



Managing Wildlife Damage: Canada Goose (*Branta canadensis*)

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INTRODUCTION

The Canada goose (*Branta canadensis*) is a migratory bird species native to the United States and Canada (Figure 1). Although they are the same species, there are two distinct types of Canada goose populations in the United States: resident and migratory (Figure 2). Since resident populations of geese do not migrate, they contribute to human-wildlife conflict year-round.

TAXONOMY

- Class Aves – Birds
- Order Anseriformes – Ducks, Geese, Swans
- Family Anatidae – Ducks, Geese, Swans
- Subfamily Anserinae – Geese, ducks
- Genus – *Branta*
- Species – *canadensis*
- Common Name – Canada Goose

The Canada goose was first described by Linnaeus in 1758. The name *Branta* comes from Latin roots meaning “burnt” or “black,” and *canadensis* meaning “from Canada.” There are seven recognized subspecies

STATUS

Canada geese are protected under the Migratory Bird Treaty Act (www.fws.gov/need more here). Goose hunting is regulated by the Georgia Wildlife Resource Division (WRD). Hunting seasons vary from year to year but generally include seasons between September and mid-January. Daily bag limits of the Canada goose also vary but were set at five geese per day in 2019. Canada geese are abundant as evidenced by their status as a game species. In many areas, their abundance is a nuisance

NATURAL HISTORY

Identification. The Canada goose is a large water bird with a long neck and webbed feet. They are not sexually dimorphic; males and females are approximately the same size. They have a black head, white cheeks, a white chinstrap, black neck, tan breast, and brown back.

Habitat. Canada geese are habitat generalists and can be found almost anywhere in the United States. Hunting pressure and habitat loss significantly decreased goose populations in North America in the early 20th century, but their numbers have steadily increased to 8.14 million according to the 2019 USFWS North American Waterfowl Report. The main contributing factor to this exponential growth was the species’ ability to nest in urban areas where they have a very low predation risk and high-quality habitat.

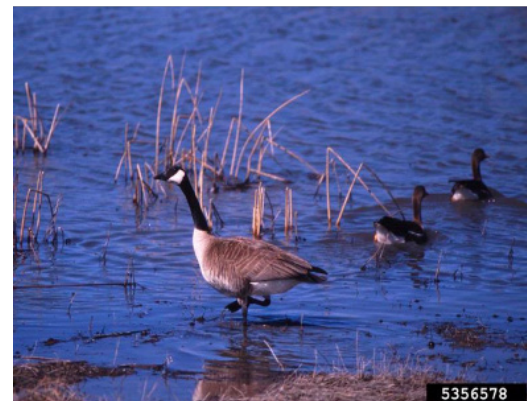


Figure 1: *Canada Goose (Branta canadensis)*.
Bugwood.org

Managing Wildlife Damage: Canada Goose (*Branta canadensis*)

Reproduction. Canada geese are ground nesters and are most often found around ponds and lake shores. Mating pairs are monogamous and often stay together their entire lives. The female lays an average of five eggs per clutch, and both the male and female guard the nest during incubation (24-32 days).

Diet. Canada geese graze on a variety of native grasses, forbs and legumes. A study in Canada found that adult geese consume a variety of grasses, berries, and forbs including plants with a higher nitrogen content. Goslings consume similar food items but also fewer berries in late summer and more nitrogen rich plants perhaps due to requirements for building muscle (nitrogen-based protein) in preparation for migration. We know of no studies that document use of insects by goslings. Common agriculture crops they feed on include alfalfa, barley, beans, corn, soybeans, wheat, rye, oats, spinach and peanuts. This feeding behavior can result in significant reductions to crop yields.

Behavior. Canada geese “dabble,” rather than dive to feed. They feed on vegetation in the water by skimming their beaks across the waters’ surface. They also graze on fields and lawns. They move in flocks and pairs and are often seen flying in a V-formation. Canada geese are historically migratory birds, but there are many resident populations throughout the Southeastern United States.

Disease. Canada geese can threaten human health and safety by their potential to spread disease, especially in overabundant populations. One bird can produce up to 1.5 pounds of fecal matter per day. Accumulation of feces in public places like parks, lakes and golf courses can spread bacteria like fecal coliform and affect water quality. Although research suggests Canada geese may play a role in transmission of avian influenza virus, Salmonella, Campylobacter, and antibiotic resistance, it is not confirmed. It is still wise to keep poultry and livestock away from areas with large populations of geese.

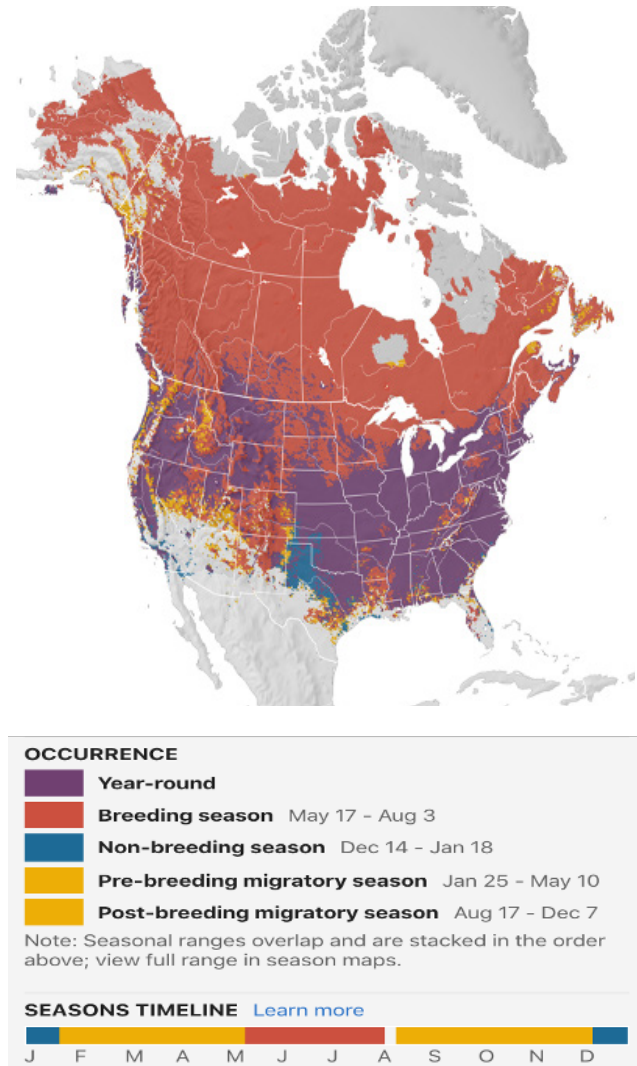


Figure 2: Range map of Canada geese. ebird.org

Managing Wildlife Damage: Canada Goose (*Branta canadensis*)

Damage. The most significant threat Canada geese pose to human health and safety is bird-aircraft strike hazards (BASH). Between 2015 and 2019, there were 327 bird strikes by Canada Geese in the United States (FAA database - <https://wildlife.faa.gov/home>). The US Department of Agriculture (USDA) Animal Plant Health Inspection Service (APHIS) Wildlife Services provides direct assistance to 890 airports and military installations in the US, 3 territories and 7 foreign countries. Their Airport Wildlife Hazards Program is involved with the U.S. Department of Transportation's Federal Aviation Administration (FAA) to reduce the hazards to human health and safety and economic impacts to aviation.

Identifying agricultural damage by Canada geese can be difficult without direct observation, but crops that appear to be clipped, torn or stripped are typical. Coupled with tracks, feces or feathers one could be fairly certain of damage by geese.

ECONOMICS

Canada geese are responsible for significant damage to agricultural crops and aircraft. The economic impact of damage to crops by geese is not well documented, but several studies throughout the country have reported severe losses to production annually. In 2005, Georgia reported total agricultural loss to be approximately \$20,000.

Birds strikes are a serious and growing problem for airports worldwide. In partnership with the FAA, Wildlife Services' National Wildlife Strike Database keeps vigilant records of every reported wildlife strike from 1990 to 2017. Within that time frame, there were 187,343 bird strikes in the United States. As of 2017, airports and airbases have contributed \$31.3 million in funds to Wildlife Services for the work done to reduce the hazards of wildlife strikes.

CONTROL

Information on control and management, along with details of legal restrictions, can be located at https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/operational-activities/sa_waterfowl/ct_50_cfr1. Additional information is summarized in this bulletin.

Habitat Modification. Unfortunately for managers, preferred foraging, nesting and loafing habitats for Canada geese are very general. Changing the habitat surrounding an airfield, agriculture field or reservoir may deter a small number of birds, but due to their highly adaptable nature, geese will still remain in the area. There are also federal and state laws to consider when modifying a wetland or airfield.

Methods of habitat modification to consider in residential areas include planting unpalatable grasses and shrubs that disrupt the line of sight, planting non-invasive emergent vegetation in water to prevent movement and forage, taller vegetation especially along the water edge can impede movement by geese, and removing or obstructing possible nest sites. Large rocks can be placed around a pond edge to impede walking by geese from the water to the surrounding land. Geese generally prefer to nest in areas that give them a view of the surroundings so they can keep a watchful eye for predators. Geese often nest on islands in lakes or large rivers presumably because the water provides a protective barrier against terrestrial predators.



Figure 3: Canada geese (*Branta canadensis*) in flight. USDA-APHIS Wildlife Services

Managing Wildlife Damage: Canada Goose (*Branta canadensis*)

Harassment. Urban geese can be difficult to harass because they become easily habituated to many stimuli. Pyrotechnics (Figure 4) and air cannons are proven to be beneficial dispersal tools for Canada geese when in combination with other methods. Some of the most common pyrotechnic devices are shotguns or starter and flare pistols loaded with projectiles that produce loud sounds or bright light and colors. Propane air cannons are a common device on airfields and some can be remotely activated when a flock gathers or they can be pre-programmed to go off automatically. Successful harassment often depends on using multiple methods and altering those methods so the birds are less likely to become habituated to any single technique.



Figure 4: Bird Banger (a) and Screamer Siren (b) cartridges for use with an 18mm CAPA pistol (c). reedjoseph.com

Exclusion. Many airfields employ wire grid systems across water bodies to prevent geese from landing. Netting, when properly installed, provides 100% exclusion. However, it can be expensive and very labor intensive to setup and maintain. A more budget-friendly option is empty two-liter bottles, plastic balls or any type of flotation device covering the entire surface area of the impoundment. Electric fencing around the perimeter of agriculture fields prevents walking access, which is especially helpful during the molting season.

Repellants. For a chemical to be used as a bird repellent, it must be registered with the U.S. Environmental Protection Agency (EPA). Chemical repellants are a non-lethal irritant used to create a negative association with ingestion of a crop or grass in a specific area.

Anthraquinone (AQ) is a naturally occurring compound found in plants that can be used to repel geese. It causes vomiting when ingested. Methyl anthranilate (MA; Figure 5) is a naturally occurring compound found in concord grapes. It is non-toxic and is approved by the FDA for human consumption. It targets the trigeminal receptors in the mouth of geese and causes a negative response such as irritating the nerve receptors.



Figure 5: Avian Control Bird Repellent, a methyl anthranilate chemical repellent. nixalite.com

Managing Wildlife Damage: Canada Goose (*Branta canadensis*)

Lethal Control. In order to destroy Canada Goose nests and eggs in the United States, landowners and local government agencies must register with the US Fish and Wildlife Service for a depredation permit. A depredation permit authorizes “take” of birds protected under the Migratory Bird Treaty Act. These permits are free, issued between January 1st and June 30th of every year and must be renewed annually. Individuals applying for a depredation permit must be - a) experiencing the damage, b) responsible for compliance with the permit, and c) have authority to implement nonlethal measures should they apply for the permit. More information on the permitting process and a direct link to the online application can be found at: <https://epermits.fws.gov/eRCGR/geSI.aspx>.

Oiling the eggs from a nest is another method of lethal control and is included under the depredation order as an approved “take” (Figure 6). Food grade corn oil prevents development of the oocyte when applied to the eggshell by inhibiting gas exchange through the pores in the shell. Adding, or shaking the eggs vigorously, will yield the same results but can be impractical for a large number of eggs. Regulated goose hunting is the primary method of lethal control for Canada goose populations in conjunction with non-lethal harassment. Hunting seasons are determined by the USFWS (www.usfws.gov) and state wildlife agencies (www.georgiawildlife.com). Shooting under a depredation order is an option available in some situations. Inquiries regarding depredation orders and permits to shoot outside of a state hunting seasons should be directed to the state wildlife agency of the state office of USDA APHIS Wildlife Services. Shooting and/or hunting. In urban settings, it may be prohibited due to the safety concerns and noise ordinances.



Figure 6: Wildlife Services Employee oiling eggs.
USDA-APHIS Wildlife Services

Capture and Relocation. In Georgia, USDA APHIS Wildlife Services relocates resident Canada geese within the state from parks, golf courses, communities, campuses, recreation areas, and other public and private lands to properties at least 100 miles away and in another watershed. These properties are chosen based on consent of the landowner, suitable habitat, and a lack of potential conflict on the property. The geese are relocated during the molting period (mid-late June through early-July) when they lose their primary flight feathers. When properly pre-baited, the birds are easily herded into a catch pen typically made up of nets stretched over metal frames or tied to t-posts (Figures 7 and 8). Each bird is aged, sexed and banded before they are moved into a trailer to be relocated.



Figure 7: Geese being herded into a catch pen.
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Figure 8: Geese inside catch pen.
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Managing Wildlife Damage: Canada Goose (*Branta canadensis*)

FURTHER READING

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