



NWRC headquarters in Fort Collins, CO

### Managing Roosts

Throughout the Prairie Pothole Region of the Great Plains, commercial sunflower crops are often planted near cattail wetlands. This arrangement is ideal for blackbirds, as they roost in cattails and easily fly short distances to feed on nearby sunflowers. One method NWRC and North Dakota State University scientists developed that has been successful at reducing blackbird damage to sunflowers is the thinning of adjacent cattails to make them less suitable for blackbirds.

Cattails can be sprayed with Government-approved aquatic herbicides between mid-July and early September. Herbicides should be applied in strips either aerially or with ground-based sprayers. The remaining untreated cattails offer habitat for other migratory birds that prefer more open wetland areas. For more information and guidance on using aquatic herbicides for cattail thinning, please call USDA Wildlife Services in North Dakota at (701) 355-3300.

Other research with the College of William and Mary is exploring the use of “sonic nets” to disrupt communication among birds in a flock. Sonic nets work by producing a sound (usually 2–10 kHz at 80 decibel Sound Pressure Levels) that prevents birds from hearing each other’s calls. When birds cannot hear each other or predators, their perception of predation risk increases, which can cause them to leave an area. Sonic nets may be another way to make cattail marshes unsuitable for roosting blackbirds.

### About the NWRC

NWRC is the research arm of USDA’s Wildlife Services program. The Center is a leader in providing science-based solutions to the complex issues of wildlife damage management as related to agriculture; natural resources, including threatened and endangered species; property and infrastructure; and public health and safety. NWRC scientists strive to find solutions that are biologically sound, environmentally safe, and socially responsible. Often, Wildlife Services’ operational staff help NWRC scientists develop and evaluate new management tools and methods.

NWRC employs more than 150 scientists and support staff at its headquarters in Fort Collins, CO, and at field stations throughout the United States. NWRC’s scientists have expertise in a wide range of disciplines, including animal behavior, wildlife biology, wildlife sensory biology, chemistry, immunology, statistics, population modeling, genetics, toxicology, and veterinary medicine.

### More Information

In addition to developing and testing new methods for dispersing problem blackbirds, NWRC scientists are also documenting habitat use and movements of blackbirds throughout the Great Plains. To learn more about these and other NWRC blackbird research efforts, visit us online at [www.aphis.usda.gov/wildlifedamage/nwrc](http://www.aphis.usda.gov/wildlifedamage/nwrc).

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United States Department of Agriculture

*“Solutions to problems depend upon knowledge, which only research can provide.”*

*Edwin R. Kalmbach, first Director for the predecessor of the NWRC (1940–1954)*

## Solutions Through Science

### Protecting Sunflowers From Blackbirds



*Photo credits:* The photo of the red-winged blackbird was taken by Kevin Keirn. The photo of the researcher launching a hawk-shaped UAS was taken by Shelly Angelucci Eshleman. All remaining images in this brochure were taken by USDA employees or are part of the APHIS image collection.

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## Problem

In late summer, large flocks of blackbirds gather in the northern Great Plains to prepare for their strenuous migration to southern wintering grounds in the United States and Mexico. The birds acquire energy for their trip by feasting on nutrient-rich seeds and berries. Unfortunately for farmers, many of those seeds come from agricultural crops. Red-winged blackbirds, common grackles, and yellow-headed blackbirds cause most of the damage to commercial crops. Sunflower producers in North Dakota, South Dakota, and Minnesota suffer millions of dollars in losses each year due to blackbirds.

Reducing blackbird damage to sunflower crops is a constant challenge for farmers. They can suffer losses ranging from slight to devastating (total crop loss). Blackbirds tend to eat just a portion of the grain in a field; this damage lowers the overall yield, but it often isn't enough to trigger an insurance claim.

Birds that gather in fields in mid-August are also not easy to harass: they are molting their flight feathers and tend to stay in nearby wetlands. It is these birds that can cause the most damage.

Through research and direct help in the field, the U.S. Department of Agriculture's (USDA) Wildlife Services program works with farmers to address these challenges.



Red-winged blackbirds cause most wildlife damage to sunflower crops.

## Science-Based Solutions

To help reduce blackbird damage to commercial sunflower crops, scientists at USDA are working with university partners to better understand the birds' ecology and behavior. Much of this work takes place at the National Wildlife Research Center's (NWRC) field station in Fargo, ND. There, scientists are studying the effectiveness of various bird repellents to protect crops, habitat management to prevent large roosts, and the use of unmanned aircraft systems (also known as drones) as scare devices and monitoring tools. They are also looking at existing tools and how to broaden and enhance their use in managing damage.

### Repellents and Farming Practices

NWRC researchers are working to identify, develop, and improve chemical repellents for reducing blackbird damage to ripening sunflowers. They are also evaluating methods to effectively spray repellents onto



Roughly 39 million red-winged blackbirds, 19 million common grackles, and 17 million yellow-headed blackbirds migrate through the Great Plains each fall.



Cattail stands are thinned to make them less suitable for blackbirds.



A researcher launches an unmanned aircraft system (UAS) shaped like a hawk over a commercial sunflower field. This is one of several collaborative studies between NWRC, the Federal Aviation Administration, and university scientists to explore the use of UAS to disperse birds from agricultural crops.

sunflower heads. The heads hang nearly horizontal to the ground, which makes spray treatments difficult.

USDA also works directly with growers who are having problems with blackbirds. Wildlife Services personnel help growers reduce damage using several tools and methods. Propane cannons and pyrotechnics scare birds away from fields, and farming practices that remove ripened sunflowers earlier in the season can also head off problems. For example, applying a drying agent, such as glyphosate and saflufenacil herbicides, to sunflowers allows farmers to harvest earlier and avoid late-season damage from blackbirds.

### New Scare Devices and Monitoring Tools

One promising new tool in wildlife damage management is unmanned aircraft systems (UAS). NWRC scientists are evaluating if UAS can be used as a scare device to protect crops from birds and for monitoring wildlife activities. Because UAS are mobile, they can overcome the limits of stationary hazing devices. NWRC is researching bird responses to UAS, as well as best practices for their use. For example, which UAS color, size, and shape works best? At what approach, altitude, and speed do UAS most effectively disperse birds?

The potential of UAS as a hazing tool will depend on how blackbird flocks behave in response. Many factors impact whether or not a flock will leave a field. These include not only the UAS type, number, and flight dynamics, but also flock size and access to other food sources.

### Using Lure Crops

"Lure crops" or "wildlife conservation plots" can significantly reduce bird damage to nearby commercial sunflower fields. The concept is simple—plant a small field (about 20 acres is ideal) of sunflowers or another crop, such as corn, that attracts blackbirds. Do not spray the crop with insecticides, and do not harass the birds using it. The goal is to keep the birds in the lure crop as long as possible, thereby reducing the time they spend in nearby commercial sunflower fields. Each seed eaten in the lure crop is one less seed eaten in the commercial field. To encourage the birds to stay in sections planted with the lure crops, farmers can continue to spray registered repellents and harass birds in their commercial fields.

Based on NWRC's research, the most successful lure crops are those planted between wetlands and commercial fields. The lure crops have also proven beneficial to many other bird and wildlife species. USDA's Agricultural Research Service and the University of Minnesota are developing a high-yielding strain of perennial sunflower that could be used as a lure crop to entice birds away from highly valuable commercial crops.



Partnering with NWRC investigators are scientists from North Dakota State University and stakeholders from the National Sunflower Association.