LIVING WITH STARLINGS

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Acknowledgement

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Biology and Damage

European Starlings (*Sturnus vulgaris*) are robin-sized birds about 8½ inches long from head to the end of their short tail. Their coloration varies with the season. During the spring and summer, starlings display an iridescent black coloration and a bright yellow bill. In the fall and winter, the tips of the feathers whiten giving the bird a speckled appearance and the bill turns more brownish (Figure 1). Starlings have several calls including the ability to mimic those of other birds. Starlings mate twice a year with females laying 4 to 6 eggs per clutch. Both genders assist in caring for the young. Nests are typically located in crevices that are filled with grasses and other insulating materials.

Figure 1. European starling.

Though commonly seen in towns and feedlots throughout Montana, starlings are not native to North America. Present day populations descended from the 100 starlings brought from Europe in 1890 and released in New York City's Central Park.

Starlings are associated with several negative impacts. First, starlings aggressively occupy cavity nests (including bird houses) thereby preventing native species from using those favorable nesting locations. Their nesting behavior damages structures by exploiting openings in buildings, such as dryer, range, and bathroom vents and gaps around roofs and walls. Second, starlings roost in large numbers in the winter, covering the soil with excrement and disturbing neighbors with their calls. Third, starlings feed on grapes, cherries, and other fruits as well as consume and contaminate livestock feed. Starlings are even able to tear open trash bags to feed on discarded food. Fourth, nesting starlings can create a nuisance as they remove fecal sacs and drop them into bird baths or swimming pools. Finally, starlings have been associated with histoplasmosis, chlamydiosis, salmonellosis, West Nile virus, and other diseases.

> Starlings can consume and contaminate livestock feed and water, and whitewash buildings with their droppings. A study on a winter flock consisting of 2,000 starlings discovered that the birds consumed 2,000 to 4,000 pounds of feed in a month and contaminated or spoiled an additional 1,100 to 2,200 pounds. Starlings may also selectively eat the high-protein portion of protein-supplemented livestock feed.

Methods of Control

Management of bird conflicts is best accomplished by removing potential nesting, feeding, and roosting areas before starlings use them. Initiate these efforts before birds become attached to the location as once problems with starlings occur, control becomes more difficult.

Habitat Modification

All animals need space, food and shelter to survive. Habitat modification involves removing or changing the characteristics of

the area that starlings favor to help convince them to leave.

Avoid leaving excessive amounts of grain, particularly corn, out for livestock and pets. If possible, use grain with kernels smaller than 0.2 inches and larger than 0.5 inches in diameter and feed livestock after starlings leave. Secure dumpsters and other sources of food. Fix leaking faucets and regrade surfaces to eliminate standing water. Flat roofs, particularly those with air conditioners that drip water condensate, should also be inspected to ensure that water is not pooling. Even though total elimination of food and water is often not practical, any reduction in supply will help magnify the effect of other control methods mentioned below.

Starlings like to roost in densely limbed trees that allow large flocks to perch together (Figure 2). Trim branches (up to a ⅓) to open the canopy and encourage birds to avoid the trees.

Figure 2. Starlings like to roost in trees with thick canopies.

Exclusion

Exclusion is one of the best methods for control of starlings as it permanently prevents starlings from occupying a site. Keep buildings maintained so that holes and other openings do not become wide enough (1⅛ inches) to be occupied by starlings. Never secure openings unless you are certain they are not being used. Premature closure of openings can result in additional damage to the structure, unnecessary suffering for the animals that are trapped, and possible odor from decaying carcasses. If uncertain, cork openings with a wad of newspaper and monitor for five days of good weather. If the paper remains undisturbed and other signs of animal activity have not been noted, then you have strong evidence that the hole is no longer occupied.

Secure openings with aluminum flashing, wood, or other permanent material suitable for the location. Light materials such as nylon or plastic netting and window screen will not keep out determined starlings as they can easily tear these materials. Passive air-vents may be secured with ¼-inch hardware cloth (Figure 3).

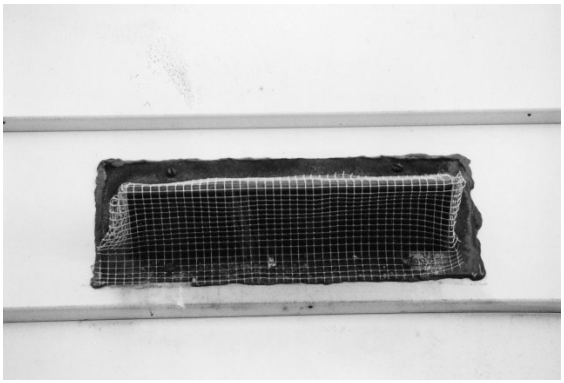

Figure 3. Kitchen exhaust vent screened to prevent bird entry.

Chimneys should only be secured with professionally manufactured chimney caps made from permanent material such as stainless steel. Do NOT secure chimneys with hardware cloth laid over the opening as snow, ice, or other material may collect on the screen and prevent toxic gases from escaping. Do NOT screen dryer vents as the

screen may reduce airflow and cause lint to build up, resulting in a fire (Figure 4). Secure dryer vents with devices that will permit free airflow while stopping vertebrate pests such as magnetic door or gravity ball. Restrict birdhouse openings to less than 1⅛ inches in diameter to exclude starlings.

Figure 4. Note the potentially dangerous lint build up on this screened dryer vent.

Anti-perching devices prevent starlings from loafing on ledges and other surfaces. These devices include non-electrical and electrical products. Non-electrical products typically use spikes (Figure 5). Electrical products use two-wires that when connected by the bird's feet, cause a painful shock that convinces the bird to avoid the location. Use netting with a weave no larger than 1⅛ inches to exclude starlings from fruit trees, bushes or other areas. If house sparrows or similar sized birds are a potential concern, then use ¾-inch weave. Additional information on these exclusion products may be found from suppliers of bird control equipment such as, Bird Barrier®, Bird-B-Gone®, Bird-X, Nixalite®, and others.

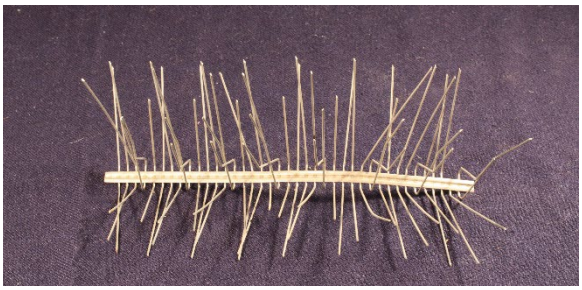

Figure 5. "Porcupine" wire, which uses several parallel rows of pointed wire to prevent starlings and other birds from landing.

Frightening

Frightening or scare tactics are useful in driving starlings from roosting sites and fruit crops. Frightening tactics typically only work for the time they are used or up to a few weeks following as birds quickly habituate to the devices or techniques. Efficacy of techniques can be improved by combining methods, switching methods, and/or moving the location and action of the method. Frightening devices that are motion activated will be effective longer than those which act continuously.

Visual devices such as mirrors, pie tins, Mylar® tape, blinking or revolving lights, balloons, predator effigies (Figure 6) and colored flags or tapes usually scare birds for only a few days.

Figure 6. Owl effigies are only effective for a few days.

Lasers have been successful in keeping birds away from structures and crops for long

periods. They must be positioned properly for proper coverage and to ensure that they do not harm the public or aircraft pilots.

Audible devices, such as distress calls, propane cannons (Figure 7), etc. may provide some control for a short period but often are impractical in urban areas due to noise complaints. In recent years, long-range acoustical devices (LRAD) have been used to frighten birds from unwanted areas. LRADs concentrate audible sound to frighten birds up to several hundred yards away.

Figure 7. Propane cannons can be scheduled to fire intermittently.

Shockwave generators act similarly except they use wave pressure more than sound to frighten birds. Both products are suitable for less populated areas, such as agricultural fields, airports or landfills. However, they require a human to operate thereby raising control costs.

Ultrasonic devices have not been shown to be effective in frightening birds.

Audio-visual devices, such as pyrotechnics, remote control aircraft, and other similar devices are very effective at dispersing flocks. They are labor intensive and require careful use to avoid negative outcomes such as fires or crashes. Persistent harassment, possibly over many days, may be required to convince the flock to leave the location permanently.

Biological frightening devices include the use of hawks to frighten flocks of birds. Use of hawks and similar birds requires appropriate licensing and experience. Use of hawks is only suitable in areas where exclusion and lethal control are not practical or preferred.

For the best results, use a variety of techniques. Frightening devices are enhanced when combined with some lethal control. As a rule, frightening methods are most useful when control of starlings is needed for only a few days, such as protecting a ripening crop from depredation.

LEGAL NOTE
European starlings are not protected by federal or state law. While it is legal to kill starlings, other birds that look similar are protected by the Migratory Bird Treaty Act. Before initiating any activities that may kill birds, be sure that you know how to identify protected birds and how to avoid harming them in accordance with Federal and State laws.

Pesticides
According to the Environmental Protection Agency (EPA), pesticides are any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest (U.S. Code Title 7, Chapter 6, Subchapter II, Section 136 - Definitions). Therefore, repellents and toxicants are regulated by the EPA. The EPA requires that pesticide applicators follow the product label, as the “Label is the law”. Use only pesticides that are registered in Montana.

The information that follows in the Repellent and Toxicant sections is designed to provide readers with a broad overview of the benefits and challenges of products available for the control of starlings. The information is not a replacement or substitute for the pesticide label. In addition, pesticide registrations change. To see if a pesticide is registered for use in Montana visit https://www.npirs.org/state/. Only pesticides (including repellents) registered in Montana are legal for use in Montana. Do not assume that products sold online are registered, and therefore legal, in Montana. Additional support can be obtained by contacting the Vertebrate Pest Specialist listed in the Resources section at the end of the document.

Repellents

Repellents are pesticides that cause animals to avoid treated areas. They are classified according to their mode of action. Tactile repellents are sticky gels, typically made from polybutene, that birds avoid touching. Tactile repellents are general-use pesticides. Unfortunately, none are registered for use on starlings at the time of this writing. This is likely due to concerns over the risk to small birds, like starlings, becoming entrapped by the gel.

Methyl anthranilate is a chemical extracted from grapes that irritates the nasal passages of birds (Figure 8). Some products are labelled to reduce bird depredation on fruit trees (e.g., berries, cherries, apricots, peaches, apples, plumbs, grapes, pome and stone fruits, cereal grains, and sunflowers. The repellent must be applied when fruits begin to ripen, or birds begin feeding. Reapply as needed every 5 to 8 days. Some labels allow the product to be applied to structures to repel birds from roosting. Other labels allow the ingredient to be fogged or misted to disperse roosting birds in and around structures, trees and agricultural sites. Notify neighbors prior to fogging as the odor of grapes may cause some to think that they are being poisoned.

Figure 8. Fan used to disperse methyl anthranilate.

Toxicants

Toxicants, known as avicides, are chemicals designed to kill birds. Only two avicides are registered in Montana. While both can harm birds, their risk of secondary poisoning is extremely low to negligible. Avitrol, though it can cause some mortality, is actually designed to frighten birds (Figure 9).

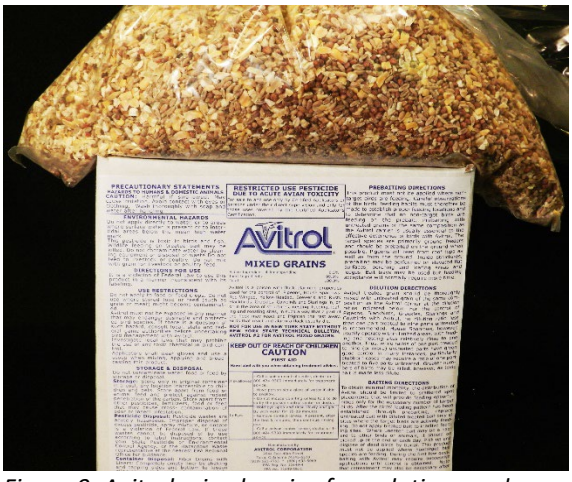

Figure 9. Avitrol mixed grains formulation can be used on starlings.

Birds that feed on the treated grain display distress which frightens the flock. The flock's fear causes it to avoid the site. When used

properly only a few birds out of a 100 are killed. Some applications can result in zero mortality. It is a restricted use pesticide, thus, applicators must possess a pesticide license to purchase and use the product.

Compound DRC-1339 is a true avicide and is highly toxic to birds. This product may only be applied by USDA-Wildlife Services personnel. Property owners in need of dramatic reductions in starling populations should contact USDA-Wildlife Services in Billings, tel. 406-657-6464.

Avicides will not eliminate starlings quickly as birds need to be conditioned to feed on grain for several days to ensure adequate consumption and to determine if non-target birds may be affected. In addition, the lethal effects of avicides can distress those that encounter dying birds. Property owners should carefully consider the benefits and risks before using avicides to resolve their starling problem.

Shooting

Shooting may be an option to eliminate small numbers of birds. Starlings are wary and will quickly learn to take flight when your presence is noticed. Before shooting, check local ordinances and confirm the location is appropriate for legal and safe shooting. Keep in mind that shooting options include shotguns, rifles, air rifles, and blow guns. Whichever tools are selected, be sure that the shooter can consistently hit a ½ inch target at 30 yards before initiating control.

Trapping

Traps for starlings fall into two main categories, nest and baited traps. Nest box traps exploit the birds' desire for a suitable nesting spots (Figure 10). Starlings notice the dark hole and investigate it as a possible nest site. Upon entering, a door closes behind them. The Van Ert Starling Box Trap is one type of a single capture nest box trap. Other nest trap designs allow for multiple captures.

Figure 10. A Van Ert-style starling box trap. The red dot appears in the window when the trap is sprung.

Baited traps, also called decoy traps, are typically set on the ground and have doors that allow the birds to enter but not exit. When a few birds are caught, they attract others thereby making the traps even more effective. For large populations, use the Modified Australian Crow trap.

Instructions and patterns for making nest-box or decoy traps can be found in "Prevention and Control of Wildlife Damage" from the University of Nebraska – Lincoln (see link in For Further Information section).

Traps should be checked several times a day to ensure that non-target birds are released.

For removal of starlings inside structures, such as barns and outbuildings, one may consider using mist nets. Mist nets consist of hair-like strands of nylon netting that are

difficult for birds to see. When suspended from ceilings or poles at entrances or in flight paths, birds encounter the net and become entangled. Mist nets must always be monitored when in use to ensure birds (both target and non-target) can be removed before injuring themselves.

Dispatch and Carcass Disposal

Captured starlings should be euthanized by wringing the neck or by carbon dioxide gas. To wring a bird's neck, first put on protective gloves. Then grasp the bird in one hand, and carefully but firmly grab the head with the other hand between the index finger and thumb. Quickly pull the head while twisting a quarter-turn to break the bird's neck. Contact the Vertebrate Pest Specialist for details on how to use carbon dioxide to euthanize starlings.

Dispose of carcasses in a manner that avoids offending the public's sensitivities and contaminating water supplies.

Resources

Stephen M. Vantassel is the Vertebrate Pest Specialist for the Montana Department of Agriculture. He is available to answer questions and provide additional support to Montanan's experiencing conflicts with birds and other common vertebrate pests. His contact info is 406-431-7720 svantassel@mt.gov Office: 625 NE Main St. Ste 3 Lewistown, MT 59457.

Disclaimer

Reference to commercial products or trade names is made with the understanding that no discrimination is intended of those not mentioned and no endorsement by either the Montana Fish, Wildlife & Parks or the Montana Department of Agriculture is implied for those mentioned.

For Further Information

Cornell Lab of Ornithology. All About Birds: Dealing with birds and pests in your yard. Online at: http://www.allaboutbirds.org/page.aspx?pid=1185.

Johnson, R.J. and J.F. Glahn. 1994. European Starlings. Pages E-109 – E-120 in Prevention and Control of Wildlife Damage. Editors, S.E. Hygnstrom, R.M. Timm, G.E. Larson. University of Nebraska – Lincoln, NE. 2 vols. Online at https://digitalcommons.unl.edu/icwdmhandbook/72/.

Vantassel, Stephen M., Scott E. Hygnstrom and Dennis M. Ferraro. 2010. Urban Pest Birds: Controlling Damage. NebGuideG2024. Lincoln, NE: University of Nebraska-Lincoln. 1-4pp. http://extensionpublications.unl.edu/assets/pdf/g2024.pdf.

Credits

Cover Photo by Pierre Selim

Figure 1. Photo by Pierre Selim.

Figure 2-8, 10 Photos by Stephen M. Vantassel, Wildlife Control Consultant, LLC.

Figure 9. Photo by Avitrol.