



Canada geese are an international resource belonging to the people of the United States and Canada. As migratory birds, they are protected and managed under the terms of the Migratory Bird Treaty Act of 1918. In Wisconsin, the management of Canada geese is the joint responsibility of the Wisconsin Department of Natural Resources (DNR) and the United States Fish and Wildlife Service (FWS).

Many states, especially Wisconsin and Illinois, and several provinces share the benefits of Canada geese. These benefits include hunting opportunities, goose viewing and photography, and the aesthetic value of seeing and hearing migratory flocks as signs of spring and fall.

Canada geese can also cause problems. Geese are very social animals and tend to congregate in places that provide them with food, water and sanctuary. During the fall hunting season, thousands of geese concentrate at Horicon National Wildlife Refuge (HNWR) and surrounding lakes and state wildlife refuge areas, including Collins Marsh, Pine Island, Grand River Marsh and Eldorado. Other areas in Wisconsin, such as Crex Meadows and Necedah National Wildlife Refuge, support Canada geese but in much smaller numbers than the Horicon area.

# Canada Geese Crop Damage

by Scott R. Craven and James Heinrich

Geese damage crops when they leave these refuges to feed. Although most problems occur in the vicinity of HNWR, goose flocks also cause problems elsewhere. Crop damage is a major concern to many Wisconsin farmers.

This bulletin outlines the history and current scope of goose problems in Wisconsin, with an emphasis on the HNWR region, alternatives for the successful prevention of crop damage and sources of assistance to farmers experiencing crop damage from Canada geese.

## Canada geese in Wisconsin

The vast majority of the Canada geese that pass through Wisconsin during spring and fall belong to what biologists call the Mississippi Valley Population (MVP) of Canada geese. Canada geese are found across North America, but they are subdivided into populations based on nesting location, migratory routes and winter habitat. Thousands of geese nest in wetlands across the state, but most of the birds we see in spring and fall are MVP geese. These birds nest inland and along both the west coast of James Bay and the southwest coast of Hudson Bay in northern Ontario. Most of the population migrates through Wisconsin, and many geese stop in east-central Wisconsin for the fall before continuing on to winter at several large state and federal refuges in southern Illinois and northwestern Kentucky. In mild winters, some birds remain in Wisconsin.

Canada geese are also divided into “races” or subspecies based on size, geographic range and plumage patterns. MVP geese are known to biologists as *Branta canadensis interior* or “interior” Canada geese. They are intermediate in size. An average goose at Horicon during the fall weighs 6 to 9 pounds, depending on the sex and age of the bird.

Most of the geese that nest in Wisconsin belong to the “giant” race of Canada geese. They are a few pounds heavier, on average, than interior geese. These resident birds seem to be growing in numbers each year. They adapt well to people and have well-established flocks in urban areas like Milwaukee and Madison. These geese cause some crop damage and are a major nuisance at golf courses, parks and industrial sites. However, this bulletin does not address the urban goose issue.

The number of geese at Horicon each fall is primarily determined by nesting success and the number of geese that hunters kill. Weather, food resources and other natural factors control nesting success. The state, provincial and federal agencies that manage MVP geese regulate the number of geese killed each year. Goose harvest goals are based on flock size, reproductive success and a desire to increase, decrease or stabilize the flock. The goose harvest is then allocated among the various states that hunt MVP geese.

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## Food habits and crop damage

To minimize or prevent crop damage, first consider the behavior and feeding habits of Canada geese. This species typically feeds twice each day—in the morning and again in late afternoon. During the night, geese usually roost on open water areas. However, they may feed at night if their normal daytime feeding patterns are disturbed and if there is good visibility from moonlight or snow cover. During midday, some geese return to their roost site to rest or “loaf,” but many remain in fields all day.

Canada geese feed on a variety of wild and cultivated plants and plant parts but mainly eat corn. They feed secondarily on winter wheat and alfalfa, which are nutritious and readily available in Wisconsin. If a goose fed exclusively on corn, it would eat about half a pound per day. A population of 400,000 birds would require some 100 tons of corn per day—all the waste grain on as much as 1,000 acres.

A 1979 and 1980 study and recent research on the fall food habits of Canada geese around HNWR confirmed that corn was their major food. Researchers found corn in about 35 percent of all the geese sampled. Alfalfa and oats were also frequently eaten, and field observers noted that, when available, the birds ate buckwheat. The grasses and seeds of numerous aquatic or upland plants—such as burreed, pondweed, smartweed and hornwort—were also identified in the samples.

Wildlife managers sometimes plant corn on or near a refuge area to attract geese. During the mid 1970s, some 1,200 acres on HNWR alone were planted for this purpose with corn and green browse (alfalfa and winter wheat). In 1965, 468 tons of shelled corn were dumped along dikes on HNWR to feed the geese. Neither this direct feeding nor available crops held geese within the refuge boundaries, and many of the birds fed

on private lands. Management philosophy has changed, and native vegetation for wildlife habitat has now replaced row crops on refuge areas.

The food requirements of Canada geese are not as overwhelming as they seem at first glance. Geese prefer to feed in harvested fields where they can see danger approaching, so most of the corn they eat is waste grain. While a few farmers may glean this grain or let their livestock do so, most simply plow it under. Some nutrients may be lost to the soil if the geese clean up waste grain, but this loss is partially compensated for by the goose droppings deposited in heavily-used fields. Furthermore, some farmers value the removal of waste corn because it controls volunteer corn in the next season’s small-grain rotation.

Corn is most vulnerable after a field has been “opened” or a harvest has started. Losses are higher when fields are too wet for farm machinery. Corn is also at risk if left unharvested over winter. Although geese prefer harvested fields, they will feed more readily in standing corn during winter when stalks are broken down and snow covers other food sources. On level ground, a goose can reach corn about 38 inches off the ground. The goose is also adept at removing kernels from the cob with a twist of the “nail” on the tip of its bill.

Alfalfa and winter wheat may also be subject to heavy grazing and trampling by geese. Losses are related to weather, soil type, the growth stage of the crop and the availability of corn. Wet or muddy conditions also make these crops particularly vulnerable to damage.

Although most crop damage in Wisconsin occurs during fall migration, losses also occur during winter and spring. Geese are widely scattered across central Wisconsin during the spring when there are no hunters to force them into the safety of a refuge, and flooded fields provide an excellent habitat. The energy supply provided by the first green growth is important to

the success of the birds’ summer nesting season. Research in the Horicon area suggests that corn remaining from the previous fall harvest may also be very important to the success of their nesting.

In 1983, Wisconsin developed the Wildlife Damage Abatement and Claims Program (WDACP) to assist landowners who have serious wildlife damage problems. The program’s focus is damage abatement—reducing crop loss to an acceptable level. The DNR regulates the program, and the counties that participate administer it. A \$1 surcharge was added to Wisconsin hunting licenses in 1985 to fund the program, which generates an average annual income of \$1 million.

Under the program, landowners who experience damage caused by deer, bear or geese to agricultural crops, orchards and Christmas trees, nursery stock, apiaries and livestock are eligible for assistance. The DNR pays participating counties the cost of materials for abatement measures such as gas cannons. Landowners who receive abatement materials pay for the cost of installing and maintaining them or do the work themselves. If abatement measures fail, landowners may be eligible for damage compensation. The DNR pays a maximum of \$5,000 for each claim, with a \$250 deductible. The entire program in the Horicon area is cost-shared; the DNR and the U.S. Department of Agriculture-Animal Damage Control Division (USDA-ADC) each pay half.

## Damage abatement recommendations

A protected migratory game bird cannot be disposed of in the same way as an unprotected rat, mole or starling. Canada geese *cannot* legally be shot, poisoned or physically harmed.

The only time Canada geese can be killed is during the legal hunting season by licensed hunters who observe laws relating to hunting methods and bag

limits. Because this legal protection complicates farmers' control efforts, the Wisconsin DNR and the USDA-ADC offer the program described earlier to help Horicon-area farmers cope with problems. In other parts of the state, where goose flocks and related problems are smaller and more widely scattered, a farmer needs to be more self-reliant.

### CROP WATCH

Keeping a constant watch over crops subject to damage is the *most important* part of a control program. Use scare devices and legal hunting to discourage geese that are just beginning to use a field. Undisturbed geese that establish a feeding pattern in a particular field will attract other geese. Once established, feeding patterns are difficult to change.

### FARM PRACTICES

Canada geese are normally wary birds. They need open lands where they can see the surrounding countryside. They also require open areas in which to land before feeding. Geese are very reluctant to land in standing corn and will seldom do so. Cornfields opened up by silage cutting or cutting the outer rows prior to picking create a landing space and make a field more attractive. Geese are also reluctant to pass through or under a wire fence to feed. Therefore, a solid field of standing corn surrounded by a fence or adjacent to a woods is usually protected from damage.

Do not open fields prior to the main harvest period, if possible. Once a field is open, harvest corn as soon as it is ready and as quickly as possible. Protect any open fields with one or more scare devices. To decrease feeding in unharvested fields, delay fall plowing until geese have left. As noted earlier, a substantial food resource is lost with early fall plowing.

### SCARE DEVICES

Gas exploders or "cannons" are a common control tool. They operate off a propane tank and fire at pre-determined intervals. Gas cannons should be spaced about one per every 20 acres of field, but placement will vary with the field's shape and topography. For cannons to be effective, you must move them every few days. Cannons and directions for their use are available from the USDA-ADC office in Waupun or from participating county WDACP offices; check with the Waupun USDA-ADC office, your county UW-Extension office or your local DNR office to determine if your county is participating. Farmers with perennial problems or problems away from the Horicon area should also consider obtaining their own cannons. (They are also useful for deer and blackbird control.) Several models and modifications are available. Cost-sharing is available in most counties under the 1983 Wisconsin WDACP.

The Av-Alarm system is a commercial scare device used in a variety of damage situations. It consists of a set of speakers on a tall pole with a playback unit. The principle is similar to that of the cannons, but rather than a periodic explosion, the Av-Alarm broadcasts a series of amplified sounds. The Av-Alarm has been shown to discourage geese, but it may not be cost effective for most Wisconsin farmers.

Pyrotechnics are a superior alternative to shotgun fire, firecrackers, or shellcrackers. Pyrotechnics are fired from hand-held launchers. There are two types: screamers and bangers. Both deliver a loud noise near the geese and are very effective in scaring birds. Both are available through the WDACP.

Scare flags are large, usually rectangular, pieces of plastic or other material attached to wooden stakes and spaced about one per 5 acres of field. Wind keeps the flags moving. Mylar flagging is the most common material used, but some landowners still prefer orange plastic flags. Smaller flags or streamers on a temporary single strand fence around the unharvested portion of an opened corn field may keep geese out of the standing corn but will not help in pastures or small grain fields on which geese can land. Wind velocity and direction dictate much of the success of these devices. A combination of scare flags and gas exploders can be very effective.

Plywood scarecrows have been shown to be effective in confined field situations. Patterns for scarecrows are available from USDA-ADC and county WDACP offices. However, your own unique design may work even better.

### HUNTING

If enough geese are present to cause significant damage, allowing hunting on affected fields is an excellent tool. Hunters in a field are effective goose deterrents, but hunters will not remain in the field once they have their daily limit of geese. Hunters also may be charged a daily access fee to use existing goose blinds or simply gain access to the land. The revenue from a successful hunting club could help offset damages. WDACP participants are required to allow two hunters per 40 acres of



Gas-operated exploders or "cannons" are commonly used tools for abatement of Canada geese damage.

hunnable land. WDACP participant lists are available from USDA-ADC and/or the county. Special agricultural goose permits are occasionally available to farmers who have extreme damage (more than \$1,000) that normal abatement fails to prevent. Lists of farmers with agricultural goose tags are available from USDA-ADC.

#### OTHER TECHNIQUES

Do not hesitate to scare geese physically when they start to use a field. Be persistent at the first sign of goose use. Get out of your truck or farm implement to intimidate the geese because they are far more wary of humans than of machines. Geese are also frightened by dogs. A well-trained dog or one that just happens to enjoy harassing geese can be a very good helper.

Finally, do not hesitate to use your imagination. In wildlife damage control, ingenuity and persistence usually pay off.

As previously noted, financial assistance or technical help may be available under the 1983 Wisconsin Wildlife Damage Abatement and Claims Program. However, participation in this program is optional for each Wisconsin county. If your county is not enrolled at the time the damage occurs, you are ineligible for assistance under the program. For further information, contact a USDA-ADC office or your county agricultural staff. County participation and available funding may vary from year to year.

#### FOR LOCAL HELP

Landowners with Canada goose problems in Dodge, Fond du Lac, Green Lake and Winnebago Counties can obtain information, abatement materials and damage compensation (if abatement fails and funds are available) by contacting:

##### USDA-APHIS-ADC

W7231 Highway 49  
Waupun, WI 53963  
414-324-4514 or  
1-800-433-0688

Landowners with Canada goose problems in other parts of Wisconsin should contact their county land conservation department or the Waupun USDA-ADC office for a description of the Wildlife Damage Program in their county.

#### SOURCES OF SUPPLY (1995 PRICES)

Gas cannons (about \$250 each):

Nasco Agricultural Sciences  
901 Janesville Ave.  
Fort Atkinson, WI  
1-800-558-9595

Margo Horticultural Supplies Ltd.  
Site 8, Box 2, RR#6  
Calgary, Alberta, Canada T2M 4L5  
CAN 403-285-9731

Reed-Joseph Co.  
P.O. Box 894  
Greenville, MS 38701  
1-800-647-5554

(The latter two companies also supply pyrotechnics: launchers are about \$23 and fifty rounds cost about \$16.)

Scare flag material (about \$400 per 100-yard roll, 40 inches wide):

##### Blaze Orange Material TXN-SG205

John Gallagher Co., Inc.  
305 S. Bedford  
Madison, WI 53703  
608-255-7286

Shell crackers (about \$90 per case of 100 rounds):

##### Stoneco

Box 187  
Dacono, CO 80514  
303-833-2376

For more information on Av-Alarm, write to:

##### Av-Alarm Corp.

675-D Conger St.  
Eugene, Oregon 97402  
503-342-1271

#### FOR MORE INFORMATION ABOUT GEESE DAMAGE

*Crop Depredations by Canada Geese in East-Central Wisconsin*. 1983.

Richard A. Hunt. Proceedings of the First Eastern Wildlife Damage Workshop. Cornell University.

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*Ducks, Geese, and Swans of North America*. 1976. Frank Bellrose. Stackpole Books.

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