, past president of the Toxicology Society, there have never been any valid scientific test that prove DDT can cause cancer in test animals or in humans.

Numerous tests were made on animals, mostly mice that were bred to be supersensitive to chemical stress. The mice were given massive doses of DDT over long periods of time. Tumors did develop, but they did not metastasize into cancer cells. Many of the mice that were not fed DDT also developed tumors.

This didn't matter to the Environmental Protection Agency. EPA regulations consider a benign tumor to be a cancer that justifies cancellation of registration. It should be noted that according to EPA regulations, a single positive test by one researcher takes precedence over the negative test results of 100 researchers.

LOW VS. GROSS DOSE. One of the Myth Conceptions that plagues the mindset of the general public, as well as various regulatory communities, is that a low dose of a toxicant is just as bad as a gross dose that can cause a tumor. If this were true, according to Dr. Bruce Ames from the University of California-Berkeley, we should not eat carrots, celery, parsley, mushrooms, cabbage, Brussels sprouts, mustard, orange and grapefruit juices, pepper, cauliflower, broccoli, raspberry and pineapple. All these foods contain natural toxicants that cause cancer in rats or mice when they are tested at the same gross levels that are used to test pesticides. Ames further claims that the natural level of toxicants in these foods is far higher than the trace residues on treated food.

The Myth Conception of the carcinogenicity of DDT has a corollary with chlordane. According to the World Health Organization (WHO), when chlordane is used a label rates, there us no valid scientific test

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(Opinions.....Continued from page 14)

that shows carcinogenicity in humans. In 1984, a working group on the International Agency for Research on Cancer (IARC) reviewed existing data on chlordane and concluded that the evidence of carcinogenicity to experimental animals was indeed limited.

CHLORDAN'S EFFECT ON HUMANS. Many studies were made of chlordane's effect on humans. The WHO reports about a study in 1981 in which mortality of 782 workers who manufactured chlordane and heptachlor for up to 20 years showed no increase in cancer in comparison to normal death figures. In another study by Wang and MacMahon in 1980, all cancer deaths were lower than expected. In a follow-up study in 1982, the two Harvard researchers looked again at the mortality rates of termite control technicians and found there was no significant increase of cancer cases.

As secretary of the Western Pennsylvania Pest Control Association and as a formulator, I was concerned about the safety to PCOs. A Pittsburgh physician, Dr. Cyril Wecht consented to give annual physicals to employees of WPPCA members. In those days, the service technicians used chlordane carelessly. They had it on their hands, cloths and breathed it in crawlspaces. Dr. Wecht found no effect on the liver or other vital organs, after several years of examinations.

Entomology in Literature

The following was submitted by Derek Hoffman from Mrs. Aikins 2nd grade class at Glen Cove Elementary School, Vallejo, California. And we at Pest Notes thought mosquitoes buzzed in people's ears just to be annoying!

Why Mosquitoes Buzz in People's Ears A West African Tale retold by Verna Aardema

One morning a mosquito saw an iguana drinking at a waterhole. The mosquito said, "Iguana, you will never believe what I saw yesterday."

"Try me," said the iguana.

The mosquito said, "I saw a farmer digging yams that were almost as big as I am."

"What's a mosquito compared to a yam?" snapped the iguana grumpily. "I would rather be deaf than listen to such nonsense!" Then he stuck two sticks in his ears and went off, mek, mek, mek, through the reeds.

The iguana was still grumbling to himself when he happened to pass by a python.

The big snake raised his head and said, "Good morning, Iguana."

The iguana did not answer but lumbered on, bobbing his head, badamin, badamin.

"Now, why won't he speak to me?" said the python to himself. "Iguana must be angry about something. I'm afraid he is plotting some mischief against me!" He began looking for somewhere to hide. The first likely place he found was a rabbit hole, and in he went, wasasusu, wasasusu, wasasusu.

When the rabbit saw the big snake coming into her burrow, she was terrified. She scurried out through her back way and bounded, krik, krik, krik, across a clearing.

A crow saw a rabbit running for her life. He flew into the forest crying kaa, kaa kaa! It was his duty to spread the alarm in case of danger.

A monkey heard the crow. He was sure that some dangerous beast was prowling near. He began screeching and leaping kili through the trees to warn the other animals.

As the monkey was crashing through the treetops, he happened to land on a dead limb. It broke and fell on an owl's nest, killing one of the owlets.

Mother Owl was not at home. For though she usually hunted only in the night, this morning she was still out searching for one more tidbit to satisfy her hungry babies. When she returned to the nest, she found one of them dead. Her other children told her that the monkey had killed it. All that day and all that night, she sat in her tree-- so sad, so sad, so sad!

Now it was Mother Owl who woke the sun each

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(Why mosquitoes buzz....continued from page 15)

day so that the dawn could come. But this time, when she should have hooted for the sun, she did not do it.

The night grew longer and longer. The animals of the forest knew it was lasting much too long. They feared that the sun would never come back.

At last King Lion called a meeting of the animals. They came and sat down, pem, pem, pem, around a council fire. Mother Owl did not come, so the antelope was sent to fetch her.

When she arrived, King Lion asked, "Mother Owl, why have you not called the sun? The night has lasted long, long, long and everyone is worried.

Mother Owl said, "Monkey killed one of my owlets. Because of that, I cannot bear to wake the sun."

The king said to the gathered animals:

"Did you hear?"

It was monkey

who killed the owl--

and now Mother Owl won't wake the sun so that the day can come."

Then King Lion called the monkey. He came before him nervously glancing from side to side, rim, rim, rim, rim.

"Monkey," said the king, "why did you kill one of Mother Owl's babies?"

"Oh, King, " said the monkey, "it was the crow's fault. He was calling and calling to warn us of danger. And I went leaping through the trees to help. A limb broke under me, and I fell taaa on the owl's nest."

The king said to the council:

"So, it was the crow who alarmed the monkey, who killed the owl--and now Mother Owl won't wake the sun so that the day can come."

Then the king called for the crow. That big bird came flapping up. He said, " King Lion, it was the rabbit's fault! I saw her running for her life in the daytime. Wasn't that reason enough to spread an alarm?"

The king nodded his head and said to the council:

"So, it was the rabbit who startled the crow, who alarmed the monkey, who killed the owl--and now Mother Owl won't wake the sun so that the day can come."

Then King Lion called the rabbit. The timid little creature stood before him, one trembling paw drawn up uncertainly.

"Rabbit," cried the king, "why did you break the law of nature and go running, running, running, in the daytime?"

"Oh, King," said the rabbit, it was the python's fault. I was in my house minding my own business when that big

snake came in and chased me out."

The king said to the council:

"So, it was the python who scared the rabbit, who startled the crow, who alarmed the monkey, who killed the owl--and now Mother Owl won't wake the sun so that the day can come."

King Lion called the python, who came slithering, wasasusu, wasasusu, past the other animals. "But, King," he cried, "it was the iguana's fault!. He wouldn't speak to me. And I thought he was plotting some mischief against me. When I crawled into the rabbit's hole, I was only trying to hide."

The king said to the council: "So, it was the iguana who frightened the python, who scared the rabbit, who startled the crow, who alarmed the monkey, who killed the owl--and now Mother Owl won't wake the sun so that the day can come."

Now the iguana was not at the meeting. For he had not heard the summons. The antelope was sent to fetch him.

All the animals laughed when they saw the iguana coming, badamin, badamin, with the sticks still stuck in his ears!

King Lion pulled out the sticks, purup, purup. Then he asked, "Iguana, what evil have you been plotting against the python?"

"None! None at all!" cried the iguana. "Python is my friend!"

"Then why wouldn't you say good morning to me?" demanded the snake.

"I didn't hear you, or even see you!" said the iguana.

"Mosquito told me such a big lie, I couldn't bear to listen to it. So I put sticks in my ears."

"Nge, nge, nge," laughed the lion. "So that's why you had sticks in your ears!"

"Yes," said the iguana. "It was the mosquito's fault."

King Lion said to the council: "So, it was the mosquito who annoyed the iguana, who frightened the python, who scared the rabbit, who startled the crow, who alarmed the monkey, who killed the owl--and now Mother Owl won't wake the sun so that the day can come."

"Punish the mosquito! Punish the mosquito!" cried all the animals.

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When Mother Owl heard that, she was satisfied. She turned her head toward the east and hooted: "Hoo! Hooooo! Hoooooo!"

And the sun came up.

Meanwhile the mosquito had listened to it all from a nearby bush. She crept under a curly leaf, semm, and was never found and brought before the council.

But because of this the mosquito has a guilty conscience. To this day she goes about whining in people's ears: "Zeee! Is everybody still angry at me?"

When she does that, she gets an honest answer.
KPAO!

The Medical Entomology Corner **Vector-borne Disease in the News**

ProMED-mail post: 27 September 2000

WEST NILE VIRUS, HUMAN CASES-USA (NEW YORK AND NEW JERSEY)

TRENTON: Two more New Jersey residents have tested positive for the presence of West Nile Virus (WNV). The new cases include an 82-year old Little Falls man who died in mid September, and a 72-year old Bayonne woman who is home recovering.

The Little Falls man is the first person with WNV to die this year in the United States. He became ill on 03 Sep 2000, and was admitted to The Mountainside Hospital 3 days later. He died on 14 Sep 2000. The Bayonne woman was admitted to Bayonne Hospital 01 Sep 2000 and discharged 06 Sep 2000.

Both residents were most likely bitten by infected mosquitoes in mid to late August. Since then, mosquito control activities and colder weather have helped reduce the risk of further WNV transmission. To date, 4 people in New Jersey have been diagnosed with WNV.

Health and Senior Services Commissioner Christine Grant said the 2 new cases are further evidence that the West Nile virus has firmly established itself in the Northeast. "Fortunately, most people who are bitten by an

infected mosquito don't get sick and never even know they have been exposed. Unfortunately, for some, this virus can cause serious illness and death. It's therefore important that all residents take precautions to reduce their risk of exposure," said Grant.

West Nile fever, an arboviral disease, is transmitted through the bite of a mosquito that has picked up the virus by feeding on an infected bird. WNV is not directly transmitted from person to person. WNV infection generally causes no symptoms or just mild, flu-like symptoms; however, the elderly are at higher risk of more severe disease.

Supplementing personal precautions, Grant noted that federal, state and local officials have implemented a comprehensive disease surveillance system and aggressive mosquito control activities. Those activities--which include human, bird, mosquito and horse testing and mosquito surveillance and targeted larvicide and adulticide application--have won praise from CDC officials this summer. In Bergen County last week to review state's surveillance, testing and mosquito control activities, CDC Director Jeffrey P. Koplan said, "The right things are being done to reduce risk of West Nile virus transmission here in New Jersey."

In total, blood and/or spinal fluid samples from 38 residents have been or in the process of being tested for the presence of WNV. To date, 4 tests were positive, 15 were negative and 19 are pending. These individuals either had symptoms or signs that met the established WNV testing criteria or exhibited most of the symptoms and are from counties where the virus has been discovered through surveillance activities.

Serum and/or spinal fluid samples from New Jersey's latest human cases tested positive in the New Jersey Department of Health and Senior Services laboratories. The results were verified last night by the federal Centers for Disease Control and Prevention (CDC). Additional confirmatory test

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(West Nile Virus.....Continued from page 17)

results from the CDC will be available in the next few weeks.

New Jersey's earlier human cases include a 43-year old Jersey City man and a 54-year old man with dual residency in Brooklyn, N.Y. and Cliffside Park, Bergen County. Human testing for WNV is being conducted at the New Jersey Department of Health and Senior Services' Public Health and Environmental Laboratory in Trenton and at the public health labs in other states. Testing results are sent to the CDC for verification.

To date, 883 birds (837 crows and a cockatiel) found in 16 counties have tested positive for the presence of WNV. Positive birds have been found in Bergen (179), Burlington (3), Camden (2), Cape May (2), Essex (89), Gloucester (2), Hudson (60), Hunterdon (3), Mercer (5), Middlesex (162), Monmouth (129), Morris (26), Ocean (6), Passaic (63), Somerset (13) and Union (94) counties. The tests were conducted at the Department of Health and Senior Services' lab in Trenton. A total of 1527 crows submitted by local health departments have been accepted for testing this year.

Thirty-four mosquito pools collected in Bergen (19), Essex (1), Middlesex (2), Monmouth (3), Passaic (7) and Sussex (2) counties have also tested positive for the presence of WNV. In total, 13885 mosquito pools from all 21 counties have been collected by the Rutgers Mosquito Research and Control Unit and tested by the Department of Health and Senior Services and/or the CDC.

WNV has also been detected in 6 horses from Atlantic (2), Cape May (1), Ocean (1) and Sussex (2) counties. The tests were conducted by the New Jersey Department of Agriculture's animal health laboratory in Trenton and were confirmed by the National Veterinary Services Laboratory in Ames, Iowa.

Other surveillance methods, including testing blood samples taken weekly from sentinel chicken flocks placed in all 21 counties and blood samples collected from 541 house sparrows collected in Bergen, Passaic and Sussex county in late July have not detected WNV.

For more information on West Nile virus, visit the State

Department of Health and Senior Services' website at www.state.nj.us/health, the State Department of Environmental Protection's site at www.state.nj.us/dep/mosquito, the State Department of Agriculture's site at www.state.nj.us/agriculture, or the federal Centers for Disease Control and Prevention's site at www.cdc.gov.

VECTOR-BORNE DISEASE OF THE MONTH

LYME DISEASE

Description

Lyme disease results from infection with spirochetes belonging to the *Borrelia burgdorferi sensu lato* complex. In Europe and Asia, most cases of Lyme disease are caused by *B. burgdorferi sensu stricto*, *B. afzelii*, or *B. garinii*; however, in the United States, all cases are caused by *B. burgdorferi sensu stricto*. The spirochetes are transmitted to humans through the bite of infected ticks of the *Ixodes ricinus* complex. Manifestation of Lyme disease include a characteristic expanding rash called erythema migrans at the site of tick attachment, fever, arthritis, and neurologic manifestations, including facial palsy.

Occurrence

Lyme disease occurs in temperate forested regions of Europe and Asia and in the northeastern, north central, and pacific coastal regions of North America. It is not transmitted in the tropics.

Risk for Travelers

Travelers to endemic areas who have frequent or prolonged exposure to tick habitats may be at increased risk Lyme disease.

Vaccine

A safe and efficacious vaccine is available for protection from Lyme disease in endemic areas of the United States. However, because of the genospecies diversity of the agents that cause Lyme

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(Lyme disease....continued from 18)

disease in Europe and Asia, the vaccine is not likely to be highly efficacious outside North America. Recommendations for vaccine use in travelers to high-risk areas of the United States are available at www.cdc.gov/ncidod/dvbid/lymeinfo.htm

Preventive Measures

Travelers to endemic areas should avoid tick habitat if possible. If exposure to tick habitat cannot be avoided, the application of repellents to skin and acaricides to clothing, as well as regular daily checks for any attached ticks may reduce the risk of infection. Individuals who develop erythema migrans or other manifestations of Lyme disease should seek early medical attention. Lyme disease can usually be cured by an appropriate course of antibiotic treatment.

WEB SITE

www.texaserc.tamu.edu/catalog/topics/Rangelands.html

ml: If you have been following the news, you know that forest or brush fires have plagued primarily the western United States this past summer, threatening various facilities. The Texas A&M University Extension Service provides information regarding brush control related to fire management. If you are in an area prone to fire, check this site out for ideas.

www.headlice.org: Now that schools are in session, this is a great site to visit. Everything you wanted to know about these pesky little creatures, but may have been afraid to ask. Don't wait!

www.npwrc.usgs.gov/resource/1998/housebat/housebat.htm#contents: The U.S. Fish and Wildlife Service has put together an outstanding site for information related to bat control. The manual provides details on bat biology and management techniques.

Pest of the Month

See if you can identify the following. Last month's pests: A) European starling, B) Colorado potato beetle, C) Indian Meal Moth

A)



B)



C)



INSECT TRIVIA

Test your insect knowledge. Try answering the following:

- How many different species of insects are there?
 - 100,000
 - 500,000
 - 1,000,000
- What order of insects possesses the most number of species?
 - Beetles (Coleoptera)
 - Flies (Diptera)
 - Butterflies/Moths (Lepidoptera)
- The Goliath beetle is the largest living insect. How much does it weigh?
 - 2 ounces
 - 4 ounces
 - 8 ounces
- What insect has been used to treat baldness?
 - Honey bees
 - Blister beetles
 - Lacewings
- The most dangerous insect kills a million people a year. What is it?
 - Mosquito
 - Housefly
 - Army ant
- It would take approximately _____ mosquito bites to drain the blood from an adult man.
 - 100,000
 - 1,200,000
 - 12,000,000
- Ants are believed to make up _____ of the total weight of all animals in the world
 - 10%
 - 15%
 - 20%

Answers on page 22

INSECT OLYMPICS

As the Olympic Games come to a close, we thought it would be fun to guess how insects would do if they had the opportunity to compete. See if you can guess the answers to the following:

The Sprint

The fastest insect is the deer bot fly. What is its fastest speed?

- 45 miles per hour
- 90 Miles per hour
- 120 miles per hour

High Jump

Fleas would win a gold medal for jumping in the Olympics. How high can they jump?

- 50 times their body length
- 100 times their body length
- 200 times their body length

Weight Lifting

The winner of the "strong award" award for insects goes to the leaf beetle. How much weight can it pull?

- 10 times its body weight
- 24 times its body weight
- 43 times its body weight

Long Jump

Grasshoppers can jump....

- 10 times their length
- 40 times their length
- 80 times their length

Swimming

Some diving beetles can stay under water for _____ hours.

- 12
- 24
- 36

Answers on page 22

Training Opportunities

Courses for DoD Pest Management Personnel

Army Sponsored Courses

1. For information on the following courses, contact SSG Kerry McKinley, Academy of Health Sciences, U.S. Army, ATTN: MCCS-HPM, Fort Sam Houston, TX 78234-6100, Tel (210) 221-6801/6733, DSN Prefix 471, Email kerry.mckinley@amedd.army.mil. Classes are conducted at Fort Sam Houston, TX

Pest Management Certification Course (6HF12/322-F12):

JAN 8-19, 2001
MAR 26-APR 13, 2001
JUN 4-JUN 22, 2001
AUG 13-31, 2001

Recertification (6H-F13/322-F13)

DEC 11-15, 2000
JAN 29-FEB 2, 2001
FEB 26-MAR 2, 2001
JUL 23-27, 2001
SEP 10-14, 2001

2. For information on courses in Germany, contact CPT(P) Dwight Rickard, USACHPPM-EUR, CMR 402, APO AE 09180, Tel: 49-6371-86-8540/44, DSN 486-8544

3. For information on courses taught at the Environmental Training Center, contact Ms. Gail Boeff, ATTN: ATZR-BT, Fort Still, OK 73503-5100, Tel: 580-442-2111, DSN prefix 639.

NAVY SPONSORED COURSES

1. For information on the following courses, contact the Training Department, NDVECC, Naval Air Station, Jacksonville, Box 43, Jacksonville, FL 32212, Tel: 904-542-2424, DSN prefix 942. Unless otherwise noted, all classes are conducted at the Disease Vector Ecology and Control Center, NAS Jacksonville, Jacksonville, FL.

Pesticide Applicator Training (Core) (B-322-1071),
Instruction for Initial Certification:

SEP 10-17, 2001

MAR 4-11, 2002

Plant Pest and Vegetation Management (B-322-1071), Initial Certification for Categories 2,3,5, and 6:

SEP 18-21, 2001

MAR 12-15, 2002

Arthropod and Vertebrate Pest Management (B-322-1072), Initial Certification for Categories 7 and 8:

SEP 24-OCT 3, 2001

MAR 18-27, 2002

Recertification

FEB 21-22, 2001

APR 10-11, 2001

NOV 6-7, 2001

APR 9-10, 2002

2. For information on the following courses, contact the Training Department, NDVECC, 19950 Seventh Ave., NE, Suite 201, Poulsbo, WA 98370-7405., Tel: 360-315-4450, DSN Prefix 322. Unless otherwise noted, all courses conducted at the Navy Disease Vector Ecology and Control Center, Bangor, WA

Recertification Course (B-322-1074), Category 8:

DEC 12-15, 2000

AIR FORCE SPONSORED COURSES

1. For information on the following courses, contact Ms. Haris Georges, 366 TRS/TRRT, 727 Missile Road, Sheppard AFB, TX 76311-2254, DSN 736-3538. Classes are conducted at Sheppard AFB, TX. Quotas are obtained through the Unit or MAJCOM Training Managers.

Pest Management Certification (J3AZR3E453-003)

APR-MAY 4, 2001

AUG 20-SEP 17, 2001

Pest Management Recertification (J3ARR3E453-002)

NOV 13-17, 2000

DEC 11-15, 2000

JAN 22-26, 2001

FEB 12-16, 2001

APR 16-20, 2001

JUN 18-22, 2001

JUL 30-AUG 3, 2001

SEP 17-21, 2001

TRIVIA ANSWERS

1. C
2. A
3. B
4. B
5. A
6. B
7. A

OLYMPIC TRIVIA

1. B
2. C
3. C
4. C
5. C

Parting Shots.....

That's all for now. Remember that we are here to address your pest management concerns. Give us a call at DSN 686-8122, commercial (510) 337-8122 or drop us a line at paa5245@exmail.dscp.dla.mil.

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