



DENVER
THE MILE HIGH CITY

City and County of Denver

Resident Canada Goose Damage Management Program

Natural Resources Office of the City Naturalist

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I. Introduction

Urban goose management is a complicated and controversial issue that affects urban areas nationwide. Canada geese (*Branta Canadensis*) have been a part of Denver Parks and Golf Course landscape for many decades. The growing populations of resident Canada geese throughout North America, and in the Denver Metro and Front Range area, has resulted in increased conflicts with human activities and concerns related to human health and safety, along with park degradation. Much larger increases in the human population along the Front Range have also contributed to human-geese conflicts. The more common issues identified by the public are related to unacceptable and potentially dangerous accumulation of feces on turf and pavement, goose aggression during nesting season, over-grazing of landscape vegetation, and safety hazards for vehicles. Colorado's human population has grown rapidly, causing a change in landscapes used by both people and wildlife.

Some people are very intolerant of any inconveniences resulting from a coexistence with wildlife while others accept it at differing levels. Some people consider Canada geese to be a valuable resource and have an aesthetic appreciation of the species, while others consider them to be a nuisance because of their prolific nature, site tenacity, longevity, size, and tolerance of human activities. Understanding the ecology, biology, and human dimensions of giant Canada geese plays a crucial role in managing urban-suburban problems.

Canada geese are Federally protected by the Migratory Bird Treaty Act (6 U.S.C. 703-711). Regulations governing the issuance of permits to take, capture, kill, possess, and transport migratory birds are authorized by this ACT and issued by the U.S. Fish and Wildlife Service (USFWS). Resident Canada geese populations throughout the United States and within Denver Park properties have dramatically grown and increased to levels that create conflicts with people and cause property damage. The USFWS has allowed groups, individuals, states and local agencies to respond to damage complaints or damages created by resident Canada geese by using alternative strategies.

The Denver Parks and Recreation (DPR) Resident Goose Damage Management Program defines the goals, objectives and strategies for managing goose populations on Denver park properties, aligning with Colorado Parks and Wildlife's (CPW) [*Colorado Resident Canada Goose Management Plan*](#), which supports a broad range, multi-strategy approach of population management options in urban situations that are effective, science-based, and publicly acceptable. Whenever possible, DPR will utilize volunteers to maximize the effectiveness of various management strategies.

With the consultation of DPR's Wildlife Program Administrator and the US Department of Agriculture- Wildlife Services, the Goose Damage Management Program is approved by the Executive Director and Deputy Executive Director of Denver Parks and Recreation.

a. General Biology and Reproduction

Canada geese are herbivores. During spring and summer, they selectively graze on plants, or parts of plants, that are high in protein, such as grass shoots, seed heads and aquatic vegetation. Canada geese have many natural predators including raccoon, skunk, fox, coyotes, crows, and snakes, which prey on their eggs; along with snapping turtles, bobcats, hawks, eagles and owls, which prey on goslings and adult geese. Geese reach reproductive maturity around three years of age, and sometimes sooner. Nest construction and egg-laying begins in mid-March (sometimes as early as February), depending upon latitude. Geese tend to nest on islands, muskrat houses or nesting platforms that are surrounded by or close to water. Such sites offer additional security with the male guarding the female and the nest, protecting his territory from other geese and predators. Geese lay approximately 4 to 8 eggs with incubation beginning when the final egg is laid and lasting 28-30 days. Hatching can occur from mid-April through end of May. About mid-June, adult geese molt (shed) their long flight feathers to grow new ones and are flightless for 30-45 days. (Gosser, A. L., M. R. Conover, and T. A. Messmer 1997)

b. Migration Flyways

Flyway is a flightpath used by large numbers of birds while migrating between their breeding grounds and where they overwinter. (North American Migration Flyways March 2017). Colorado is in the central flyway where millions of waterfowl migrate to warmer regions in search of food and habitat.

c. Migratory Canada Geese

These are birds that nest and raise their young in Canada and Alaska. Migratory Canada geese make seasonal movements to areas that are outside of where they nest and raise their young. Hundreds of thousands of Canada geese that breed in Canada migrate through and/or spend the fall and winter in Colorado. Canada geese that nest anywhere in Canada and Alaska are considered migratory.

d. Resident Canada Geese

Resident Canada Geese are birds that nest and/or reside within the Central Flyway year-round. They are hatched and/or nest in the United States. Resident

geese spend most of the year near their breeding areas, although many in the northern latitudes of the United States do make seasonal movements. There are no statewide surveys of rigorous breeding populations of Canada geese conducted by CPW or USFWS, however, CPW has assisted DPR with annual and winter surveys of geese at specific Denver park properties to determine estimated resident Canada Goose populations. (J. Gammonley, CPW Avian Researcher 2019)

e. Colorado's Resident Canada Geese Populations

Local breeding populations of Canada geese in Colorado were established or re-established by CPW and the USFWS during the 1950s into the 1970s. Breeding Canada geese now occur throughout most of Colorado, but the highest concentrations of resident Canada geese are along the Front Range foothills and plains north of Denver and in the Denver metro area. (J. Gammonley, CPW Avian Researcher 2017)

In the metro area, urban corridors and landscapes such as waterways, parks and golf courses are the perfect habitat for Canada geese. Habitat conditions and climate influence the movement patterns and home range size of waterfowl and many other animals. (Eberhardt et al. 1989, Dzus and Clark 1997, Didiuk and Rusch 1998, Yerkes 2000)

Agricultural development, including the creation of water reservoirs to fresh cut green grassland in city parks, golf courses and cemeteries, has also been a contributor to the encouragement and establishment of resident goose population growth.

Geese are extremely adaptable and may use the food and protection provided by humans in urban landscapes for nesting, raising young, molting, feeding, and resting. This practice has led to a steady increase in conflicts between Canada geese and people. (Smith, Craven, Curtis, 1998)

Results from an intensive statewide banding program conducted by CPW in 2000 provided a benchmark of approximately 17,400 to 26,100 resident Canada geese statewide, with much of the population residing along the Front Range. (CPW Colorado Resident Goose Management Plan April 2019)

II. Background of Goose Management in Denver Parks

Park visitors and resident Canada geese find city parks, golf courses and other recreational facilities such as picnic areas and manicured lawns attractive and enticing, leading to increased conflicts between human park users and geese. Denver parks are artificially supporting a population of geese larger than what the local ecosystem can properly support. Although other impacts are present, the most prevalent effects of too many resident geese are unmanageable accumulations of feces in areas in which park users recreate, along with damage to park property.

In 2002, Colorado Parks and Wildlife (CPW) obtained a special use permit from the U.S. Fish and Wildlife Service (USFWS) allowing the oiling of Canada goose eggs along the Denver Metro and Front Range area. Denver Parks and Recreation (DPR) was a sub-permittee of this permit and began oiling Canada goose eggs in an effort to slow the growth of the resident goose population in various Denver parks.

DPR also adopted an integrated multi-strategy approach to resolving conflicts between park users and the high populations of geese in Denver parks. This multi-strategy approach involves the use of several methods simultaneously or sequentially. A combination of effective management methods has been and continues to be implemented in a cost-effective and repetitive manner that addresses concerns related to human health and safety, landscape damages, water quality, and park user conflicts.

III. DPR Resident Canada Goose Damage Management Program

This document provides guidance and procedure for how Denver Parks and Recreation (DPR) and partner wildlife government agencies such as Colorado Parks and Wildlife (CPW), U.S. Fish and Wildlife Service (USFWS), and U.S. Department of Agriculture's (USDA) Wildlife Services (WS), ensure consistency and efficacy in best management practices for resident Canada goose populations in Denver park properties.

DPR has a 3-year Cooperative Service Agreement (2019-2021) with USDA-WS that allows the federal agency to assist DPR in goose management efforts to reduce the resident Canada goose population in Denver parks and golf courses.

Documenting of the strategies used by DPR and the progression of non-lethal to lethal methods are recorded and evaluated annually to determine if the goals and objectives of the program are being met. Management measures follow the conditions stated in the USFWS *Resident Canada Goose Permit*.

a. Objectives of the Resident Canada Goose Program

The objectives for implementing population management methods on DPR properties is to address the unhealthy imbalance of resident goose populations and available habitat; to minimize human/goose conflicts; and to reduce the resident goose populations in a socially and biologically acceptable, site-specific, and effective manner.

These objectives will strive to 1) prevent current resident goose populations from increasing in specific Denver parks, 2) determine public tolerance levels for Canada goose populations in the City and County of Denver, 3) maintain healthy goose populations that park habitats can support, 4) maximize outdoor recreation opportunities with minimal wildlife conflicts, and 5) provide a reference for coordination and communication on activities related to resident Canada geese. Total elimination of geese from any Denver park is not a goal of this program, would not be successful, is unrealistic and is not a desired outcome of the Canada Goose Damage Management Program.

b. Determining Methods and Strategies

DPR takes multiple factors into consideration when deciding on appropriate techniques in its management of Canada goose populations. Single, quick-fix solutions for reducing goose problems have proven to be unsuccessful. An integrated approach where several techniques are deployed simultaneously and in combination with one another is much more likely to be successful over time. Considerations in management techniques include:

- Timing, including time of year, climate, migration seasons, etc.
- Site specific population and objectives based on park habitat
- Funding/resource availability

It is not the desire or goal to eliminate all geese in an area. DPR's management program strives to maintain a population or a reduction in goose numbers and related problems to a level that the park habitat can tolerate. "Tolerate" is subjective and means something different to each person.

No matter what strategy is used (lethal or nonlethal), evaluation and follow-up of its use will be conducted annually.

c. Effectiveness of Various Strategies

Each Denver park and its local population of Canada geese is unique. As such, techniques that work best at one location may or may not be appropriate at another. As a Department with the responsibility to manage parks for the benefit of its users and resources, flexibility is necessary in our approach to managing goose populations through a multi-strategy approach. DPR's management strategies for resident Canada geese impacts Colorado's overall goose population accessible to different groups such as hunters, bird watchers, wildlife lovers and other outdoor and natural resource enthusiasts.

d. Current Strategies for the Resident Population

The primary methods used by DPR include egg oiling, hazing and habitat management, however, other strategies have been tried and DPR continues to research, consider and incorporate new management techniques into the program. This multi-strategy approach is used to make geese uncomfortable using the park as their permanent home.

DPR maintenance staff use sweepers and other machines to keep sidewalks, trails, and parks clear of goose poop. Research of other equipment, new technology and associated costs is ongoing.

When possible, DPR will look for volunteer opportunities to increase the effectiveness of different population management strategies.

i. Egg Oil Method

Since 2002, DPR has participated in the oiling of Canada goose eggs and is a permittee of the *USFWS's Resident Canada Goose Nest & Egg Depredation Order*, which allows private and public landowners to oil goose eggs on their respective properties to slow the growth of resident goose populations.

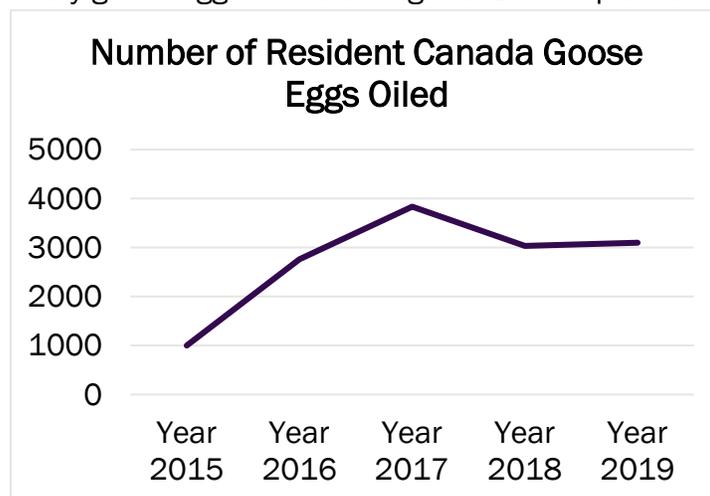
Federal and State Wildlife Agencies approve of egg oiling and other addling methods to help landowners respond to Canada goose issues and conflicts. Other agencies such as the Humane Society of the United States, U.S. Department of Agriculture, People for the Ethical Treatment of Animals (PETA), and other animal welfare organizations approve of egg addling as a humane method of management for Canada geese.

Because geese tend to return to the area they were born, local breeding populations can grow rapidly over time if geese are successful at nesting and raising their young. During the breeding season, March–June, staff and volunteers locate nests throughout Denver parks and spray 100% grade corn oil on goose eggs. The corn oil blocks the air passages of the egg shell and prevents the embryo from developing. This method is quite successful due to the minimal disturbance to the nest, allowing the female goose to continue incubation of the treated eggs and minimizes her chance of re-nesting.

Although labor intensive, oiling Canada goose eggs has proven to be a successful method of population management. The number of goose nests and eggs that have been located and oiled throughout Denver parks has consistently increased each year, resulting in fewer goslings.

The challenge of this technique is lack of permission to access properties adjacent to Denver parks to oil eggs. Although DPR is oiling eggs on DPR properties, there are nests with eggs in the surrounding area that do not get oiled which results in the successful births on outside properties, eventually joining the resident geese in parks.

DPR will move forward with training and utilizing volunteers to assist in the egg-oiling, but due to the COVID-19 pandemic, all DPR volunteer projects have been suspended until further notice. DPR utilizes Department staff and the services of USDA-Wildlife Services to oil the many goose eggs found throughout Denver parks.



ii. Hazing Method

The second method of goose population management that DPR deploys is active hazing during the months when migratory goose populations have joined with the resident populations, from approximately September through March. During the winter months when geese are hazed, DPR's Wildlife Ecologist and staff perform goose counts at each of the parks before hazing.

Geese are hazed in at least 14 Denver parks, mostly those with water features including Berkeley, Barnum, Burns, City Park, Cook, Garfield, Garland, Harvey, Huston, Rocky Mountain, Ruby Hill, Sloan's, Vanderbilt, Washington Park.

DPR uses a remote-controlled machine called the *Goosinator* that is fiercely painted and looks like a predator. The machine makes a noise that is undesirable to geese and chases them away from turf, water, snow and ice. DPR has been using the *Goosinator* since 2013 and it has proven to be a successful tool in attempts to temporarily haze geese away from Denver parks with water features such as Washington Park, Sloan's Lake and City Park. These three parks have been priority locations for goose damage management due to the larger concentrations of geese that have made these parks their home. In winter months from approximately November to February, the goose population can more than triple the resident population. Resident geese can also act as an attractant to migratory geese. (Smith, Craven, Curtis 1998) The goal of the *Goosinator* is to encourage geese to keep moving.

Although successful in hazing migratory geese and encouraging them to move locations, the *Goosinator* is very labor intensive and not as effective on resident populations. Full utilization would require deployment at least 2 times a day, 4 to 5 times a week, using two machines at once. In addition, traditional park landscaping would have to be changed to make a park undesirable to geese.

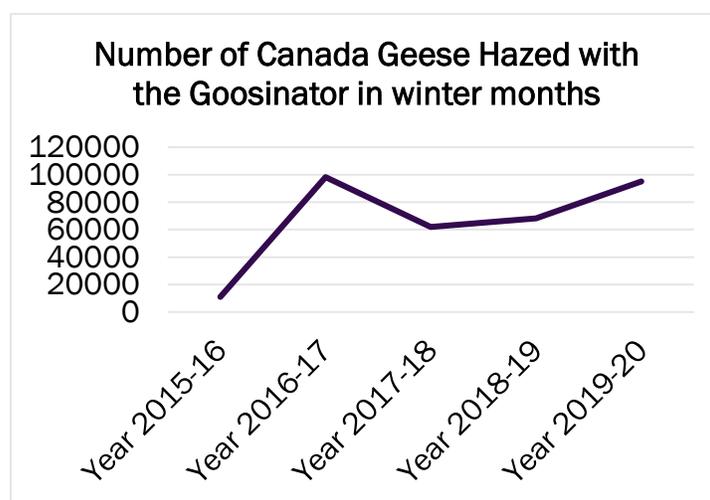
iii. Population Surveys and Tracking

Recent resident Canada goose population surveys conducted by CPW personnel have documented approximately 44,000 breeding pairs within the Front Range Metropolitan Area (stretching from Fort Collins to Colorado Springs). This represents a 50% population increase over

the prior two years, which can be attributed to an increase in suitable nesting habitat, immigration, and unregulated goose reproduction throughout the area. (Jim Gammonley, CPW, pers. communication, 2017)

Starting in 2015, DPR began conducting surveys and continues to track migratory and resident Canada goose populations to determine base line data of the goose populations in Denver parks.

Results from these surveys have shown a dramatic increase (of resident and migratory geese) in Denver from 2015 (11,000) to 2019 (95,150).



iv. Exclusion and Habitat Modifications

Changing the landscape can be a very effective nonlethal technique in mitigating goose damage. Habitat modifications can either be permanent or temporary. Canada geese prefer to feed, roost, and loaf near water where they can escape if threatened. (Gosser, A. L., M. R. Conover, and T. A. Messmer 1997). Geese look for areas that allow them to graze when molting or escorting goslings. Habitat modifications can eliminate or reduce landscape features that geese prefer and/or add specific features that make a site appear inconvenient or unsafe.

Although part of DPR's goose management program, landscape changes to all traditional parks is an unrealistic expectation and can be a controversial issue amongst park users due to aesthetic preferences. Certain parks with potential opportunity for habitat

modifications are being considered and will be part of a long-term solution for deterring geese from Denver parks.

When planning and creating landscape modifications to minimize the attractiveness of an area to geese, DPR uses the following landscape guidelines for permanent and temporary modifications:

1. Permanent Modifications

Canada geese prefer to walk between water and land, and are an excellent example of wildlife whose behavior can be somewhat modified through landscaping:

- Reduce sightlines to less than thirty feet
- Use landscaping that physically reduces access to forage areas
- Reduce the size of foraging areas
- Reduce the palatability of the forage vegetation by planting coarse grasses rather than the goose preferred grasses like Kentucky Blue, fescues or timothy

Grasses and shrubs that grow as little as eighteen inches high can be placed in a ten-foot band at the water's edge to serve as a deterrent to geese. These grasses and shrubs will impede their access to grazing and block their view of predators. The benefits to this kind of landscape alteration are a reduction in mowing frequency; runoff filtration of fertilizers and herbicides from lawn surfaces; increase in habitat for other wildlife species such as songbirds; and aesthetic appeal that is more satisfying than homogeneous, neatly trimmed lawn down to the water's edge.

Canada geese prefer a gentle, grassy slope that enables them to easily walk in and out of the water to feed or rest. If access to the water is poor, the adult geese may leave that area to raise their young elsewhere. To steepen the shoreline, a vertical seawall about 3 feet may be built above the surface of the water to create a 63-degree angle slope from the water's edge.

Canada geese typically prefer to use a route from a body of water that allows them a clear view of predators. By planting large, dense shrubs or placing large rocks (2 feet in diameter or more) along a shoreline, a barrier is created that geese will be reluctant to penetrate. Sometimes

Canada geese adapt to rocks and vegetation barriers. If so, fencing may need to be added.

Planting vegetation that is undesirable to geese may discourage them from remaining in an area.

Geese prefer:

- Kentucky bluegrass (*Poa pratensis*)
- Smooth brome (*Bromus inermis*)
- canary grass (*Phalaris arundinacea*)
- Timothy (*Phleum pretense*)
- perennial ryegrass (*Lolium perenne*)
- creeping bentgrass (*Agrostis palustris*)
- quackgrass (*Briza maxima*)
- creeping red fescue (*Festuca rubra* var. *rubra*)
- white clover (*Trifolium repens*)

Geese do not prefer:

- yellow Indiangrass (*Sorghastrum nutans*)
- switchgrass (*Panicum virgatum*)
- prairie cordgrass (*Spartina pectinata*)
- Nebraska sedge (*Carex nebrascensis*)
- Common rush (*Juncus effuses* L.)

2. Temporary Modifications

Permanent habitat modifications may not be acceptable because of associated costs or because of new landscaping. Temporary measures may be just as effective as permanent modifications. Fencing may act as a sufficient barrier and while it lacks many of the side benefits of habitat changes, it can be put up before nesting season to discourage geese and then removed when nesting has begun elsewhere. Fencing is also effective during the flightless periods. This allows grass and shrubs to grow in ten-foot bands around ponds, impeding goose access to grazing areas and blocking their view of predators.

v. Removal through Capture and Euthanasia

DPR's Resident Goose Damage Management Program incorporates multiple strategies, both nonlethal and lethal, for managing resident Canada goose populations at specific park locations. When all other management methods for moderating resident Canada goose populations do not meet objectives of the damage management program, capture and euthanasia may be a viable alternative.

Lethal methods to manage resident Canada geese include nest/egg destruction, live capture and transportation to processing facilities, live capture and euthanasia, and dispatching (shooting). Lethal methods

are allowed year-round with a permit from the U.S. Fish and Wildlife Service (USFWS). Dispatching, however, is not an option within the City and County of Denver.

The differences between dispatching geese and capture and euthanasia: Dispatching removes selected problem individuals from a population of geese to reinforce pyrotechnic hazing. Capture and euthanasia removes and eliminates a targeted or local population of geese and effectively helps reduce the population.

In 2019, DPR utilized the live capture and transportation to a processing facility method by contracting with the USDA who removed 1,662 resident geese in 4 Denver Parks with the largest resident Canada geese populations (City Park, Washington Park, Sloan's Lake Park and Garfield Park). ([USDA 2019 Final Report](#)) These geese were humanely euthanized in accordance with American Veterinary Medical Association (AVMA) guidelines at a Colorado Department of Public Health and Environment (CDPHE) approved facility. Not all resident geese at these locations were removed to ensure continued public enjoyment of wildlife within Denver parks. [View the 2019 USDA report.](#)

Migratory Canada geese populations were not affected by this method since they are only present in Colorado from mid-September through March.

The advantage of this method is that it is applied directly to the problem resident goose population with obvious and immediate effects. It also carries no risk of the geese returning immediately or moving and create conflicts elsewhere. The possibility of immigrating resident geese populations re-establishing over time is possible.

The decision to use lethal management strategies on resident goose populations is not taken lightly. Lethal methods are never the first attempt at managing the growth of resident goose populations. DPR recognizes there is not one strategy that is the cure-all for reducing the resident goose population in Denver parks. DPR, along with state and federal wildlife management agencies, believes lethal strategies to be necessary when used appropriately and in conjunction with other methods.

The Resident Canada Goose Damage Management Program will work closely with its contractor, whether it be USDA-Wildlife Services or another, to compare past and current data and assess the efficacy of different strategies when determining future Best Management Practices (BMP) in moderating the growth of resident goose populations in Denver parks. DPR will rely on the expertise of the contractor to determine the process for how resident geese will be rounded up and euthanized. For the privacy and protection of the processor and recipients of donated meat, identifiable information will remain private.

DPR's Wildlife Program Administrator will evaluate the options of either acquiring a Depredation Permit directly from the USFWS or continuing to operate under a Depredation Permit of the USDA-WS or CPW, if it is determined that the continued use of lethal methods for managing resident geese in Denver parks is necessary. The Annual Depredation permit issued by USFWS authorizes the take of a specific number of Canada geese each year state-wide. This number varies each year and is determined by USFWS when an applicant applies for the permit.

vi. **Additional Management Methods**

Management strategies must be feasible, cost-effective and directed towards the management of resident Canada geese. These strategies are not intended to manage the migratory geese population.

As each site is assessed, certain criteria will be considered such as site characteristics that attract geese (food, nesting structure, security, water, etc.), along with the surrounding landscapes to determine what strategy and technique will be implemented. By lessening the attractiveness of the specific site, geese may choose to avoid that site.

Other nonlethal management techniques may include elimination of food handouts, harassment using devices designed to frighten geese, noise devices and repellents.

1. Elimination of Food Handouts

Feeding geese and other wildlife in Denver parks is illegal. However, the feeding of waterfowl and other birds continues to be a popular pastime for many people. New signs have been posted in the parks

instructing visitors to not feed waterfowl but are frequently ignored. Feeding is a major cause of high urban bird populations, especially during harsh winters when natural food sources are in short supply. Canada geese, along with all other wildlife, do not need handouts from humans to survive. Feeding waterfowl encourages them to congregate in an area and may make geese more aggressive toward people. (Smith, Craven, Curtis 1998) Hand feeding also makes geese more susceptible to diseases, such as avian botulism and avian cholera. Moreover, artificial feeding, especially with bread, rarely provides the proper nutrients that geese require.

2. Other Harassment Techniques

Although the use of the Goosinator is DPR's primary hazing method, there are other harassment methods that have been and continue to be used.

Canada geese seek areas where they can go about their daily activities with minimum disturbance. If someone or something bothers them enough, they will usually change their habit and find another area that is less disturbing. However, they sometimes become accustomed to some harassment techniques when they learn they won't be harmed. Although an effective tool for immediate removal, this has proven to be the case with use of the Goosinator.

Harassment techniques usually will not stop damage once it has started. They are, however, useful in preventing damage before it begins. If Canada geese were raised in an area or have become accustomed to using it for feeding, they will be more difficult to move. Thus, harassment techniques are not very effective in managing resident populations.

a. Dogs

The use of dogs to harass geese from an area is another popular method of hazing geese in some states. Control of the dog is vital because dogs used in this manner are legally considered an extension of your hand and must not be allowed to catch, injure or kill a Canada goose.

DPR has chosen to use the Goosinator in place of a trained dog in public parks, as both operate in the same manner, stalking

the geese and chasing them from an area. The use of trained dogs on City of Denver golf courses has been in effect since 2017.

As with any harassment technique, it must be used continuously and repetitively until the geese have left the area permanently. State regulations prohibit the use of dogs to harass geese from April 1 to July 31.

b. Chasing

Chasing geese by foot or in a golf cart is labor intensive but in conjunction with other harassment methods, it can be successful if persistent. The idea is to chase geese long enough to cause them to go elsewhere. Some DPR staff use this method in smaller parks.

c. Lasers

Lasers have been used to harass migratory geese. The lasers are used at dawn, dusk and at night during times when flocks prepare to bed for the evening. Geese think that the lasers are predators and will not land for the evening. Lasers are an alternative to pyrotechnics and propane cannons when the effect of noise from these other techniques is undesirable. Lasers have been tried in Denver parks with little success, but new technology of this method continues to be explored and may be tried in certain areas.

d. Mylar Tape or Flags

Mylar tape, flagging and balloons have been used in some areas of parks in conjunction with other exclusion methods. Mylar tape is ½ inch wide, red on one side and shiny on the other. To use Mylar tape as a fence, string one or two strands between two posts and twist the tape two or three times. When the wind blows, the tape rotates; balloons and flagging will create a flashing action. This unfamiliar flash acts as a visual barrier and makes the geese shy away from the area. It may be installed around some of the lakes as needed and along the water's edge.

The placement of coyote or other predator silhouettes can be effective in certain areas as well, however, as with any of these techniques, they are labor intensive and require being moved often.

e. Noise Devices or Scare Techniques

Being considerate of park rules and regulations, other hazing and scare tactics such as pyrotechnics and noise devices have been used to frighten geese from problem sites. These techniques can only be performed by a trained park ranger, natural resource staff or wildlife service contractor.

Pyrotechnics

Although not all geese react to pyrotechnics, most do. Pyrotechnics are specially designed Class C fireworks that are used to frighten wildlife. The types of pyrotechnics in this class include shellcrackers, and firecrackers fired from a 12-gauge shotgun.

Pyrotechnics are enhanced when used with dispatching individuals from the general goose population. Used alone, geese get habituated to the noise, but when individuals are removed from that same population the fight or flight response is maintained.

3. Chemical Control Agents

Repellent treatments - Chemical repellents have been used in some Denver parks for goose management. Approved methods registered with the U. S. Environmental Protection Agency are ReJex-iT®, GooseChase®, Goose-B-Gone®, Bird Shield® and Flight Control®. Repellent treatment is most successful when smaller areas are treated; treatment of larger areas is not as effective. Only park staff who are certified to apply chemicals can apply these repellants.

4. Removal/Relocation

Relocation of Canada geese in Denver parks was discontinued in 1999 by Colorado Parks and Wildlife (CPW) for various reasons. This method of goose management proved to be unsuccessful—no other states wanted Colorado’s nuisance geese and relocation was costly, labor intensive and required a

special Federal permit. This method is only performed by state or federal wildlife agencies. The main problem with relocating geese to a new area is that they imprint on the area in which they were born and return. Soon after this management strategy was discontinued, egg oiling was implemented in Denver parks.

5. Public Support through Education and Outreach

DPR's Natural Resource staff participate in more than 20 wildlife education and community events annually to engage and inform the public about current wildlife issues.

IV. SUMMARY

Wildlife provides educational, economic, recreational and aesthetic benefits, along with contributions to natural ecosystems. Denver Parks and Recreation recognizes that Canada geese, like all wildlife species living in parks, provide people with a valued connection to nature.

Wildlife management strategies will be based on science, environmental impacts, public safety, water quality, and finding a healthy balance between habitats and populations. The Wildlife Program Administrator under the Office of the City Naturalist will be responsible for the implementation, evaluation, and maintenance of DPR's Resident Canada Goose Damage Management Program. In addition, the Wildlife Program Administrator will research and stay abreast of current and reliable science to support resident goose management efforts. Volunteers will be utilized whenever possible to increase the effectiveness of management strategies.

This Plan has been approved and endorsed by the DPR Executive Director and Deputy Executive Director.

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