Wildlife Services
Protecting People
Protecting Agriculture
Protecting Wildlife

Factsheet
October 2010

Nonlethal Management of Wildlife Damage

Wildlife Services (WS), a program within the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS), provides Federal leadership and expertise to resolve wildlife conflicts that threaten the Nation's agricultural, natural, and property resources and human health and safety.

WS uses and recommends an integrated wildlife damage management approach, including nonlethal techniques, in addressing problems and conflicts involving wildlife.

An integrated wildlife damage management approach uses a wide variety of methods and techniques to prevent and reduce damage. Nonlethal management of wildlife damage may include modification of human activity and practices, manipulation of habitat, and actions to change the behavior of wildlife or reduce their presence and impact. WS can help those unfamiliar with such methods to understand and implement these techniques.

Changing Human Understanding, Activities, and Practices

In some situations, wildlife damage can be prevented or reduced by changing human attitudes, activities, and practices. People may be able to lessen their wildlife concerns by improving their understanding of animal behaviors and when and why animals are present. Understanding behaviors related to reproduction (nest building, defense of territory, or offspring, etc.) is especially useful. Managing resources—such as residences, yards, crops, and livestock—can reduce their availability and vulnerability to wildlife. Collectively referred to as management of cultural practices, these techniques are typically conducted by landowners or resource managers.

Livestock—Sound husbandry practices can help deter conflicts involving predators. Confining livestock in pens or corrals may prevent predation, but it often proves impractical. Corralling livestock at night may be more feasible and effective in reducing losses; many predators, such as coyote, often hunt at night. Lighting a corral can further reduce predator attacks.

Producers should be especially vigilant in the spring when young livestock are especially vulnerable due to their size and lack of strength. Spring lambing coincides with coyote birthing, which can lead to high predation because coyote need to feed their pups. To counter this threat, producers may turn to shed lambing. Before a ewe gives birth, she is

A Wildlife Services biologist supplements a fence to keep coyote and deer off a property. Modifying habitat to exclude access can help reduce conflicts.

moved indoors to a confined space, where she remains with her lambs for several weeks. Shed lambing can also reduce losses due to inclement weather.

Additionally, producers can avoid using pastures with a history of predation. Pastures closer to buildings and human activity can be safer for young livestock. Pastures with rough terrain or dense border vegetation provide predators with cover. Some producers put bells on sheep to discourage predators and alert herders to disturbances in the flock. Livestock protection dogs or other animals, such as llamas, can be effective in some situations. For more information, please see WS' Livestock Protection Dog factsheet.

Crops—Generally, crops provide an attractive food source for a variety of wildlife; diverting wildlife attention by means of altering a management practice may be difficult. Lure crops may provide some assistance. To protect commercial crops, farmers can implement harassment and repellant techniques to drive wildlife to the lure, or unprotected, crop where they can then feed without harassment. This typically buys time for a farmer to successfully grow and harvest the intended crop. Meanwhile, the field with the lure crop benefits the birds and other wildlife. Northern U.S. farmers sometimes plant such lure crops to reduce damage by red-winged blackbirds.

Habitat Management to Deter Wildlife

Wildlife species occupy areas that provide habitat or travel corridors within such areas. Habitat consists of food, water, and shelter, including perching, nesting, resting, and protective sites. Wildlife can be discouraged from such areas when habitat elements are reduced or when exclusion devices (i.e. fencing) are installed to separate wildlife from the resource. Although habitat modifications may provide long-lasting results, they require careful consideration so that new species are not attracted while the original problem species is deterred. Complex wildlife conflicts can be caused by species- and site-specific natural factors.

Vegetation—Once problems with wildlife develop, resolving them can be both costly and complicated. Many problems, however, can be avoided by careful planning and consultation with a qualified wildlife damage management professional during the design stage of a landscape project. Proper planning can result in designs that attract songbirds and other nondestructive wildlife while minimizing the presence of undesirable and damaging wildlife.

Careful selection of ornamental trees and plants is important. Some plantings are more likely to encourage undesirable wildlife. For example, dense plantings of some shrubs and trees may encourage large roosts of flocking birds, such as starlings. The result can be overwhelming noise and an accumulation of acidic bird feces that causes strong odors and property damage.

In rural areas, dense vegetation around barns, livestock pens, or homes can create travel corridors and provide habitat for unwanted wildlife species. Disrupting these corridors by mowing or removing vegetation can be beneficial in reducing wildlife conflict.

Water—Vital in any habitat, water can attract a wide variety of species, some of which may be undesirable. Aquatic mammals (nutria, muskrats, and beavers) are known to damage ornamental shrubs and trees, vegetation, turf, and structures with their feeding and burrowing activities. Large flocks of Canada geese can cause damage when they take up residence in office parks, residential and recreational areas, and other urban sites associated with water. Modifying habitat to reduce favorable conditions or to exclude access can help reduce conflicts in many situations.

Gridding—By stretching a series of wires over open water, resource managers and landowners may be able to exclude waterfowl from open ponds by reducing the birds' landing access.

Wire wraps—Typically constructed from small-mesh, hardware cloth can reduce damage to valuable trees by beavers. The cloth is wrapped around the trunks of vulnerable trees at a height that eliminates any access by beavers attempting to feed.

Nonlethal management may include modification of human practices, habitat and wildlife presence.

Fencing— Properly installed fencing can be successful in excluding some problem wildlife.

Shelter—Abandoned and occupied buildings, dense vegetation, debris piles, and countless other structures can serve as potential shelter for a variety of unwelcome wildlife. For example, debris piles can provide habitat for small rodents, which can encourage the presence of predators that may threaten livestock or property. Making structural repairs to buildings and removing overhanging tree branches can sometimes eliminate wildlife access. Removing debris piles or thinning dense vegetation also can reduce the likelihood of wildlife damage.

Chimneys can be made inaccessible by installing vented chimney caps. Installations can exclude bats from eaves and attics while wire on roof ledges can reduce roosting and loafing areas for birds.

Wildlife Behavior Modification

Wildlife may be encouraged to leave an area through the use of repellents, frightening devices, visual and auditory stimuli, and lasers. Behavior modification methods can range from flagging on fencing to motion-activated sound- and light-alarm system.

These methods usually provide short term results, but may be effective in providing immediate damage relief. Using these approaches on a continual basis may make them more effective; however, some species become accustomed to them, which can limit their impact. Because effectiveness varies by the species and other factors, individuals should consult with WS or other wildlife biologists for recommendations.

The most common tools used include: pyrotechnics, propane cannons, lasers, Mylar® strips, balloons, and animal effigies. Because some devices make very loud noises, local laws and ordinances must be checked prior to use.

Pyrotechnics—Best described as controlled fireworks, pyrotechnics can be safely used in a number of situations involving both birds and mammals; State and local laws must be checked before use.

Propane Cannons—As another common auditory scare device, propane cannons can effectively repel both birds and mammals. Fueled by propane and set to automatically cycle, the cannon produces sound blasts similar to the sound of a shotgun, harmlessly scaring away offending wildlife. Propane cannons are most effective when their location and blast timings are altered.

A propane cannon uses sound to scare birds and mammals from aquaculture operations, airports, and other locations where they can cause conflict.

Low-powered laser—These lasers represent the newest effective device for dispersing a variety of birds. Researchers at WS' National Wildlife Research Center (NWRC) have demonstrated the usefulness of lasers in dispersing birds in a number of different environments. As a result of WS' research, and in collaboration with NWRC scientists, the Avian Dissuader® was developed by Science and Engineering Associates, Inc., for use in dispersing problem birds. Research, however, has shown the device's effectiveness varies depending on the situation and the bird species.

Mylar®—Sold commercially in the form of strips and balloons, Mylar® is a thin, reflective material. When strung from fruit producing trees, Mylar® tape has some success in reducing birds and other wildlife from feeding. Helium-filled Mylar® balloons, when used over lawns or gardens, may frighten some wildlife species.

Solid husbandry practices can help deter predator conflicts.

Other Nonlethal Approaches

Population reduction through **fertility control** represents another nonlethal approach to wildlife damage management. The degree to which it can reduce wildlife-related damage and problems varies or is unknown. Fertility control in wildlife may be accomplished through treatment of nests and eggs, mechanical and surgical techniques, endocrine disruption, and immunocontraception.

Fertility control usually requires permits and licenses through programs administered by the U.S. Fish and Wildlife Service (for migratory birds), State wildlife agencies (for resident birds and mammals such as deer), and other Federal agencies, including the Food and Drug Administration and the Environmental Protection Agency.

Many consider **relocation of wildlife** to be a reasonable solution to wildlife conflict. Although relocation may relieve the immediate damage, it is usually not recommended for several reasons. The relocation of some species is illegal in some States and jurisdictions.

The stress for relocated animals during handling and transport can be traumatic. Wildlife that survives relocation has difficulty adapting to new locations and often must compete with the same species already in the area. Relocated animals rarely stay in the release area and can create conflicts elsewhere. Furthermore, relocation of wildlife may spread disease, potentially creating a threat to other wildlife species and humans. For more information, please see WS' Relocation factsheet.

How Wildlife Services Helps

Through technical advice and operational assistance, WS works with property owners to prevent and alleviate damage caused by wildlife. WS implements an integrated wildlife damage management approach to resolve human-wildlife conflicts.

Additional Information

For more information about WS and its use of integrated wildlife damage management, including nonlethal methods, contact 1-866-4USDA-WS (1-866-487-3297) or visit the Web site www.aphis.usda.gov/wildlife_damage/.

WS Wildlife Services

Protecting People | Protecting Agriculture | Protecting Wildlife

USDA

United States Department of Agriculture
Animal and Plant Health Inspection Service