

CROWS

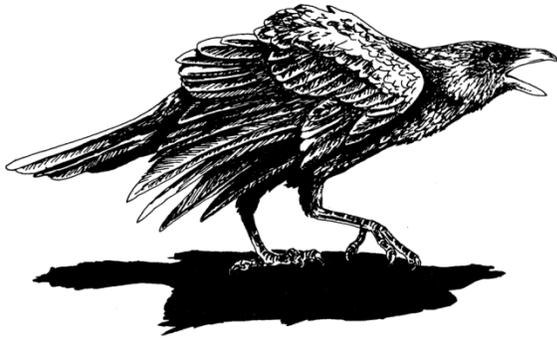


Figure 1. American crow. Image courtesy of PCWD.

OBJECTIVES

1. Describe the biology of crows.
2. Describe how crow behavior can influence control strategies.
3. Identify signs crow damage.
4. Explain control options appropriate for the management of crows.

SUMMARY OF DAMAGE PREVENTION AND CONTROL METHODS

HABITAT MODIFICATION

Removal and/or modification of roost trees

Secure trash cans, dumpsters, and other waste storage facilities

Alternate foods: broadcast cracked corn through fields to protect newly planted corn

Remove carrion

EXCLUSION

Install netting over high-value crops or small areas

Protect ripening corn in gardens by covering each ear with a paper cup or sack after the silk has turned brown

Widely-spaced lines or wires placed around sites needing protection may have some efficacy in repelling crows, but further study is needed.

FRIGHTENING DEVICES

Mylar® tape

Effigies

Distress calls

LRAD—Long Range Acoustic Device

Pyrotechnics

Avitrol®

REPELLENTS

Methyl anthranilate

Polybutenes

Avipel Seed Treatment

TOXICANTS

DRC-1339 must be registered by APHIS each year. Check with the Alabama Department of Agriculture and Industries to ensure appropriate registration is completed prior to purchasing and using product. DRC-1339 is a restricted use product and requires certification to buy and use in Alabama through the AL Department of Agriculture and Industries.

FUMIGANTS

None are registered

SHOOTING

12 gauge shotgun with No. 6 shot

.22 caliber rifle

.177 or .22 caliber air-rifle

TRAPPING

Australian crow decoy traps

Pole traps. No. 0 or No. 1 padded foothold traps

OTHER METHODS

Cannon nets

SPECIES PROFILE

IDENTIFICATION

American crow (*Corvus brachyrhynchos*)

PHYSICAL DESCRIPTION

The large size and completely coal-black plumage makes American crows easy to identify. They are fairly common in areas near people and tales of their wit and intelligence have been noted in many stories. Males and females are similar in appearance.

Three other crows occur in the continental US: the fish crow (*Corvus ossifragus*), northwestern crow (*Corvus caurinus*), and Mexican crow (*Corvus imparatus*). Fish crows are primarily found in the eastern and southeastern coastal US but their range extends to the eastern edges of Oklahoma and Texas. Fish crows are somewhat smaller than American crows, but appear alike in the field. Northwestern crows occur in the northwest along the coastal strip from Washington to Alaska. They are seen most often foraging along beaches. Northwestern crows are smaller than American crows. Mexican crows occur in south Texas primarily during fall and winter and are the smallest crows.

Ravens are similar to crows in appearance. Two species occur in the continental US: the common or northern raven (*Corvus corax*) and Chihuahuan or white-necked raven (*Corvus cryptoleucus*). The common raven is found from the foothills of the Rockies westward, northward to Alaska and

eastward across Canada and some northern US states, and locally in the Appalachian Mountains. Common ravens can be distinguished from crows by their larger size, call, wedge-shaped tail, and flight pattern that commonly includes soaring or gliding. In contrast, crows have a frequent steady wing-beat with little or no gliding.

Chihuahuan ravens occur in the Southwest, including portions of western Kansas, Colorado, Oklahoma, Texas, New Mexico, and Arizona. This raven, which is smaller than the common raven and larger than the American crow, can be distinguished from the crow by its call, slightly wedge-shaped tail, and flight pattern that includes gliding. White neck feathers, which account for its other name, are seldom visible in the field.

American crows are 17 to 21 inches long and weigh about 1 lb.

SPECIES RANGE

American crows are distributed widely over much of North America (Figure 2). They breed from Newfoundland and Manitoba southward to Florida and Texas, and throughout the West, except in the drier Southwest. During fall, crows in the northern parts of their range migrate southward and generally winter south of the Canada-U.S. border.

VOICE AND SOUNDS

American Crows have several calls, including the familiar warning call, “caw, caw.” Crows can mimic sounds made by other birds and animals and have been taught to mimic the human voice.

Fish crow calls are a short, nasal “ca,” “car,” or “ca-ha.”

The voice of Mexican crows is a low froglike “gurr” or “croak” or, in some areas, a higher-pitched “creow.”

TRACKS AND SIGNS

The gregarious behavior of crows accompanied by frequent vocalizations makes for easy identification. Tracks may be found in soft soils (Figure 3).

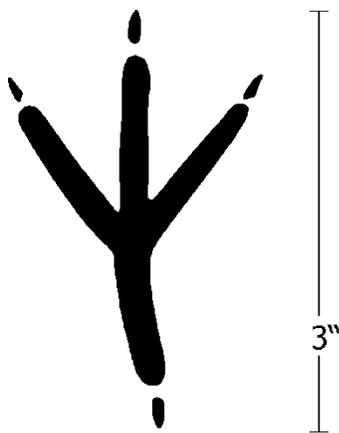


Figure 3. Track of an American crow. Image by Dee Ebekka.

GENERAL BIOLOGY, REPRODUCTION, AND BEHAVIOR

Crows are among the most intelligent of birds. Experiments indicate that American crows can count to three or four, are good problem solvers, have good memories, employ a diverse and behaviorally complex range of vocalizations, and quickly learn to



Figure 2. Range of the American crow. Image by Stephen M. Vantassel.

associate specific noises and symbols with food. One report describes an American crow that dropped palm nuts onto a residential street and waited for passing automobiles to crack them. Crows are keen and wary birds, as may be evidenced by the number of crows that scavenge along highways versus how many are seen hit by autos.

Crows often post a sentinel while feeding. Although studies indicate that the sentinel may be part of a family group, unrelated crows and other birds in the area likely benefit from the sentinel’s presence.

Few crows in the wild live more than 4 to 6 years, but some wild crows have lived to 14 years, and over 20 years in captivity. One researcher reported a crow that had lived an incredible 29 years in the wild. Adult crows have few predators, although larger hawks and owls and occasionally canids take some. Brood losses result from a variety of factors including predation by raccoons (*Procyon lotor*), great-horned owls (*Bubo virginianus*), and other predators; starvation; and adverse weather.

Radio-telemetry studies indicate that roosting crows may have two distinct daily movement patterns. Some fly each day to a diurnal activity center, which is maintained by four or five birds throughout the

winter and used as a nesting site in spring. Individuals within the groups typically fly different routes and make different stops (Figure 4). Other crows appear to be unattached and without specific daily activity centers or stable groups. Although using the same roosts as the activity-center crows, these unattached birds, possibly migrants, are not faithful to any specific territory and more regularly feed at sites such as landfills.



Figure 4. Crows flying to nighttime roosting site. Photo by Stephen M. Vantassel.

Ongoing changes in land-use patterns may impact on populations and behavior of crows. Historically, crow populations benefited from agriculture's planting of grains as food and suppression of fires allowing the growth of trees for roosting. The combination of food and tree availability favored crows, and in some areas permitted large winter roosts to develop. As farming practices transition toward sustainable practices, the resultant changes in crops and surrounding habitat should impact use of roosts by crows.

It is uncertain whether the growth in urban crow populations stems from adaptations in crow behavior or changes in agricultural practices. One study found that urban crows were somewhat habituated to people whereas rural crows were more wary. Understanding some of these factors may lead to better options for managing crows in ways compatible with the needs of people.

REPRODUCTION

Crows nest in early spring (February to May), with nesting starting earlier in the south than in the north. Mates appear to remain together throughout the year, at least in nonmigratory populations, and pairs or pair bonds likely are maintained even within large winter migratory flocks. The average clutch is four to six eggs that hatch in about 18 days. Young fledge in about 30 days. Usually one brood is produced per year, but there may be two broods in some southern areas. Both sexes help build the nest and feed the young, and occasionally offspring that are 1 or more years old (nest associates) help with nesting activities. The female incubates the eggs and is fed during incubation by the male and nest associates. The young leave the nest at about 5 weeks and forage with their parents throughout the summer.

NESTING/DENNING

Crow nests consist of twigs, sticks, and coarse stems, and are lined with shredded bark, feathers, grass, cloth, and string. They are usually placed 18 to 60 feet above ground in oaks, pines, cottonwoods, or other trees. Nests rarely are located in deep forests. Where few trees exist, crows may nest on the ground or on the crossbars of telephone poles.

BEHAVIOR

One important and spectacular aspect of crow behavior is their congregation into huge flocks in fall and winter. Large flocks are the result of many small flocks gradually assembling as the season progresses, with the largest concentration occurring in late winter. The Fort Cobb area in Oklahoma is a communal roost site that holds several million crows each winter. In Nebraska, Wisconsin, and possibly other states, crows appear to be roosting more commonly in towns near people, resulting in mixed opinions on how to deal with them. These flocks roost together at night and commonly fly 6 to 12 miles outward from a roost each day to feed.

HABITAT

American crows do best in a mixture of open fields where food can be found and woodlots where trees are available for nesting and roosting. They commonly use woodlots, wooded areas along streams and rivers, farmlands, orchards, parks, and suburban areas. American crows tend to select roosting trees that are larger and more canopied than other trees, in areas with high nighttime light levels, and proximity to food sources (<2 miles) Winter roosting concentrations of crows occur in areas that help individuals conserve heat.

FOOD HABITS

Crows are omnivorous; they will eat almost anything and they readily adapt food habits to changing seasons and available food supplies. They appear equally adept at hunting, pirating, and scavenging. Crows consume over 600 different food items.

About 1/3 of their annual diet consists of animal matter, including grasshoppers, beetles, beetle larvae (white grubs, wireworms), caterpillars, spiders, millipedes, dead fish, frogs, salamanders, snakes, eggs and young of birds, and carrion. The remainder consists of vegetable or plant matter. Corn is the principal food item in this category, much of it obtained from fields after harvest. Crows also consume acorns, various wild and cultivated fruits, watermelon, wheat, sorghum, peanuts, pecans, garbage, and miscellaneous other items.

LEGAL STATUS

Crows are protected by the Migratory Bird Treaty Act, a federal act resulting from a formal treaty signed by the U.S., Canada, and Mexico. Under this act crows may be controlled without a federal permit when found “committing or about to commit depredations upon ornamental or shade trees, agricultural crops, livestock, or wildlife, or when concentrated in such numbers and manner to constitute a health hazard or other nuisance.”

States may require permits to control crows and may regulate the method of take. Federal guidelines permit states to establish hunting seasons for crows. During these seasons, crows may be hunted according to the regulations established in each state. Regulations or interpretation of depredation rules may vary among states, and state or local laws may prohibit certain control techniques such as shooting or trapping. Crows are designated as game birds in Alabama. Hunting is limited to daylight hours only with no bag limits or closed seasons.

DAMAGE IDENTIFICATION

Complaints associated with crow damage to agriculture were more common in the 1940s than they are today. Although surveys indicate that overall crow numbers have not changed appreciably, the populations appear to be more scattered during much of the year. This change has resulted apparently from the crows’ response to changing land-use patterns. Farming has become more prevalent in some areas, generally with larger fields. Woodland areas generally are smaller, and trees and other resources in urban sites provide crow habitat. Overall, the amount and degree of damage is highly variable among places and years. Several variables enter into the complex picture of crow damage, including season, local weather, time of harvest, amount of crop production, and availability and distribution of wild mast, insects, and other foods.

DAMAGE TO STRUCTURES

Large fall and winter crow roosts cause serious problems in some areas, particularly when located in towns or other sites near people. Such roosts are objectionable because of the odor of the bird droppings, health concerns, noise, and damage to trees in the roost.

DAMAGE TO LIVESTOCK AND PETS

In rare situations, crows attack very young calves, pigs, goats, and lambs, particularly during or shortly

after birth. This problem, which is more often associated with magpies or ravens, is most likely to happen where livestock births occur in unprotected open fields near large concentrations of crows.

Another complaint about crows is that they consume the eggs and sometimes young of waterfowl, pheasants, and other birds during nesting season. Overall, crow depredation probably has little effect on the overall populations of these birds. Depredation can be of concern locally, however, where breeding waterfowl are concentrated and too little habitat exists to conceal nests. For example, nests are more easily found by crows and other predators when located in a narrow fence row or at the edge of a prairie pothole that has little surrounding cover.

Crows flying out from roosts each day to feed may cause agricultural or other damage problems. Conversely, the diet of crows may be beneficial to agriculture, depending on the time of year and surrounding land use.

DAMAGE TO LANDSCAPES

Crows create a variety of damage problems, though many are associated more commonly with other animal species. Crows damage seedling corn plants by pulling the sprouts and consuming the kernels. Similar damage also may be caused by other birds (pheasants, starlings, blackbirds) and rodents (mice, voles, ground squirrels). Crows damage ripening corn during the milk and dough stages of development, though such damage is caused more commonly by blackbirds. Crows consume peanuts when they are windrowed in fields to dry but other birds, especially grackles, cause most of this damage. Crows damage other crops including ripening grain sorghum, commercial sunflowers, pecans, various fruits, and watermelons.

HEALTH AND SAFETY CONCERNS

The presence of crows and their roosts may threaten aircraft if they are near airplane flight paths.

In some situations, large flocks of crows may become a factor in spreading disease. When they feed in and around farm buildings they have been implicated in the spread of transmissible gastroenteritis (TGE) among swine facilities. Large crow flocks near wetland areas may increase the potential for spread of waterfowl diseases such as avian cholera. The scavenging habits of crows and the apparent longer incubation time of the disease in crows are factors that increase the potential for crows to spread this devastating disease. Crow and other bird (blackbird, starling) roosts that have been in place for several years may harbor the fungus (*Histoplasma capsulatum*) that causes histoplasmosis, a disease that can infect people who breathe in spores when a roost is disturbed.

American crows are very susceptible to West Nile Virus (WNV) and are thought to be one of the species responsible for its rapid spread across the U.S. Fish crows also can contract WNV but have a higher rate of survival.

DAMAGE PREVENTION AND CONTROL METHODS

INTEGRATED PEST MANAGEMENT

TIMING, ECONOMICS AND METHODS

Control birds before they become habituated to a location. A few birds can quickly grow to a large population when food and harborage are plentiful.

HABITAT MODIFICATION

Secure trash cans, dumpsters, and transfer stations to prevent crow access to food wastes.

Tree Roosts. Thinning branches (up to 1/3) from specific roost trees or thinning trees from dense groves reduces the availability of perch sites and

opens the trees to weather effects (Figure 5). Such vegetation management has dispersed starling and blackbird roosts, and the same biological concepts indicate probable effectiveness in dispersing crow roosts. When roosts occur in a small number of landscape trees near homes or along streets they usually are in dense trees where thinning the branches will reduce the attractiveness of them as roosts. Roosts in tree groves or woodlots usually occur in dense stands of young trees. Thinning about 1/3 of the trees improves the tree stand, especially if marked by a professional forester. Thinning successfully dispersed blackbird and starling roosts from woodlots in Ohio and Kentucky, and from at least two problem roost sites in Nebraska. In dense cedar thickets, bulldozing strips through the roost site to remove 1/3 of the habitat has been successful also, but the disturbance may be hazardous if soils harbor histoplasmosis spores.

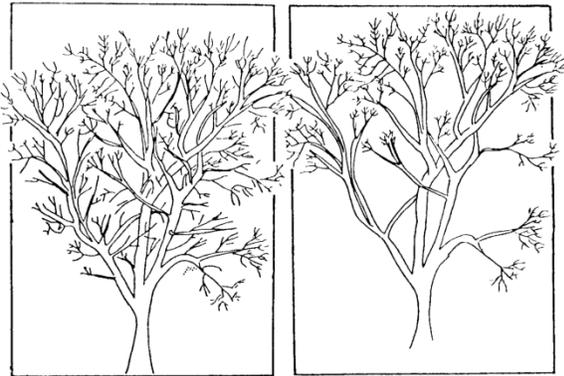


Figure 5. Remove tree branches to reduce roosting. Image by PCWD.

Agricultural Crops. Some reports indicate that providing an alternate food source will reduce crop damage caused by crows. For example, broadcast cracked corn, preferably softened by water, through a field where crows are damaging newly planted corn seedlings. Although this technique is helpful in some situations, it has not been well tested.

Remove carrion as quickly as possible and dispose by deep burial or incineration.

EXCLUSION

Exclusion generally is not practical for most crow problems, but may be useful in some situations. Nylon or plastic netting might be useful in excluding crows from high-value crops or small areas. Protect ripening corn in small gardens from crow damage by placing a paper cup or sack over each ear after the silk has turned brown. The dried brown silk indicates that the ear has been pollinated by the corn tassels, a necessary step in corn grain development.

Lines. Stretching cord or fine wire at intervals across the field at heights about 6 to 8 feet above the ground is an excluding or repelling technique used historically to protect fields from crows. Aluminum or cloth strips or aluminum pie pans are sometimes tied to the wires. This concept has received increased attention lately but the results have been variable. Lines appear to represent an obstacle that is difficult for a flying bird to see, especially when rapid escape may be necessary. Various species respond differently to lines, and generally adult birds are more repelled by lines than juveniles. Other factors such as season and/or biological activity of the birds, type of lines or wires, spacing, and height need further research and development to better understand the potential usefulness of lines in bird management.

FRIGHTENING DEVICES

Frightening devices are effective in dispersing crows from roosts, some crops, and other troublesome sites. Mylar® tape hung in roost trees may be helpful in urban areas. A combination of several scare techniques used together works better than a single technique used alone. Lasers may cause crows to flee a roosting site, but their quick return, even after repeated treatments, suggests that lasers are not effective as an isolated technique.

Animated “crow-killing” owl models can frighten crows from gardens and small fields (Figure 6). These are made from a plastic owl model with a crow

model attached in such a way that the crow appears to be in the owl's talons. Movement is generated by mounting the model on a weather vane and by adding wind or battery powered wings to the crow.



Figure 6. Owl effigy to frighten crows. Photo by UNL.

A California study demonstrated that crows can be dispersed successfully from urban crow roosts using tape-recorded "distress" calls (given by a crow struggling to escape from a predator) and a portable tape player commonly used by hunters to attract animals. Such dispersal allows crows to be moved from problem sites to sites where they are less likely to interfere with people.

Other frightening devices include gas-operated exploders, battery-operated alarms, pyrotechnics, (shellcrackers, bird bombs), chemical frightening agents (see Avitrol® below), lights (for roosting sites at night), bright objects, clapper devices, and various

other noisemakers. Beating on tin sheets or barrels with clubs can help in scaring birds.

LRADs (Long Range Acoustic Devices) project a high decibel sound up to 153 dB out to 218 to 328 yards. The decibel is lower further from the source of the sound. LRADs are useful for hazing birds out of trees or off of surfaces.

Spraying birds with water from a hose or from sprinklers mounted in the roost trees as they land may help in some situations. Ultrasonic (high frequency, above 20 kHz) sounds are not effective in frightening crows and most other birds because they do not hear these sounds.

Clapper devices intermittently "clap" to produce a sound much like a twig snapping or two boards clapping together. They can be placed up in trees or at other sites close to crow perches. Like many other frightening techniques, clappers appear to be most effective with wary populations. Populations that have habituated to people or disturbance to such an extent that they have lost their wariness may not respond.

Avitrol®. Avitrol® (4-aminopyridine) is a Restricted Use Pesticide and chemical frightening agent, available in a whole-corn bait formulation (Double Strength Whole Corn) for use in dispersing crows. It is only for sale to certified applicators or persons under their direct supervision, and only for the uses covered by the applicator's certification.

Avitrol® bait contains a small number of treated grains mixed with many others that are untreated. Birds that eat the grains behave erratically and give warning cries that frighten other birds from the area. Birds that eat the treated grains typically die. Overall, because of the type of damage problems associated with crows, Avitrol® is unlikely to be used often. This product is included here because situations may arise where it could be helpful.

Vary the location, intensity, and types of frightening devices to improve their effectiveness. Supplement

frightening techniques with shotguns, where permitted, to improve their effectiveness in dispersing crows.

REPELLENTS

Methyl anthranilate. Methyl anthranilate is a grape-flavored food additive that also functions as a bird repellent. In aerosol form it irritates the nasal passages of birds causing them to flee the treated area. Foggers and ultra-low volume devices are needed to disperse the product to disperse roosting birds.

Polybutene. Tactile repellents made of polybutene are available to repel crows from roost sites. Avoid applying the product directly to structural surfaces; place tape or other removable material on the surface first. Polybutenes, being tacky, will collect dust and lose their effectiveness over time.

Avipel Seed Treatment. Avipel* is a product designed to protect newly planted seed from birds. The active ingredient is a naturally occurring substance that has been shown to repel birds. Avipel comes in both corn and rice formulations.

*Avipel is marketed and sold by Arkion Life Sciences, LLC, and is a registered brand name.

TOXICANTS

DRC-1339. These are special "Registered Use" products and require certification to buy and use in Alabama through the AL Department of Agriculture and Industries.

FUMIGANTS

No fumigants are registered for control of crows.

SHOOTING

Crows are protected by the Migratory Bird Treaty Act but are eligible to be hunted year round in Alabama.

Shooting is more effective as a dispersal technique than as a way to reduce crow numbers. Twelve gauge shotguns set at full choke with No.6 shot works well within 40 yards. Otherwise use a .22 caliber rifle. Air rifles (.22 caliber or high velocity .177 caliber) are effective on perching crows within shotgun range.

Crows are wary and difficult to shoot during daylight hours. They may be attracted to a concealed shooter, however, by using crow decoys or calls (Figure 7), or by placing an owl effigy in a conspicuous location. Generally, the number of crows killed by shooting is very small in relation to the numbers involved in damage or nuisance situations. However, shooting can be a helpful technique to supplement and reinforce other dispersal techniques when the goal is to frighten and

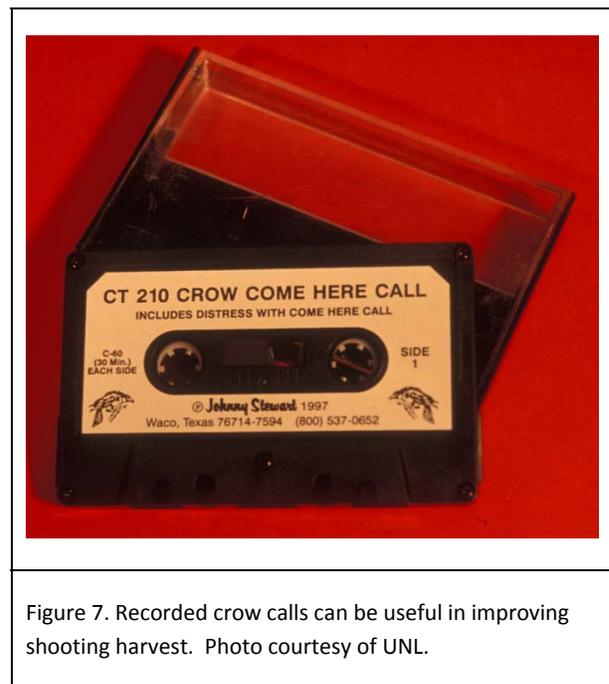


Figure 7. Recorded crow calls can be useful in improving shooting harvest. Photo courtesy of UNL.

disperse crows rather than specifically to reduce numbers.

Hunting during open season can be encouraged in rural areas where crows cause problems. The helpfulness of hunting as a control technique varies depending on crow movements, the season in which the damage occurs, and other factors. Crows tend to be more wary of people when they are hunted and thus more easily dispersed from roosting or other areas where their presence is a problem. Further study is needed to better understand the relationships between hunting and wariness, and whether a pattern exists that might be used to improve crow management programs.

TRAPPING

Trapping often is less useful than other techniques because of the wide-ranging movements of crows, the time necessary to maintain and manage traps, and the number of crows that can be captured compared to the total number in the area. Trapping and removing crows can be a successful method of control at locations where a small resident population is causing damage or where other techniques cannot be used. Examples include trapping crows near a high-value crop or in an area where nesting waterfowl are highly concentrated.

CAGE TRAPS

A commonly used trap for crows is the Australian Crow Trap (Figure 8), a type of decoy trap. These traps are most successful if used during the winter when food is scarce. Australian crow traps should be at least 8 to 10 feet square and 5 to 6 feet high. If desired, construct the sides and top in panels separately to facilitate transportation and storage. Place the trap where crows are likely to congregate. The most attractive bait is meat (such as slaughterhouse offal, small animal carcasses) or eggs. Whole kernel corn, milo heads, watermelon, and poultry feed also may work and be preferred

where carnivores such as feral dogs may be attracted to the trap. Place the bait under the ladder portion of the trap, and provide water. The trap should not be visited for 24 hours after the first baiting. When the birds begin to enter the trap, it should be cared for daily. Replace the bait as soon as it loses its fresh appearance. Remove all crows captured except for about five to be left in the trap as decoys. Remove captured crows after sunset to facilitate handling.

Release nontarget birds immediately. A well maintained decoy trap can capture several crows each day, depending on its size and location, the time of year, and how well the trap is maintained.

FOOTHOLD TRAPS

Individual crows may be captured uninjured with No. 0 or No. 1 foothold traps that have the jaws wrapped with cloth or rubber. Remove half of the springs to reduce the initial impact. These sets are most successful if placed at vantage points in areas habitually used by crows or if baited with a dummy nest containing a few eggs. Check the traps at least every 4 hours. Crows captured in this way may be used as initial decoys in the Australian crow trap described below (assuming allowed by the FWS permit), but the small number of captures is otherwise unlikely to affect a damage situation.

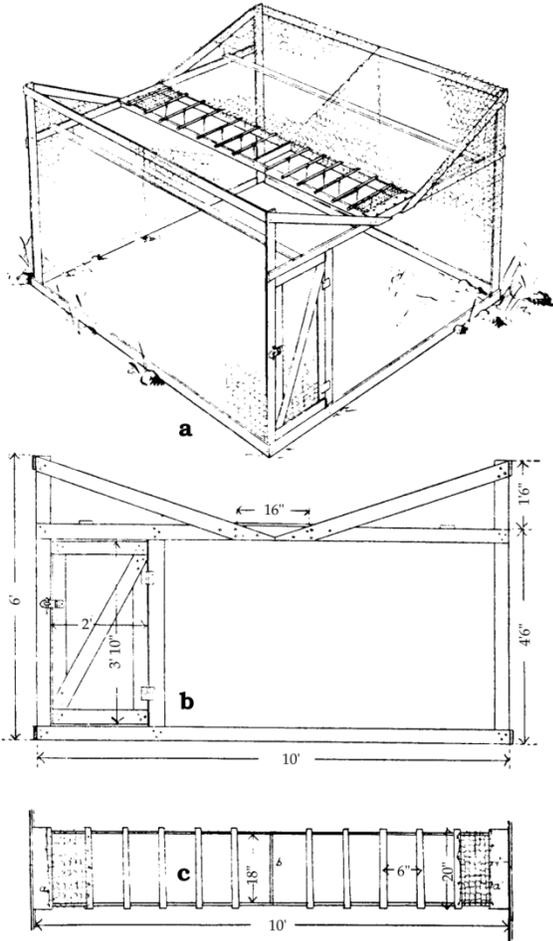


Figure 8. Australian crow trap: (a) completed trap, (b) end view, and (c) plan of "ladder" opening. Image by PCWD.

SNARES

Snares are not applicable for control of crows.

HANDLING

RELOCATION

Relocation is not recommended except for rescues.

TRANSLOCATION

Given the distances crows can fly, translocation is not recommended.

EUTHANASIA

Euthanize captured crows humanely by carbon dioxide exposure or cervical dislocation.

OTHER METHODS

Crows can be removed with nets launched by rockets or compressed air. Crows must be pre-baited within coverage of the net. It is critical for net operators to be hidden and to fire the nets without frightening the birds.

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AUTHORS

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PREVENTION AND CONTROL OF WILDLIFE DAMAGE — 1994

University of Nebraska –Lincoln-Extension

U.S. Department of Agriculture-Animal and Plant Health Inspection Service-Wildlife Services

RESOURCES

ON-LINE RESOURCES

<http://wildlifecontroltraining.com>

<http://icwdm.org/>

<http://wildlifecontrol.info>

DISCLAIMER

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.

Mention of any products, trademarks or brand names does not constitute endorsement, nor does omission constitute criticism.