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W.C.T. MAGAZINE

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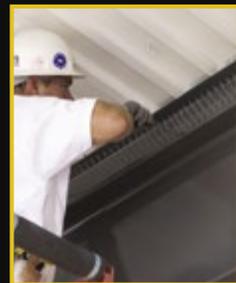
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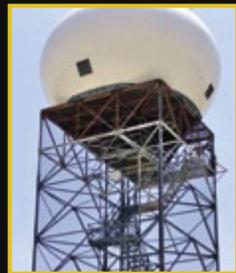
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Wildlife Control Technology Magazine

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Moles are active year round and can be controlled during late fall and early winter when weather conditions allow.

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FROM THE EDITOR

ERIC ARNOLD, EDITOR

P.O. Box 357 ■ Sharon Center, OH 44272



As some readers know, I lost my father in early November due to complications from surgery, making this editorial and edition challenging to complete. While I miss him, I can honestly say that it still has not sunk in. I want to thank those that knew and sent my family their condolences. It is very much appreciated.

While he is gone, I look at the additional years I had with him that many do not get. In 2007, he was given approximately six weeks to live due to stage 4 cancer. Not only did he beat that six weeks, but he also survived two more can-

cers, eight heart attacks, and two strokes.

I stated that not everyone is lucky enough to have their loved ones survive like I was, not only as it is the truth, but also something that hit home closely.

While some knew of my father's passing, almost no one knew that my son lost his biological father four days before my father passed.

For those confused by this, I have raised Travis since he was three years old, and while I may not be his biological father, without a doubt, I am his father, and he is my son.

While we both are struggling

through our losses, once again, there are lessons here that I want to focus on for readers. In particular, they are about planning and preparing for what is come of your business and family when you are gone.

I've written about these subjects before, but after dealing with specific issues personally and through my son, I want to discuss them again.

Aside from age, one of the big differences between our fathers was that mine had funeral plans and a will, whereas my son's father

Continued on page 5

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Contact Robert ASAP if interested!



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ftatrapperscollege@gmail.com

EDITORIAL:

Continued from page 3

did not. For those who have not experienced the difference, several key points should be considered.

Hospitals will only release the body of a deceased individual to a licensed funeral home. If you do not have a funeral home already chosen, the body will be kept in the hospital's morgue or transferred to a holding area until it can be released. At least in Ohio, only the funeral home can request Death Certificates and provide them to the family. A viewing, funeral service, and cremation services (so we're going to ignore coffins and burial prep along with burial site fees for this article) will cost your survivors over \$8,000.

If you don't have a legal will, meaning it is registered with the state, your property, including tools and traps you have for your business, will be placed in probate where it cannot be used or sold. This can leave your family literally holding the strings to an empty purse and may even force them to be evicted from their home.

Right now, anyone reading this should be asking if they are protected and, if not, how they can be protected. Here are several simple steps you can do to make the transition easier for those you leave behind.

Step 1. Go to a lawyer and get a will. This is too important to try and do yourself.

Step 2. Have a life insurance policy with an up-to-date list of benefactors. This doesn't have to be any huge amount, but I recommend that it is enough to cover any bills or final expenses, so your family doesn't have to worry about these issues.

Step 3. Pick a funeral home and create your funeral plan. While this may seem strange, if you haven't decided on a funeral home or

what you'd like done, your family is going to have to make these decisions at a time when they shouldn't have to be thinking along those lines. Sitting down with a salesperson from a funeral home when you're trying to notify family and grieve does not help the process.

Step 4. Purchase a policy to cover your funeral expenses. All funeral homes offer an insurance policy that allows you to plan your funeral now and have it paid for when the time comes.

To do this, choose a funeral home and make an appointment to discuss your final plans. Based on your choices, they will give you the funeral cost and incorporate it into an insurance plan based on the current rates.

What's nice about this plan is that you have several payment options. You can pay it in full or choose monthly payments spread over a 5, 10, or 20-year timespan. Of course, the longer you choose to pay, the more you'll end up paying.

My plan was about \$3,500, and I chose a ten-year payment option. This gave me a monthly payment of around \$50, so if I wait the whole ten years, I'll have paid approximately \$5,000, and if I did 20 years, it would be around \$10,000. So it's getting paid off early as my plans are only worth \$3,500.

A nice feature of the plan is that I can pay the insurance off early without penalty, and if I go before it has been paid in full, the plan kicks in, and there is nothing left on it for my family to pay.

If we move and I desire to use a different funeral home, I can transfer the policy to the new funeral home.

Now all they have to do is notify the funeral home that I'm gone, where my body is, and the funeral home does the rest.

Step 5. Purchase an Out of Area Protection plan. This is an

additional plan that costs around \$500. It covers the transportation of your body to the before-mentioned funeral home anytime you expire more than 75 miles from the funeral home.

This insurance means that your family will not have to worry about or incur expenses for transporting your body back home. Regardless if you are out of town at a job, training event, or on vacation, as long as you are more than 75 miles from the funeral home and the insurance is current (meaning has been paid or is in the process of being paid) you have the policy to get your body back so that your family doesn't need to make arrangements nor pay the exorbitant fees charged by many company's to do so. ■

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WCT RECAP: RACCOON IN THE ATTIC/ATTACK

by John Hagan

(Editor's Note: This article first appeared in the July/August 2012 issue of Wildlife Control Technology Magazine.)

A few years ago, I experienced an odd event in the daily course of my wildlife control career. Many people would expect this situation to present itself more frequently. It began as a normal raccoon in an attic job. Upon inspection of a new customer's home, I discovered the entry point into the attic was the attic fan or powered ventilator installed on the roof. Attic fans are one of our biggest sources of business, and we love that manufacturers make them without animal-proof screens. I proceeded to set a baited trap on the roof next to the fan and put a plastic garbage bag over the fan to monitor it for activity. The following day the trap was empty, and the bag had a large hole torn in it. Since the raccoon didn't voluntarily enter the trap, I set it attached to the fan to "force" it into the trap.

I found that the raccoon had torn out a smaller roof vent to avoid capture on the next trip. I set an additional trap attached to the newly damaged vent. Confident I would catch the raccoon, I returned to find both traps undisturbed the following day. However, the raccoon had torn a hole through a triangle-shaped, gable vent in the front of the house. At this point, I realize that I am dealing with a trap-wise raccoon. This occurs when an animal is caught in a trap and then released.

Since a standard box trap was no longer a viable option, I acquired a permit to set a lethal trap. I set this trap in front of the newest opening



at the gable vent. I believed this was the key to ending the ongoing saga of the educated, property-destroying raccoon.

I was disappointed again. The lethal trap was tripped with nothing caught but a bit of fur. When this type of trap is tripped, an animal can pass through, thus potentially leaving the attic. I reset the trap and hoped for the best.

Several days passed with no activity. All three traps went undisturbed, no other damage occurred to the rest of the house, and the customer reported that all had been quiet. At this point, I assumed that the raccoon had escaped and proceeded to repair and screen the previously damaged areas. All the traps were removed, and I collected my fees. About ten days later, I received a call from my customer claiming she was hearing chirping noises in the ceiling. Baby raccoons sound like chirping birds, so I rushed to the house.

The sounds were coming from an area of the attic that was difficult to access. I poked my head through the cutout between sections of the attic and saw baby raccoons! I went back to my truck to retrieve some equipment. This

included a cage trap to carry the pups, animal handling gloves, and my 2 "D" cell Mag Light.

I assumed at this point that the mother raccoon had escaped and abandoned her young. This happens relatively frequently when they are harassed. I guess they figure they can always have more young.

The area that young were located at necessitated lying on my back and sliding headfirst into the cutout area of the plywood roof decking. Contorting my legs, I was able to squeeze into the space. Once inside the void, there was enough room to stand up. I walked about 10 feet to where the young were located and began to pick up the 3 to 4-week old raccoons and place them in the cage trap. Usually, as was the case in this instance, the young let out a scream when you grab them. This will get the remainder of the litter excited, causing all of them to scream. As I was placing the third frantic raccoon into the cage, I came to the realization that they were extremely warm and healthy for animals that had been without food or water for ten days.

At that moment, an adult rac-

coon leaped from somewhere and attached itself to my left arm. Except for the beam of light from my flashlight, the attic was completely dark. I threw the raccoon off my arm. Searching wildly with the beam of light, I located my attacker. It came at me again, so I kicked it. It came at me again, so I kicked it a second time. Once again, it approached with its back raised and snarling, and it received a third kick.

The part of the attic that I was in would not allow me to retreat. Escape from the situation would require reversing the awkward method I used to enter the area. Since this could not be accomplished without exposing me to the teeth and claws of a psychotic raccoon, I decided that it was either her or me that was getting out without further injury. As the raccoon came at me again, I decided a blow to its head with my club-like flashlight was my only way out of the predicament. I allowed it to get close and raised the flashlight over my head. Well, now the floor of the attic and the

raccoon were in complete darkness. I swung the flashlight down, hoping to connect with its cranium. I missed, but it backed off a couple of steps. I repeated the action only to miss it completely as it came again. Once more, the raccoon advanced closer, and I extended my swing farther out. This time I barely connected with the tip of its nose.

Fortunately, this resulted in a retreat to a far corner of the eave about 25 feet away. I gathered the remaining two young and nervously made my escape from the chamber of excitement.

There is another trick that we will use to catch a protective mother raccoon. We will take the young and use them as "bait" in a trap. I chose two of the largest, healthiest pups and contained them behind the trip pan of a cage trap. When doing this, it is imperative to protect the sides and back end of the trap so that the adult's only access to them is from the open end. This was placed on the floor of the attic, and I left.

I returned the following day, and as

you may suspect at this point, to find the trap empty. The raccoon had created a hole through the soffit in the area it had retreated to. It had escaped.

In the end, the raccoon went on to cause other problems for local residents and claimed a bite of flesh from my arm. I evicted it, albeit with much effort, from its home and solved a customer's problem. I guess you can say it won the battle, but I like to think of it as a hollow victory.

While ten days is far from the longest period of time that I have seen a raccoon survive without food and water, it is an example of their resiliency. I began the story by stating that this was odd, and it is. I have removed many litters of young in the presence of the mother. I had never been attacked before and have not since. I will say I have experienced a bit more angst since this event. I also have to remember to keep this tale to myself when training new employees; it seems to stick with them. ■



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2022 W.C.T. MAGAZINE WRITER GUIDELINES

W.C.T. Magazine is a bimonthly magazine committed to serving Wildlife Control Operators (WCOs), Pest Control Operators (PCOs) and government agencies actively involved in the wildlife damage control field. Our goals are to provide practical operating information, promote education, professionalism, and a professional image, provide communication within the field, and help resolve human and animal conflicts with respect for the needs of both.

SUBMISSION DEADLINES

Jan/Feb Issue.....	Nov 5
Mar/ Apr Issue	Jan 5
May/ Jun Issue	Mar 5
Jul/ Aug Issue	May 5
Sep/ Oct Issue	July 5
Nov/ Dec Issue	Sep 5

TOPICS

We're continuously looking for articles on all aspects of wildlife damage control work. Our primary need is for specific, practical information that our readers can apply to their own businesses.

We are always looking for how-to methods articles on trapping, removal, or other control techniques for all nuisance species, from raccoon, skunk and beaver to mole, bat, pigeon, alligator, and any other problem wildlife along with how to repair and prevent damage caused by nuisance species.

Proper equipment selection and use (traps, attractants, vehicles, etc.) treating animals humanely, relocation, disposing of carcasses, add-ons such as chimney caps, exclusion work, and other nuts-and-bolts aspects of control work are all good topics. We also want natural history topics, such as coyote terri-

torial behavior, skunk home range size, or any other animal behavior information that will increase the understanding and effectiveness of the wildlife control operator.

We need business-related articles too, on topics like getting a business started, advertising and locating clients, pricing jobs, obtaining insurance, keeping records, dealing with the IRS, and any other information that will help increase profit.

Other good topics are public relations, being professional and presenting a professional image, educating clients, dealing with animal welfare issues, and relating to Fish and Game departments, municipalities and the press.

Our regular departments are focused on specific areas (for example, *Species Profile*), and are written by contributing editors. However, this does not mean we won't use more articles in these same areas.

W.C.T. Magazine does not commission articles nor do we offer writing on spec assignments. If you have an idea for an article and feel it would make an interesting read or benefit the industry, write it and submit it for consideration. I've found that when someone feels strongly about a specific topic, they tend to produce some fantastic work. If you are unsure if the topic would make a good article, I still recommend writing it and submitting it for consideration. This allows me to review the article and make recommendations if I feel it is a good fit. For example, if you want to send an article about polar bears, make sure there is information regarding how polar bears are managed in conflict situations at a minimum. Don't send an article about why polar bears need to be saved because of global warming as that is not the focus of

this publication. I've never had an issue with duplicating articles as everyone's perspective is unique, but there may be some time between it being accepted and when it prints. For example, I might already have two articles on raccoon trapping and may not print another for a while. Or if your topic is marketing, we might focus it on one or more specific key points. Usually when a writer and I brainstorm together on a topic, we can come up with some excellent approaches.

ARTICLE GUIDELINES

Articles can be almost any length and there is no submission word limit; however, the shortest we print is around 500 words while the longest are around 2,500 – 3,000 words. A good rule of thumb for a feature article is to be around 1,500 to 2,000 words. If the information is coming easily don't stop until you have it all down, regardless of length.

Aside from feature articles, we also have a need for shorter pieces from 500 to 1,500 words, describing a brief incident or containing an interesting fact or useful tip. And we're always looking for short, humorous pieces.

Detailed, tightly focused, in-depth treatment of one subject is better than a general discussion of a broad topic. "Selecting Proper Trail Locations for Woodchuck Cage Traps in Urban Situations" is better than "Cage Trapping Woodchucks."

Be as specific as possible. Avoid vague statements like, "Put the trap in a good trail near the den." What exactly is a good trail? What type of terrain features or vegetation help you identify it as such? What type and size trap is best? How is it positioned? And exactly how far from

the den? Include as much specific detail as possible. It is easier to edit out extra material than have to ask you for more information to fill a topic out.

If you mention certain products, companies, books, Internet resources etc., be sure to include information on how to contact those resources. Our readers run businesses and may want to learn more about the product or topic of your article.

A good way to find out about our topic needs and preferred writing styles is to read a back issue of the magazine. I'd be glad to look at reprints, articles that have already been published in other magazines you still own the rights to, if the topic is wildlife damage control related.

PHOTO GUIDELINES

Although photos and illustrations aren't essential if the article contains good information, they help greatly. When taking photos yourself, take plenty, from different distances and angles. I routinely shoot one horizontal and one vertical view of each shot. It's common to shoot a whole series of shots (20 or more) for one article and find only a handful useable, with only one or two excellent. Send all available quality photos as it gives me a selection to choose from.

Sketches and diagrams help too. If you're not an artist, we can redo them for you. Digital photos are preferred provided they are of good size and resolution. It is almost impossible to print a photo taken from a cell phone unless the phone settings have been changed so try to use a regular digital camera instead set in high JPG mode. All new digital cameras will work without a problem, but for older models a 5 megapixel camera is the minimum for adequate article photos. Send digital photos to me as JPEG files, by attachment to an e-mail message to editor@wctmagazine.com, or on a disk to WCT, PO Box

357, Sharon Center, OH 44274.

When submitted with an article, photos are purchased as part of the package. Send disks, large digital files, print photos, and drawings by U.S. Postal Service to our business address (see above). I highly recommend Priority Mail with delivery confirmation – the stiff cardboard envelopes protect photos and disks, Priority Mail gets here much faster, and it's good to know when it was delivered.

SUBMISSION GUIDELINES

We prefer articles submitted electronically to editor@wctmagazine.com, in a Windows compatible file or text file (Microsoft Word is best). Send the article as an attachment to the email message. If you don't have email, you can save the article on a disk and mail it to me.

When writing in a computer word processing program, type single-spaced. Do not use the block paragraph style (no indentation, with double spacing between paragraphs). Rather, end the paragraph by hitting the "enter" key and indenting the beginning of the next paragraph. (Many programs automatically indent when you hit "enter.") This is the way the text will appear in the magazine, and it saves having to manually changing the block style to the normal style. Also, there is no need to insert two spaces between the end of one sentence and the beginning of the next. This is the old typewriter style, and I have to manually delete the extra space.

Occasionally I get an article typed all in capital letters or has no capitalization or formatting (this commonly happens when using a speech recognition program). Please do not do this, as it means the entire article has to be manually retyped if accepted.

Make sure your name and address are included with the article as we need to know where to mail your check. If you would like your disks or print photos returned,

please include a prepaid return envelope with your original submissions.

PAYMENT

For general submissions (500 – 1,500 words), we pay up to \$75. For 2,000 word plus submissions that can be used as full-length featured articles, we pay up to \$125 provided it comes with good photo support. Topic, length, photo support, amount of time I have to spend editing it, and quality of information all determine the price. An offer will be given and must be accepted before the article can be published. If the work is being submitted for free, please make note of that at the time of submission.

We buy **All Rights**, which means we have the right to publish the work or photograph in print and electronic media including any reprints. We do not buy the **Copyright** which you retain as the author or photographer. What this means is that you are able to offer the material to another for consideration or use, but they need to have our permission before it can be used.

There are a lot of good people in this field who can talk for hours about their area of expertise, yet they feel they can't write well enough to submit an article on it. Please don't let that stop you. Write the article as if you were talking casually to another wildlife control operator. Do the best you can, but don't let concern about perfect spelling, punctuation, or writing style prevent you from writing. I'll edit and correct your article. Our primary need is for good information. If you think you have something valuable to share with other wildlife control operators, we want to hear about it.

Please feel free to contact me if you have any questions at all. I'm always looking for articles, and I'm always willing to talk writing, and wildlife damage control. ■



FROM THE TOOLBOX

JACK AMMERMAN

5104 Woodstock Drive ■ Swartz Creek, MI 48473

WHEN IT'S TIME TO EXPAND

Like many wildlife control professionals, I started out with a couple of cage traps, trying to make a little extra spending money. “Chump change” is what I called it. I enjoyed the challenge of trying to out-fox the animals. The satisfaction of helping someone solve a problem was good for my mindset as well, but those extra dollars were the driving factor. At the time I started my business, I was working the graveyard shift at General Motors and making a very good wage. The extra money, I thought, would help me support my many hobbies and interests without taking money out of the household budget. My G.M. work partner (Ed,) a very fun-loving and enjoyable sort, laughed his head off when I told him of my plans. I laughed too because he was just that sort of guy—he meant no harm or insult. Although I had never intended for trapping animals to make me wealthy, he teased me non-stop about my get rich quick scheme. Little did I know, I was bumbling my way into a cash cow that neither one of us imagined.

I don't have to tell you that wildlife control is work. It seems so simple to outsiders, but in reality, it sucks up the available hours of the day like a vacuum cleaner. After years of working a full-time job and then doing the wildlife control gig, I saw the potential to do a bit less work myself and make more money. So I wanted to hire someone!

Both of my teenage sons worked for me from the moment

they were old enough to drive. When my oldest son started working for me, I moved to day shift and picked up for him when I got out of work. We did everything legal as far as making him an employee. He paid taxes, and I paid all the other fees associated with having an employee. By the time he was ready to head off to college, my youngest son was able to drive. The tradition continued!

Somewhere in there, I had the idea of buying trucks and adding more employees. Al Krier, a treasured mentor, told me to look for someone that had an additional skill. “It can be someone that has roofed, someone that knows siding, or someone that has worked as a carpenter. You can teach them how to trap an animal. The extra skill will help you earn more money!”

That advice proved to be golden. I bought another truck and outfitted it for wildlife control. This was no small financial endeavor and seemed to be a big risk. I found an energetic young man and had him ride with my son for a few weeks to see how things are done. When my son told me to “turn him loose, he's ready,” I was apprehensive but forged ahead. I now had three trucks on the road.

I don't know how they did it back before cell phones were invented, but those pocket phones sure have been a boon to me. I expected and received at least one phone call from the “new guy” at each job. I never once discouraged him from calling. But, after a cou-

ple of weeks of running solo, the phone calls became less frequent. I went from knowing exactly what was going on to hoping for the best.

The day that I left my job at General Motors, my business was bringing in more money annually than I was working as a skilled tradesman. My partner Ed no longer laughed at my business. My youngest son had left for college, and I was up to my sixth service vehicle (this one was a van, but that's for another article).

My employees have always known exactly what I charge. They have to because they collect the money! This surprises some wildlife control business owners because they keep it secret from their employees and do all the billing/invoicing themselves. I would rather not spend all that time when it could be done for me. My employees get a good percentage of the total income collected (along with an hourly rate), so they need to know anyway. I would bet that the “secret billing” employees know anyway. People talk!

Many of my colleagues in wildlife control have employees. All of them have different approaches to making money for their business. My way isn't the best way for them, but it works for me. I tend to pay on the very high side, repeating the mantra that I'd rather get rich slow. As we see with most all walks of life right now, hiring someone is tough. Well, welcome to our world; hiring for wildlife control has always been tough! I believe that paying an em-

ployee a better wage would stop them from looking for a better opportunity elsewhere. It's much easier (and cheaper) to share a piece of the pie than to find another employee—especially today! I realize that the jobs I offer are not necessarily careers, but as a young man, I had several jobs before I wound up with a career. The thing that motivated me to look elsewhere was the chance to make more money.

It breaks my heart a little each time a good employee has "that talk" with me. The conversation sometimes starts with, "I don't know that I'll ever have a boss as great as you." I know that these guys are stepping into their careers. I tell them that there will always be a spot for them here (even part-time), and I wish them well.

The conversation always ends with me asking, "Which one of your friends needs a good job?" Birds of a feather tend to flock together. I'm

not going to let that stone go unturned!

Having employees isn't all songbirds and rainbows, though I'm sure that it sure seems it from someone looking in from the outside. What they don't see is that you are no longer a wildlife control operator. Instead, you are now a business manager. Dealing with different employee personalities, vehicle issues, scheduling conflicts, and a host of other unforeseen headaches can take its toll. Still, it all seems worth it at the end of the month when you take a look at the books.

If you are a sole proprietor, I'm sure you've thought about adding an employee. I remember my friend, Dave Purwin, hired his first employee before I did. "There was quite a lump in my throat as I watched my new truck and equipment disappear down the road for the first time." I'm glad that I took

the leap many years ago. My business would have still made money without employees, but nothing like it could have. It's a big jump, for sure, but one that I'm sure will pay off for you when you decide it's time to expand.

I don't have all the answers, but I'm always available to answer questions. My phone number is just a Google search away! ■

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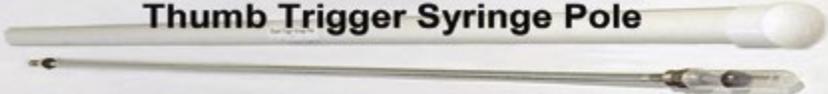
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URBAN COYOTE MANAGEMENT: STEP 7

If you've been following along with the process, we're now at Step 7, Control Measure Implementation. Everything that's been done until now is all about the safety of people and pets so that control measures can focus on your target—the coyote family group.

This seemingly lengthy process goes reasonably quickly but allows you to do your job with confidence against the most formidable adversary to the wildlife control professional in an urban situation. Let's now take a look at three control devices and why the last piece of equipment is my most favored and why.

Before diving into these three, I want to make it clear that all of them have merit in the right situation, and all of them are effective pieces of equipment in the right circumstances. Keep in mind that I

am focused on removing an entire family group, not just one or two canines, in most situations. Constant monitoring of people and pets in the surrounding and trap set areas is being done during the entire process. Usually, three to five cameras are being used at any one time, so I pick my control locations carefully. I have found one or two capture locations to be the most effective. For instance, scattering snares all over an area would require many additional cameras to constantly monitor these areas for safety in real-time.

Think surgical when removing coyotes from an urban environment where people and pets and other activities are constantly monitored 24 hours a day, and trap set locations are monitored approximately four times a day. If people or domestic pets are moving towards a trap set location, ignoring the

protocol and signage, I will know about it in real-time. I will be able to respond to the location to deal with that situation appropriately. Cameras are the key to surgically removing coyotes out of an urban situation safely and effectively. With that said, my favorite control technique has to meet four pieces of criteria.

1. Effective in capturing any level of experienced canine.

2. Safe for capturing the targeted animal and safe enough to remove a non-target animal or domestic with minimal to no long-term injury to the animal.

3. Equipment must be versatile enough in its implementation and usage to appeal to the animal's sense of hunger, territoriality, and curiosity.

4. Must be able to monitor two to three pieces of implemented equipment with one camera.

Collarum: An ingenious and very effective capture device well suited for individual canine removal, but not for an entire family group of coyotes with many different experience levels.

This device, in my opinion, is part trap and part snare. It sets like a foothold trap and captures by throwing a snare loop over the animal's head after a bite/pull response. This piece of equipment is bedded into the ground and blended in, in virtually the same way that you would a foothold trap, with its

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attractor and trigger being one and the same.

Although this is a unique and ingenious piece of equipment, it only works one way, a bite/pull response. Again, although innovative, effective, and safe, it's limited to that response trigger system. The system relies upon the animal to do something to trigger the trap rather than just coming near the attractor. In my opinion, it's limited and not versatile enough to appeal to many different senses that need to be implemented when removing an entire family group of coyotes. Many different set types have to be made to appeal to individual coyotes within a group to remove them all. In short, and in my opinion and experience, it is not a device that I will consider to remove entire family groups of coyotes in an urban situation.

Snares: A very effective predator capture device that, by itself, can remove an entire family group of canines given the right situation and environment. This device is not legal in all states, and if legal, usually has many restrictions as to loop sizes, lock types, and entanglement. Depending on the type of lock and setup utilized, snares can be set in one of two ways—live capture or lethal capture.

Let's look at the locks used for



A coyote relaxed and resting.

both methods and the pros and cons of each.

Live capture. This method requires the use of a relaxing lock. A relaxing lock is one that prevents the snare from continuing to restrict the snare loop when the animal stops pulling on the cable. Because of the relaxing lock on the snare, the animal will not be dispatched, and entanglement is not

usually used in this type of lock. This will hold the animal in place and, in my experience, just a few hours before chewing out, also causing lasting and permanent damage to the animal's mouth and teeth. A domestic would most likely not be killed or injured permanently in this type of snare, but its effectiveness against the target coyote is not great either. This is a problem on a couple of fronts. First, you would be using multiple snares in a situation that would require multiple camera monitoring, reporting in pictures every three to four hours to prevent chew-out or domestic capture. If not using cameras, physical monitoring on location every three to four hours is not feasible or effective.

Lethal capture. A lethal capture snare dispatches the animal shortly after being captured. In my opinion, this is the only snare to use if you're using snares as it's very effective and humane on your tar-



A lethal snare quickly dispatches the animal. The minimal disturbance of the capture area shows that the animal was quickly put down in a humane manner.

Continued on page 14

URBAN COYOTE MGMT:

Continued from page 13

get species. A Senneker or other type of dispatch device added to the snares already locking toothed Camlock will dispatch the animal after one initial lunging. This is fantastic as long as it's your targeted animal, the coyote, but it's not so great for a possible domestic that unexpectedly showed up at one of the control locations. This is a very effective device and easily set up in the right situation and environment and can wipe out an entire family group in short order. Still, given its unforgiveness for non-target animals, you should proceed with caution when using one of these devices in an urban area.

Foothold trap: Powered either by coil springs or long springs, foothold traps use a jaw system to hold the animal's paw after the trap has been fired.

I'm not talking about just any foothold trap here. In my opinion, the best foothold trap for urban coyote work is the KO K9 Extreme made by No BS Lures in Iowa. I'm

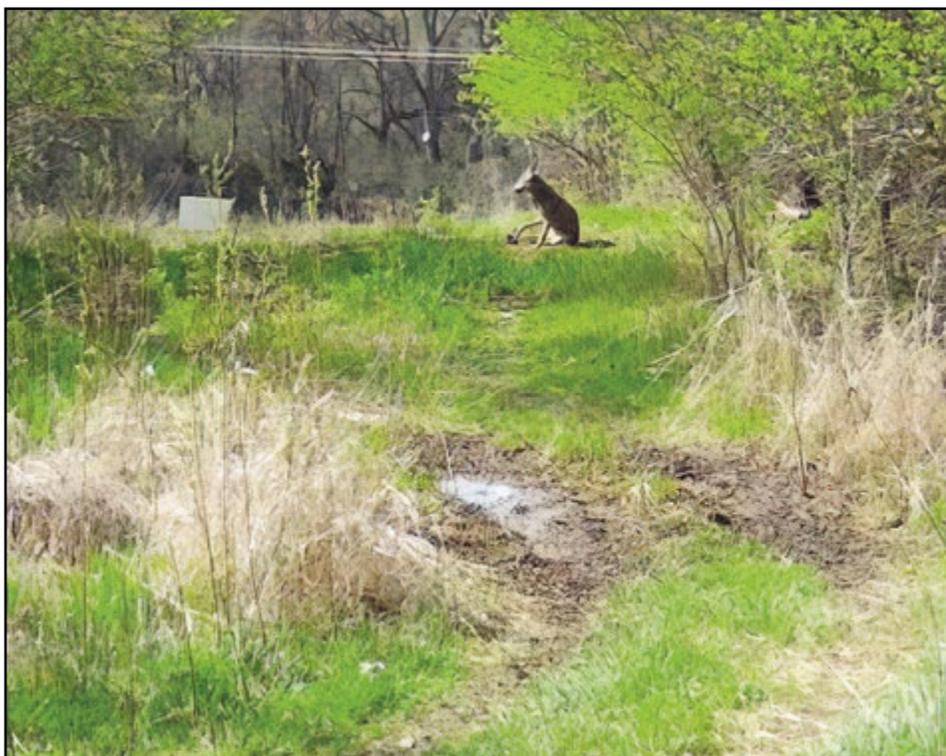


Using a good foothold trap results in a perfect catch while eliminating injuries and misses.

not going to get into all the different manufacturers as I have tried just about everything on the market geared explicitly towards coyotes. However, it is the only foothold that I have found that is strong enough to power through all types of coverings, in all kinds of weather conditions, and consistently, and I'm talking 99.9% of the time, capture and hold a canine in the same place every time is this particular trap.

When a coyote or other canine gets caught in this type of trap he will be caught behind the back pad of his paw every time. From my training and field experience, I have found that setting up this trap properly with off-set jaws, inside and outside lamination, 22-inches of chain, and triple swiveled will result in a fairly comfortable animal when caught. I mean, as comfortable as an animal can be in any trap that only has a minor injury with no permanent damage. As you can see in some of the photos, this is how you will find your coyotes most of the time, just resting or sleeping until you show up.

I have found that I can set it to appeal to all the different senses when using this device. I can set using only two to four of these traps at one or two control locations and take out the entire family group. If a domestic is caught, it will be removed with no permanent injury. Only two control area cameras will need to be utilized, allowing me to use the other two or three cameras to monitor domestic and human activity in the surrounding area. In my opinion, it's the absolute best way to remove an entire family group of coyotes out of an urban situation in the safest manner possible. ■



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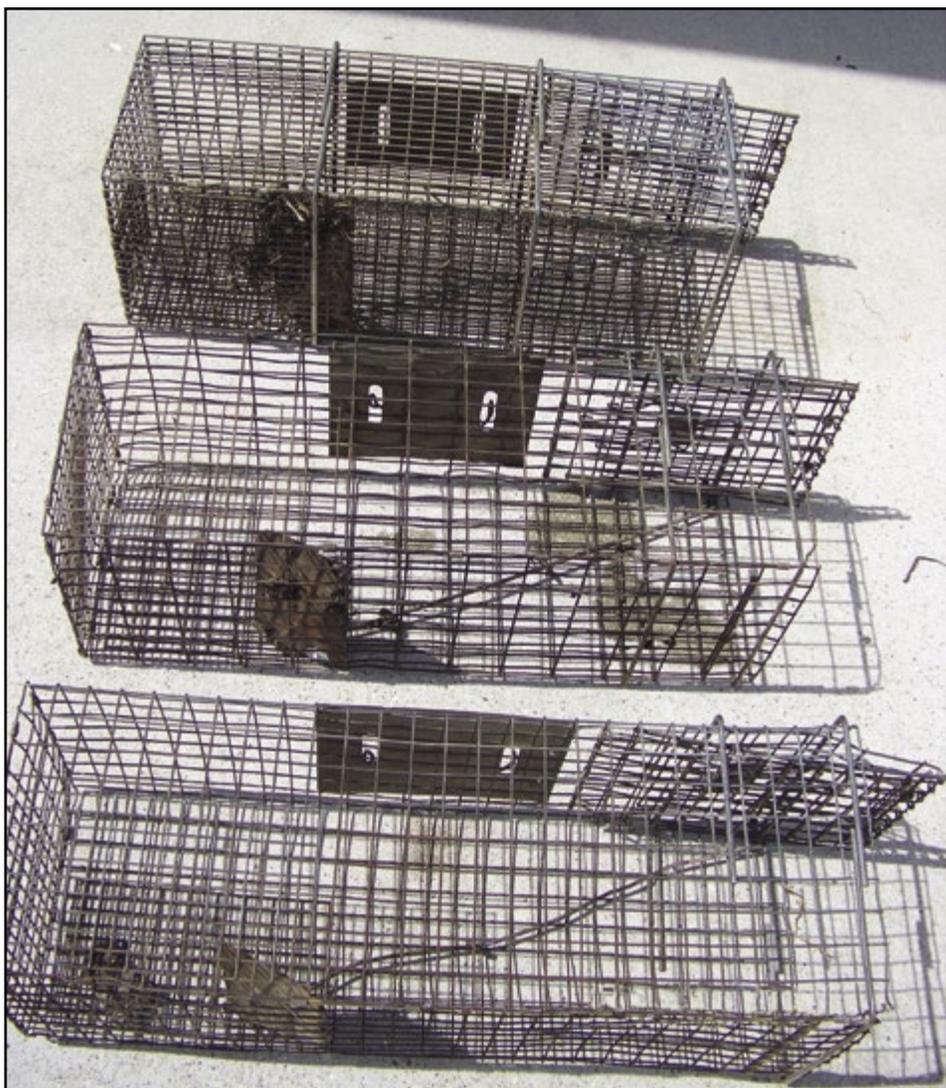
The discussion came up, once again, about injured and dead animals caught in cages. I can remember about 25 years ago when the statement was made that footholds were a lot less prone to causing injuries to animals than cage traps.

Now bear in mind that I run my business out of southeast Wisconsin. We do not get as cold as some of you, nor as warm as many of you! I have personally caught a pretty nice collection of furbearers in cages over the last 33 years. I recall an occasional bloody nose,

some leg injuries, and even a dead body once in a while when I first went into business. This is a rare occurrence for me nowadays, and I would like to tell you why.

The popular cages 30 years ago were often made of wire that was 1-inch by 2-inches. This was supposed to make the target animal more comfortable and less wary when entering the cage. I'm also guessing it was less expensive and easier to form. However, this was not great for lawns, roofs, or the arms and legs of the occupants. The 1-inch square became much more used and accepted a few years later. This was better, but still not great. Next on the market was the 1-inch by 1/2-inch cage trap. This was a much better improvement and saved a lot of reroofs and lawn jobs. Most of the newer raccoon-sized cages are now made of this material. The amazing thing is that I notice no difference in the number of catches per cage in any of the different-sized meshes if they like what they saw in the back of the cages. Bingo!

Of the last 200 cages or so that we have purchased for squirrels, all have been 1/2-inch square mesh. I love these cages because if a mouse accidentally gets caught, it's still in the cage. There is no easier way of selling a customer a mouse job than to have one running back and forth in a cage. The cages we use are 18 x 5 x 5 inches. We use these on gray squirrels, red squirrels, fly-



The different wires over the years for cage traps. Bottom: 1 x 1 inch, Middle 1 x 2 inch, Top 1 x 1/2 inch.

ing squirrels, chipmunks, 13 lined ground squirrels, and even for a fox squirrel. That was the only fox squirrel I have ever seen on a roof; ours stay in the woods!

I've mentioned this before, but when I went from fur trapping to nuisance trapping, one of my goals was to catch everything in a cage that I had caught in a foothold or body-gripping trap. I have caught the following furbearers in cage traps with no apparent injuries: coyote, beaver, muskrat, mink, weasel, and gray fox. The following animals did not hurt themselves in the cage traps, but occasionally one needed to be put down because of disease: skunk, red fox, and opossum. The following animals used to hurt themselves in my early years but rarely do today: woodchucks, raccoons, and the three of the squirrel breeds. I am happy to say that nearly all animals that die in the cage traps or have to be put down are victims of natural disease. By removing them from the population, I'm helping to save our different breeds of animals.

I have also captured every type of bird, from peacocks to wrens. I started my business by catching nearly a thousand pigeons for a city. Birds do not seem to mind cage traps. As long as the traps are checked every day, even the accidentally caught songbird appears to be in excellent shape when released. We are also very fortunate to have a great rehab center for owls and raptors not too far from here. I was very impressed on my last trip up there. I had seen plenty of bald eagles in Alaska, but never that close.

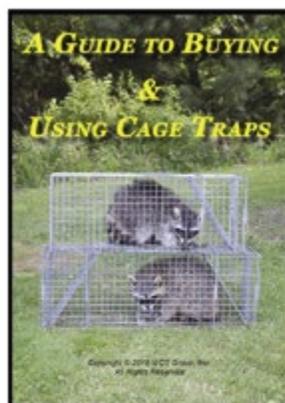
In closing, I would like to remind you all that if you're having a substantial amount of dead or bruised animals in your cage traps, there are probably things you can do to rectify the problem. Simple things like early checks, shaded traps, and my favorite, leaving food that

takes a while to consume. If they're busy ripping the covering off of a

black walnut, they don't have much time to hurt themselves. ■



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ARTICLE WRITING

by Gordon Betts

I have been in a writing slump lately. In the writing business, it's called writer's block. Coming up with something new to write about or a different way of presenting something old isn't easy when trying to do it every two months for a couple of years. One story isn't hard, though, so why aren't you writing?

The guidelines for submitting a story to *W.C.T. Magazine* have been published numerous times (see page 8 of this issue). No one has to be a professional writer, I'm certainly not, to submit an article. I happen to like to write, share information, and tell stories. Having time to do it is a bit harder and for me, being semi-retired helps a lot. There will be parts of three days involved in this article and then the

re-writings to get it the way I want it. That's just the way I write. As I start this, it's raining, I don't have any traps out or jobs to do, so here I am writing this and watching TV at the same time. The TV is more for background noise. That's a throwback to college days when thinking was done better by shutting out what was happening around me. Something that makes writing easier today is a writing program for the computer instead of a typewriter or even longhand. My wife gave me a computer program for Christmas a few years back. She really wanted me to start writing the family history down for the kids. That's still a work in progress and is being done in longhand in a notebook, not on the computer. I reserve the program for writing articles. A

dictionary and/or spell check is a must. A thesaurus is nice but not an absolute. Using one can lead to the use of too many big words and the expostulation of expressionism. Other than that, it is just writing down what you want to say, like telling a story. I haven't run into a NWCO yet that didn't have a story to tell. Just go to any of the seminars and listen during lunch breaks or after hours at a multi-day event. All you have to remember is what was taught in English class, Who, What, Where, When, and sometimes Why and How. Then write it down.

A couple of things to watch out for are the "Who" if it involves people other than yourself. Permission is needed from the person(s) being named, either real or made up

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(nickname) if it can be traced back to the original person. The “What” such as advertising either for or against a brand name or naming a specific item should be avoided. The “Where” should be generic. Political correctness needs to be maintained to a degree as well. So, instead of saying, “Jim and I were using that no good XYZ trap for squirrels at the old run-down Betts’s place,” it would be more like; “We had to use a less than satisfactory cage trap on a squirrel job in a dilapidated house the other day.” Unfortunately, the first way may make a better telling, but the second way has a lot less liability attached. Jim may not want everybody knowing that he was with you and not home. The Betts may not want everybody knowing that they had a squirrel problem, not to mention that you were not using your best equipment on the job. Then there is the trap company, XYZ, who has a case because you just told everyone that their trap was no good.

Using pictures is another thing that makes a better telling. A picture is worth a thousand words. Why? Because people can see what you are talking about. Again, be careful to either have written permission from the property owner or make sure that there is no way the picture can be identified as “the old run-down Betts’s place.” Close-ups are good. Otherwise, write it like you are telling the story to someone or giving them instructions on how to do something.

One of the first stories I ever wrote was for *W.C.T. Magazine* many moons ago. It was a short story about how my Mentor and I were called to a multi-million-dollar home at Christmas time to look for a squirrel in a Christmas tree. This place was so high-end that we had to enter through the delivery entrance. Short story shorter, there was no squirrel, and the lady

involved was embarrassed.

So what did this writing tell you without mentioning names or locations? “Who”? My Mentor and I and a lady of the house. “What”? A squirrel in a Christmas tree. “Where”? In a mansion in a high rent district. “When”? Christmas time. I didn’t get into the “How” or the “Why,” as that’s the rest of the story. However, this tells it without giving any indication of where we were.

My Mentor was a writer in his own right, and we had a mutual agreement about our writings when we were both involved. The lady of the house could be anybody. There are many houses in our area that fit the description of the one in the story. The only way that anyone would know where we were or who the lady was would be if the lady of the house told them.

At this point, you are saying wait a minute. “You said you are not a writer but were writing many moons ago?” Yes. I wrote three articles, maybe four, for *W.C.T. Magazine* back in the 1990s. Back then, I was doing NWCO work with my good friend and mentor on my days off. In 2001, things changed with my real job, and I didn’t get back to writing again until sometime around 2018. That was a couple of years after I started my full-time, part-time NWC business upon retiring from my real job of 38 years in 2014. With that said, my hat’s off to those of you whose real job is and has always been nuisance wildlife control. You must have funny stories. Maybe some not so funny things have happened to you or a better way of doing something. Stories from the South are different from those of the North, and those from Canada are different from those of the USA. Diversity is good and always interesting to others, so why not share your experiences or knowledge and write an article? ■

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INTRODUCTION TO MOLES

by Eric Arnold

While not as glamorous as removing raccoons from chimneys or coyotes from the neighborhood, trapping moles can be a rewarding experience for the wildlife control operator.

However, it seems that very few wildlife control companies offer this service. For those just starting in the industry, mole trapping may be an excellent way to get started.

The first step is to know what types of moles are in your service area when it comes to trapping moles.

In the United States, there are seven (7) different mole species. They are the eastern mole, hairy-tailed mole, star-nosed mole, board-footed mole, Townsend's mole, coast mole, and shrew mole.

For Ohio, where my service area is, there are three species—eastern mole, hairy-tailed mole, and the star-nosed mole. Interestingly, in my county of residence, the star-nosed mole is listed as the only species, which I have found to be true for the most part except for two occasions. I have even seen an Ohio State University study from the early 1900s stating this

fact.

Successful mole trapping involves two main components—locating active mole tunnels and using the right equipment.

Some may wonder about that last statement, but I have found that certain mole traps work best with certain species. This statement is specific to the three mole species we have in Ohio, as they are the only species we have worked with.

There are several different designs to choose from when choosing a mole trap, but only two that we use. They are the spear and pincher styles.

The number one mole conflict for our service area is the star-nosed mole. Number two is the hairy-tailed mole, and number three is the eastern mole. In fact, in over 20 years of service, we have only caught one eastern mole.

Our go-to mole trap is the NoMole®. We have also used the Moleinator, Victor Out O' Sight, and the Victor Spear-type mole traps.

Working backward, the spear-type mole trap works well in soft loam soil, which means they are pretty specific for us to hairy-tailed moles. Next, the Out O' Sight trap works well on subterranean tunnels with hairy-tail, and I've heard eastern moles. Finally, the NoMole® and Moleinator work well with surface tunnels and subterranean tunnels for star-nosed and hairy-tailed moles. I know many operators who are successful in using them on eastern moles, but again, we've not caught enough eastern moles to have an opinion.

Once you know the mole species you'll be working with and have the proper equipment, the next step is finding the moles.

By far, the hardest moles to locate active runs on are star-nosed. I have seen these moles pop out of the ground, run three to six feet, and swim back under the surface. These broken trails make it hard to find the best set location, a strait trail that leads from the bedding area to the feeding area.

Both eastern and hairy-tailed moles have a distinctive tunnel system. Their feeding area will be a conglomerate of tunnels in a small area that has a long, straight, or kind of straight tunnel that leads to and from their bedding area. This is what you need to look for and find. Based on the length of this connecting tunnel, operators may set two, three, or more traps. I recommend that you set a minimum of two as you can also catch shrews and mice running the mole tunnels.

When making sets, follow the directions for the equipment you are using. For example, noMole® traps require two traps set at each location, one facing each way, along with a dirt plug. If you skip the second trap or dirt plug, you'll educate the mole, and the games may begin.

When using spear-type and styles like the Out O' Sight trap, make sure to test-fire the trap several times to eliminate ground resistance when the trap fires. This may allow the mole to escape and enhance its education.

As you gain success, pay attention to what was done and why. Mole trapping is as much an art as it is a learned skill. But by using the proper equipment for the target mole species and setting only active runs, it is an art and skill that can be mastered while adding a nice profit to the bottom line. ■



My #1 mole technician setting a NoMole® trap.



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Continued on page 24

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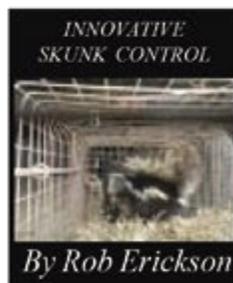
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|--|------------------------------------|
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| Tuti Fruit (raccoon) | Checita (raccoon & skunk) |
| Big Time (raccoon) | Bacon (raccoon, skunk, opossum) |
| Raspberry (raccoon & opossum) | Anise Paste (raccoon) |
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AVMA Guidelines for the Euthanasia of Animals: 2020 Edition (continued)

15 EVALUATING EUTHANASIA METHODS

In evaluating methods of euthanasia, the POE considered the following criteria: (1) ability to induce loss of consciousness and death with a minimum of pain and distress; (2) time required to induce loss of consciousness; (3) reliability; (4) safety of personnel; (5) irreversibility; (6) compatibility with intended animal use and purpose; (7) documented emotional effect on observers or operators; (8) compatibility with subsequent evaluation, examination, or use of tissue; (9) drug availability and human abuse potential; (10) compatibility with species, age, and health status; (11) ability to maintain equipment in proper working order; (12) safety for predators or scavengers should the animal's remains be consumed; (13) legal requirements; and (14) environmental impacts of the method or disposition of the animal's remains.

Euthanasia methods are classified in the Guidelines as acceptable, acceptable with conditions, and unacceptable. Acceptable methods are those that consistently produce a humane death when used as the sole means of euthanasia. Methods acceptable with conditions are those techniques that may require certain conditions to be met to consistently produce humane death, may have greater potential for operator error or safety hazard, are not well documented in the scientific literature, or may require a secondary method to ensure death. Methods acceptable with conditions are equivalent to acceptable methods when all criteria for application of a method can be met. Unacceptable techniques are those methods deemed inhumane under any conditions or that the POE found posed a substantial risk to the human applying the technique. The Guidelines also include information about adjunctive methods, which are those that should not be used as a sole method of euthanasia, but that can be used in conjunction with other methods to bring about euthanasia.

The POE recognized there will be less-than-perfect situations in which a method of euthanasia that is listed as acceptable or acceptable with conditions may not be possible, and a method or agent that is the best under the circumstances will need to be applied.

As with many other procedures involving animals, some methods of euthanasia require physical handling of the animal. The amount of control and kind of restraint required will be determined by the species, breed, and size of animal involved; the degree of domestication, tolerance to humans, level of excitement, and prior handling experience of the animal; the presence of painful injury or disease; the animal's social environment; and the method of euthanasia and competence of the person(s) performing the euthanasia. Proper handling is vital to minimize pain and distress in animals, to ensure the safety of the person performing euthanasia, and, often, to protect other people and animals. Handling animals that are not accustomed to humans or that are severely injured or otherwise compromised may not be possible without inducing stress, so some latitude in the means of euthanasia is needed in some situations. The POE discussed the criteria for euthanasia used in the Guidelines as they apply to circumstances when the degree of control over the animal makes it difficult to ensure death without pain and distress. Premedication with the intent of providing anxiolysis, analgesia, somnolence for easier and safer IV access, and reduction of stage II or postmortem activity that could be distressing to personnel is strongly encouraged to reduce animal distress and improve personnel safety. This is particularly important for prey species, nondomesticated species, and animals enduring painful conditions.

Personnel who perform euthanasia must demonstrate proficiency in the use of the technique in a closely supervised environment. Each facility or institution where euthanasia is performed (whether a clinic, laboratory, or other setting) is responsible for training its personnel adequately to ensure the facility or institution operates in compliance with federal, state, and local laws. Furthermore, experience in the humane restraint of the species of animal to be euthanized is important and should be expected, to ensure that animal pain and distress are minimized. Training and experience should include familiarity with the normal behavior of the species being euthanized, an appreciation of how handling and restraint affect that behavior, and an understanding of the mechanism by which the selected technique induces loss of consciousness and death. Euthanasia should only be attempted when the necessary drugs and supplies are available to ensure a smooth procedure.

Selection of the most appropriate method of euthanasia in any given situation depends on the species and number of animals involved, available means of animal restraint, skill of personnel, and other considerations. Information in the scientific literature and available from practical experience focuses primarily on domesticated animals, but the same general considerations should be applied to all species.

Euthanasia must be performed in accord with applicable federal, state, and local laws governing drug acquisition and storage, occupational safety, and methods used for euthanasia and disposal of animals, with special attention to species requirements where possible. The AVMA encourages those responsible for performing euthanasia of nonhuman animals to review current federal, state, and local regulations. If drugs have been used, careful consideration must be given to appropriate disposal of the animal's remains and steps should be taken to avoid environmental contamination or harm to other animals.

Circumstances may arise that are not clearly covered by the Guidelines. Whenever such situations arise, a veterinarian experienced with the species should apply professional judgment, knowledge of clinically acceptable techniques, professional ethos, and social conscience in selecting an appropriate technique for ending an animal's life.

It is imperative that death be verified after euthanasia and before disposal of the animal. An animal in deep narcosis following administration of an injectable or inhalant agent may appear to be dead, but might eventually recover. Death must be confirmed by examining the animal for cessation of vital signs. Consideration should be given to the animal species and method of euthanasia when determining appropriate criteria for confirming death.

Safe handling and disposal of the resulting animal remains are also critically important when the presence of zoonotic disease, foreign animal diseases, or other diseases of concern to population health is suspected. Appropriate diagnostic samples should be collected for testing, pertinent regulatory authorities should be notified, and the animal's body should be incinerated, if possible. Use of personal protective equipment and precautions for handling biohazardous materials are recommended. Animals that have injured humans may require specific actions to be taken depending on local and state laws.

15.1 CONSCIOUSNESS AND UNCONSCIOUSNESS

Consciousness refers to the subjective or inner qualitative experience of an animal in question. In humans, consciousness is common during both sleep and anesthesia, as evidenced by dreaming.⁴⁵ One defining feature of dreaming is that, even while conscious, we do not experience our environment—we are disconnected from it. Ideally, general anesthesia prevents the experience of surgery and pain (connected consciousness), as well as producing behavioral unresponsiveness, either by inducing unconsciousness or by disconnecting consciousness from the environment.⁴⁵

Unconsciousness, defined as loss of individual awareness, occurs when the brain's ability to integrate information is blocked or disrupted. In humans, onset of anesthetic-induced unconsciousness has been functionally defined by loss of appropriate response to verbal command; in animals, by loss of the righting reflex.^{46,47} This definition, introduced with the discovery of general anesthesia more than 160 years ago, is still useful because it is an easily observable, integrated whole-animal response.

Anesthetics produce unconsciousness either by preventing integration (blocking interactions among specialized brain regions) or by reducing information (shrinking the number of activity patterns available to cortical networks) received by the cerebral cortex or equivalent structure(s). Further, the abrupt loss of consciousness that occurs at a critical concentration of anesthetic implies that the integrated repertoire of neural states underlying consciousness may collapse nonlinearly.⁴⁸ Cross-species data suggest that memory and awareness are abolished with less than half the concentration required to abolish movement. Thus, an anesthetic state (unconsciousness and amnesia) can be produced at concentrations of anesthetic that do not prevent physical movements.⁴⁷

Measurements of brain electrical function have been used to objectively quantify the unconscious state. At some level between behavioral unresponsiveness and the induction of a flat EEG (indicating the cessation of the brain's electrical activity and brain death), consciousness must vanish. However, EEG data cannot provide definitive answers as to onset of unconsciousness. Brain function monitors based on EEG are limited in their ability to directly indicate presence or absence of unconsciousness, especially around the transition point⁴⁸; also, it is not always clear which EEG patterns are indicators of activation by stress or pain.²⁸

Physical methods that destroy or render nonfunctional the brain regions responsible for cortical integration (eg, gunshot, captive bolt, cerebral electrocution, blunt force trauma, maceration) produce instantaneous unconsciousness. When physical methods directly destroy the brain, signs of unconsciousness include immediate collapse and a several-second period of tetanic spasm, followed by slow hind limb movements of increasing frequency⁴⁹⁻⁵¹ in cattle; however, there is species variability in this response. The corneal reflex will be absent.⁵² Signs of effective electrocution are loss of righting reflex, loss of eyeblink and moving object tracking, extension of the limbs, opisthotonos, downward rotation of the eyeballs, and tonic spasm changing to clonic spasm, with

eventual muscle flaccidity.^{53,54}

Decapitation and cervical dislocation as physical methods of euthanasia require separate comment. The interpretation of brain electrical activity, which can persist for up to 30 seconds following these methods,^{55–58} has been controversial.⁵⁹ As indicated previously, EEG methods cannot provide definitive answers as to onset of unconsciousness. Other studies^{60–63} indicate such activity does not imply the ability to perceive pain and conclude that loss of consciousness develops rapidly.

Once loss of consciousness occurs (ie, there is no longer an inner qualitative experience) subsequently observed activities, such as convulsions, vocalization, reflex struggling, breath holding, and tachypnea, can be attributed to the second stage of anesthesia, which by definition lasts from loss of consciousness to the onset of a regular breathing pattern.^{64,65} Thus, events observed following loss of the righting reflex are likely not consciously perceived. Some agents may induce convulsions, but these generally follow loss of consciousness. Agents inducing convulsions prior to loss of consciousness are unacceptable for euthanasia.

15.1.1 A REVIEW

Sedatives and immobilizing agents should not be confused with anesthetics, since animals are not necessarily rendered unconscious by the former 2 agents. Sedated and immobilized animals may still be aware of their environment. During anesthesia, consciousness is not necessarily associated with connectedness, responsiveness, or even recall. The concept of a transition zone between consciousness and unconsciousness has been discussed by Terlouw et al.^{66,67} This is especially true as it pertains to animals in slaughter plants. When animals are exsanguinated without stunning,⁶⁸ EEG studies^{69,70} show that a corneal reflex in response to touch can occur in unconscious animals. To clarify assessment of unconsciousness and consciousness, it is recommended to separate signs of definite consciousness from signs of unconsciousness or death. Following this paragraph is a list of 6 signs that an animal is definitely conscious⁶⁷; the subsequent paragraph is followed by a list of 3 signs that an animal is unconscious or (brain) dead. Consciousness likely depends on integrity of the corticothalamic networks. Spontaneous responsiveness may depend on subcortical and spinal cord networks and connectedness (namely, an awareness of one's environment) and may depend on continued information integration in corticothalamic circuits and unperturbed norepinephrinergic signaling.^{45,71} According to Terlouw et al,⁶⁷ terrestrial animals are definitely conscious when they exhibit any 1 of these 6 indicators: standing posture, head or body righting reflex, voluntary vocalization, spontaneous blinking (no touching), eye pursuit, and response to threat or menace test (no touching). Some modification of these indicators may be required on the basis of factors such as species and developmental stage. A terrestrial animal that is unconscious and brain-dead will not have corneal reflex, eyelash reflex (in response to touch), or rhythmic breathing.⁶⁷ Determining similar indicators for other species of animals is desired, and research into them is highly encouraged to help practitioners distinguish between animals that are brain-dead, unconscious (by anesthesia), immobilized, or sedated. Following are the 6 indicators of definite consciousness, in list form:

- Standing posture.
- Head or body righting reflex.
- Voluntary vocalization.
- Spontaneous blinking (no touching).
- Eye pursuit.
- Response to threat or menace test (no touching).

Before carcass disposal or invasive dressing procedures occur at a slaughter plant, it should be confirmed that an animal is unconscious or brain-dead. Ensuring that an animal is unconscious or brain-dead requires all 3 of the following indicators:

- Absence of corneal reflex.
- Absence of eyelash reflex (response to touch).
- Absence of rhythmic breathing.⁶⁷

15.2 PAIN AND ITS PERCEPTION

Criteria for painless death can be established only after the mechanisms of pain are understood. The perception of pain is defined as a conscious experience.⁴⁷ The International Association for the Study of Pain (IASP) describes pain as “[a]n unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage. Activity induced in the nociceptor and nociceptive pathways by a noxious stimulus is not pain, which is always a psychological state, even though we may well appreciate that pain most

often has a proximate physical cause."⁷²

The perception of pain based on mammalian models requires nerve impulses from peripheral nociceptors to reach a functioning conscious cerebral cortex and the associated subcortical brain structures. Noxious stimulation that threatens to damage or destroy tissue produces activity in primary nociceptors and other sensory nerve endings. In addition to mechanical and thermal stimulation, a variety of endogenous substances can generate nociceptive impulses, including prostaglandins, hydrogen ions, potassium ions, substance P, purines, histamine, bradykinin, and leukotrienes, as can electrical currents.

Nociceptive impulses are conducted by nociceptor primary afferent fibers to either the spinal cord or the brainstem and 2 general sets of neural networks. Reflex withdrawal and flexion in response to nociceptive input are mediated at the spinal level while ascending nociceptive pathways carry impulses to the reticular formation, hypothalamus, thalamus, and cerebral cortex (somatosensory cortex and limbic system) for sensory processing and spatial localization. Thus, movement observed in response to nociception can be due to spinally mediated reflex activity, cerebral cortical and subcortical processing, or a combination of the two. For example, it is well recognized clinically that spinally mediated nociceptive reflexes may remain intact distal to a compressive spinal lesion or complete spinal transection that blocks the ascending nociceptive pathways. In contrast, administration of a local anesthetic into the epidural space suppresses both spinally mediated nociceptive reflexes and ascending nociceptive pathways; in either case, noxious stimuli are not perceived as pain in conscious human or nonhuman animals because activity in the ascending pathways, and thus access to the higher cortical centers, is suppressed or blocked. It is therefore incorrect to substitute the term pain for stimuli, receptors, reflexes, or pathways because the term implies higher sensory processing associated with conscious perception. Consequently, the choice of a euthanasia agent or method is less critical if it is to be used on an animal that is anesthetized or unconscious, provided that the animal does not regain consciousness prior to death.

Pain is subjective in the sense that individuals can differ in their perceptions of pain intensity as well as in their physical and behavioral responses to it. Pain can be broadly categorized as sensory-discriminative, where the origin and the stimulus causing pain are determined, or as motivational-affective, where the severity of the stimulus is perceived and a response to it determined.⁷³ Sensory-discriminative nociceptive processing occurs within cortical and subcortical structures using mechanisms similar to those used to process other sensory-discriminatory input and provides information on stimulus intensity, duration, location, and quality. Motivational-affective processing involves the ascending reticular formation for behavioral and cortical arousal, as well as thalamic input to the forebrain and limbic system for perception of discomfort, fear, anxiety, and depression. Motivational-affective neural networks also provide strong inputs to the limbic system, hypothalamus, and autonomic nervous system for reflex activation of the cardiovascular, pulmonary, and pituitary-adrenal systems. Although the perception of pain requires a conscious experience, defining consciousness, and therefore the ability to perceive pain, across many species is quite difficult. Previously it was thought that fish, amphibians, reptiles, and invertebrates lacked the anatomic structures necessary to perceive pain as we understand it in birds and mammals. For example, the invertebrate taxa include animals with no nervous system (eg, sponges) and nervous systems with no ganglionation or minimal ganglionation (eg, starfish). However, there are also invertebrate taxa with well-developed brains and/or complex behaviors that include the ability to analyze and respond to complex environmental cues (eg, octopus, cuttlefish, spiders,^{74,75} honeybees, butterflies, ants). Most invertebrates do respond to noxious stimuli and many have endogenous opioids.⁷⁶

Amphibians and reptiles also represent taxa with a diverse range of anatomic and physiologic characteristics such that it is often difficult to ascertain that an amphibian or reptile is, in fact, dead. Although amphibians and reptiles respond to noxious stimuli and are presumed to feel pain, our understanding of their nociception and response to stimuli is incomplete. Nevertheless, there is increasing taxa-specific evidence of the efficacy of analgesics to minimize the impact of noxious stimuli on these species.^{77,78} Consequently, euthanasia techniques that result in "rapid loss of consciousness" and "minimize pain and distress" should be strived for, even where it is difficult to determine that these criteria have been met.

Compelling recent evidence indicates finfish possess the components of nociceptive processing systems similar to those found in terrestrial vertebrates,^{59-65,72-80} though debate continues based on questions of the impact of quantitative differences in numbers of specific components such as unmyelinated C fibers in major nerve bundles. Suggestions that fish responses to pain merely represent simple reflexes⁸¹ have been refuted by studies^{82,83} demonstrating forebrain and midbrain electrical activity in response to stimulation and differing with type of nociceptor stimulation. Learning and memory consolidation in trials where finfish are taught to avoid noxious stimuli have moved the issue of fish cognition and sentience forward⁸⁴ to the point where the preponderance of

accumulated evidence supports the position that finfish should be accorded the same considerations as terrestrial vertebrates in regard to relief from pain. The POE was not able to identify similar studies of Chondrichthyes (cartilaginous fish), amphibians, reptiles, and invertebrates, but believes that available information suggests that efforts to relieve pain and distress for these taxa are warranted, unless further investigation disproves a capacity to feel pain or distress.

While there is ongoing debate about fishes', amphibians', reptiles', and invertebrate animals' ability to feel pain or otherwise experience compromised welfare, they do respond to noxious stimuli. Consequently, the Guidelines assume that a conservative and humane approach to the care of any creature is warranted, justifiable, and expected by society. Euthanasia methods should be employed that minimize the potential for distress or pain in all animal taxa, and these methods should be modified as new taxa-specific knowledge of their physiology and anatomy is acquired.

15.3 STRESS AND DISTRESS

An understanding of the continuum that represents stress and distress is essential for evaluating techniques that minimize any distress experienced by an animal being euthanized. Stress has been defined as the effect of physical, physiologic, or emotional factors (stressors) that induce an alteration in an animal's homeostasis or adaptive state.⁸⁵ The response of an animal to stress represents the adaptive process that is necessary to restore the baseline mental and physiologic state. These responses may involve changes in an animal's neuroendocrinologic system, autonomic nervous system, and mental status that may result in overt behavioral changes. An animal's response varies according to its experience, age, species, breed, and current physiologic and psychological state, as well as handling, social environment, and other factors.^{86,87}

Stress and the resulting responses have been divided into 3 phases.⁸⁸ Eustress results when harmless stimuli initiate adaptive responses that are beneficial to the animal. Neutral stress results when the animal's response to stimuli causes neither harmful nor beneficial effects to the animal. Distress results when an animal's response to stimuli interferes with its well-being and comfort.⁸⁹ To avoid distress, veterinarians should strive to euthanize animals within the animals' physical and behavioral comfort zones (eg, preferred temperatures, natural habitat, home) and, when possible, prepare a calming environment.

15.5 HUMAN BEHAVIOR

The depth of the emotional attachment between animals and their owners or caretakers requires an additional layer of professional respect and care beyond the ethical obligation to provide a good death for the animal. Human concerns associated with the euthanasia of healthy and unwanted animals can be particularly challenging, as can situations where the health interests of groups of animals and/or the health interests of people conflict with the welfare of individual animals (eg, animal health emergencies).

The human-animal relationship should be respected by discussing euthanasia openly,¹²⁰ providing an appropriate place to conduct the process, offering the opportunity for animal owners and/or caretakers to be present when at all possible (consistent with the best interests of the animal and the owners and caretakers), fully informing those present about what they will see (including possible unpleasant side effects), and giving emotional support and information about grief counseling as needed.¹²¹⁻¹²³ Regardless of the euthanasia method chosen, it is important to consider the level of understanding and perceptions of those in attendance as they witness euthanasia. When death has been achieved and verified, owners and caretakers should be verbally notified.¹²²

Owners and caretakers are not the only people affected by the euthanasia of animals. Veterinarians and their staffs may also become attached to patients and struggle with the ethics of the caring-killing paradox,^{124,125} particularly when they must end the lives of animals they have known and treated for many years. Repeating this scenario regularly may lead to emotional burnout, or compassion fatigue. The various ways in which veterinarians cope with euthanasia have been discussed elsewhere.¹²⁶

There are 6 settings in which the Panel was most aware of the potential for substantive psychological impacts of animal euthanasia on people.

The first setting is the veterinary clinical setting (clinics and hospitals or mobile veterinary practices) where owners have to make decisions about whether and when to euthanize. Although many owners rely heavily on their veterinarian's judgment, others may have misgivings about making a decision. This is particularly likely if an owner feels responsible for an animal's medical or behavioral problem. Owners choose euthanasia for their animals for a variety of reasons, including prevention of suffering from a terminal illness, their inability to care for the animal, the impact of the animal's condition on other animals or people, and/or financial considerations.

The decision to euthanize often carries strong feelings of emotion such as guilt, sadness, shock, and disbelief.¹²⁷ As society continues to pay more attention to questions about the moral status of animals, loss of animal life should be handled with the utmost respect and compassion by all animal care staff. The ability to communicate well is crucial to helping owners make end-of-life decisions for their animals and is a learned skill that requires training.¹²⁸

Almost 80% of clients who recently experienced the death of a pet (87% by euthanasia) reported a positive correlation between support from the veterinarian and staff and their ability to handle the grief associated with their pet's death.¹²⁷ Owners should be given the opportunity to be present during euthanasia, when feasible, and they should be prepared for what to expect.^{122,127,129} What drugs are being used and how the animal could respond should be discussed. Behaviors such as vocalization, agonal breaths, muscle twitches, failure of the eyelids to close, urination, or defecation can be distressing to owners. Counseling services for owners having difficulty coping with animal death are available in some communities, and veterinarians are encouraged to seek grief support training to assist their clients.¹³⁰⁻¹³² While good euthanasia practices (ie, client communication and education, compassionate species-appropriate handling and selection of technique, pre-euthanasia sedatives or anesthetics as needed to minimize anxiety and facilitate safe restraint, and careful confirmation of death) are often applied in the euthanasia of dogs and cats, they should also be followed for other species that are kept as pets, including small mammals, birds, reptiles, farm animals, and aquatic animals.

The second setting is in animal care and control facilities where unwanted, homeless, diseased, and injured animals must be euthanized in large numbers. The person performing euthanasia must be technically proficient (including the use of humane handling methods and familiarity with the method of euthanasia being employed), and must be able to understand and communicate to others the reasons for euthanasia and why a particular approach was selected. This requires organizational commitment to provide ongoing professional training on the latest methods, techniques, and materials available for euthanasia.

Distress may develop among personnel directly involved in performing euthanasia repeatedly,¹³³ and may include a psychological state characterized by a strong sense of work dissatisfaction or alienation, which may be expressed by absenteeism, belligerence, or careless and callous handling of animals.¹³⁴ The impact on personnel may be worse when euthanasia is conducted in frequent, shorter sessions compared with fewer, longer sessions.¹³⁵ In addition, animal shelter personnel have been shown to have more difficulty dealing emotionally with the euthanasia of healthy, unwanted animals than those that are old, sick, injured, or wild.¹³⁶ Specific coping strategies that can make the task more tolerable include adequate training programs so that euthanasia is performed competently, rotation of duties and shared responsibilities for staff performing euthanasia, peer support in the workplace, professional support as necessary, focusing on animals that are successfully adopted or returned to owners, devoting some work time to educational activities, and providing time off when workers feel distressed. Management should be aware of potential personnel problems related to animal euthanasia and determine whether it is necessary to institute a program to prevent, decrease, or eliminate this problem.

The third setting is the laboratory. Researchers, technicians, and students may become attached to animals that must be euthanized in laboratory settings, even though the animals are often purpose-bred for research.¹³⁷ The human–research animal bond positively impacts quality of life for a variety of research animals, but those caring for the animals often experience euthanasia-related stress symptoms comparable to those encountered in veterinary clinics and animal shelters.¹³⁸⁻¹⁴⁰ The same considerations afforded pet owners or shelter employees should be provided to those working in laboratories, particularly the provision of training to promote grief coping skills.¹⁴¹

The fourth setting is wildlife conservation and management. Wildlife biologists, wildlife managers, and wildlife health professionals are often responsible for euthanizing animals that are injured, diseased, or in excessive number or those that threaten property or human safety. Although relocation of some animals may be appropriate and attempted, relocation is often only a temporary solution and may be insufficient to address a larger problem. People who must deal with these animals, especially under public pressure to save the animals rather than destroy them, can experience extreme distress and anxiety. In addition, the perceptions of not only the wildlife professionals, but of onlookers, need to be considered when selecting a euthanasia method.

The fifth setting is livestock and poultry production. As for shelter and laboratory animal workers, on-farm euthanasia of individual animals by farm workers charged with nurturing and raising production animals can take a heavy toll on employees both physically and emotionally.¹⁴²

The sixth setting is that in which there is broad public exposure. Because euthanasia of zoo animals, animals involved in roadside or racetrack accidents, stranded marine animals, and nuisance or injured wildlife can draw

public attention, human attitudes and responses must be considered whenever these animals are euthanized. Natural disasters and foreign animal disease programs also present public challenges. Attention to public perceptions, however, should not outweigh the primary responsibility of doing what is in the animal's best interest under the circumstances (ie, using the most appropriate and painless euthanasia method possible).

In addition to ensuring good care of animals during euthanasia and considering the psychological well-being of human participants, the physical safety of personnel handling the animals and performing euthanasia needs to be protected. The safe use of controlled substances and diversion control to prevent abuse is also part of the responsibility of those using such substances in the performance of euthanasia.¹⁴³

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Questions & Answers

Have a question on Wildlife Control work?

Email us at ask@wctmagazine.com or write us at PO Box 357, Sharon Center, OH 44274

Q: I was asked to look at and bid a bird reduction job at a warehouse. When I did the inspection, I noticed only a small number of birds present, but the site contained multiple access points and construction defects. What is the best way to approach a job like this? **D.H., NE**

A: There are several options operators have available for bird work—harassment, exclusion, and capture. Each one has its pros and cons, and the service or services offered need to address the client's issue.

Before looking at each type of service, start with understanding the client's needs.

For instance, if the client is a food processing facility, they will have a different need than a client who has birds leaving droppings on the cars in their parking lot. This is due to the fact that USDA regulations require that no birds or bird material contaminate the food product or processing equipment. In contrast, the cars in the parking lot have no special regulations concerning what happens to them. Therefore, while both clients will want the birds gone, one runs the risk of being shut down while the other has more of a nuisance issue.

Once you understand the client's needs, you can look at the available options to solve them. At this point, don't take any option off the table. Unless it is a case involving eagles or hawks at a wind power plant, there will be a way to solve the problem. How much that solution will cost is another question entirely.

When dealing with must-remove situations, my first thought is always capture. Here there are two

types of services—live capture and lethal capture.

Live capture involves species-specific traps, prebaiting, decoy birds when available, along with shelter, water, and food for any live birds the trap holds.

Lethal capture involves specialty traps and shooting, primarily with air rifles.

In my opinion, the fastest and most effective way to deal with a small to medium number of birds inside of buildings is shooting. Unfortunately, too many operators don't offer this choice because they don't have the necessary equipment or feel the client will not permit it. Keep in mind that if you don't offer it, they can't say no, and if they do, at least they made the choice, not the operator.

Operators don't need to invest in a \$5,000 system for shooting in buildings, but they should invest more than a hundred or two hundred dollars in most cases. This is not the time to cheap out on equipment.

I sell several jobs a year shooting birds in buildings strictly because of my equipment.

When dealing with large numbers of birds, regardless of any other control method implemented, a population reduction program with trapping needs to be implemented. I have found that using the correct trap and setting the proper expectations is key to success.

You're setting yourself up for problems if you sell a bird trapping job where there is a large number of birds and try to capture them with single capture traps. Like with any other problem wildlife conflicts, you need to match the trap to the situation at hand.

Pigeons like a larger trap, whereas sparrows can be captured in smaller traps. Trap placement is also critical. Birds don't feed in the air, so look for areas where they would naturally feed and place your traps accordingly.

When dealing with high-pressure (nesting) areas, aside from lethal control, exclusion is the only option. Regardless of the material used, it has to prevent the birds from accessing the nesting areas, and it needs to be maintained. Don't forget to include a maintenance contract in your exclusion bids. It's a good way to make residual income and ensure your name isn't dragged through the mud for something that isn't your fault.

When it comes to low- and medium-pressure areas (loafing and feeding areas), harassment products and techniques are good choices. Unfortunately, harassment products vary greatly between species, along with how effective they are. Harassment is a good starting point for clients that do not need 100% removal or exclusion but should only be considered for 100% removal or exclusion clients to enhance the removal or exclusion services, not as an actual.

The answer for the best way to approach the job will depend on what the client needs. For example, when quick removal of a limited number of birds is required, I always include shooting, followed by trapping. When the issue is population management, I start with trapping and include shooting and exclusion and harassment products. When it is just a nuisance issue, I begin with harassment and proceed from there. ■



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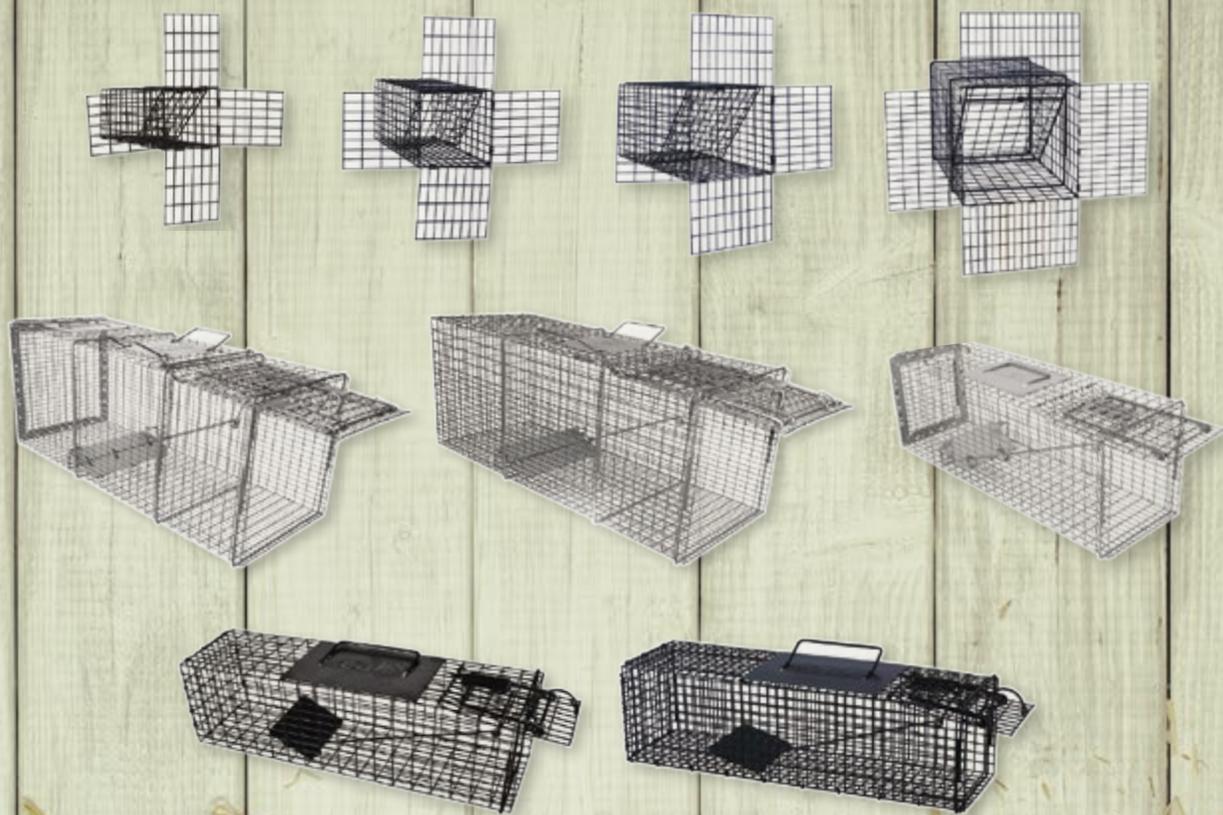
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