

# ANIMAL HANDLING AND CHEMICAL IMMOBILIZATION

Researchers frequently call upon animal control agents to help capture wild animals unharmed, to relocate animals unharmed in the course of their work, and to safely release non-target animals from traps. Thus, it's important for you to be familiar with some basic animal handling and immobilization techniques.

## Introduction to Animal Handling

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Most wild animals will act defensively when restrained in any kind of a trap. They may simply try to escape. However, as the trapper approaches and crosses the animal's threshold of tolerance, most animals will become aggressive and strike in some way, either with teeth or claws. (An animal's *threshold of tolerance* refers to the point at which the trapped animal will become aggressive upon human approach.) Therefore, it's important to wear protective gloves when handling an animal. These gloves are made from thick layers of leather with mesh in between, or with metal reinforcement at appropriate locations. Animal handlers should be immunized for tetanus and have the preventative rabies shots.

A *catchpole* (also called a *hog catcher*) is essential for letting carnivores out of traps. Restrain the animal's head securely, open the trap or snare, hold the animal away from you, and release. Be ready to get out of the way, as some animals will try to deliver a last warning bite as they flee. Restrained animals may be so frantic that biting is an almost involuntary reaction. It's also good to have a helper in these situations.

When releasing an animal from a cage trap, cover one end of the trap. This may encourage the animal to stay in the dark protected end of the trap while you open the other end and get out of the way. Some animals may not leave the safety of the darkened trap even after you've opened it. You can be patient and come back later, or uncover the trap.

Non-sedated, physically restrained animals should have their heads (or at least their eyes) covered. Not being able to see can actually calm them, since it reduces the disturbing visual stimuli. Animals that need to be held for some period should be given a quiet, dark space (the smaller the better). This type of space is also calming for most animals. If the animal has too much room to move around in, it can hurt itself or others.

## Animal Diseases

Many animal diseases (particularly in mammals) can be transferred to humans. Some may be transmitted directly to humans, while others are transferred via an intermediary, such as a tick or flea. *Rabies* is a viral agent that may be transmitted directly by a bite or scratch. Rabies is found in the saliva of infected animals. If you're bitten or scratched by any species known to harbor rabies, and rabies is known to be in the area, the animal must be tested. This can be done by quarantine or by brain examination. The animal must be euthanized in the latter case. The head is removed, frozen, and sent to a lab. *Do not shoot the animal in the head.* The head must be preserved for laboratory examination.

*Lyme disease* is a serious tick-borne illness transmitted through tick bites. Fleas may also carry diseases, most notably bubonic plague. *Bubonic plague* is a bacterial disease that was transferred to millions of people via rat fleas in the Middle Ages. The same disease now is *endemic* (a disease known to be more or less permanently in the area) in the southwest, and may infect populations of rodents and carnivores that feed on rodents. To avoid contracting this serious illness, you must protect yourself from fleas and also from contact with infected animals or animal carcasses.

Parasitic roundworms (or their eggs) and protozoa may be present in scat. Raccoons carry a type of roundworm that can cause serious illness, blindness, or death if transferred to humans. *Giardia* is a protozoan-like organism found in fecal material that can infect a water supply. Beaver carry their own species of giardia that doesn't infect humans, but they can also carry the human-infecting species (as can free-running domestic dogs).

Thus, always use hygienic practices around animals. An animal control agent should be aware of all known animal diseases in his or her area, how they're transmitted, precautions to take, and proper treatments.

## Sedating Animals

A large, difficult-to-handle animal may need to be sedated for capture or transfer. Chemical immobilants may be delivered by hand to a restrained animal by using a pole syringe (Figure 50), or by using a capture gun (either a handgun or a long gun). Capture guns are fired by CO<sub>2</sub> gas cartridges or with .22 caliber blanks. Syringes (often called *darts*) are loaded through a breech, one shot at a time. The effective range may be up to 60 yards.



**FIGURE 50**—A pole syringe can be used to sedate animals from a distance.

Most tranquilizing drugs must be delivered *intramuscularly*, meaning through the muscle. Therefore, it's essential to hit the animal in a large muscle, preferably the hindquarters. Note that a capture gun is as dangerous as any firearm, and should be treated as such from a safety standpoint.

**WARNING:** Striking an animal in the abdomen or chest cavity with a tranquilizer can kill it. Be sure to hit the animal in a large muscle.

The drug dose needed to tranquilize a particular animal is calculated based on the estimated weight of the animal. The drug dose is measured in milligrams (mg) of drug per kilogram (kg) of live body weight. In order to tranquilize animals properly, you must become adept at estimating body weights and learn to use the metric system. The drug's label will tell you the concentration of the drug in the bottle. For example, a concentration may be 100 milligrams per milliliter (ml).

Let's look at an example drug dose calculation. Suppose that an animal's weight is estimated at 100 kilograms (about 220 pounds). The recommended dosage of the drug you need to use on this animal is 2.6 milligrams per kilogram of body weight. Therefore, because this animal weighs 100 kilograms, you'll multiply the dosage by the weight:

$$100 \text{ kg} \times 2.6 \text{ mg per kg} = 260 \text{ mg}$$

Thus, you'll need 260 milligrams of drug to sedate this animal.

Now, you observe that the concentration of drug in the bottle is 100 milligrams per milliliter, so you'll need to use 2.6 milliliters of drug from the bottle. Load this amount into the syringe (your syringe will likely hold between 3 and 4 milliliters of liquid.) To fill the remaining space in the syringe, it's generally OK to dilute the drug with distilled water. The syringe is now ready for loading and firing.

In the above example, how did we know that the correct dose was 2.6 milligrams per kilogram of body weight? Well, these dosages have been calculated for different types of animals and different drugs. The precise dosage information is available in wildlife literature or from wildlife biologists. For example, to sedate a mountain lion, you'd need to use between 5 and 11 milligrams per kilogram of Ketamine, between 3 and 10 mg/kg of Xylazine, or between 0.5 and 2 Xylazine with 11 Ketamine if these drugs are mixed (only use a mixture if recommended).

The drugs that are most commonly used for wildlife management today are Ketamine, Xylazine, Tiletamine, and Zolazepam. These drugs are non-narcotic and aren't subject to stringent federal control, as narcotic drugs are. Nevertheless, they may be available only through a veterinarian or a wildlife biologist.

Yohimbine is the *antagonist* (antidote) for Ketamine and Xylazine. Doxapram is the antagonist for Tiletamine and Zolazepam. The latter two drugs are combined in a product called Telazol. Antagonists are used in case of overdose, or to bring the animal out of sedation more quickly.

It's important to realize that these drugs will adversely affect people as well as animals. Therefore, use caution when you're handling a loaded syringe dart. Never, for example,

carry loaded darts around in your pocket! Darts should always be carried in a protective case in order to avoid the accidental injection of yourself or a coworker.

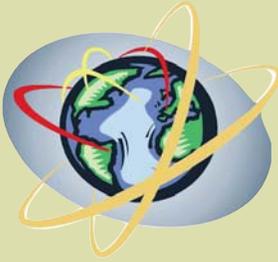
Usually, drugs are administered to an animal that has already been restrained in a foot-hold trap or snare. In this case, the animal is secured and safe. Mountain lions are sometimes treed by hounds, and may be shot with a drug while still in the tree. However, this method presents the problem of getting the animal out of the tree safely or preventing injury if it falls from the tree. The modified foot snare was developed in part to avoid this problem.

Once an animal has been sedated, approach it with caution. The eyes should be lubricated with an optic ointment to prevent them from drying out, since the eyelid reflexes may not work when the animal is under the influence of a sedative drug. Many biologists recommend treating the dart wound with antibiotic. Watch the animal closely for signs of distress. There are many possible causes of distress, but the most serious symptoms are a lack of breathing or pulse. The recommended procedure is to restore breathing (mouth to nose resuscitation) and heartbeat (cardiopulmonary resuscitation, or “CPR”). Also, administer the antidote to the drug that was given.

While transporting animals, ventilation should be adequate and severe temperatures should be avoided. After release, animals may suffer from post-capture shock and this may result in death. There isn't much that can be done about this after the fact, but if it's known that a low percent of translocated animals are surviving, then a reevaluation of the techniques being used is in order.

In summary, the modern predator control agent (now called animal damage agent) must be prepared to work in a much different political and cultural environment than 30 years ago. The agent must be prepared to either kill or save individual animals, depending on the situation. He or she must be prepared to deal with all types of animals and people and be able to explain what's being done and why.

Now, take a few moments to review what you've learned by completing *Self-Check 9*.



## INTERNET JOURNAL AND REFLECTION ACTIVITY

**Throughout the Wildlife/Forestry Conservation program, you'll be invited to expand your knowledge of this field through an Internet expedition. Get a separate notebook in which you can record your thoughts and observations. However, *do not* send your journal entries to the school.**

You might enjoy an Internet expedition in the field of wildlife conservation and forestry. Visit <http://digitalmedia.fws.gov> to view an image library offered by the U.S. Fish and Wildlife Service. Start there and select a keyword, for example, *Endangered*. View the image(s) for that keyword and follow up on one or two topics that interest you the most. Do an Internet search using terms associated with the image(s) and topic(s). Summarize the results of your search in the notebook.

At the U.S. Fish and Wildlife Service homepage at <http://www.fws.gov>, select any one of the many topics available (such as species, hunting, habitat conservation, or endangered species) and read the associated information. You can also do a general Internet search using terms associated with predator management. Summarize the results of your search in your notebook. Think about the results of your Internet search. What do they mean to you? What further study or fieldwork would you like to do as a result of this increased knowledge? Think about the results of your Internet search. What do they mean to you? What further study or fieldwork would you like to do as a result of this increased knowledge?



## Self-Check 9

1. Suppose that you're approaching a protected carnivore species that's caught in a trap, and the animal seems to be attempting to get away from you as you approach. What precautions (for your own safety) should you be thinking about?

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2. What should you do with an animal that's suspected of rabies and that you want to have tested?

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3. What does the term *intramuscular* mean? Why is it important to remember this term when you're shooting an animal with a dart?

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**Check your answers with those on page 124.**

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