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Wildlife Damage Management Series

European Starlings

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European starlings (*Sturnus vulgaris*) were introduced to the United States in the 1890s and have since expanded their range throughout North America. Native to Eurasia, starlings also are found in South Africa, Australia and New Zealand.

Starlings are robin-sized birds. Adults stand approximately 8.5 inches tall and weigh about 3.2 oz. They have dark feathers with a greenish sheen and light speckles. The speckles are difficult to see at a distance or on overcast days. Adult starlings have a yellow bill during the breeding season (January to June) which turns dark brown over the rest of the year (Figure 1). Juvenile starlings are an indistinct, dusky color with dark bills.

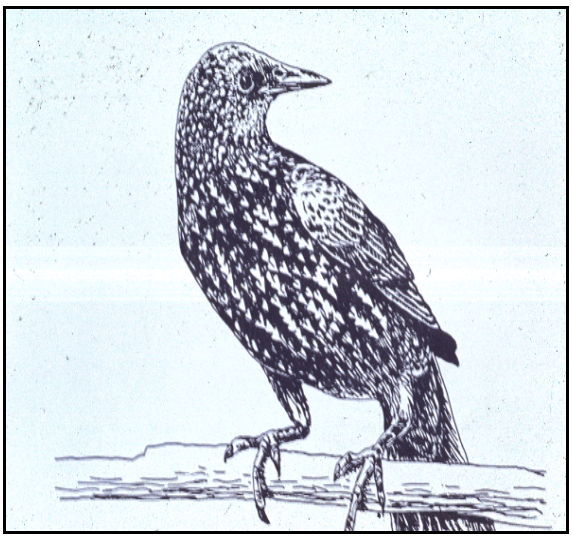

Figure 1. Adult European Starling.

Biology and Behavior

Starlings form feeding and roosting flocks soon after the young learn to fly. They may roost together with other blackbird species in urban landscapes and heavily wooded areas. Fall roosting flocks are relatively small, numbering several hundred to several thousand birds spread across a large area. Flocks are typically larger in the winter, sometimes exceeding one million birds. These large flocks are usually concentrated on a few acres. In colder weather, starlings can be found roosting in barns and other structures which provide increased protection from wind and cold.

Damage Problems

Aside from being a general nuisance in urban settings, starlings also may pose a serious health and safety threat to humans and animals. Large flocks can cause economic loss to agricultural crops.

Although starlings are generally more of a serious disease vector to livestock, they can also transmit a number of diseases to humans and other animals. Five bacterial diseases, two fungal diseases, four protozoan

diseases, and six viral diseases may potentially be transmitted to humans and other animals by starlings. Histoplasmosis is a respiratory disease which humans can contract by breathing airborne fungal spores that originate in starling fecal matter. The fungus may grow in the soils beneath bird roosts. The spores can become airborne in dry weather, or when disturbed. In most cases, symptoms of histoplasmosis are mild or often unnoticed. However, in some rare cases, histoplasmosis has resulted in blindness and death in humans.

Other health concerns arise when starlings roosts in buildings, industrial structures and in trees near homes in rural and urban sites. Fecal matter, noise and odor along with accumulations of droppings can create safety hazards in industrial structures. In addition, the acidity of the droppings can corrode metals.

Starling and other blackbird roosts located near airports may pose a serious threat to aircraft. Birds may potentially be ingested into jet engines, resulting in aircraft damage or loss and possibly human injury or death.

Starlings have been documented to transfer disease between livestock facilities. In particular, hog operations can be significantly impacted by transmissible gastroenteritis virus (TGE). TGE can pass through the digestive tract of a starling and be spread to hogs through feces dropped on feeds. TGE also may be spread by boots, vehicles, stray animals or by infected swine added to the herd.

Starlings feeding on fruit crops such as grapes, peaches, blueberries, strawberries, figs, apples and cherries may impact yields and damage the quality of the produce. Recently, they have also been reported damaging ripening corn.

Starlings may also compete for nesting sites with native cavity-nesting birds, such as bluebirds, flickers and other woodpeckers, purple martins and wood ducks. Studies have shown that starlings have significant impact on local populations of cavity nesting species when nesting sites are limited.

LEGAL STATUS

Starlings are not protected by federal laws and in most cases not by state laws. However, laws vary among states, so check with your state wildlife agency before you begin any control program. In addition, state and local laws may regulate or prohibit some control techniques such as shooting and the use of toxicants.

CONTROL METHODS

Exclusion

Exclusion is the most preferred and usually the most permanent solution to nuisance wildlife problems that occur inside structures. Exclusion can often prevent nuisance situations from developing. By closing all openings larger that 1 inch with nylon or plastic netting starlings may be excluded from buildings or other structures. Where starlings are roosting or nesting on building ledges, place a wooden, metal or plexiglass covering over the ledge at a 45˚ angle to prevent the birds from using it. Porcupine wires (Nixalite® and Cat Claw®) are metal devices also available for excluding birds from ledges and roof beams (Figure 2).

Heavy plastic (polyvinal chloride) or rubber strips hung in open doorways of farm buildings have been successful in some areas in excluding birds while allowing people, machinery or livestock to enter. Hang 10-inch wide strips with about 2-inch gaps between them. Although netting placed over doorways may also exclude birds from buildings, it may be torn by machinery or livestock.

Nylon or plastic netting also may be effective to exclude starlings from roosting inside open farm building by covering the underside of the rafters. Netting can be used to cover fruit crops such as cherries or grapes to prevent bird damage. Also, numbers of starlings in an area may be reduced by eliminating access to feed and water using physical barriers.

Always maintain good sanitation. To discourage starling use of feedlots, store grain in bird-proof facilities. In addition, by using bird-proof feeders and feeding grain or supplements in milking parlor, you can reduce the food available. Lastly, any spilled grain should be cleaned up immediately.

Frightening

Frightening can be effective in dispersing

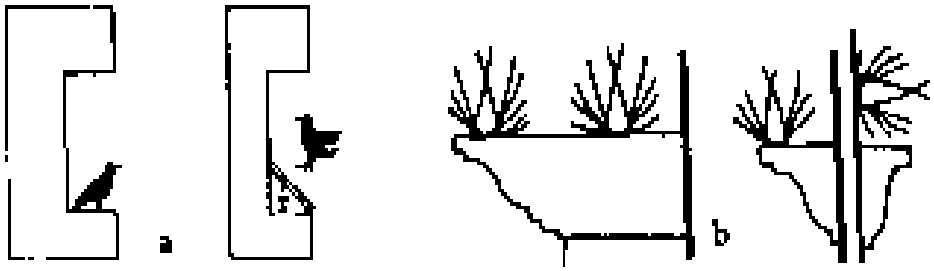

Figure 2. Wooden, metal or plexiglass covering over a ledge at a 45˚ (a) or porcupine wires (b) can be used to prevent roosting and nesting.

starlings from roosts and other small sites. Visual frightening devices include scarecrows, mylar tape, hawk kites, and eye-spot balloons. Auditory frightening devices include recorded distress call tapes, pyrotechnics, and propane cannons. In addition, Avitrol® is a chemical frightening agent used to disperse starling flocks.

For scarecrows to be effective, they must appear life-like and be moved often so that birds do not become accustomed to seeing them in the same place every day. Eye-spot balloons, kites with hawk silhouettes, and mylar tape may be more effective because they are in constant motion. Mylar streamers can be especially effective near roost sites because of the constant movement and sound make the birds nervous.

Recorded distress calls of starlings can be effective when used correctly. Because starlings may become accustomed to a continuous noise, distress call tapes should be played intermittently or in a random pattern. Pyrotechnics (or shellcrackers) and propane cannons which are randomly discharged can also be effective in frightening starlings from an area. Note, if birds are roosting in an urban or suburban area, keep in mind there are laws and ordinances against discharging firearms in close proximity to buildings. Contact your local law enforcement to determine which control methods are acceptable and legal for your area.

Avitrol® is a restricted-use pesticide available in several bait formulations for use as a chemical frightening agent. As with all restricted use pesticides, label instructions must be followed and only certified applicators or persons under their direct supervision are permitted to use this product. When using Avitrol®, only a small percentage of the bait is treated, so relatively few birds will die, but the rest of the flock will be affected. Birds that eat the treated bait will fly erratically and give off distress calls, frightening the rest of the flock away. For technical assistance in using Avitrol®, contact USDA/Wildlife Services or your local county extension office.

Roosting flocks of starlings and blackbirds can be driven from roost sites where they are creating a nuisance by harassing the flock for 3-4 consecutive nights, using a combination of the previously discussed control methods.

Because of the inability of birds to hear high frequency sounds (above 20 kHz), ultrasonic devices are not effective frightening tools.

Repellents

To discourage starlings from roosting on sites such as ledges, roof beams or shopping center signs, soft, sticky repellents such as Roost-No-More®, Bird Tanglefoot® and 4-The-Birds ® may be effective. These products, among others, contain polybutenes, a nontoxic material that creates a mildly adhesive surface which is uncomfortable for birds to roost on. Over time, these products may lose their effectiveness and have to be replaced. In addition, porcupine wire and wire loops may also make it difficult for starlings to roost on some sites.

Toxicants

DRC-1339, formerly marketed as Starlicide, is a slow acting pesticide used for starling control at feedlots. Birds that ingest the toxicant die one to three days after treatment, and dead birds are usually found at their roosting, loafing or feeding areas. Since the chemical is metabolized and excreted by starlings in about two hours, it is non-hazardous to predators or scavengers. **DRC-1339 is a restricted use pesticide available *only* to employees of USDA/APHIS/Wildlife Services.** Because you must work in conjunction with your state Wildlife Services office in using DRC-1339, contact them for further information.

Toxic perches can be used in certain industrial and other structural roost situations where they do not present hazards to nontarget birds and avian predators such as hawks and owls. Toxic perches are perforated metal tubes 24 or 27 inches long containing a wick saturated with a contact toxicant that enters the feet as the birds perch on the tube. The active ingredient in perches is fenthion which is rapidly absorbed through skin. Fenthion is federally registered as a restricted use pesticide and *is* toxic to humans, birds, fish and aquatic invertebrates. Toxic perches should be used with caution to avoid spillage and exposure to the handler. All bird carcasses should be picked up immediately and buried or incinerated because of the potential of secondary poisoning to other wildlife.

Trapping

Trapping starlings can be a successful control alternative in locations where a resident population is causing localized damage or where other techniques may not be used.

Two types of traps effective for starling control are nest-box traps (Figure 3) and decoy traps (Figure 4). Nest-box traps are only useful during the nesting season, whereas decoy traps are effective during other times when the birds are flocking. Nontarget birds caught in these traps should be released immediately.

Decoy traps should be at least 5 to 6 feet high to allow for servicing. A convenient size is 6 x 8 x 6 feet. For ease in transporting and storing these traps, the sides and top can be constructed in panels. Decoy traps can be set up on a wagon and moved from place to place,

wherever the starlings are likely to congregate. Because feeding behavior and calls attract other starlings nearby, leaving a few starlings in the trap as decoys is effective. Note that decoy birds in the trap must be well watered, and fed. A well-maintained decoy trap may capture 100 or more starlings per day depending on its size and location and time of year. Starlings should be euthanized humanely, using carbon dioxide exposure or cervical dislocation.

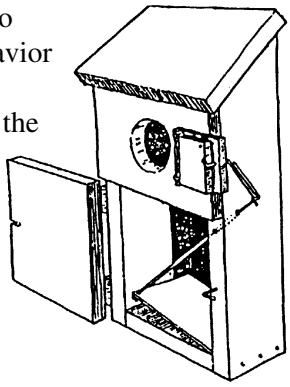

Figure 3. Nest-box trap for starlings.

Shooting

Shooting is not an effective way to control starlings in a pest situation. The number of birds that can be killed by shooting is very small relative to the size of the flock. However, shooting can be helpful in supplementing or reinforcing other dispersal techniques.

ADDITIONAL READING

Hygnstrom, S.E., R.M. Timm and G.E. Larson, eds. 1994. Prevention and Control of Wildlife Damage. University of Nebraska Cooperative Extension, Lincoln, NE, USA.

Peterson, Roger Tory. 1980. Eastern Birds. Houghton Mifflin Co., Boston. 384 pp.

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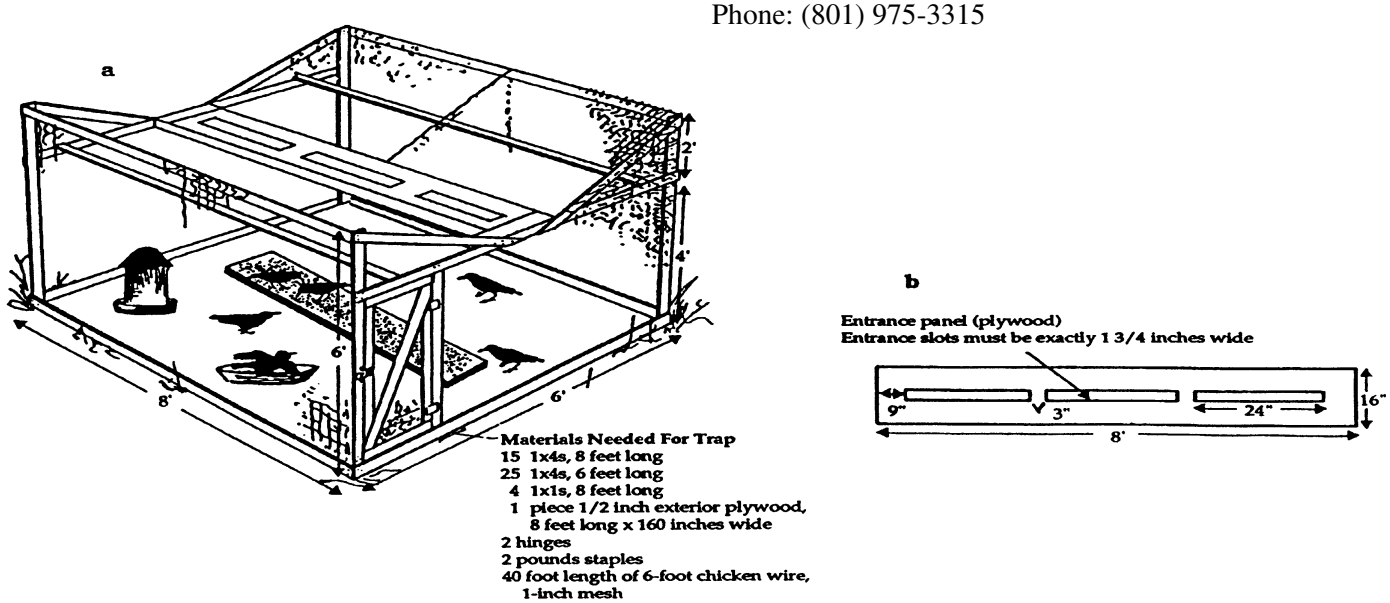

Figure 4. Starling decoy trap: (a) assembled view and (b) details of the entrance panel. Side and end panels are covered with wire on the outside; top panels are covered on the inside of the frame.

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