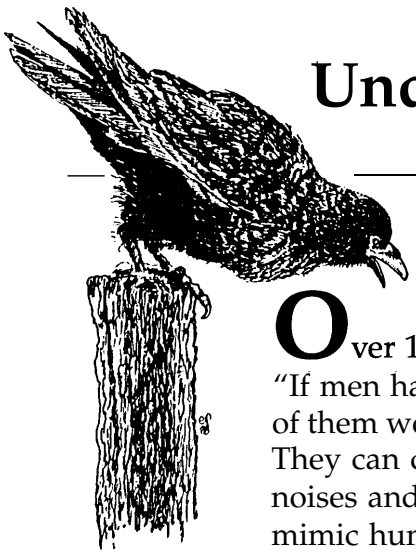


Understanding Crow Damage Control

Over 100 years ago Henry Ward Beecher said: "If men had wings and bore black feathers, few of them would be clever enough to be crows ." They can count, solve puzzles, and associate noises and symbols with food. They can even mimic human voices.

Crows are native birds in Kansas; they have lived here for hundreds of years. We believe their populations declined between 1900-1960, though they are now increasing and are expected to increase further between 1961–2000 +. Changes in habitat, fewer people living in rural areas, more trees growing in Kansas, and more wintering places in larger cities which offer protection and food are conditions believed to be partly responsible for increasing crow numbers in Kansas.

Crows pair off in early spring (February to May), building nests of twigs and coarse stems, and lining them with feathers, grass, cloth, strings, etc. These nests are usually 18–60 feet above the ground in trees. Where there are not many trees, crows may nest on the ground or on poles.

The average clutch is 4 to 6 eggs which hatch in 18 days. Usually there is only one brood a year, but there may be two. Both the male and female share incubating the eggs and caring for the young. The young leave the nest at about 5 weeks of age and forage with parents throughout the summer. Later in the fall, families join together either to migrate or to overwintering large flocks that sometimes exceed 1 million crows.

Few wild crows live more than 4 to 6 years, although some have lived to 14 years in the wild and some over 20 years in captivity.

One important aspect of crow behavior is their congregation into huge flocks in fall and winter. In Kansas, most crow problems occur because of roosting, which generally starts in mid-October and lasts until mid-February or late March, depending upon break-up of winter-like weather.

Crows often post a sentinel to watch for danger. Recent evidence indicates that the sentinel may be part of a family group; however, other unrelated crows in the areas may benefit from the sentinels' presence.

The common crow, *Covus brachychynchos,* is one of America's best known birds. Their large body size, 17 to 21 inches long with completely coal-black plumage and the familiar "caw caw" voice, makes them an easy bird to identify. No other bird should be confused with the crow, with one exception. In the western one-fourth of Kansas a summer and winter resident, the white-necked raven, *Corvus cryploleucus,* can be found–sometimes crows and ravens intermingle in winter flocks. The raven, even though as the name implies "white-necked," does not have a white neck visible to a person watching the birds. Ravens can be distinguished from crows by their larger size, call, wedge-shaped tail and flight pattern which commonly includes soaring or gliding. Crows have a frequent, steady wing beat with little or no gliding.

The white-necked ravens nest in trees or windmills on the high plains prairie of western Kansas. Their nests are often constructed with wire and a few twigs. The raven bends wire into the shape of a nest, often using large diameter wire.

The range of the white-necked raven covers the southwestern Great Plains, including portions of Kansas, Colorado, Oklahoma, Texas, and New Mexico. The range of the crow is more widely distributed over much of North America. They breed from Newfoundland and Manitoba, southward to Florida and Texas. During fall, crows migrate southward.

Kansas has historically been a wintering place for crows. For many years winter crow roosts were formed in catalpa tree plantings in the Hutchinson-St. John-Greensburg areas. While crows usually remain in the areas just stated, in more recent years crows have formed large roosts in the Wichita area and in parts of Kansas City, while roosts of wintering ravens and crows have increased in the Hugoton area of southwestern Kansas.

As crows and ravens increase, the wintering roosting concentrations occur in areas that have favorable roost sites. These sites are usually in trees where the birds find protection from wind, cold, and especially people, and are within a few miles up to 50 miles of abundant food.

Crows are omnivorous feeders, eating almost anything and readily adopting food habits to changing seasons and available food supply. They are opportunist feeders. Studies have shown that crows consume over 600 different food items. About one-third of the crow's annual diet consists of animal matter, including grasshoppers, beetles, beetle larvae (white grubs, wire worms), caterpillars, spiders, millipedes, dead fish, frogs, salamanders, snakes, eggs, young birds, and carrion, such as dead livestock and automobile-killed animals.

Studies have shown that crows consume over *600* different food items.

Even when crows are not particularly hungry, they may amuse themselves by pecking on or pulling up objects they find. On one building in Wichita, crows stripped tar off a large factory roof, apparently pecking out of boredom or play since no food value could have been obtained.

In one instance in Kansas, a county Extension agent credited the crow with reducing armyworms so much that crops in one part of the county produced much higher yields where large flocks of crows were seen feeding on fields in which armyworms were emerging. At other times, county Extension agents have reported livestock killed by crows pecking on eyes and navels of newborn calves. So, crows can be a problem.

Legal Status

The federal government has established regulations for the protection of migratory birds. The crow and raven are classified as Migratory Non-Game Birds which are protected by the Migratory Bird Treaty Act, a formal treaty signed by the United States, Canada, and Mexico. However, under this act crows and ravens may be controlled without a federal permit when found "committing or about to commit depredation upon ornamental or shade trees, agricultural crops, livestock, wildlife, or when concentrated in such numbers to constitute a health hazard or other nuisance ."

State law may require a permit to control crows or ravens. Before any attempts to control crow or raven damage is started in Kansas, a representative of the Kansas Department of Wildlife and Parks should be contacted. Further regulations or interpretation of laws, rules and regulations may vary among state, federal or local laws. Check with wildlife officials if there is any doubt regarding legality.

Damage Assessment

Variables including season, local weather, time of harvest, roosting site availability, and other factors make the amount and occurrence of crow damage highly unpredictable from place to place and year to year. Of all the different kinds of complaints about crows, the most serious problems center around winter-roosting sites or winter feeding by crows. Crows are not much of a problem in the summertime in Kansas. In general, the remainder of this publication will deal with crow problems in fall and winter.

Large roosts of crows are objectionable because of the odor of the bird droppings, human health fears, noise, and damage to sidewalks, lawns, property and trees. Another area of concern: large flocks have been implicated in the spread of TGE (transmissible gastroenteritis, or baby pig disease) between swine facilities.

Damage Control Methods

In considering a situation where crows and/or ravens are involved in a damage problem, a person needs to consider a list of alternatives and then pick one or more methods that best fits that particular situation. No two problems are alike, therefore no one method will solve all problems.

While considering the following alternatives, people need to determine the number of birds involved in the damage. This is not always easy. If the problem is a roost, one method that works is to mark off the area included in the roost. Determine the number of trees within this area, then count or estimate the number of roosting birds in one or preferably several trees. Multiply this by the number of trees in the roost area.

Another method would be to photograph the group of birds and count individual birds on the photograph. A third method: as birds fly into an area in a narrow flight line, count all the birds that passed a given point in one minute then time the birds until all have settled into the area. A fourth would be to scare the birds up and estimate the number in each flock.

There is a tendency to underestimate small numbers of birds and overestimate large numbers of birds. In Kansas, crows tend to occur in numbers from a few birds to 50,000 in a single roosting area. Raven numbers range from a few to 10,000.

Cultural Methods to Consider

Thinning or pruning vegetation can cause roosting birds to move. Sometimes subtle changes are effective in making an area unattractive to birds and causing damaging bird concentrations to disperse or relocate to a place where they will not cause problems. In historical roosting areas, a roost may be planned and planted as a future roosting area for crows away from higher value areas but within the historic range of the wintering crows. Alternative food sources might be created to pull crows away from higher value food crops. Bird dispersal resulting from habitat modifications usually produces a more lasting effect than other methods. Cultural methods have not been well studied and need to be tried more often.

Frightening

Because most crows and ravens in Kansas are urban in nature, occur on a wide area in an urban setting, and may involve 1,000 to 50,000 crows, killing the crows to alleviate the problem becomes impractical and methods to destroy that many crows without endangering numerous other species are not known. People in general oppose destruction of any species of life, including crows. For these reasons, frightening crows is one alternative that is most often recommended.

Scaring Devices

The use of scaring devices can be extremely effective in manipulating bird concentrations. The three keys to a successful operation are timing, organization, and diversity. Useful scaring devices include broadcast alarm and distress calls, pyrotechnics, exploders, and other miscellaneous auditory and visual scaring devices. It should be emphasized that no single technique can be depended upon to solve the problem. Numerous techniques must be integrated into a scaring program.

Electronic Devices

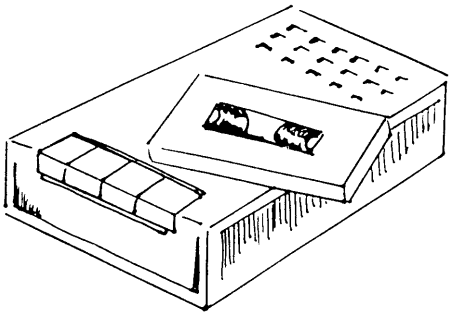
Alarm and distress calls of crows, intermingled with screams of hawks recorded on endless cassette tapes, are effective in scaring crows and are useful in both rural and urban situations. The calls are amplified and broadcasted. Mobility of broadcast units enhances the effectiveness of such calls. However, if stationary units are used, increased volume results in greater responses. Electronically produced sounds, such as Av-Alarm or other sound generators will scare birds, but usually these sounds are not as effective as amplified recorded bird calls. This should not discourage their use, however. The greater the variety and disruptiveness of sounds, the more noticeable the repellent effect will be.

Pyrotechnics

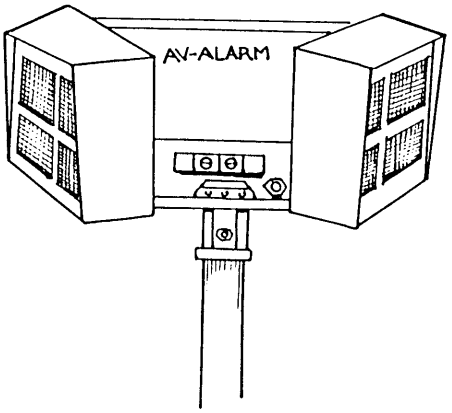
Pyrotechnic devices have long been employed in bird-scaring programs. The 12-gauge exploding shells are extremely useful. Because of their widespread availability, they have been in use more than any other type. These are fired from the hip (to protect eyes) from single-barrel, open-bore shotguns. The barrel should be checked after each round to be sure there is no obstruction remaining. Most types of 12-gauge exploding shells are corrosive, requiring that the gun be cleaned after each use to prevent rusting.

Several devices which are fired from a 15mm or 17mm pistol are used to scare birds. For the most part, they are shorter range than the 12-gauge devices. They are known as noise bombs, bird bombs, Clew bombs, racket bombs, and noise rockets. Those which explode are generally more effective than the racket bombs, bird whistlers, and whistle bombs, which do not. Noises in the air near the birds are much more effective than those on the ground. The use of a shotgun with live ammunition is one of the least effective ways for scaring birds, but may increase the effectiveness of other scaring devices. It is recommended that live shotgun shells not be included in a scaring program because birds are often crippled and will later serve as live decoys. Also, live ammunition creates numerous problems in urban areas. In fact, in urban areas the use of firearms is illegal. Most bird control efforts need to be organized by city officials.

Rope firecrackers are an inexpensive way to create unattended sound. The fuses of large firecrackers (legally known as agricul-



(a) Recorded bird alarm or distress calls can be effective in scaring birds.



(b) Electronic alarm devices produce sounds that also will frighten birds away from an area.

tural explosive devices) are inserted through 5/16- or 3/8-inch (8 or 9.5mm) cotton rope. As the rope burns, the fuses are ignited. The time between explosions can be regulated by the spacing of the firecrackers in the rope. This is an asset since birds can become accustomed to explosions at regular intervals. Burning speed of the rope can be increased by soaking it overnight in a saltpeter solution of three ounces per quart (84 g/95 l) of water and allowing it to dry. Since the burning speed of the rope is affected by humidity and wind speed, it is wise to burn and time a test section of the rope beforehand.

Because of the fire hazard associated with this device, it is a good idea to suspend it over a barrel, or make other fire prevention provisions.

Exploders

Automatic LP gas exploders are another source of unattended frightening device. It is important to elevate these devices above the level of the surrounding vegetation to reduce fire hazard. Mobility is an asset and will increase their effectiveness, as will changing the interval between explosions.

Other Scaring Materials

Other scaring devices include chemicals such as Avitrol and a great variety of whirling novelties and flashing lights, as well as innovative techniques such as smoke, water sprays, devices to shake roosting vegetation, tethered balloons, hawk silhouettes, etc. While all of these, even the traditional scarecrow can be of use in specific situations; it is only supplementary to a basic, organized bird-scaring program.

Bird Dispersal Operations

Remember, the keys to successfully dealing with bird problems where dispersal is necessary are timing, organization, and diversity. Timing of a scaring program is critical. Birds are much more apt to leave a roost site that has been occupied for a brief period of time than one that they have used for many nights. Prompt action in dealing with roosting concentrations greatly reduces the time and effort required to successfully relocate birds. As the restlessness associated with nearing migration time increases, birds become more responsive to scaring devices and less effort is required to move them. When migration is imminent, the birds' natural instincts will do your work for you.

Whether dealing with rural or urban situations, it is important that someone be in charge of the entire operation and that all activities are planned and organized. The more diverse the techniques, timing, and mobility of the operation, the more effective it will be. Once initiated, the program must be continued until success is achieved. The recommended procedure for dealing with an urban crow roost follows. Many of these principles apply when working with other bird problems, like blackbirds and starlings.

The more diverse the techniques, timing, and mobility of the operation, the more effective it will be.

Urban Roost Relocation Procedure

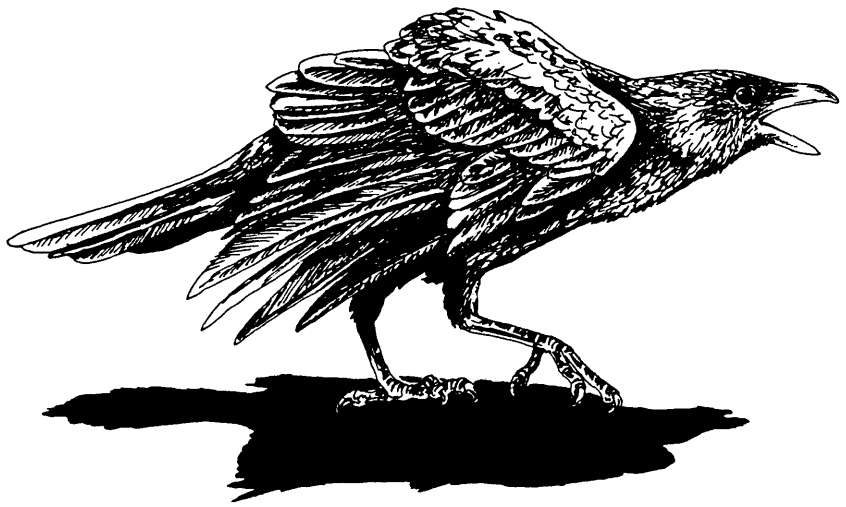
Willing and effective cooperation among numerous agencies, organizations, and individuals is necessary to undertake a successful bird-scaring program in an urban area. Different levels of government have different legal responsibilities for this work. The best approach is a cooperative effort with the most knowledgeable and interested individual coordinating the program.

Public relations efforts should precede an urban bird-scaring effort. Federal, state, and/or local officials should explain to the public the reasons for attempting to relocate the birds. Announcements should continue during the operation, and a final report should be made through the mass media. This will facilitate public support and understanding of what is being done and why. It also provides an opportunity to solicit citizen involvement. This help will be needed when the birds scatter all over town after one or two nights of scaring. Traffic control in the vicinity of the roost is essential. Consequently, police involvement and that of other city officials is necessary.

Birds are much easier to scare while they are flying. Once they have perched, a measure of security is provided by the protective vegetation and they become more difficult to scare. After bird movement has stopped with darkness, scaring should also be terminated. A continuation of scaring will only condition birds to the sounds and reduce responses in the future.

With crow roosts, all equipment and personnel should be prepared to begin scaring at least 1½ hours before dark. The scaring program should commence as soon as the first birds are sighted. Early morning scaring is also effective. This requires only about ½ hour and should begin when the first bird movement occurs within the roost. This movement precedes normal roost exodus time by about ½ hour.

The public should be informed that the birds may move to a location which is less desirable to people than the present roost site and that, if disturbed in the new roost site, the birds are likely to return to the original roost site. Sometimes it is wise to provide protection for the new roost site once it has been selected by the birds. One can predict with some



certainty that blackbirds, crows and starlings will move to one of their primary staging areas if that area contains sufficient roosting habitat. Fortunately, if the birds occupy roost sites where they still create problems, a continuation of the scaring program can more easily cause them to move to yet another site. With each successive move, the birds become more and more sensitized to the scaring devices. Habituation is uncommon in properly conducted programs, especially if sufficient diversity of techniques and mobility of equipment are maintained.

On the first night of a bird roost scaring program, routes for mobile units should be planned, and shooters of exploding shells should be placed so as to build a wall of sound around the roost site and saturate the roost with sound. Shooters should be cautioned to ration their ammunition so that they do not run out before dark.

The response of the birds is predictable. As flight lines attempt to enter the roost site in late afternoon, they will be repelled by the scaring effort. A wall of birds about ¼ mile (.4 km) from the roost site will mill and circle until almost dark. At that same time, virtually all of the birds will come into the roost site, no matter what is done. The immediate response of the onlookers is also predictable.

Because Americans always pull for the underdog (or in this case the "underbird") they will cheer for the birds and assume that the program has been unsuccessful. This is wholesome community recreation. Subsequently, when the birds are gone, these same onlookers will be convinced that scaring devices are, in fact, effective in moving birds.

By the second and third nights of the scaring program, it is essential that the personnel involved understand the need for flexibility in adapting their activities to the birds' behavior. As larger numbers of birds are repelled from the original roost site, they will attempt to establish numerous temporary roosts. It is important that mobile units armed with exploding shells and broadcast alarm and distress class move to these areas, disturb the birds, and send them out of town. The effort must continue each morning and evening in spite of weather conditions. Complete success is almost always achieved by the fourth or fifth night.

A bird-scaring program can be used to deal with an immediate bird problem, but can also be an educational tool which prepares individual or municipalities for dealing with future problems in a more effective manner. It is proper that those interested in resolving the problem bear part of the financial burden of the bird-scaring program. This requirement will immediately eliminate the imagined bird problems. When a city or individual is willing to pay a part of the expenses for a bird-scaring operation, it is obvious that a genuine problem exists.

Another frightening technique that has been used to protect fields from crows is stretching cord or fine wire at intervals across the field at heights about 6 to 8 feet (1.8 to 2.4 m) above the ground. A similar technique has been used successfully in recent research to prevent gulls from using a drinking-water reservoir. Gulls stopped using the reservoir after wires were strung over the water at 50-foot (15 m) intervals and at a height of 8 to 10 feet (1.4 to 3 m) at midpoint. The reason this technique has worked is not completely clear, but the wires may represent a potentially hazardous obstacle that is difficult for a flying bird to see. Another possibility used with crows is to tie aluminum pie pans to the wires. However, these techniques are not well tested, and further research is needed.

Avitrol

Avitrol (active ingredient: 4-aminopyridine) is registered as a Restricted Use Pesticide as a chemical frightening agent and is available in a wholecorn bait formulated to use against crows. The current label indicates that use is restricted to government agencies, pest control operators, or persons under their supervision. It is not for sale to the public.

Avitrol baits contain a small number of treated grains mixed

with many others that are untreated. Birds which eat the treated portion of the bait behave erratically and/or give warning cries that frighten other birds from the area. Generally, the small number of birds that eat the treated grain will die. Overall, because of the type of damage problems associated with crows, it is unlikely that Avitrol would be used frequently in crow control. However this product is included here because situations may arise in which its use would be helpful.

Repellents

Two seed-treatment repellents are federally registered for preventing crow damage to young corn seedlings. One is refined coal tar (Stanley's Crow Repellent) and the other is a copper oxalate (Crow-Chex repellent). These products may not be registered in some states, so check with the Cooperative Extension Service, wildlife officials, or the state's department of agriculture before proceeding. In addition, where the damage to corn seedlings, is being caused primarily by other species such as blackbirds or pheasants, other repellents such as methiocarb (Mesurol) maybe useful. Again, check the registration before proceeding.

When using repellents or other pesticides, always refer to the current pesticide label and follow its instructions as the final authority in pesticide use.

Toxicants

Test results indicate that DRC 1339 can be a safe, effective toxicant for crows when applied to whole kernel corn with Rhoplex AC-33 as a masking agent or as a sticker and bait placement is monitored. Crows were successfully baited in staging areas when field observations indicated consistent use of the site. Crows were killed without using the Rhoplex as a masking agent, thus saving a good deal of bait preparation time without noticeably sacrificing efficacy. When applied at areas where crows concentrate to feed or stay throughout the roosting season, the avicide may well act as a population reduction tool. Disadvantages include considerable costs in terms of time and effort. Time requirements could have been reduced with the use of automatic bait mixers and spreading freshly treated bait more thinly (one layer) to dry.

Registration for use in Kansas has been accomplished through the 24(c) provision of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, which allows for individual state registrations under special local need. However, this toxicant cannot be used, unless in a well planned and approved effort. Its use is restricted to persons trained in bird damage control and this is a Restricted Use Pesticide.

Trapping

Trapping and removing crows can be a successful method of control at locations where a resident population is causing damage or where other techniques cannot be used. An example is trapping damage-causing crows near a high-value crop or in an areas where nesting waterfowl are highly concentrated. Often, however, the wide-ranging movements of crows and the time necessary to maintain and manage traps make this an impractical control.

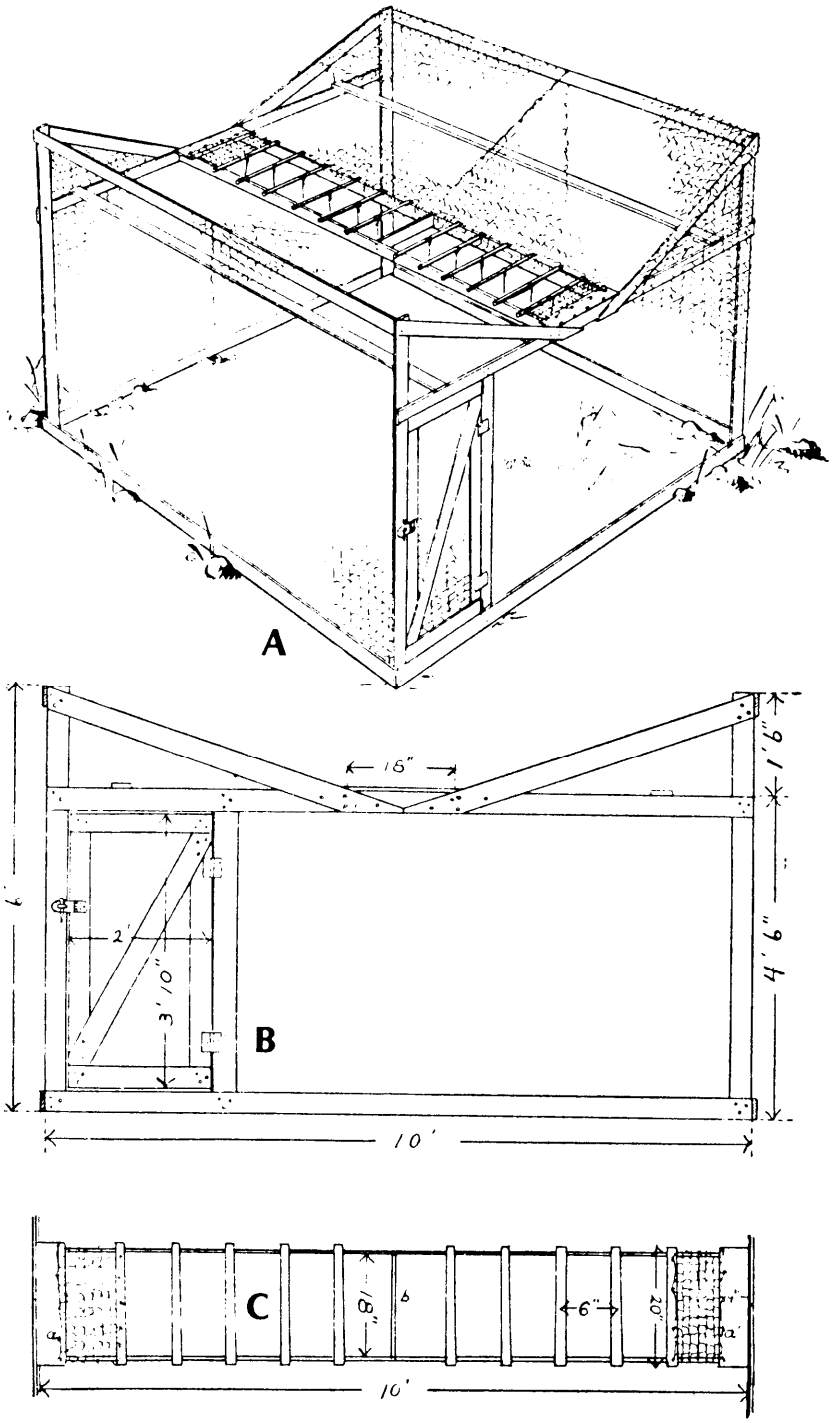
Two types of traps have been used successfully to capture crows. These have been described by E.R. Kalmbach, and many of his observations are included here. First, crows have been captured uninjured with size 0 or 1 steel traps that have the jaws wrapped with cloth or rubber. These sets are most successful if placed at vantage points in areas habitually used by crows or if baited with a dummy nest containing a few eggs.

A second and more commonly used trap for crows is the Australian Crow Trap, a type of decoy trap. These traps are most successful if used during the winter when natural foods are scarce. Australian crow traps can be made in nearly any size but should be at least 8-to 10-feet (2.4 to 3 m) square and 5- to 6-feet (1.5 to 1.8 m) high. If desired, the sides and top can be constructed in panels to facilitate transportation and storage. To be successful, the trap should be placed where crows are likely to congregate. The preferred bait is meat, such as slaughterhouse offal, small animal carcasses, or eggs. Whole kernel corn, milo heads, and watermelon may also work. Place the bait under the ladder portion of the trap. Also provide water.

After the first baiting, the trap should not be visited for 24 hours. When birds begin to enter the trap, it should be visited and cared for daily. Any non-target birds captured should be immediately released unharmed. Remove all crows captured except for about five that should be left in the trap as decoys. As soon as the bait loses it fresh appearance, it should be replaced with fresh material. A well-maintained decoy trap can capture a number of crows each day, depending on its size and location, the time of year, and how well the trap is maintained. However, as mentioned previously, the time necessary to maintain the trap and the number of crows that can be captured compared to the total number in the area, often makes this technique less attractive than others for crow control.

Shooting

Check legality of killing crows and use of firearms before shooting crows. Shooting is more effective as a dispersal technique than as a



Australian crow trap: (A) completed trap, (B) end view, and (C) plan of "ladder" opening.

way to reduce crow numbers. Crows are wary and difficult to shoot during daylight hours. However, they may be attracted to a concealed shooter by using crow decoys or calls or by placing an owl effigy in a conspicuous location. Generally, the number of crows that can be killed by shooting is very small in relation to the numbers usually involved in pest situations. However, where shooting is used as part of a dispersal program, it can be a helpful technique to supplement and reinforce others.

Other Methods

Hunting crows during open season can be encouraged in areas where crows cause problems. The helpfulness of this as a control technique would vary depending on crow movements, the season in which the damage occurs, and other factors. Check laws before hunting crows.

Summary

Large concentrations of birds sometimes create conflicts with man's interests. Bird dispersal by means of habitat manipulation or various auditory and visual scaring devices is useful in dealing with these problems. The keys to effective bird dispersal programs are timing, organization, and diversity. The proper use of scaring devices can effectively deal with potential health and/or safety hazards, depredation, and other nuisance caused by birds.

Adapted from
Handbook on
Prevention and Control
of Wildlife Damage

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"Bird Disposal Techniques"

Ron J. Johnson and R. W. Altman
"Crows"

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