

CANADA GOOSE HABITAT MODIFICATION MANUAL



DONALD S. HEINTZELMAN

Friends of Animals 

Friends of Animals' Position Statement on Egg Addling

Just as the world-renowned ornithologist Roger Tory Peterson opposed Mute Swan egg addling, Friends of Animals also opposes addling of Canada Goose eggs. Addling – destroying eggs by shaking, piercing, or coating the eggs with oil – is invasive and traumatic for these famously protective nesters.

Indeed, Canada Goose parents are so protective of each other, of their nests, and of their young, that some have been known to challenge approaching vehicles. When agitated, these birds can knock human intruders off their feet, so addlers tend to approach in groups of two to four people, normally carrying some sort of fending tools – often brooms, bats or paddles. Geese can easily break umbrellas. The Conservation Commission of Missouri even recommends using dogs to deal with defensive geese.¹

Thus, merely getting to the nest requires tangling with frantic parents, an unknown percentage of whom are injured or killed in the process. And incorrectly piercing or shaking an egg can leave an embryo alive but deformed.

The destruction of eggs or nests may be combined with other means of ejecting geese from a given locality. Biologists who collar and track geese have found that a percentage of the “resident” or non-migrating geese, mostly juveniles, actually do understate a northward summer migration, sometimes into Canada, to molt.² Maryland’s Department of Natural Resources suggests that such “molt migrations” could be induced by the destruction of nests, thereby pressing birds northward in the summer and exposing them to hunters’ fire during their autumn return flight; this technique could conceivably be used as a “population control tool.”³ Along the same line of reasoning, an official with Connecticut’s migratory gamebird program has suggested that inducing migrations might reduce the goose population by making birds more vulnerable to hunters.⁴ On the other hand, little is written into the government plans about the most obvious matter: the importance of simply cleaning up after birds.

Believing that there are constructive steps we can take to empower communities to live in harmony with birds in our midst, Friends of Animals discourages egg addling, AND all other forms of harassment. Rather than subjecting geese and other waterfowl to harm, we suggest beneficial ideas that numerous communities have successfully put to the test. We look forward to working with you and helping to replace short-term reactions with safe, sensible, and lasting responses.

1 Conservation Commission of Missouri, “How to Addle and Oil Eggs” (document ID: PLS 051; content revision 1 Aug. 2002; electronic file updated 1 Jan. 2004).

2 See Min T. Huang, “Keeping Track of Collared Geese,” *Connecticut Wildlife* (Sept.-Oct., 2004); see also Larry Hindman and Bill Harvey, “Maryland Game Program Annual Report: Migratory Game Birds” (2003-2004), published by the Wildlife and Heritage Service, Maryland Department of Natural Resources.

3 Hindman & Harvey, “Maryland Game Program Annual Report: Migratory Game Birds” (see note 2 above).

4 Min T. Huang, “Keeping Track of Collared Geese,” (see note 2 above).

Introduction

Canada Geese have a remarkable ability to adapt to human settings. But this ability can put geese in peril. When humans complain about the numbers of geese in their midst, authorities have often posed roundups and killings as a quick answer.

For the past few decades in the United States, especially in the states of the northeast, the mid-Atlantic, the great lakes, and the Pacific northwest, resident (non-migratory) Canada Geese have concentrated at urban and suburban parks, corporate campuses, golf courses, outdoor athletic fields, upscale housing projects, and other areas with large expanses of shortly mowed lawn adjacent to one or more ponds or lakes. Complaints about goose droppings, molted feathers, and water pollution now are common from late June through early August – the roughly four to six weeks period when adults molt their flight feathers and are unable to fly.

During those few weeks, the people responsible for maintaining the grounds face the daunting task of preventing large concentrations of Canada Geese from gathering, concerned that the areas will become unsightly or even unsuitable for use. After the adults grow new flight feathers, however, they become more mobile and can fly to other local habitats. Thus, local complaints and extra work may naturally disappear at some point in August. Nevertheless, those few weeks pose a concern for those who are called upon to keep areas clean as part of their summer duties.

To assist in addressing this increasingly widespread concern in an ecologically sound way that also shows respect for the birds, Friends of Animals developed this manual for modifying Canada Goose habitats in urban and suburban areas. The goal of this guide is to enable grounds and landscape managers to deal effectively with the results of having developed physical space with attributes that attract birds.

Resident Canada Geese adapt well to urban and suburban human settings. This goose family is crossing a busy road in Allentown, Pennsylvania.

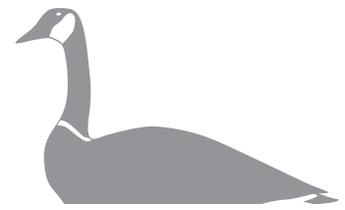
PHOTO BY DONALD S. HEINTZELMAN

Sometimes the answers can be as straightforward as educating the community not to feed birds, cultivating knowledge about the natural conduct of nesting geese, and raising community awareness about the importance of giving the geese ample space. Often, special attention to clean-up becomes essential. Sometimes, the issue will warrant modifying our decisions about planting, landscaping, and groundskeeping. But we do not endorse either lethal methods or harassment.

Like lethal responses, harassment methods offer only temporary answers. Consequently, they become cyclical, and they can be a significant drain on state resources.⁵ Moreover, the ethical issues involved with the killing and harassment of birds justifiably concern growing numbers of people throughout the continent. Rather than target the birds for activity that simply comes naturally to them and always will, this manual provides guidelines that consider the environment, the biological tendencies of the birds, and the values of the community.



Priscilla Feral, President
Friends of Animals, Darien, Connecticut



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⁵ The town of Montclair, New Jersey, for example, pays the Methuchen-based company G-Tech \$8,000 per year for the use of lasers in “nonlethal goose harassment” as and when requested, in two parks. “Dawn’s Early (Laser) Light: Township Begins Geese Abatement in Two Parks,” *Montclair Times* (10 March 2005). A Work Plan drafted in 2005 for Sherwood Island State Park in Connecticut shows a total cost of \$2,500 to have eight biologists and a technician net and remove 250 geese. And one recent press report indicates that Greenwich, Connecticut would be required to pay the federal Department of Agriculture \$5,000–\$8,000 for the roundup and killing of just 200 geese. “Town Officials Consider Some Nonlethal Ways To Limit Birds,” *Greenwich Time* (12 May 2005) (citing Calderone Baisley, the town’s health director).

Species of Wild Geese in Parks

Two species of wild geese sometimes occur in varying numbers in urban and suburban parks, on corporate campuses, on golf courses, and similar settings in the United States. Most are so-called resident Canada Geese (*Branta canadensis*). For practical purposes, these birds represent distinctly different populations.

- Resident (non-migratory) Canada Geese deposit eggs in their nests between early April and mid-May. After their eggs hatch, adults care for their goslings during May and June; goslings can fly after 49 to 73 days, depending on subspecies and geographic location. Although most resident Canada Geese do not migrate, some young, old, and non-breeding individuals engage in a “molt migration” from late May into June usually to locations sometimes hundreds of miles north of their nesting areas, where they molt (shed their flight feathers) in summer, rendering them flightless for several weeks.



- Migratory Canada Geese, the second distinctly different population, engage during spring in long distance northbound migrations to their breeding grounds in the boreal, sub-Arctic, and Arctic areas of North America, then migrate south during autumn to their wintering grounds in the United States.

Sometimes individuals of the recently recognized, much smaller Cackling Goose (*Branta hutchinsii*) mingle among the larger resident Canada Geese – especially in the American West in parts of the Willamette River valley of western

A family of resident Canada Geese (Branta canadensis) in Maryland.

PHOTO BY MARGARET R. PETERSON

Oregon, the lower Columbia River valley of south-central Washington and north-central Oregon, and northern California □ with smaller numbers of Cackling Geese appearing in California’s central valleys. One of the small Cackling Goose subspecies also winters in the American Southwest (southeastern New Mexico), the Texas and Louisiana Gulf Coast, and Mexico’s central highlands. Some Cackling Geese also range farther eastward; rarely an occasional Cackling Goose appears in the eastern United States.

Canada Geese in Urban and Suburban Areas: Perceived Versus Real Local Conflicts

When newspapers and other media report local conflicts between resident (non-migratory) Canada Geese and people, has the situation become serious? In reality, some situations are merely perceived problems involving minor inconveniences. But other conflicts are more serious. The difficult cases usually involve large amounts of

goose excrement littering lawns, sidewalks, and paths, and, more rarely, defensive displays near people (such as children or elderly retired people) venturing too close to a goose's nest or goslings. These situations require varying amounts of remediation activity. First, defensive displays can be avoided by warning people not to allow dogs or children to venture too close to nesting geese. To augment results in a specific area, it is valuable to look at some basic elements involved in local geese-human interactions.

BIOLOGICAL ASPECTS OF COMPLAINTS AGAINST CANADA GEESE

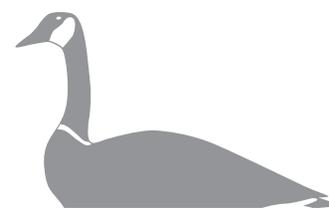
In many urban and suburban areas in the United States, large numbers of resident Canada Geese – supplemented by migratory Canada Geese during spring and autumn – congregate in moderate to large numbers in parks, recreation areas, and places with similar landscapes containing extensive expanses of shortly mowed lawn adjacent to lakes, ponds, creeks, or streams. Mowed lawns attract geese by providing nutritious, new grass shoots. Such landscapes also offer unobstructed lines of sight, allowing the birds to detect approaching predators from a distance, and enabling the birds to continue maintaining ties between parents and offspring.

In addition, the much smaller but similar-appearing Cackling Goose may join Canada Geese in parks and similar landscapes – especially in parts of the American West. Sometimes, a few abandoned domestic geese and ducks join their wild cousins in urban and suburban parks.

ECOLOGICAL ASPECTS OF COMPLAINTS AGAINST CANADA GEESE

Resident Canada Geese have basic ecological requirements. To resident Canada Geese looking for a home, when a site has these features it becomes ideal habitat for these birds. Many urban and suburban parks provide all of these essentials.

- A supply of fresh water such as a pond, lake, creek, or stream with easy walking access to the water.
- An adequate supply of food adjacent to the pond or other aquatic area, such as a Kentucky bluegrass (*Poa pratensis*) lawn on which to graze, sometimes supplemented by mature common dandelion (*Taraxacum officinale*) stalks and other plants including seeds, roots, leaves, and fruits.
- Expanses of shortly-mowed lawn providing unobstructed lines of sight in all directions.
- Suitable protected places to nest.



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Large numbers of resident and migratory Canada Geese now sometimes congregate in urban and suburban landscapes such as these birds some years ago in this park in Allentown, Pennsylvania.

PHOTO BY DONALD S. HEINTZELMAN.



Many urban and suburban areas, such as this park in Allentown, Pennsylvania, were designed and constructed early in the twentieth century, long before resident Canada Geese were abundant birds. They contain landscape features ideally suited for these geese, such as a supply of fresh water, expanses of shortly-mowed lawn, an island with suitable nesting habitat, and sometimes people feeding Canada Geese and other waterfowl.

PHOTO BY DONALD S. HEINTZELMAN

HUMAN ASPECTS OF CANADA GOOSE-PEOPLE INTERACTIONS

Human aspects of Canada Goose-human interactions typically focus on at least five considerations.



Canada Geese are aesthetically attractive to many people visiting urban and suburban parks.

PHOTO BY DONALD S. HEINTZELMAN



Conflicting ethical considerations often develop when grounds and landscape managers, cooperating with governmental wildlife agents, round up and remove – sometimes to kill – resident Canada Geese in urban and suburban landscapes.

PHOTO BY MARGARET R. PETERSON

- First, there are aesthetic considerations. Some folks greatly appreciate seeing Canada Geese, welcome sharing landscapes with them, and do not want the birds harmed or removed from sites. However, other people claim that their aesthetic appreciation of parks and similar areas is lessened, sometimes even destroyed, by substantial numbers of resident Canada Geese, and especially large amounts of goose excrement littering lawns, pavements, and paths.

- Second, conflicting ethical considerations sometimes develop. Animal rights advocates, in particular, reject human activities resulting in removal and killing of Canada Geese in parks and similar places. Many grounds and landscape managers, however, along with federal and state governmental natural resource agencies (which have the legal authority to enforce wildlife laws and regulations protecting Canada Geese), usually reject propositions that animals should have rights. They view a lethal solution as significantly reducing (sometimes eliminating) resident Canada Geese in parks, on golf courses, on corporate campuses, and similar places. To these people, capturing and killing geese is the fastest, and least expensive, solution to geese-human conflicts.

- The third consideration involves the political aspects of dealing with Canada Goose-human conflicts. Many politicians, sometimes working in league with park grounds and landscape managers, become involved in heated public debates over the fate of Canada Geese in parks and similar places. Most politicians attempt to determine prevailing public opinion, then take the most popular course of action to resolve the situations (regardless if they are the best or most desirable means of doing so) rather than arriving at creative solutions to geese-human conflicts. That's when strong, unified pressure on politicians becomes necessary.

- The fourth facet of Canada Goose-human conflicts involves scientific considerations focusing on ecologically degraded landscaping. Degraded (simplified) grounds and landscapes encourage increasing numbers of geese and other waterfowl to inhabit these places.

- The fifth aspect of our interactions with resident Canada Geese involves modifying the way people act. This is an integral part of any creative range of techniques and solutions. Certainly, the first step is to stop well-meaning people from feeding Canada Geese (and other waterfowl) in urban and suburban landscapes. Geese have adequate natural food available; they do not need handouts of inappropriate food.

SEVERAL ADDITIONAL CONSIDERATIONS ALSO COME INTO PLAY WHEN PEOPLE ARE INVOLVED IN CANADA GOOSE HABITAT MODIFICATION

- In some parks, landscapes were designed and developed during the early twentieth century – a half-century *before* large numbers of Canada Geese existed in the United States. But with moderate to large numbers of resident (non-migratory) Canada Geese currently living in urban and suburban parks, the changing ecological picture associated with goose habitat management presents difficult new challenges. Specifically, can goose habitats in parks be

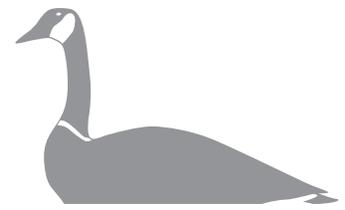


A resident Canada Goose walking on a path through a suburban modified habitat. Habitat modification does not always reduce human-geese conflicts to zero – especially when done after geese are already habituated to a site.

PHOTO BY DONALD S. HEINTZELMAN

modified creatively to make them less ecologically attractive to Canada Geese? Friends of Animals, and many wildlife experts, believe this can be accomplished.

- It is important to know that habitat modification does not always reduce human-geese conflicts to zero. It is most effective when done *before* resident Canada Geese become habituated to a site.
- Although it will not eradicate geese already occupying an area, when done carefully, habitat modification can significantly reduce goose nesting and use of the area, thereby substantially lowering the number of complaints about Canada Geese in parks, corporate campuses, and similar places.
- This will also be a benefit to residents of the community who enjoy seeing geese, or are concerned for the safety of birds and other animals in their local area.



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Identifying Causes of Canada Goose-Human Conflicts In Urban and Suburban Parks and Other Landscapes

To understand why Canada Goose-human conflicts occur in urban and suburban parks and similar landscapes, it's necessary to identify the reasons why these situations occur. Then make a list of the offending problems and decide how to solve them.

ECOLOGICAL AND BIOLOGICAL COMPONENTS OF CANADA GEESE-HUMAN COMPLAINTS

First, identify the ecological and biological components implicated with complaints against Canada Geese in urban and suburban parks and similar areas.

- Expanses of Kentucky bluegrass *without* trees and/or shrubs, no large terrestrial islands or larger areas (fields) of native wildflowers, and no other vertical objects

to disrupt a Canada Goose's horizontal and vertical lines-of-sight (and ability to see predators approaching overhead or on land).

- Mowing lawns much lower than 8 or 10 inches high.
- Fertilizing lawn to make it lush (which makes it more nutritious as resident Canada Goose food).
- Frequent lawn watering to produce lush green grass.
- A fresh water pond or lake with a smooth, gently sloping shoreline.
- A small island with a smooth, gently sloping shoreline.
- A peninsula, with a smooth, gently sloping shoreline, extending into a pond or lake.
- A lack of abrupt boulders or rip-rap (preferably each 3 feet in diameter or larger) forming a three-foot-wide *continuous* exclusion barrier along the shoreline of a pond, lake, island, and/or peninsula.
- A lack of emergent aquatic vegetation, such as cattails, forming a dense vegetation barrier 6 to 12 feet wide preventing Canada Geese from entering or leaving a pond or lake.
- A lack of a tall tree canopy in heavily used Canada Geese areas to obstruct their overhead line-of-sight.
- An athletic field that's located closer than 500 feet from a high-use Canada Goose area.
- An abundance of natural food preferred by Canada Geese in areas also heavily used by people.
- Keeping a pond or lake water aerator operating during late autumn and winter.
- A lack of fences, or other physical barriers, preventing Canada Geese from gaining access to specific parts of parks, corporate campuses, golf course, etc.
- A lack of special tolerance areas with "lure crops" set aside for Canada Geese as special feeding sites, and places where the birds are not disturbed, but always located away from high human use areas in parks.
- No signs explaining *why* waterfowl should not be fed human food such as bread, cake, pizza, potato chips, etc.

COMMON HIGH PROFILE COMPLAINTS

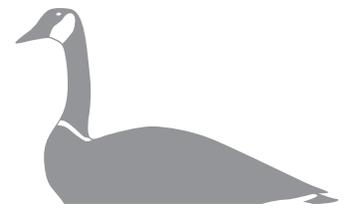
Some aspects of resident Canada Geese biology are especially related to public complaints. Look for these common high profile components.

- Do large quantities of Canada Goose droppings litter expanses of lawn and/or paths and sidewalks or beaches used heavily by the public?
- Where does an accumulation of goose excrement occur in a park or similar area?
- Where do resident Canada Geese nest in a park or similar landscape?
- Where do resident Canada Geese rest and feed in a park or similar landscape?

HUMAN ACTIVITIES THAT RELATE TO CANADA GOOSE-HUMAN CONFLICTS

Various undesirable, and/or desirable, human activities also relate to public complaints regarding Canada Geese.

- Is there frequent public feeding of Canada Geese and other waterfowl in a park?
- Where does public waterfowl feeding occur in a park?
- Is there a structured, ongoing public education and outreach campaign explaining why people should not feed resident Canada Geese?
- Is there a lack of educational signs (in English and Spanish) explaining why people should not feed Canada Geese and other waterfowl?
- Do people ignore “No Feeding” signs for Canada Geese and waterfowl – even when signs are placed near places where waterfowl feeding is done illegally?
- Do grounds and landscape managers try innovative new habitat modification techniques to resolve goose-human conflicts?
- Does a park’s staff regularly remove goose excrement and clean sidewalks, paths, and trails used by people – perhaps using a machine called a Goose Poop Buster?



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Methods of Modifying Canada Goose Habitat in Urban and Suburban Areas

To reduce concentrations of resident Canada Geese in parks, and similar settings, it’s necessary to eliminate, reduce, disrupt or change some or all of their ecological requirements. It’s a non-lethal landscape change strategy designed to at least reduce all-too-common goose-human conflicts without harming the birds while simultaneously increasing a site’s biodiversity (species numbers and richness). Some involve multiple techniques.

WHO DOES PARK PLANNING, DESIGN, AND HABITAT MODIFICATION?

In most cases, one of two groups of people do the planning, design, and actual grounds work involved in modifying urban and suburban park landscapes to make them less attractive to resident Canada Geese.

- Commercial consultants and landscapers.
- In-house park staff.

Commercial consultants and landscapers offer the advantage of having professional training, practical hands-on experience, knowledge of the best ways to avoid pitfalls that may develop, and ideas for solving unexpected problems.

There is considerable expense involved in retaining commercial consultants and landscapers, however, and tight municipal budgets and public funds for hiring these professionals may not be available. Municipalities may be able to secure funding from local or regional nonprofit philanthropic foundations. *The Foundation Directory* is a good source of detailed information when trying to locate appropriate funding sources. Ask to see a copy at your local public library.



A “Goose Poop Buster” can be used to remove goose excrement, molted feathers, and other smaller debris from sidewalks, paths, trails, and shortly-mowed lawns.

PHOTO COURTESY OF JAY STEPHEN.

Alternatively, parks in urban and suburban areas sometimes have professionally trained staff landscape architects and designers who can plan and design the alterations necessary to modify park habitats to make them less ecologically attractive to resident Canada Geese. Then, parks department staff – perhaps assisted by volunteers – can make the alterations to parks grounds, saving taxpayers money.

PREPARE AND ADOPT A CANADA GOOSE HABITAT MODIFICATION STRATEGY

When populations of Canada Geese in urban and suburban parks become so large that increasing public complaints occur about excessive amounts of geese excrement litters lawns and aquatic areas, it's necessary to develop a strategy regarding how the problem – perceived or real – can be solved cooperatively. Although habitat modification in itself is unlikely to solve every situation, Friends of Animals considers it an appropriate and desirable strategy to resolve many perceived conflicts between geese and human beings.

A continuing public education and outreach campaign is a necessary part of a habitat modification strategy. Here are several important educational goals.

- Teach people that Canada Geese and other waterfowl should *not* be fed in urban and suburban parks and similar landscapes.
- Increase the public's tolerance and understanding of Canada Geese. The campaign should use creative educational signs explaining *why* Canada Geese (and other waterfowl) should not be fed.
- Teach people to develop respect for Canada Geese as part of the overall wildlife community living in parks and similar urban and suburban landscapes.
- Assistance in implementing an educational campaign can be enlisted from home owners associations, friends of parks, and similar groups.



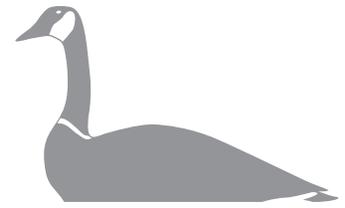
Fields of tall native wildflowers limit the line-of-sight of resident Canada Geese and prevent them from venturing into areas where they are not wanted.

PHOTO BY DONALD S. HEINTZELMAN

SOME BASIC METHODS OF MODIFYING CANADA GOOSE HABITAT

There are a number of basic methods that grounds and landscape managers sometimes take to modify the ecology of Canada Goose habitat in urban and suburban landscapes. The most appropriate, creative, and ecologically sound methods should be used. Indeed, most experts on Canada Goose conflicts agree that making a site *less ecologically friendly* to these birds is the best, long-term solution.

- Whenever possible, begin habitat modification *before* Canada Geese are habituated to a landscape. This will likely produce the most satisfactory results.
- Discourage the public from feeding Canada Geese and ducks in parks and similar urban and suburban landscapes. Install signs concisely explaining *why* people should not feed geese and ducks.
- Prevent Canada Geese from using most terrestrial areas of parks and similar sites.
- When possible, if sufficient land is available, limit Canada Goose grazing to special tolerance areas (special feeding sites) containing “lure crops” (such as shortly mowed grass plots as food). These are places located away from high



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human use areas in parks where the birds are not disturbed.

- Install vertical, sight-limiting components – such as tall trees, shrubs, and large terrestrial islands or fields of tall native wildflowers. This can disrupt the unobstructed line of sight of Canada Geese, and help deter them from grazing or walking on expanses of lawn.
- Clump, or randomly distribute, native vegetation components (trees, shrubs, vines, patches of wildflowers, fences, and other physical barriers) within the areas of parks or similar landscapes of concern.
- Limit and reduce food palatability for Canada Geese by avoiding Kentucky bluegrass as the primary component of lawns. If this species already exists, do not mow it shorter than 8 or 10 inches. Better still, allow it to grow even higher.
- Turn off water aerators and fountains in park ponds and/or lakes from autumn through early spring, and (in cold states) let small ponds and lakes freeze in winter.
- Remove platforms, baskets, large planters, and other Canada Goose nest supports *before* the nesting season (late March to mid-June depending on the specific geographic location).
- When possible, remove or modify potential Canada Goose nest sites – especially islands in ponds or lakes, or peninsulas jutting into ponds and lakes, having gently sloping shorelines.

ADDITIONAL CANADA GOOSE HABITAT MODIFICATION METHODS

Use physical barriers to prevent Canada Geese from entering (or leaving) specific parts of parks and similar areas. Various types of fences can be used.

- Split-rail wood fences.
- Plastic mesh fences attached to metal posts.
- Wire mesh fences attached to metal posts.
- Plastic streamers attached to wires fastened to metal posts.
- Combinations of fence types such as split-rail wood and plastic mesh.
- Fences formed from plantings of dense, native trees, shrubs, and vines.

Sometimes it's possible, or desirable, to construct permanent walls of rocks, wood, or other solid materials to prevent Canada Geese from entering or leaving specific parts of parks. This option is expensive, but desirable in some circumstances when funds are available.

Another exclusionary barrier used along the shorelines of some ponds, lakes, reservoirs, river, creeks, and streams is a two- or three-foot-wide, *vertical* exclusionary barrier constructed from large (at least 3 feet in width or length) boulders or rip-rap which makes it difficult for adult Canada Geese, and especially goslings, crossing into (or out of) aquatic areas. Be sure no gaps exist between the boulders through which geese and goslings can walk.

Using native emergent aquatic vegetation in shallow water around the shoreline of a pond or lake, or in open expanses of water in ponds or lakes, is another attractive way of creating barriers preventing or discouraging resident Canada Geese and their goslings from entering or leaving ponds, lakes, creeks, and streams in parks.

SAFETY WARNING:
The U. S. Army Corps of Engineers considers abrupt, sometimes nearly vertical, shorelines of ponds, lakes, creeks, and streams a serious danger that can result in human drowning – especially very young children.



A dense wall of cattails and other emergent aquatic and terrestrial vegetation growing around the shoreline of a pond or lake prevents resident Canada Geese from walking out of, or into, the water.

PHOTO BY DONALD S. HEINTZELMAN

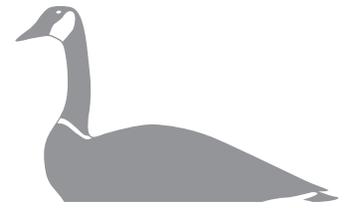
- Plant a dense wall of cattails and other emergent aquatic vegetation 6 to 12 feet wide along the shallow shoreline of a pond or lake.
- Plant water lilies in shallow ponds or lakes.
- Use other native, emergent aquatic vegetation in shallow ponds or lakes.
- In addition, plant a dense wall of native *terrestrial* vegetation immediately adjacent to the cattails and other emergent aquatic vegetation thus producing a combined dense vegetation wall 15 to 30 feet wide. This should prevent Canada Geese from walking into a pond, lake, creek, or stream.

Proper grass and lawn management is also essential. Ignoring this habitat management component is a common error encountered in parks and similar areas across the United States.

HERE ARE SOME BASICS THAT SHOULD NOT BE IGNORED

- When possible, do *not* plant lawns with Kentucky bluegrass. Instead, use warm season grasses as an alternative.
- Don't mow grass shorter than 8 to 10 inches in length. Canada Geese dislike grass this long, and tend to avoid grazing where grass is not very short because shortly mowed grass produces succulent new shoots that geese like to eat. In some parks, as in the Twin Cities in Minnesota, as much as 93 percent of low-mowed lawn must be replaced with taller-growing alternative vegetation to discourage large numbers of Canada Geese from utilizing the parks as nesting and feeding places.
- Limit the amount of watering that's done on lawns to reduce its lushness, freshness, and nutritional value for geese.
- Limit, or stop, fertilizing lawns. This reduces the nutritional value of grass eaten by Canada Geese.
- Create large terrestrial islands, or larger fields, of native ferns, wildflowers, shrubs, and trees within expanses of lawns to lessen the amount of grass potentially available as food for geese.
- Where adequate space is available, create a special tolerance area away from high human use areas – in other words, a special Canada Goose feeding site where the birds are not disturbed – by providing “lure crops” (food) for the birds in the special tolerance area.

Selected Native Plants Suitable For Use in Habitat Modification



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There are many *native* plants (ferns, wildflowers, shrubs, vines, and trees) suitable for use in Canada Goose habitat modification. Non-native, horticultural trees, shrubs, vines, flowers, and ferns are much less preferable to conservation biologists. The native plants listed here are representative for parts of the eastern United States. Keep in mind the natural habitat needs for each species, however, and the hardiness rating for your specific geographic area as shown on a USDA Plant Hardiness Zone Map.

FERNS

Cinnamon Fern (*Osmunda cinnamomea*)
Hay-scented Fern (*Dennstaedtia punctilobula*)
Marsh Fern (*Thelypteris palustris*)
Ostrich Fern (*Matteuccia struthiopteris*)
Royal Fern (*Osmunda regalis*)

SHRUBS AND VINES

American Bittersweet (*Celastrus scandens*)
American Holly (*Ilex opaca*)
[need male and female specimens]
American Mountain Ash (*Sorbus americana*)
Flowering Dogwood (*Cornus florida*)
Great Laurel (*Rhododendron maximum*)
Trumpet Honeysuckle (*Lonicera sempervirens*)

TREES

Eastern Red Cedar (*Juniperus virginiana*)

Eastern White Pine (*Pinus strobus*)
Eastern Hemlock (*Tsuga canadensis*)
American Beech (*Fagus grandifolia*)
Black Oak (*Quercus velutina*)
Northern Red Oak (*Quercus rubra*)
White Oak (*Quercus alba*)
Red Maple (*Acer rubrum*)
Sugar Maple (*Acer saccharum*)
American Sycamore (*Platanus occidentalis*)

WILDFLOWERS

Emergent aquatic species in shallow water at pond edge
Broadleaf Arrowhead (*Sagittaria latifolia*)
Cattails (*Typha sp.*)
Yellow Pond Lilies or Spatterdock (*Nuphar sp.*)
White Water-lily (*Nymphaea odorata*)

WET-SOILS-LOVING SPECIES ADJACENT TO THE SHORELINE OF A POND OR LAKE

Boneset (*Eupatorium perfoliatum*)
Larger Blue Flag Iris (*Iris versicolor*)
New York Ironweed (*Vernonia noveboracensis*)
Marsh Marigold (*Caltha palustris*)
Spotted Joe-Pye-Weed (*Eupatorium maculatum*)
Swamp Rose Marrow (*Hibiscus moscheutos*)
Canada Lily (*Lilium canadense*)



Butterfly Weed is a vivid orange native wildflower that can be planted in drier upland locations along with many other wildflowers. Butterflies are also attracted to these flowers.

PHOTO BY DONALD S. HEINTZELMAN



Virginia Bluebells are pale-blue, wet soil-loving native wildflowers that can be grown adjacent to ponds or lakes.

PHOTO BY DONALD S. HEINTZELMAN

Turk's-Cap Lily (*Lilium superbum*)
Virginia Bluebells (*Mertensia virginica*)

TALLER UPLAND SPECIES IN DRYER SOILS AREAS

Asters (taller species)
New England (*Aster novae-angliae*)
Purple-stemmed (*Aster puniceus*)

Oxeye Daisy
(*Chrysanthemum leucanthemum*)
Black-eyed Susan (*Rudbeckia hirta*)
Butterfly Weed (*Asclepias tuberosa*)
Common Milkweed (*Asclepias syriaca*)
Daisy Fleabane (*Erigeron annuus*)
Goldenrod (*Solidago sp.*)
Orange Hawkweed
(*Hieracium aurantiacum*)

You can also use combinations of native plants in terrestrial islands (or fields) of plants. A handy reference book for the Mid-Atlantic States, illustrated with color photographs, is the *National Audubon Society Field Guide to the Mid-Atlantic States* by Peter Alden and Brian Cassie. Other volumes in this series published by Alfred A. Knopf deal with California, Florida, New England, the Pacific Northwest, the Rocky Mountain states, the Southeastern States, and the Southwestern States.



A completely modified urban habitat at the Belmont Goose Project site in Philadelphia, Pennsylvania. Prior to habitat modification, the site attracted large numbers of resident Canada Geese.

PHOTO COURTESY OF THE PHILADELPHIA WATER DEPT.

Some Successful Canada Goose Habitat Modification Projects

The following are a few examples of successful urban and suburban habitat modification sites.

BELMONT GOOSE PROJECT, PHILADELPHIA, PA

In 1999, the Philadelphia Water Department and the Fairmont Park Commission began a two phase program making major resident Canada Goose habitat modifications (landscaping, fencing, and education) in proximity to the city's Belmont Water Intake facility along the Schuylkill River – one of the major drinking water sources for the City

of Philadelphia – and discouraging geese from nesting on nearby Peter's Island. Resident Canada Geese feeding and nesting just upriver from the water intake facility produced an estimated 25 tons of fecal material in the vicinity of the water intake, causing water contamination concerns and increased water treatment problems and costs.

By 2003, as the result of major habitat modification converting lawn near the water intake into meadow (using native trees, shrubs, and wildflowers), fencing and revegetation of nearby Peter's Island to reduce the number of nesting geese on the island, and a public education program designed to discourage park users from feeding resident Canada Geese in the parking lot near the water intake, there was a 100 percent reduction in the number of resident Canada Geese living near the water intake, and at least a 50 percent reduction in geese nesting on Peter's Island. These combined efforts eliminated 25 tons per year of goose fecal material from accumulating just above the water intake. In addition, lawn was converted into a

strikingly beautiful meadow significantly richer in native floral species diversity, and also much more aesthetically attractive to park visitors. The five year cost of the Belmont Goose Project was approximately \$25,000.

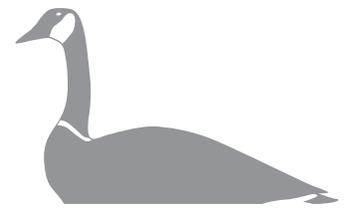
SWEETWATER FARM MANAGEMENT PROJECT

The Sweetwater Farm In-Line Detention Basin Planting & Infiltration Trench management project in Lower Southampton Township, Bucks County, Pennsylvania, involved complaints by residents of a housing development adjacent to Turkey Run Creek about resident Canada Geese and their fecal droppings on 10.8 acres of township open space land within the housing development. The problem also involved certain obsolete storm water management infra-structure, and stream bank erosion at a nearby park.

Nancy Minich from NAM Planning and Design, LLC was given the assignment of solving the storm water management problem while simultaneously dealing with resident Canada Geese living on the site. She developed updated storm water management infrastructure, and modified Canada Goose habitat on the site. The habitat modification was achieved in various ways:

- Designating large sections of lawn as “no mow” areas.
- Lightly seeding 6 acres of “no mow” land with native wildflower seeds.
- Planting native shrubs and trees – especially along the edges of the storm water catchment basins – to try to reduce water temperature and produce more floral species diversity.
- Creating winding, shortly mowed foot paths through wildflower fields.
- Developing dense vegetation riparian buffers along Turkey Run Creek to prevent geese from walking to and from detention ponds – areas that catch stormwater runoff.
- Using students from an area public elementary school, and a technical school, as volunteers to provide the necessary labor for the project.
- Including a public education component into the project to explain to nearby residents exactly how and why the work was being done.
- Securing a Pennsylvania Department of Environmental Protection Coastal Zone Management funding grant to pay for part of the project.

The result was a remarkable transformation in appearance of the site, increased biodiversity, an aesthetically pleasing appearance of the entire area, and numerous other environmentally desirable improvements. In addition, the project was awarded the 2005 Merit Award from the Pennsylvania/Delaware branch of the American Association of Landscape Architects. While some residents of the subdivision approve of the resulting habitat modifications, others strongly disapprove and insist they wanted golf course-like shortly mowed lawn. Regretfully, these latter people refuse to enjoy walking on the winding paths through the wildflower fields, or otherwise use the lovely natural park directly adjacent to their backyards. I am unaware of this type of negative public response at other sites where habitat modification was done.



CANADA GOOSE HABITAT MODIFICATION MANUAL



An autumn view of completely modified habitat at the Sweetwater Farm Management Project in Lower Southampton Township, Bucks County, Pennsylvania.

PHOTO COURTESY OF NANCY A. MINICH, NAM PLANNING AND DESIGN, LLC, LAHASKA, PA

Legal Requirements Regarding the Canada Goose and Cackling Goose

Both Canada Geese and Cackling Geese are protected by laws. They may not be shot, captured, or otherwise touched or handled without first obtaining special federal and state permits. Their eggs are similarly protected by the same laws.

At least two levels of government agencies are charged with legal control over these birds: (1) U. S. Fish and Wildlife Service, and (2) each state's wildlife agency. As a general rule, if Canada Goose habitat management is restricted to altering the physical and floral (biological) features of parks, corporate campuses, golf courses, and other urban and suburban landscapes – and you *do not* touch, handle, capture, or otherwise have physical contact with geese, their eggs, nests, feathers, and the like – no permits are needed from federal or state wildlife agencies.

The habitat modification techniques recommended in this manual do *not* require having federal and/or state permits. In some municipalities, however, it may be necessary to alter existing “weed laws” to enable implementation of some types of habitat modification – such as planting some wildflower species, and the height that lawns are required to be mowed.

Cost of Habitat Modification

The cost of modifying Canada Geese habitats in parks and similar areas varies enormously, depending on the geographic location, who owns the property involved, what is done, the items and/or services that are necessary to purchase, and other unanticipated expenses. Each project has its own unique costs. In some cases, little or no cash expense is involved, whereas in other cases major alteration projects cost tens of thousands of dollars. In addition, costs of items and services increase over time, so what might be written now soon could become obsolete. Hence, actual dollar amounts of items and services are not being presented here.

HABITAT MODIFICATION PRODUCTS VENDORS AND NATIVE PLANT VENDORS

Friends of Animals does not endorse, or receive financial remuneration, from any of the organizations or vendors included in the following lists of sources. To the best of Friends of Animals' knowledge, none of the native plants offered for sale by the companies or organizations listed were removed from the wild.

VENDORS SELLING NATIVE PLANTS

The Lady Bird Johnson Wildflower Center's Web site (see below) has an excellent “Native Plant Information Network” section that quickly and easily allows users to find companies selling native plants locally, in each state, and in various regions of the United States.

Wild Ones is another non-profit organization that also may be able to recommend commercial sources for purchasing native plants. Check their Web site.

Lady Bird Johnson Wildflower Center
4801 La Crosse Avenue
Austin, TX 78739
(512) 292-4100
www.wildflower.org

Wild Ones
PO Box 1274
Appleton, WI 54912
www.for-wild.org

VENDORS OF HABITAT MODIFICATION PRODUCTS

Various companies sell products useful for use in Canada Goose habitat modification projects. A representative sample is provided here. Home improvement stores also sell some products useful to habitat modification projects.



CANADA GOOSE HABITAT MODIFICATION MANUAL

FENCES

Aquatic Eco-Systems, Inc.
2395 Apopka Blvd.
Apopka, FL 32703
(407) 886-3939
www.aquaticeco.com

Bird Barrier America, Inc.
1312 Kingsdale Avenue
Redondo Beach, CA 90278
1-800-503-5444

Lake Restoration, Inc.
12425 Ironwood Circle
Rogers, MN 55374
1-877-428-8898
www.lakerestoration.com

Nixalite of America
1025 16th Avenue
East Moline, IL 61244
1-800-624-1189

Wildlife Control Technology
2501 N. Sunnyside Avenue, #103
Fresno, CA 93727
1-800-235-0262

TURF SWEEPING EQUIPMENT

Goose Poop Buster
Jay Stephen
1-877-246-5515
E-mail: jstephen3716@shaw.ca
www.goosepoop.com

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2003c Canada Goose Management Series Habitat Modification. Fact Sheet 1026. Rutgers Cooperative Research & Extension, New Brunswick, NJ
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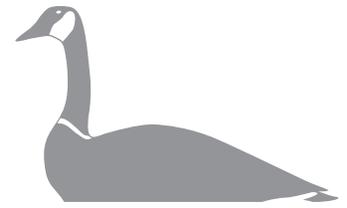
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A resident Canada Goose eating dandelions.

PHOTO BY DONALD S. HEINTZELMAN



CANADA GOOSE
HABITAT
MODIFICATION
MANUAL

ACKNOWLEDGMENTS

I express special appreciation to Priscilla Feral, President of Friends of Animals, along with Lee Hall and others on the Friends of Animals staff, for providing helpful logistical and editorial assistance during the preparation of this manual. Dan Kunkle, Executive Director of the Wildlife Information Center, Inc., allowed use of that organization's research library. Jason Hunt from the Philadelphia Water Department, and Tom Witmer from Philadelphia's Fairmont Park Commission, provided assistance, a copy of *The Belmont Water Intake Protection Project: 2003 Update Report*, and photographs documenting several stages of habitat modification during that project. Nancy A. Minich, Principal of NAM Planning & Design, LLC, Lahaska, PA, also provided information, comparative photographs, and a tour of her award winning Sweetwater Farm In-Line Detention Basin Planting & Infiltration Trench management plan project site located in Lower Southampton Township, Bucks County, PA. Finally, appreciation is extended to Margaret R. Peterson who took charming Canada Geese photographs in Maryland expressly for use in this manual.



A resident Canada Goose eating dandelions.

Friends of Animals is an international, non-profit animal advocacy organization, incorporated in the State of New York in 1957. The group works to cultivate a respectful view of nonhuman animals, free-living and domestic, with the goal of freeing them from cruelty and institutionalized exploitation around the world.

Friends of Animals 

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FRONT & BACK COVER PHOTOS BY DONALD S. HEINTZELMAN

UPDATES

CANADA GOOSE
HABITAT MODIFICATION
MANUAL



DONALD S. HEINTZELMAN

Friends of Animals 

From: Nancy Minich [<mailto:nancyminich6575@gmail.com>]
Sent: Thursday, January 4, 2018 1:05 PM
To: Kimberly Nagelhout <kimberlyinc@optimum.net>
Subject: Re: Sweetwater Farm Management Project - Geese

Kimberly

Sadly, the township manager who was fully supporting this project passed away about 9 years ago and the new manager did not. The new manager was more concerned with what the unknowledgeable residents in the development thought (messy) and mowed down the meadows. Ironically, the project won several awards for its sustainable stormwater management prior to this. The residents' issue with it looking messy was that they "thought" it lowered property values, which all landscape management research indicates is the opposite. The supportive manager told residents it was something they have to get accustomed to if they want to get rid of geese and help the township better manage its stormwater runoff (from neighbor lawns that use regular fertilizers, herbicides/pesticides!) The new manager himself did not understand stormwater or land management as he was a former police officer.

This project was ahead of the federal MS4 stormwater management that requires municipal compliance via reports. This project exceeded those standards but they lost them of course when they mowed and continue to mow acres of open space around the 3 ponds. I no longer work for this municipality as a consultant because of this project. Also, the granting agency was not happy that they did not manage the project as agreed upon in the grant and "wasted" substantial funds on this project.

Nancy Minich, HTR, RLA, ASLA
Principal, Registered Landscape Architect
& Registered Horticultural Therapist
NAM Planning & Design, LLC
P.O. Box 86
Lahaska, PA 18931
ph: 215.297.0681
c: 267.471.2622

From: Moria Miller [<mailto:Moria.Miller@phila.gov>]
Sent: Monday, January 8, 2018 12:05 PM
To: Kimberly Nagelhout <kimberlyinc@optimum.net>
Subject: RE: Belmont Goose Project

Hi Kim,

Thanks for contacting us. Our Ecosystem Management team provided me with the following information:

We refer to it as the "Belmont Intake Project" - see attached fact sheet. The project has drastically reduced goose presence at that site. Phase 2 was essentially a northward extension of the meadow described in the fact sheet. I'm not sure whether PWD actually installed fencing on Peters Island in Phase 2.

For additional information, you can contact Tom Witmer at 215-683-0216.

Best,

Moria

Moria Miller
Strategy & Communications Manager
Philadelphia Parks & Recreation
www.phila.gov/parksandrec

Fairmount Park

Belmont Intake Project

Goose Control Project

Fairmount (West) Park

Partners

- Philadelphia Water Department
- League of Women Voters
- Partnership for the Delaware Estuary
- Pennsylvania Fish & Boat Commission
- U.S. Environmental Protection Agency
- U.S. Fish & Wildlife Service
- William Penn Foundation



Project site, after meadow establishment

Contact

Tom Witmer (215) 683-0216

Project Description

A very active goose feeding area next to a parking lot was causing several problems: 1) More than 10 tons of goose droppings per year were washed from the site into the Schuylkill River, 1/5 mile upstream of a drinking water intake that serves about 25% of the City of Philadelphia.; 2) Large numbers of geese had denuded and compacted riverbanks and the adjacent floodplain, leading to soil erosion; and 3) Goose droppings deposited on the recreation path had become a public nuisance.

In 1999, a project was implemented to alleviate these problems. The project consisted of the following components:

- Invasive vegetation was removed from the site.
- Denuded goose travel lanes on the river bank were filled with soil, stabilized and planted with native shrubs.
- The bare floodplain was roto-tilled, seeded with native grasses and forbs and planted with shrubs.
- 900 feet of 2-foot high fence was installed along the river bank to block goose access from the river.
- Orange construction fence was placed around the site to keep people and geese out until grasses and forbs became established. After establishment, a post-and-rail fence replaced the construction fence.
- An interpretive sign was installed that explains the problems associated with feeding non-migratory geese in that area.



Denuded site

Benefits

The project resulted in the following benefits:

- All the damages caused by the geese were repaired and stabilized.
- A meadow comprised of native grasses and wildflowers, along with shrubs, provided habitat for other animals and much more visual interest along the recreation path.
- Goose usage of the site dropped nearly 90% since it became difficult for geese to access it.
- The problem of goose manure laden stormwater running into the Schuylkill River was alleviated.
- People learned about the problem from the sign and changed their habits at this site.



FAIRMOUNT PARK
Environment, Stewardship & Education Division

www.fairmountpark.org



FOA's – Goose Habitat Modification Manual Page 14-15
– Vendor Verification

Vendors Selling Native Plants

- Lady Bird Johnson Wildflower Center
4801 La Crosse Avenue
Austin, TX 78739
Phone: (512)-232-0100
www.wildflower.org
(Please note new phone number.)
- Wild Ones Wild Center
2285 Butte des Morts Beach Road
Neenah, WI 54956-1008
(920)-730-3986
www.wildoneswildcenter.org
(Please note that their address, phone number and website was updated.)

Vendors of Habitat Modification Products

- Pentair Aquatic Eco-Systems, Inc.
2395 Apopka Blvd.
Apopka, FL 32703
(407)-543-1866
www.pentairaes.com
(Please note updated company name, phone and website.)
- Bird Barrier America, Inc.
20925 Chico Street
Carson, CA 90746
(310)-527-8000
www.birdbarrier.com
(Please note updated address, phone and website.)
- Lake Restoration, Inc.
12425 Ironwood Circle
Rogers, MN 55374
(877)-428-8898
www.lakerestoration.com
- Nixalite of America
1025 16th Ave
East Moline, IL 61244
(888)-624-1189
www.nixalite.com
(Please note updated phone and website.)

- Wildlife Control Technology
2501 N. Sunnyside Ave
Fresno, CA 93727
(559)-490-2262
(Please note updated phone.)

Turf Sweeping Equipment

- Could not locate – “Goose Poop Buster” –
www.goosepoop.com

Replacements:

- Goose Busters
14450 Hess Rd
Holly, MI 48442
(800)-521-8777
www.goosebusters.net
- DoodyCalls
114 4th Street SE, Suite A
Charlottesville, VA 22902
(800)-366-3922
www.doodycalls.com/goose-poop-cleanup/
- H Barber & Sons
15 Raytkwich Rd
Naugatuck, CT 06770
(203)-729-9000
www.hbarber.com/Cleaners/SurfRake/applications/goose-droppings.html
- <https://www.crittercontrol.com/services/geese>
(800)-274-8837
(855)-550-7841