



De-goosing golf courses

Canada geese can be a serious pest on golf courses, but tools are available to control them.



It's not that we don't like geese, but large numbers of the birds have created unacceptable conditions on the golf course. Droppings on fairways and greens and the negative effects of goose feces on water quality are the primary concerns. Golf course superintendents are challenged to address goose problems while working within the law and maintaining a positive public image. The good news is that many solutions are available, and goose management on golf courses can be successful.

As with other wildlife damage control situations, goose damage can be best abated if a variety of methods are used and if problems are anticipated so control steps can be implemented early. Also, like all wildlife damage control situations, the solutions to be considered fall under the categories of habitat modification, exclusion, deterrents, repellents and population reduction.

Restrictions and regulations

Canada geese are migratory waterfowl protected under federal and state laws. Local regulations also must be considered when controlling geese. Geese may be protected against death, hazing, harassment and nest and egg destruction. For these reasons, it is a good idea to contact the local wildlife agency to make sure you are compliant with all regulations.

The state office of USDA Wildlife Services or the state wildlife agency can provide information on necessary permits.

The problem with Canada geese

The problem with Canada geese is their reproductive potential. One pair of geese can increase to more than 50 birds in five years. Although I will describe several methods of managing goose damage, long-term relief depends on population control. Unfortunately, areas beyond the golf course boundaries often provide an endless supply of new geese. Thus, techniques used within golf course boundaries are ultimately all we can implement. Keep in mind that all the ideas presented in this article may not be reasonable for all golf courses. But consider each one and select the ones that fit with the other priorities of the course operation.

Habitat modification

Golf courses provide a habitat utopia for Canada geese. The water, lush grasses and ample space are attractions few geese can resist. However some habitat modifications will not compromise the aesthetic quality of the course. Habitat changes should focus on eliminating as many nesting sites as possible and making the water sources less accessible.

Steepening the banks of ponds makes them less attractive to geese. Geese like a gentle slope out of the water to get to adjacent areas to feed or rest. If water access is poor, the geese will use other areas. Steepen the banks to 60-65 degrees. Depending on soil conditions, this may require building a



The presence of large numbers of geese means excessive droppings on fairways and greens. Photo by J. Knight

Jim Knight, Ph.D.

vertical seawall. In some cases, adding rip-rap (rock or other material used to protect shorelines against water erosion) or allowing vegetation to grow will prevent erosion to a steep bank.

Because geese like short, succulent grass to feed on and to enable detection of approaching predators, elimination of mowing in a 20- to 30-foot (6- to 9-meter) strip around the pond will make it less attractive to geese. Likewise, establishing tall, lush, unpalatable grass stands (such as tall fescue) along shorelines will discourage geese because they cannot see over the grass as they walk through it. The wider the strip, the better it will work.

Allowing ponds to freeze will make them unusable by geese. Geese often become year-round residents because aerators keep ponds open all winter. Allowing ponds to freeze will make geese go elsewhere and encourage them to migrate.

Exclusion

Most exclusion strategies involve preventing geese from getting from the water to a feeding or resting site on shore. Exclusion strategies are most effective if they are put in place before the geese arrive. If they have become habituated to using an area, they will be much more persistent.

A 30-inch-high (76-centimeter) fence around ponds will discourage geese from using them. This is most effective during the midsummer molting period when geese cannot fly. Fencing can be made more attractive by screening it with shrubs.

A three-strand electric fence with wires spaced 5, 10 and 15 inches (12.7, 25.4 and 38 centimeters) above the ground is unobtrusive, economical and effective in preventing geese from walking from pond to shore. It can be charged with an inexpensive battery-powered charger. Warning signs should be placed even though the pulsing charge is not dangerous to humans or animals.

Stringing 20-pound clear monofilament line over a pond might be more appropriately included under deterrents. When the line is stretched across the pond at 5- to 10-foot (1.5- to 3-meter) spacing, it will repel geese. Apparently the appearing and disappearing of the clear line makes the geese afraid to land in the pond. The line should be suspended about 1 foot above the water and staked on the banks using large spikes.

A more costly method is to create an overhead grid above a pond using heavier cordage. Space the grid lines 20 feet (6 meters) apart.

Deterrents

Effective deterrents either scare the geese or harass them enough that they do not want to use the area. Because geese prefer areas with minimal



Top: Canada geese reproduce rapidly and tend to return to habitat where they have been successful. Long-term relief from goose damage to golf courses depends on population control. Photo courtesy of USFWS

Bottom: Suspending clear monofilament fishing line over ponds can repel geese. Photo by J. Knight

disturbance, deterrents applied early and repeatedly will make the geese go elsewhere. The more acclimated the geese are to an area, the more they will tolerate a disturbance. If geese are using an area as a nighttime resting area, disturbing them just before dark will be a greater inconvenience for them than disturbing them during the day.

Using dogs to harass geese has become a very popular and successful way to discourage them



Top: Dogs can discourage geese from using an area. Lexie, an Australian shepherd, patrols St. Davids GC in Wayne, Pa., to prevent Canada geese from damaging the golf course. **Photo by Helena Quigley**

Bottom: Geese can be harassed using green lasers in low-light conditions. Note the green laser on the goose in the foreground. **Photo by J. Knight**

from using an area. Some nuisance animal control businesses use several dogs at once to increase the severity of the harassment and to keep the geese from finding refuge in a pond. Repeated use of the dogs is important to make the geese leave the area permanently. Any medium to large dog that will obey commands will work. Keeping control of the dogs is important to prevent them from injuring the geese and or bothering golfers.

Lasers are also an effective way to disperse geese. Research at the USDA National Wildlife Research Center indicates Canada geese show extreme avoidance of laser beams. Best success occurs under low-light conditions between dusk and dawn. However, overcast or cloudy days will also work. Using the lasers just before dark will disrupt the settled geese and after repeated disturbance they will avoid the area. There are safety precautions to address when using lasers, so adhere to the manufacturer's instructions. The cost of lasers is variable (\$200-\$1,500).

Pyrotechnics are specially designed Class C fireworks used to frighten wildlife. They include screamers and bangers that whistle loudly or explode and shellcrackers, which are fired from a 12-gauge shotgun. Proper training and safety precautions are necessary when using pyrotechnics. For obvious reasons, pyrotechnics are not always suitable for golf courses. However, because they are most effective early and late in the day, proper use can minimize disturbance (and avoid startling golfers). Again, be aware of local ordinances that might prevent use of pyrotechnics.

Repellents

Although many home remedies (some illegal) claim to repel geese, research has shown that few are effective over any length of time. Plastic animals such as alligators, owls, snakes and dead goose decoys cause some initial discomfort for geese but after a short period of caution, the geese will swim among them. Strobe lights, ultrasonic devices, kites and sound machines have not proven effective in unbiased research trials. Some motion-activated devices hold promise, but the area they protect is somewhat limited.

Swans have a reputation of being aggressive defenders of their area. This is true of some swans but the readily available mute swans are just the opposite. Mute swans defend only a small area around their nest, and their presence may actually attract geese to bodies of water. Another concern is that swans are more aggressive toward people than toward geese. Therefore, use of mute swans on golf courses is not recommended.

A few chemical sprays are registered to make

grass undesirable to geese. To be registered, the products must be environmentally safe and they must do what the manufacturer claims. Methyl anthranilate (artificial grape flavoring) is the active ingredient in ReJex-It Migrate, GooseChase and Goose-B-Gone. These products make grass unpalatable, but geese may stay in the treated areas.

Anthraquinone is the active ingredient in Flight Control. It causes a harmless intestinal reaction, and it brings out the ultraviolet spectrum when applied to turf. Because the grass looks strange to the geese and because feeding on it causes a “gut reaction,” geese go elsewhere to feed and relax. Flight Control is a relatively new product, but several studies have shown it to be very effective.

Both methyl anthranilate and anthraquinone resist water, but they need to be reapplied after mowing.

Population reduction

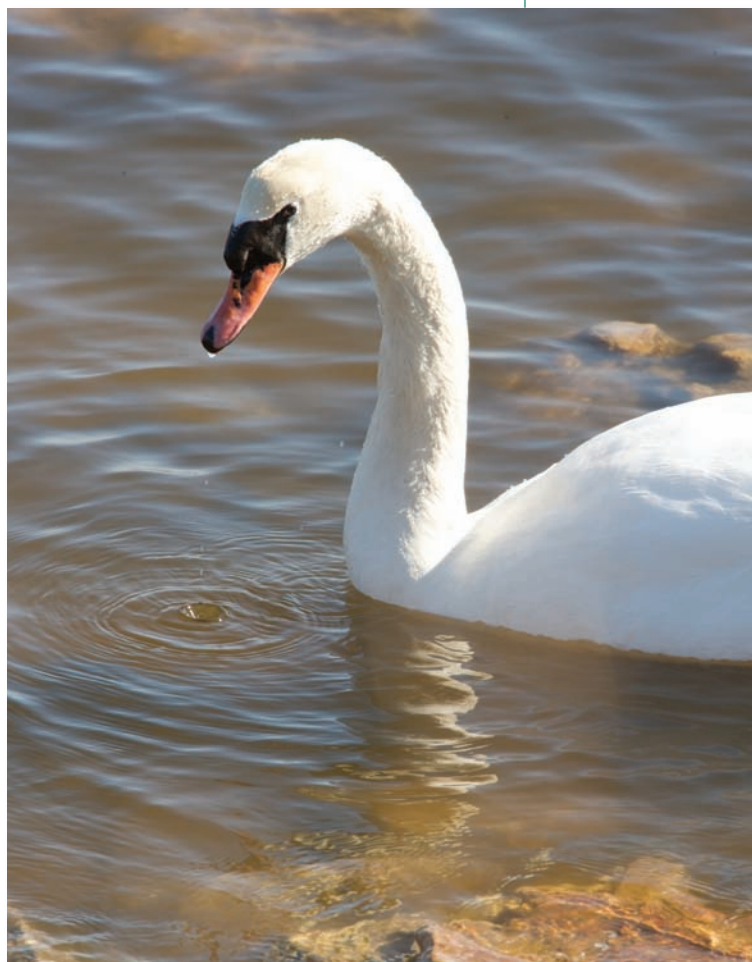
As stated at the beginning of this article, the real problem is that there are too many Canada geese. No toxicants are registered for Canada goose control. Three methods of lethal control require permits but provide options for Canada goose population reduction for most golf courses.

Although it is obviously not feasible on all golf courses, hunting can be an important management tool. Hunting reduces the population, repels the geese from the area and causes them to be nervous, which makes other repellents and deterrents work better. Hunting should be carefully controlled to be compatible with other course priorities. Early-season hunting will be most effective because the harvest will be made up of local birds. Hunting after the local birds have left will do little to control the population on the course during spring and summer. Hunting can be restricted to specific areas and specific times that reduce conflict with course use. Finally, allow hunting only by specific licensed hunters willing to cooperate and abide by restrictions course management imposes.

When other techniques fail, herding flightless geese or capture in net traps has been used. Federal and state permits are required to capture Canada geese. Captured birds are euthanized because relocation and release to other areas is not recommended for two reasons: Canada geese already occupy virtually all suitable habitat, and, because of imprinting, the geese will fly back to the capture site or a nearby area. Because other techniques are available, capture is rarely used to control populations on golf courses.

Egg addling or destruction

The most popular and effective method of



reducing Canada goose populations is egg addling or, in late nesting periods, egg destruction. Egg addling is simply coating an egg with corn oil to keep the embryo from developing. By addling the eggs early in the incubation stages, the geese will continue to sit on the nest until it is too late to re-nest. Late in the incubation period, the eggs can be simply destroyed because it is too late (egg follicles have dried up) for the geese to re-nest.

In most states, a permit to addle goose eggs can be obtained by registering online at: <https://epermits.fws.gov/eRCGR/geSI.aspx>. This site is a U.S. Fish and Wildlife Service website recognized by most states as the only permit necessary to legally conduct egg and nest destruction activities. A call to a waterfowl biologist in your local state wildlife agency will confirm whether your state participates. USDA Wildlife Services also has an office in every state and they can assist in determining which permits are necessary.

Mute swans are not aggressive toward geese and may actually attract them to an area. **Photo by Ryan Hagerty/USFWS**



Top: Goose eggs can be addled using corn oil. Photo by J. Knight

Bottom: Geese on golf courses may pose a variety of concerns. Photo by Scott Hollister

The steps to addle and oil eggs are:

1. Obtain a permit in January or February so you are ready in March and April when nesting begins. You will need to estimate the number of nests you will treat. Do this by estimating the number of goslings you had the year before and divide by 5.

2. Gather your equipment

- egg/nest destruction data sheet
- pail or large can for floating eggs
- spray bottle filled with corn oil
- reliable partner to ward off geese (an umbrella works well)

3. Locate the nests. This is most easily done by observing where the paired geese are, but searching may be necessary later in the incubation period because pairs stay at the nest site for long periods. Walking the perimeter of ponds will allow you to locate most nests.

4. After fending off the geese, check the incubation stage of the egg. If they are cool to the touch, the female has not finished laying the eggs. Come back in one week. If the eggs are warm, float one or two in water.

5. If the eggs sink in the water, oil the entire clutch. You don't need to remove them from the nest. Oiling the top two-thirds of the eggs will be sufficient because excess oil will cover the rest of the egg. The oil prevents gasses from diffusing through egg pores, and the embryo dies of asphyxiation. The adults do not know the eggs will not hatch, so they continue to tend the nest until it is too late for them to re-nest.

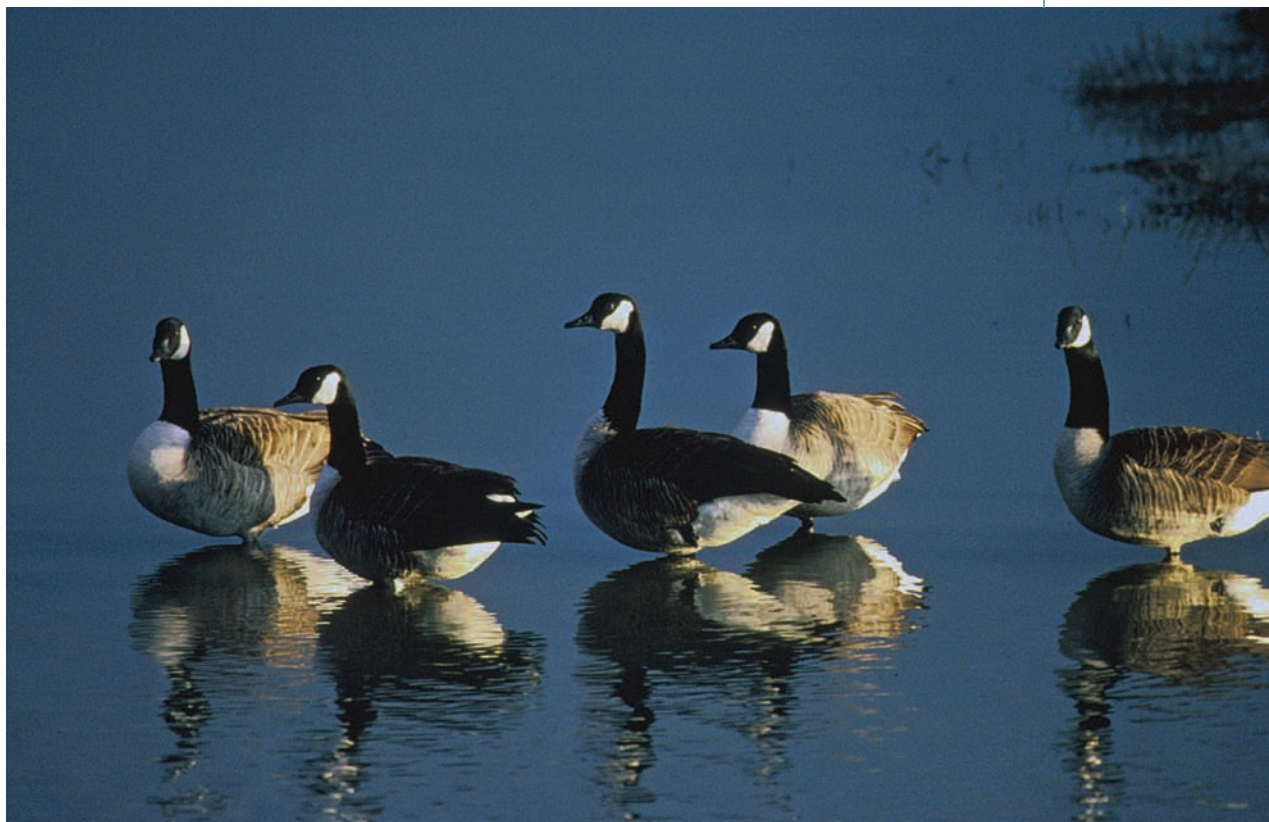
6. If the eggs float in the water, they can be removed from the nest and buried. Floating indicates the eggs are in advanced stages of development, which means the female's egg follicles have dried up and no new eggs can be laid. (If the eggs are hatching, leave them alone. Your permit does not allow nest destruction at this stage.)

7. Keep accurate records of times, locations and actions.

Conclusions

Effective prevention and control of Canada goose damage requires use of several management techniques. Many golf courses have found that after the initial steps, which require greater time and effort, subsequent years did not require as much investment. Addressing the problem early will require less effort than handling it at later stages.

Habitat modification, exclusion, deterrents, repellents and population reduction are strategies to be considered when controlling Canada goose damage on golf courses. Finally, persistence is the



Canada geese at Blackwater National Wildlife Refuge, Cambridge, Md., one of the chief wintering areas for Canada geese using the Atlantic Flyway.
Photo by R. Shallenberger/USFWS

key to successfully solving most wildlife problems. In the case of Canada geese, this persistence may be your most important tool.

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The research says

→ Canada geese are a common nuisance on golf courses, but can be controlled legally.

→ Habitat modification, exclusion, repellents and deterrents can all be used to control geese, but population control through egg addling or nest destruction may be most effective.

→ Superintendents must get the appropriate permits from state or local authorities before they begin egg addling or nest destruction.

→ Persistence is the key to success, and the level of effort involved usually decreases after the first year.