

## Owls



Figure 1. Great-horned owl (*Bubo virginianus*).  
Photographer unknown.

### Objectives

1. Explain key elements about owl biology important for their control.
2. Understand the federal laws and regulations restricting the control of owls.
3. Explain owl control options to clients.

### Overview of Damage Prevention and Control Methods

#### Habitat Modification

Eliminate perch sites near areas of potential damage by removing large isolated trees and snags

Install utility lines underground and remove telephone poles near poultry-rearing sites

Cap poles with sheet metal cones or bird spikes

Move poultry and fowl to coops or houses indoors at dusk

#### Exclusion

Confine free-roaming fowl in enclosures covered with netting or woven wire

#### Frightening

Scarecrows

Pyrotechnics

Electric pole shockers

#### Repellents

None registered

#### Shooting

State and federal permits are required to shoot hawks and owls

#### Toxicants

None registered

#### Trapping

State and federal permits are required to trap and transport owls. If possible, experienced bird banders or trappers should do the trapping to prevent injury to birds and handlers.

Swedish Goshawk trap

Spring-net traps

Bal-chatri trap

## Species Profile

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### Identification

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Owls are birds of prey and frequently are referred to as raptors, a term that includes falcons, eagles, vultures, kites, ospreys, northern harriers, and crested caracaras. Owls historically have been persecuted through indiscriminate shooting, poisoning, and pole trapping. Today, many people have a more respectful attitude toward owls and their place in the environment. People who experience problems with owl damage should immediately seek information and/or assistance. “Frustration killings” often occur because landowners are unfamiliar with or unable to control damage with nonlethal control techniques. These killings result in the needless loss of owls and may lead to legal actions. Always consider the benefits that owls provide before removing them from an area as their ecological importance, aesthetic value, and indicators of environmental health may outweigh the economic damage they cause.

### Physical Description

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Owls, unlike hawks, are almost entirely nocturnal. They are far more difficult to observe than other raptors and much less is known about them. They have large heads and large, forward-facing eyes. Their flight is silent and moth-like.

This module will focus on the great-horned owl (*Bubo virginianus*, Figure 1), which is the most common and widely distributed owl in North America and the owl that causes the most predation. Great-horned owls are large, powerful birds with gray, tan, brown, and white mottled feathers and large yellow eyes. Unique feather tufts on the head provide the horned appearance.

The 19 species of owls in the continental US range in size from the 5- to 6-inch elf owl (*Micrathene whitneyi*) that resides in the arid Southwest, to the large, 24- to 33-inch great gray owl (*Strix nebulosa*) that inhabits dense boreal forests of Alaska, Canada, and the northern US. The great-horned owl is 22- to 25-inches in size, second only to the great gray owl.

### Species Range

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Great horned owls are the most widely distributed owls in North America (Figure 2). Their range extends over almost all the continent except for the extreme northern regions of the Arctic.



Figure 2. Range of great-horned owl. Image by Stephen M. Vantassel.

### Voice and Sounds

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The call of the great-horned owl is a low series of “hoo, hoo-hoo, HOO, HOOS” that rise in intensity as the series progresses. It also will click its beak when annoyed.

## Tracks and Signs

Tracks are not often seen, but they consist of 3 forward-facing toes and a rear-facing toe, each topped by a noticeable claw mark (Figure 3).

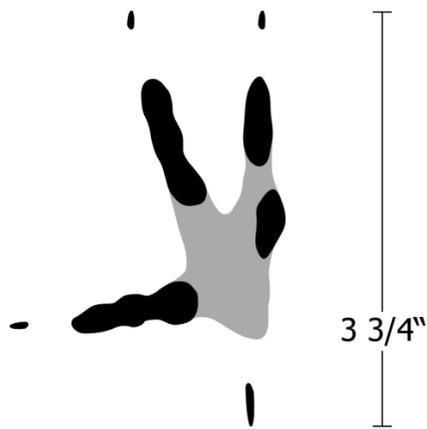


Figure 3. Track of the great-horned owl. Image by Dee Ebbeka.

Owls leave small heaps of chalky whitewash excrement on the ground. Owls regurgitate pellets that are accumulations of bones, teeth, hair, and other undigested materials. Pellets usually are not found at the kill site, but instead accumulate along with whitewash beneath a nearby perch or nest site. Fresh pellets are covered with a moist iridescent sheen. They can be carefully teased apart and examined to learn what the owl had been eating.

## General Biology

### Reproduction

Male great-horned owls select a suitable nesting site and vocalize to attract females. Great-horned owls pair in early winter. Females lay two to three eggs between late January and early April. Young hatch in 25 to 30 days. In 9 weeks, young begin to learn to fly but full flight usually is not achieved until 12 weeks of age.

## Nesting Cover

Great-horned owl nesting sites usually are situated in large trees with dense cover or cliffs that are close to open fields. They also nest in abandoned buildings.

## Behavior

Great-horned owls in the continental US typically do not migrate. They remain attached to their territories throughout the year and often aggressively defend nests in the spring.

## Habitat

Great-horned owls live in diverse habitats such as grasslands, coniferous and deciduous forests, hillsides, farm lots, and urban areas.

## Food Habits

Some species of owls are highly specialized predators while others, like the great-horned owl, are generalists. Food habits vary greatly among species with some preying on poultry and small game.

Owls gulp their food and swallow bones and flesh. The bones are only slightly digested and persist in the pellets. A pellet that contains large bones, such as those from the leg of a rabbit, is undoubtedly from a great horned owl. Great horned owls generally prey on small to medium sized birds and mammals and will take poultry and other livestock when available. They are responsible for most owl depredation problems.

## Legal Status

All owls are protected under the federal Migratory Bird Treaty Act (16 USC, 703-711) and by state laws. The laws strictly prohibit the capture, killing, or possession of owls without special permit. No permits are required to scare

depredating migratory birds except for endangered or threatened species.

Contact your local USDA-APHIS-Wildlife Services office first if you are interested in obtaining a permit to control owls with lethal means. The US Fish & Wildlife Service and state wildlife agencies may issue depredation permits for problem owls if nonlethal methods of controlling damage have failed or are impractical, and if it is determined that killing the offending birds will alleviate the problem.

## **Damage Prevention and Control Methods**

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### **Damage Identification**

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The majority of depredation problems occur on free-ranging farmyard poultry and game farm fowl. Chickens, turkeys, ducks, geese, and pigeons are vulnerable because they are very conspicuous, unwary, and usually concentrated in areas that lack escape cover. Noise, property damage, and aggressive behavior at nest sites can cause problems.

### **Damage to Structures**

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Owls are not known to damage structures, though their excrement may be a nuisance.

### **Damage to Pets and Livestock**

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Large concentrations of game farm animals are strong attractants to predators such as owls. Farm operators should consider the prevention of predation as part of their cost of operation. Other predation problems include the loss of rabbits at beagle clubs, the loss of homing and racing pigeons, and occasionally the loss of farm and household pets. Confined fowl that are chased by owls often pile up in a corner, resulting in the suffocation of some birds.

Reproduction may also be impaired in some fowl if harassment persists.

When a partially eaten carcass is found, it may be difficult to determine the cause of death. Frequent sightings of owls near depredation sites may indicate they are involved, but these sightings could be misleading. In all cases, the remains must be carefully examined. Owls usually kill only one bird per day. Owl kills usually have bloody puncture wounds in the back and breast from the owl's talons. Owls often remove and eat the head and sometimes the neck of their prey. In contrast, mammalian predators such as skunks or raccoons often kill several animals during a night. They usually tear skin and muscle tissue from the carcass and cut through the feathers of birds with their sharp teeth.

Owls pluck their prey, but sometimes will swallow small animals whole. Plucked feathers often can determine whether an owl actually killed an animal or simply was feeding on a bird that died of other causes. If the feathers have small amounts of tissue clinging to their bases, they were plucked from a cold bird that died of another cause. If the base of a feather is smooth and clean, the bird was plucked shortly after it was killed.

### **Damage to Landscapes**

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Owls do not damage gardens or landscapes. Occasionally, property owners complain of the unsightliness and odor from owl excrement around roosts.

### **Health and Safety Concerns**

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Owls can cause human safety and health hazards. For example, concentrations of owls at airports increase the risk of bird-aircraft collisions and loss of human life. The vast

majority of aircraft strikes involve gulls, starlings, and blackbirds, but owl strikes have been documented. Although owls usually are secretive and avoid human contact, they occasionally nest or roost in close association with humans and they often aggressively defend their nests in spring. Owls pose a minimal disease risk to humans or livestock.

## Damage Prevention and Control Methods

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### Integrated Pest Management

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#### Timing, Economics, and Methods

Owls can cause damage throughout the year. Issues with predation may increase during the nesting period. A national survey of US Fish and Wildlife Service (USFWS) and Cooperative Extension personnel conducted in 1985 noted that the economic damage caused by owls is minimal on a national scale but can be locally severe if depredation occurs on fowl or livestock that are relatively valuable and vulnerable. Cost estimates of damage ranged from \$10 to \$5,000 per report and from \$70 to \$94,000 per year. The severity of owl damage is influenced by several factors including prey and carrion abundance, weather, time of year, husbandry methods, vegetative cover, and topography as well as density and local distribution of owls.

#### Habitat Modification

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Habitat modification can make an area less attractive to owls. Owls often survey an area from a perch prior to hunting. Eliminate perch sites within 100 yards of the threatened area by removing large isolated trees and other perching surfaces. Install utility lines underground and remove telephone poles near

poultry rearing sites. Cap poles with sheet metal cones, Nixalite®, Cat Claws®, or inverted spikes.

The best solution to owl depredation is prevention. Free-roaming farmyard chickens, ducks, and pigeons attract owls and are highly susceptible to predation. Many problems can be eliminated by housing poultry at night. Poultry can be conditioned to move into coops or houses by feeding or watering them indoors at dusk. Owls that roost in buildings can be frightened away. Seal all entryways after the birds leave.

An abundance of rabbits often will attract owls. Improve rabbit cover by constructing brush piles and cutting large trees to increase the density of shrub and ground cover.

#### Exclusion

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Durable fenced enclosures can be constructed by securing poultry wire to a wooden framework and covering the enclosure with poultry wire, nylon netting, or overhead wires (Figure 4). A double layer of overhead netting separated by a 5- to 6- inch space may be necessary to keep owls away from penned birds. Large poultry operations rarely have depredation problems because most practice confinement.

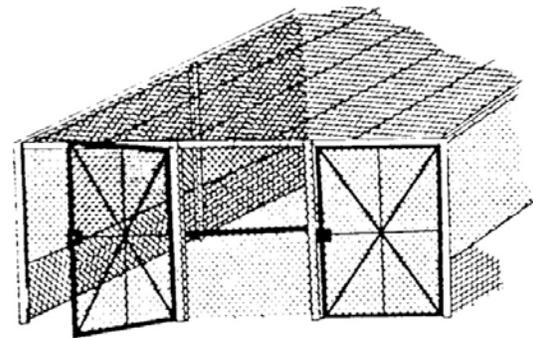


Figure 4. Screened enclosures are effective in preventing owl depredation. Image by PCWD.

## Frightening Devices

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Many techniques are available to frighten owls from an area. The effectiveness of frightening devices depends greatly on the individual bird, area, season, and method of application. Generally, if birds are hungry they quickly habituate to and ignore frightening devices. Frightening devices usually are a means of reducing losses rather than totally eliminating them. Landowners who use frightening devices must be willing to tolerate occasional losses. Increase human activity in the area to keep most owls at a distance.

The most common and easily implemented frightening device is a shotgun fired into the air in the direction of (not at) the owl. Pyrotechnics include a variety of exploding or noise-making devices. The most commonly used are shell crackers, which are 12-gauge shotgun shells containing a firecracker that is projected 50 to 100 yards before it explodes. Fire shell crackers in the direction of the owls that are found within an area. An inexpensive open-choke shotgun is recommended. Check the gun barrel after each shot and remove wadding from the shells that may become lodged in the barrel. Noise, whistle, and bird bombs also are commercially available. They are fired from pistol launchers and are less expensive to use than shell crackers, but their range is limited to 25 to 75 yards. Local fire wardens can provide information on local or state permits that are required to possess and use pyrotechnics. Scarecrows are effective for repelling owls when they are moved regularly and used in conjunction with shotgun fire or pyrotechnics.

The electric pole shocker is a device used to protect game farms and poultry operations. It has proven very effective in several different settings in Wisconsin. Each unit consists of a

section of Bird Shock Tape installed on top of a pole with a jumper wire running the length of the pole and connected to an electric fence charger. Install Bird Shock Tape on top of 14- to 16-foot poles and erect the poles around the threatened area at 50- to 100-foot intervals. When an owl lands on a pole, it receives an electric shock and is repelled from the immediate area. Other perching sites in the area should be removed or made unattractive. Energize the shocking unit only during the night.

The electric pole shocker keeps owls from perching within a threatened area but does not exclude them from nesting in or using a nearby area. Most owls are highly territorial. A pair that is allowed to remain will aggressively defend the area and usually exclude other hawks. Farmers may actually find it beneficial to coexist with a pair of owls that have learned to avoid an area protected by pole shockers.

## Repellents

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No repellents are registered for the control of owls. .

## Toxicants

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No toxicants are registered for control of owls.

## Shooting

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Landowners must obtain a permit from the USFWS and usually the local state wildlife agency to shoot any owl that is causing damage. The Federal Depredation Permit must explicitly allow shooting. Carcasses must be turned over to the USFWS. Twelve gauge shotguns are effective for the control of owls.

## Trapping

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A landowner must obtain a permit from the USFWS to trap an owl that is causing damage.

Set traps in threatened areas where they can be checked at least twice a day. If possible, experienced individuals or agency personnel should conduct the trapping and handling of captured birds to prevent injury to the birds and handlers.

### Cage Traps

The Swedish goshawk trap is a relatively large, semi-permanent trap that can be used to capture owls (Figure 5). It consists of two parts: a 3- x 3- x 1-foot bait cage made of 1-inch mesh welded wire. A trap mechanism consisting of a wooden “A” frame, nylon netting, and a trigger mechanism is mounted in the bait cage. An owl dropping into the trap will trip the trigger mechanism and be trapped safely inside. Pigeons make good lures because they are hardy, easily obtained, and move enough to attract owls. Other good lures include starlings, rats, and mice.

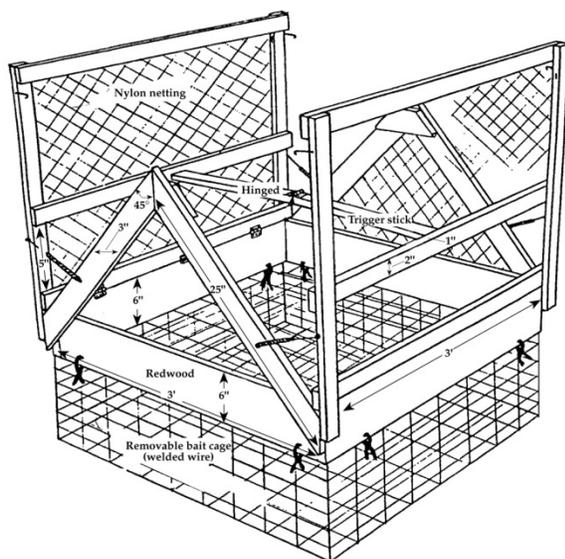


Figure 5. The redesigned, modified, and improved Swedish goshawk trap developed by Meng. Image by PCWD.

Spring-net traps are ideal for catching individual owls that are creating a damage problem (Figure 6). Square spring nets, hoop nets, and

the German “butterfly trap” have all been used successfully. A trap is baited by attaching the partially eaten carcass of a fresh kill or a stuffed bird to the trigger bar. The trap should be camouflaged by covering the frame and folded net with leaves and feathers from the kill.

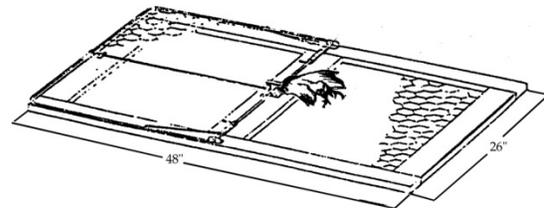


Figure 6. The spring-net trap is 48 inches long and 36 inches wide. Image by PCWD.

Walk-in funnel-traps and walk-in trigger-wire traps (Figure 7) have been used successfully to capture great horned owls. Both traps consist of a screened box 19.7 x 49.2 x 72.8-inches with corners reinforced by 1.5-inch corner iron. Place the trap in an open area, where the owl can see the bait, easily land, and hop into the trap.

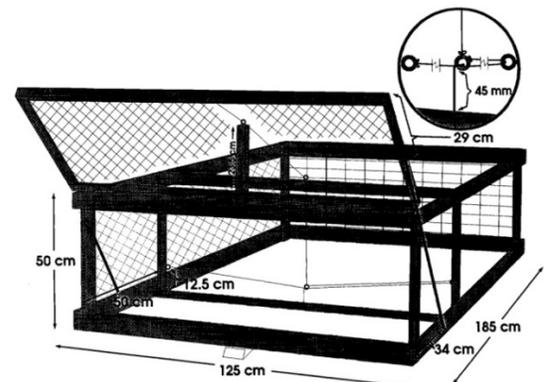


FIGURE 2. Walk-in trip-wire trap with inset of washer and nail trip-release mechanism.

Figure 7. Walk-in trigger wire trap. Image is being redrawn by Dee Ebbeka.

Walk-in traps use a square funnel made by bending a 35 x 47-inch section of 12.5 gauge welded wire mesh (2 x 4-inch) bent to form a square funnel. Cut the last 2 rows of mesh to

form tines 4 inches in length at one end. Bend them in slightly to narrow the opening. Install a funnel on each side of the box by cutting through the center of each wall. File rough edges and secure funnels to the walls with 16-gauge wire.

The trip-wire trap door should be covered with nylon webbing in the same manner as the trap frames. The locking mechanism is made by bending a 3 x 7-inch metal mending plate to a 45° angle and attaching it to the bottom front board of each trap frame to hold the door shut after closure. Two 1½-inch hinges and two pull springs attach each trap door and ensure rapid closing. Springs to help close the door should be approximately 10¼ inches long and ½ inch wide and made with 16-gauge wire. The springs are attached to 1½-inch screw eyes placed on the door frame and along the bottom of the trap frame. The trip-wire must be positioned far enough into the trap to prevent the closing door from injuring the owl. The trip release mechanism incorporates 2 40 pound test monofilament lines. Install nylon webbing (<sup>4</sup>/<sub>15</sub> wall webbing with 2-inch square mesh) coated with plastic over the frame.

### *Foothold Traps*

The bal-chatri trap is a relatively small, versatile trap that can be modified to trap specific species of owls (Figure 9). Live mice, pigeons, or starlings are used to lure owls into landing on the traps. Nylon nooses entangle their feet and hold the owls until they are released. The Quonset hut type bal-chatri was designed for trapping large hawks and owls. The trap is made of 1-inch chicken wire mesh, formed into a cage that is 18 x 10 x 7 inches. The floor consists of 1-inch mesh welded wire with a lure entrance door and steel rod edging for ballast. The top is covered with about 80 nooses of 40-

pound test monofilament fishing line (Figure 9). The height and distance between nooses depends on the size of the owl being sought: small owls use 1½-inch tall loops spaced at 1-inch intervals, and medium to large owls need 2- to 2½-inch loops with spacing at 2 inches.

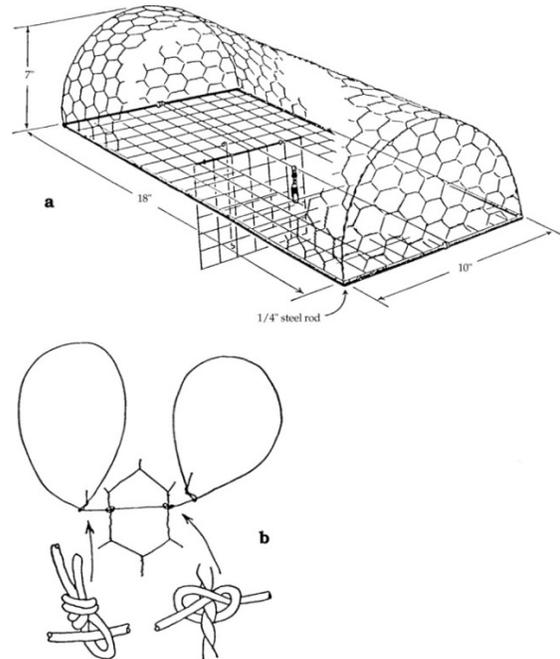


Figure 9. (a) Big bal-chatri trap ready for nooses (door is open). (b) Method of attaching nooses. Image by PCWD.

The trap should be tied to a flexible branch or bush to keep a trapped bird from dragging the trap too far and breaking the nylon nooses. An alternative method is to toss the baited trap out of a moving vehicle beneath a perched owl. Often the owl will land on the trap before you are out of sight.

### *Cable-restraints*

Cable-restraints are not applicable for the control of owls.

### *Species Specific Traps*

No species specific traps are available for the control of owls.

## Handling

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If necessary, anyone can handle captured owls by controlling the feet. Talons can easily grasp a careless hand and inflict a painful injury; the chance of injury from wings and beaks is much less. The safest approach, regardless of the type of trap, is to put an old blanket or coat over both the bird and trap. The darkness will calm most birds and make them less able to defend themselves. Reach in carefully with your bare hands and grasp the lower legs, controlling the feet. Pull the bird out of the trap so it is clear of any object that could cause injury. Fold the wings down against the body and hold them securely. Check the bird for any signs of external injury, such as cut feet or legs, excessively battered feathers, or scalping (the splitting of the skin over the forehead). If the bird is injured, have a local veterinarian examine it. In extreme cases, transport it to the nearest wildlife rehabilitation center. Owls should be restrained before they are transported to reduce the chance of injury to the bird and handler.

The best transport container is a stout, covered cardboard box. Select a box that is large enough for the bird to stand upright in. Holes should be punched near the bottom of the box to supply fresh air and keep the owl from struggling toward any cracks of light coming from the top of the box. Carry only one bird per box. Tape an old rag or towel to the floor to provide a gripping surface to keep the bird from slipping. If possible, ask a local bird bander to attach a leg band, as banding information is useful to the research and management of owls.

## *Relocation and Translocation*

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Owls can be rescued from buildings and relocated outdoors (released within their

original home range) without a permit provided they are not injured. With proper permits, owls that are causing damage can be translocated (released outside their original home range) to other suitable habitat.

Transport the bird as quickly and comfortably as possible. Minimize excess handling and keep the bird calm and cool. More birds die of overheating during shipment than from any other cause. Transport the bird as far away from the trapping site as possible. Some biologists believe that 20 miles is sufficient, but owls have been known to travel up to 200 miles after release. If an owl is trapped in the fall, transport it southward and in the spring move it northward to coincide with their natural tendency to migrate.

## *Euthanasia*

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All owls that are killed must be turned over to US Fish and Wildlife Service personnel or their representatives for disposal.

## *Disposal*

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Check your local and state regulations regarding carcass disposal.

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## Authors

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## Editors of the NWCTP

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Stephen M. Vantassel, Paul D. Curtis, Scott E.  
Hygnstrom, Raj Smith, Kirsten Smith, and  
Gretchen Gary

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## Reviewers

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Matt Giovanni, The Peregrine Fund

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## Resources

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### Key Words

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Owls, great-horned owl, wildlife damage  
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### On-Line Resources

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<http://wildlifecontroltraining.com>

<http://icwdm.org/>

<http://wildlifecontrol.info>

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## Disclaimer

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Implementation of wildlife damage  
management involves risks. Readers are advised  
to implement the safety information contained  
in Volume 1 of the National Wildlife Control  
Training Program.

Some control methods mentioned in this  
document may not be legal in your location.  
Wildlife control providers must consult relevant

authorities before instituting any wildlife  
control action. Always use repellents and  
toxicants in accordance with the EPA-approved  
label and your local regulations.

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