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BIRD DISPERSAL TECHNIQUES

Introduction

Birds, especially migratory birds, provide enjoyment and recreation for many and greatly enhance the quality of our lives. These colorful components of natural ecosystems are often studied, viewed, photographed, hunted, and otherwise enjoyed.

Unfortunately, bird activities sometimes conflict with human interests. Birds may depredate agricultural crops, create health hazards, and compete for limited resources with other more favorable wildlife species. The management of bird populations or the manipulation of bird habitats to minimize such conflicts is an important aspect of wildlife management. Problems associated with large concentrations of birds can often be reduced through techniques of dispersal or relocation of such concentrations.

Dispersal Techniques

Two general approaches to dispersing bird concentrations will be discussed in this chapter: (1) environmental or habitat modifications that either exclude or repel birds or make an area less attractive, and (2) the use of frightening devices. The following chapters in this publication also discuss bird dispersal techniques in detail: **Bird Damage at Aquaculture Facilities, Birds at Airports, Waterfowl, and Blackbirds.**

Habitat Modifications

Habitat modifications include a myriad of activities that can make



Fig. 1. Before and after pruning trees to reduce attractiveness as a bird roost.

habitats less attractive to birds. Thinning or pruning of vegetation to remove protective cover can discourage birds from roosting (Fig. 1). Most deciduous trees can withstand removal of up to one-third of their limbs and leaf surface without causing problems. Adverse effects are minimized during the dormant season. Thinning often enhances commercial timber production. Dramatic changes are not always necessary, however. Sometimes subtle changes are effective in making an area unattractive to birds and causing bird concentrations to disperse or relocate to a place where they will not cause problems. Bird dispersal resulting from habitat modifications usually produces a more lasting effect than other methods and is less expensive in the long run.

Frightening Devices

The use of frightening devices can be extremely effective in manipulating bird concentrations. The keys to a successful operation are *timing, persistence, organization, and diversity*. Useful frightening devices include broadcasted alarm and distress calls, pyrotechnics, exploders, and other miscellaneous auditory and visual frightening devices (see **Supplies and Materials** for information on commercial products). No single technique can be depended upon to solve the problem. Numerous techniques must be integrated into a frightening program.

Electronic Devices. Recorded alarm and distress calls of birds are very effective in frightening many species of birds and are useful in both rural and



PREVENTION AND CONTROL OF WILDLIFE DAMAGE — 1994

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United States Department of Agriculture
Animal and Plant Health Inspection Service
Animal Damage Control

Great Plains Agricultural Council
Wildlife Committee

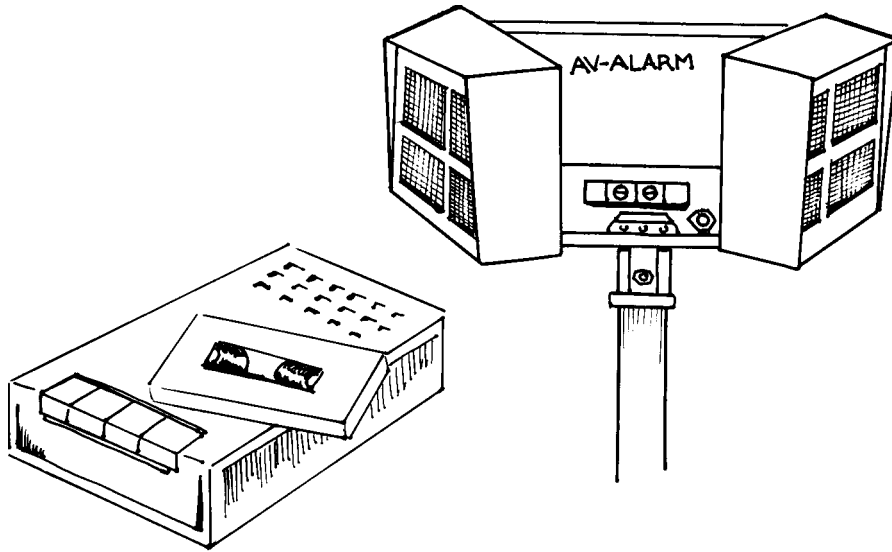


Fig. 2. (a) Recorded bird alarm or distress calls can be effective in frightening birds.

(b) Electronically produced sounds also will frighten birds away from an area.

urban situations. The calls are amplified and broadcasted (Fig. 2a). Periodically move the broadcast units to enhance the effectiveness of such calls. If stationary units must be used, increase the volume to achieve greater responses. Electronically produced sounds such as Bird-X, AV-ALARM, or other sound generators (Fig. 2b), will frighten birds, but are usually 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 effective the method will be as a repellent.

Pyrotechnics. Pyrotechnic devices have long been employed in bird frightening programs. Safe and cautious use of these devices should be emphasized. The 12-gauge exploding shells (shell crackers) are very effective (Fig. 3). They are useful in a variety of situations because of their long range. Fire shell crackers from the hip (to protect eyes) from single-barrel, open-bore shotguns and check the barrel after each round to be sure no obstruction remains. Some types of 12-gauge exploding shells are corrosive, requiring that the gun be cleaned after each use to prevent rusting. Though more expensive, smokeless powder shells will reduce maintenance.

Pyrotechnics should be stored, transported, and used in conformance with

laws, regulations, and ordinances.

Several devices that are fired from 15-mm or 17-mm pistols are used to frighten birds. For the most part, they cover a shorter range than the 12-gauge devices. They are known by many brand names but are usually called "bangers" if they explode, and "screamers" if they do not. Both types should be used together for optimal results. Noises up 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 most available but least effective means of frightening birds. Shotgun fire, however, may increase the effectiveness of other frightening devices. Live shotgun shells should not be included in a frightening program unless there is certainty that no birds will be crippled and later serve as live decoys. Also, live ammunition creates safety problems in urban areas and is often illegal. Rifles (.22 caliber) fired from elevated locations are effective where they can be used safely.

Rope firecrackers are an inexpensive way to create unattended sound (Fig. 4). The fuses of large firecrackers (known as fuse-rope salutes or agricultural explosive devices) are inserted through 5/16- or 3/8-inch (8- or 9.5-mm) 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. The ability to vary the intervals 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 3 ounces per quart (85 g/l) of water and allowing it to dry. Since the burning speed of the rope is also affected by humidity and wind speed, it is wise to time the burning of 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 sound (Fig. 5). It is important to elevate these devices above the level of the surrounding vegetation. Mobility is an asset and will increase their effectiveness, as will changing the interval between explosions.

Other Frightening Materials.

Other frightening 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, and others. While all of these, even the traditionally used scarecrow (human effigies), can be useful in specific situations, they are only supplementary to a basic, well-organized bird frightening program. Combining different devices such as human effigies (visual) and exploders (auditory) produce better results than either device used separately.

Bird Dispersal Operations

Again, the keys to successful bird dispersal are *timing*, *persistence*, *organization*, and *diversity*. The timing of a frightening program is critical. Birds are much more apt to leave a roost site that they have occupied for a brief period of time than one that they have used for many nights. Prompt action greatly reduces the time and effort required to successfully relocate the birds. As restlessness associated with migration increases, birds will become



Fig. 3. Shell crackers are fired from a 12-gauge shotgun. They produce an aerial explosion and can be useful in frightening birds out of fields or away from roosts.

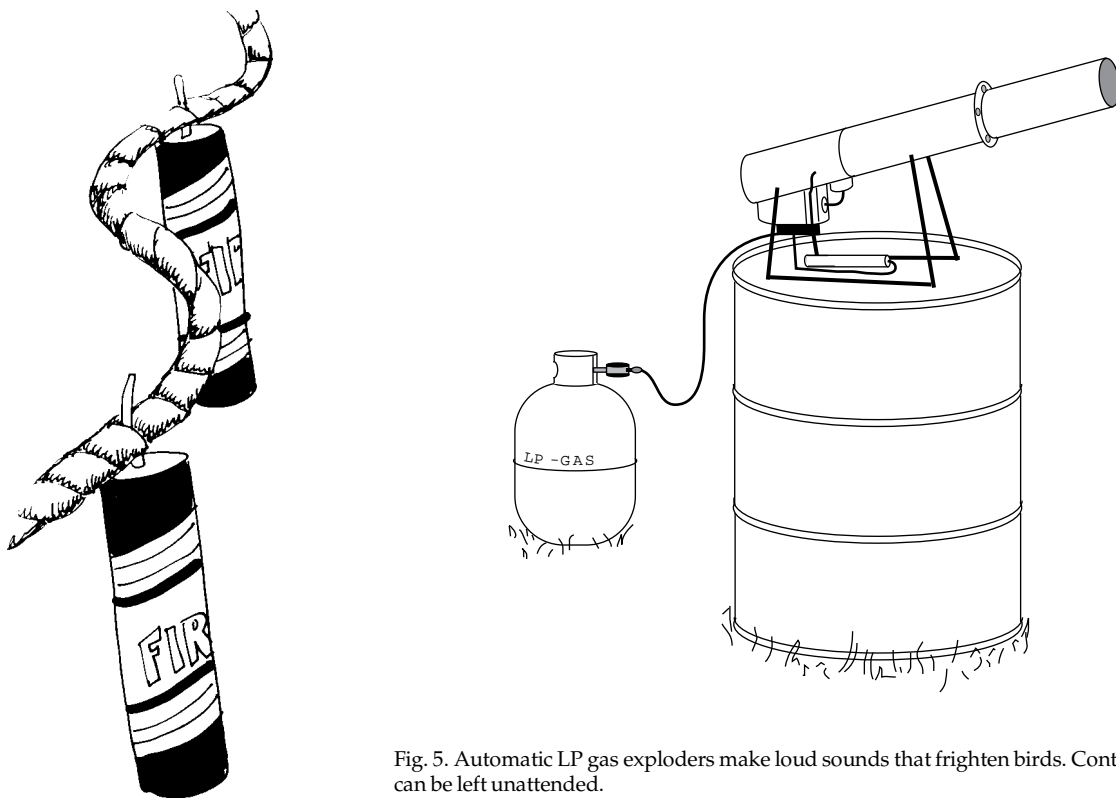


Fig. 5. Automatic LP gas exploders make loud sounds that frighten birds. Controlled by a timer, they can be left unattended.

Fig. 4. Rope firecrackers are relatively inexpensive tools that are useful in frightening birds.

more responsive to frightening devices and less effort is required to move them. When migration is imminent, the birds' natural instincts will augment dispersal activities.

Whether dealing with rural or urban concentrations, someone should be in charge of the entire operation and carefully organize all dispersal activities. The more diverse the techniques and mobility of the operation, the more effective it will be. Once initiated, the program must be continued each day until success is achieved. The recommended procedure for dealing with an urban blackbird/starling roost is given below. Many of these principles apply to other bird problems as well.

Urban Roost Relocation Procedure

Willing and effective cooperation among numerous agencies, organizations, and individuals is necessary to undertake a successful bird frightening 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-frightening 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 mass media. These public relations efforts will facilitate public understanding and support of the program. They will also provide an opportunity to solicit citizen involvement. This help will be needed when the birds scatter all over town after one or two nights of frightening. Traffic control in the vicinity of the roost is essential. Consequently, police involvement and that of other city officials is necessary.

The public should be informed that the birds may move to a site that is less

suitable than the one they left and that, if disturbed in the new roost site, they are likely to return to the original site. Sometimes it is wise to provide protection for a new, acceptable roost site once it has been selected by the birds. One can predict with some certainty that blackbirds 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 frightening program can more easily cause them to move to yet another site. With each successive move, the birds become more and more responsive to the frightening devices. Habituation is uncommon in properly conducted programs, especially if sufficient diversity of techniques and mobility of equipment is maintained.

Birds are much easier to frighten while they are flying. Once they have perched, a measure of security is provided by the protective vegetation and they become more difficult to frighten. Dispersal activities should end when birds stop moving after sunset. A continuation of frightening will only condition birds to the sounds and reduce responses in the future. With blackbird/starling roosts, all equipment and personnel should be prepared to begin frightening at least 1 1/2 hours before dark. The frightening program should commence as soon as the first birds are viewed. Early morning frightening is also effective. This requires only about 1/2 hour and should begin when the first bird movement occurs within the roost, which may be prior to daylight. This movement precedes normal roost exodus time by about 1/2 hour.

On the first night of a bird-roost frightening 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 frightening effort. A wall of birds about 1/4 mile (0.4 km) from the roost site will mill and circle almost until dark. At that time, virtually all of the birds will come into the roost site, no matter what frightening methods are employed.

The immediate response of onlookers is also predictable. Pulling 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. When the birds are finally gone, however, these same onlookers will be convinced that frightening devices are, in fact, effective in moving birds.

By the second and third nights of the frightening program, flexibility will be necessary in adapting dispersal techniques to the birds' behavior. As larger numbers of birds are repelled from the original roost site, they will attempt to establish numerous temporary roosts. Mobile units armed with pyrotechnics and broadcast alarm and distress calls should be prepared to move to these areas, disturb the birds, and send them out of town. Frightening efforts by residents should be encouraged through mass media. Efforts must continue each morning and evening in spite of weather conditions. Complete success is usually achieved by the fourth or fifth night.

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

Summary

Large concentrations of birds sometimes conflict with human interests. Birds can be dispersed by means of habitat manipulation or various auditory and visual frightening devices. The keys to effective bird dispersal programs are *timing, persistence, organization, and diversity*. The proper use of frightening devices can effectively deal with potential health and/or safety hazards, depredation, and other nuisances caused by birds.

Acknowledgments

Figures 1 through 5 by Jill Sack Johnson.

Figure 1 adapted from Good and Johnson (1978).

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