

**Management Recommendations  
for Bird-related Sanitation at  
Polliwog Park and Nearby Fields  
City of Manhattan Beach, CA**

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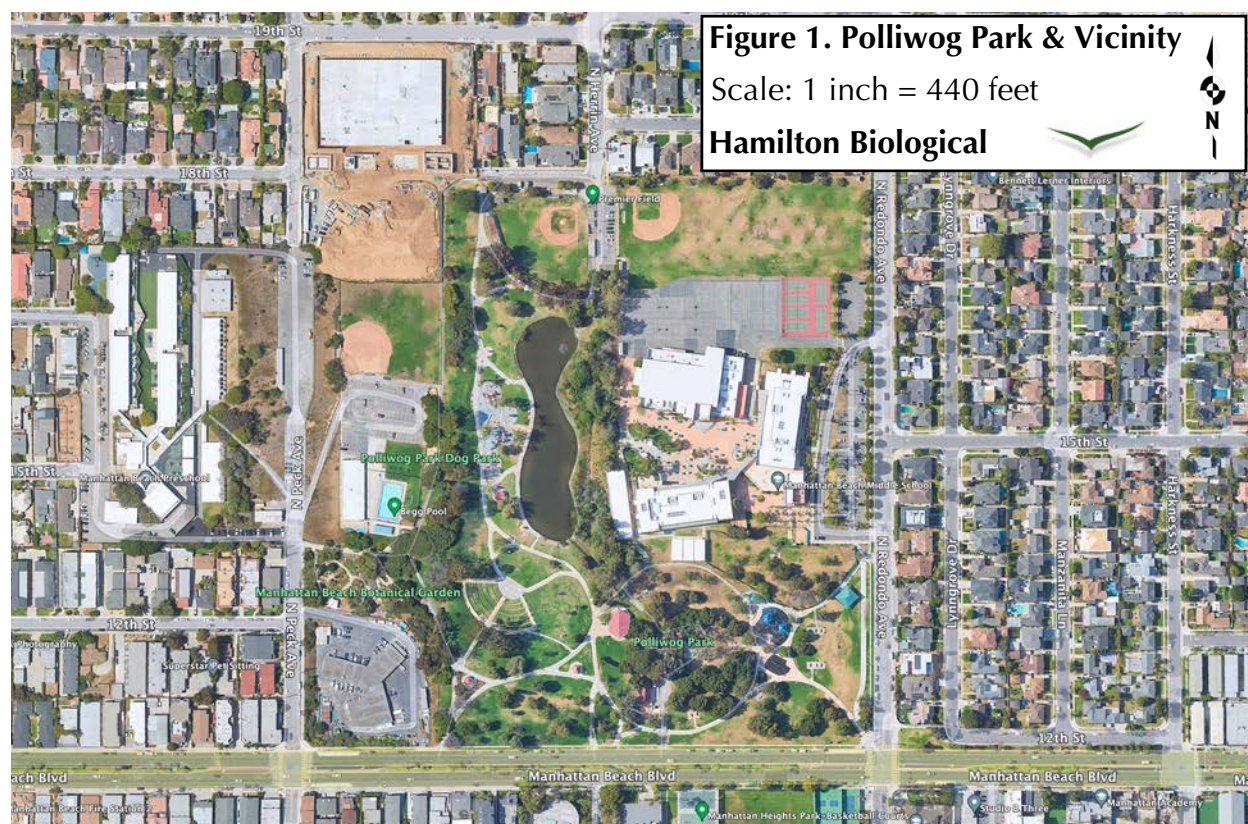
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## INTRODUCTION

The 18-acre Polliwog Park is located north of Manhattan Beach Boulevard between North Peck Avenue and North Redondo Avenue (Figure 1). Adjacent land uses include Manhattan Middle School to the east; Manhattan Beach Botanical Garden, Begg Pool, and Begg Field to the west; and Premiere Little League Field to the north. The park itself contains a 1.2-acre pond called Polliwog Lake, along with an amphitheater, three gazebos, two large playground areas, the Manhattan Beach Historical Society's "little red house" museum, a dog park, and an open-air fitness center.



**Figure 1.** Polliwog Park covers approximately 18 acres in eastern-central Manhattan Beach. Note also the adjacent sports fields north and west of the park that are addressed in this report. *Source: Google Earth Pro.*

Polliwog Lake is concrete-lined around the edges and bordered on the east by native and naturalized vegetation. The northern end of the lake is bordered by turf. Most of the west side of the lake is bordered by a concrete walkway, with areas of turf beyond the walkway to the west and south. The southern end is bordered by an area of bare soil, with a County stormwater pump station that provides the lake's outlet.

Polliwog Park provides habitat for a variety of waterbirds that alternate between using aquatic habitats of the lake and foraging on the nearby turfgrass. These include Canada Geese, Mallards, domestic ducks, and American Coots, which are year-round residents, and American Wigeons that winter in the area from October through April. Other common birds that may leave droppings around the edge of the pond, and to a much lesser extent on the nearby turf, include Ring-billed, Western, and California Gulls, Double-crested Cormorants, Black-crowned Night Herons, and Snowy Egrets.

## METHODS

The recommendations in this report represent a synthesis of information from biologist Robert Hamilton's personal experience, and information gathered from several other relevant sources, as described below.

Robert Hamilton met with Ernest Area, the City's urban forester, on May 13, 2024, from 2:00 to 2:30 p.m. During this meeting, Mr. Area explained the nature of the sanitation issue and Mr. Hamilton inspected conditions at Polliwog Park.

Mr. Hamilton supplemented his understanding of bird sanitation issues by visiting other city parks around the region (e.g., El Dorado Park Duck Pond in Long Beach, ponds at Mile Square Regional Park in Fountain Valley, MacArthur Park and Lincoln Park in Los Angeles).

Mr. Hamilton interviewed Dennis Chiotti, Landscape Maintenance Superintendent at the City of Irvine; Lenny Arkinstall, Founder and Executive Director of the Los Cerritos Wetlands Stewards (contractor responsible for maintenance of Rainbow Lagoon, Colorado Lagoon, and several other natural areas in the City of Long Beach); and an anonymous park ranger at Mile Square Park. Mr. Hamilton also reviewed online resources devoted to control of Canada Geese and other nuisance birds. This included review of several reports prepared by the City of Foster City, in San Mateo County, California, a municipality that is currently addressing many of the same issues involving the management of large numbers of Canada Geese in public parks.

Information on bird use of Polliwog Park was derived from review of checklists on eBird (<http://ebird.com>).



## EXISTING SETTING AT POLLIWOG PARK

Photos 1–7, all taken by Robert Hamilton, show typical conditions around the edge of the pond at Polliwog Park on May 13, 2024.



**Photo 1.** The southern end of the pond is ringed with bare soil outside of the concrete rim for a segment of 60 feet. This muddy area can develop puddles used by geese and other wildlife.

**Photo 2.** Most public interface with the pond occurs along a 380-foot section of the western shore, which is bordered by a concrete walkway. Nearby amenities include a playground, benches, and a gazebo.







**Photo 3.** North of the concrete walkway is another small area of mud and overflow water, where turtles and waterfowl congregate.

**Photo 4.** The pond's northwestern rim is bordered by turf, with one small willow tree that overhangs the pond.







**Photo 5.** Nearly the entire eastern side of the lake exists in a largely natural state, with tules, cattails, willows, and other trees. Geese and ducks presumably nest in this area. Areas of open ground are used by waterfowl and turtles for basking.



**Photo 6.** Red-eared Sliders on the west side of the pond, basking on the concrete walkway. This non-native species is common at the pond.





**Photo 7.** Copious droppings accumulate on the concrete walkway. Droppings are also a problem in areas of turf and dirt around the pond, shown in previous photos. It appears that Canada Geese account for the greatest volume of droppings.

Photo 2, below, is an aerial image showing flooding of Polliwog Lake on February 27, 2024, at the end of a very wet month ([10.02 inches of precipitation at nearby Los Angeles International Airport](#)). Any strategies for modifying the edge of the lake must take into account its propensity to flood after heavy rains.



**Figure 2.** Showing water completely covering the concrete walkway along the western edge of Polliwog Lake on February 27, 2024, at the end of a wet month. The extent of brown coloration in the lower part of the image (i.e., west of the lake) indicates that flood waters had already receded significantly at the time of this image. Source: Google Earth Pro.



## FOCUS ON CANADA GESE

Although various bird species defecate in and around Polliwog Lake, Canada Geese certainly pose the biggest problem. A recent midsummer eBird checklist, dated July 15, 2024 (<https://ebird.org/checklist/S187213466>), recorded a remarkable 81 of these big birds at the park. Among other potential problems, discussed later in this report, each Canada Goose can consume up to four pounds of grass, and create about three pounds of fecal matter, every day. Because resident geese pose the most pressing wildlife management issue, and addressing the goose problem will also generally address issues related to Mallards and other waterfowl defecating around the edges of the lake and on nearby expanses of turf, the management recommendations in this report focus on the Canada Goose.

While this report describes and evaluates a wide range of strategies to manage urban-adapted Canada Geese in and around Polliwog Park, Hamilton Biological also encourages City decisionmakers and parks personnel to reach out to personnel from local governmental agencies elsewhere in California, and across the nation, many of whom are addressing these same sanitation issues within their jurisdictions. For example, as of July 2024, the City of Foster City maintains an informational [web page](#) that chronicles its ongoing experiments in managing resident Canada Geese, with an email address dedicated to addressing questions or comments: [geese@fostercity.org](mailto:geese@fostercity.org).

Through a combination of consultation and direct experience, the City of Manhattan Beach will develop its capacity to effectively manage Canada Geese, and other urban-adapted wildlife, in and around Polliwog Park.

## The Recent History of Canada Geese in Southern California

Over the past four decades, the status and distribution of the Canada Goose in southern California has changed more than almost any other species. Through the 1970s, the Canada Goose was purely a winter visitor to our region, with only occasional sightings between the months of May and September (Garrett and Dunn 1980). In Orange County through the mid-1990s, migratory Canada Geese were unrecorded in summer, although it was noted, “Releases of Canada Geese statewide bring an element of uncertainty to determining their status,” and a single nesting record from Irvine on June 2, 1989, involved birds “almost certainly from captive stock” (Hamilton and Willick 1996). By the year 2000, Canada Geese were resident at several sites around Los Angeles County, but bred “only in low numbers” at scattered locales, and the total county breeding population did not exceed 50 pairs (Allen et al. 2016).

Whether mainly the result of numerous goose releases by the State of California, or migratory birds choosing to remain year-round, large flocks of resident Canada Geese have quickly become familiar and troublesome fixtures at urban parks across the region. In Los Angeles County, top estimated counts of resident Canada Geese in summer 2024 include 450 at Legg Lake on June 29 (<https://ebird.org/checklist/S184705186>); 135 at Bonelli Regional Park on July 14 (<https://ebird.org/checklist/S187072953>); and 110 at Area 2 of El Dorado Regional Park on June 23 (<https://ebird.org/checklist/S183382252>). Especially considering that Polliwog Park is much smaller than these other areas, the



recent tally of 81 Canada Geese at the park indicates that active management of the local population is warranted.

## Canada Goose Natural History

Much of the following background information comes from [\*Solving Problems with Canada Geese, A Management Plan and Information Guide\*](#), prepared by the Humane Society of the United States and available online.

Canada Geese are grazers that prefer short grass, especially fertilized turf. They tend to forage in areas with open sight lines to water, where they can readily see potential predators and easily escape to the safety of a pond or lake.

Mated geese pair off in late winter and defend preferred nesting sites — those near water with a good view of the surrounding area — from other geese. In southern California, they are highly adaptable in their choice of nest sites, and will nest in such unexpected locations as landscaped areas in parking lots, planters next to office buildings, or flat roofs. Photos 8 and 9, below, show Canada Geese nesting in two different habitats at El Dorado Park in Long Beach.

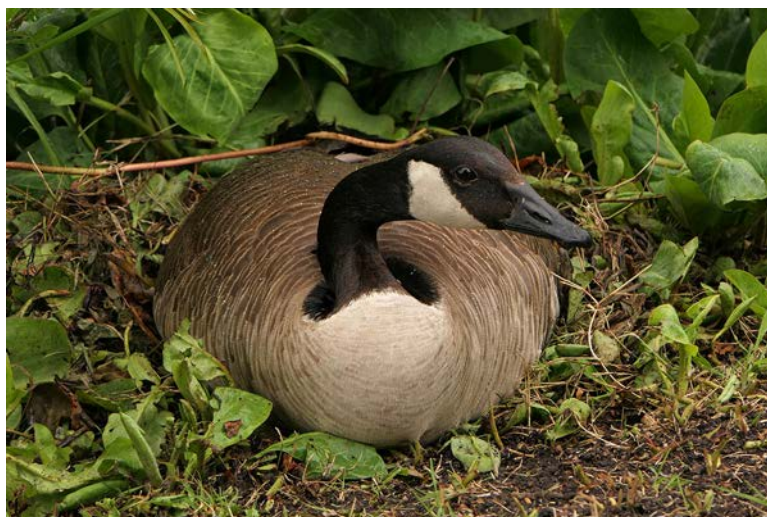


**Photo 8.** Canada Goose incubating eggs in a nest placed atop a mulch pile in a well-used part of El Dorado Park in Long Beach, May 22, 2019.

*Photo: Robert Hamilton*

**Photo 9.** Canada Goose incubating eggs in a more typical nest location, at the edge of aquatic vegetation near one of the lakes at El Dorado Park in Long Beach, April 7, 2020.

*Photo: Robert Hamilton*





Both parents defend the nest and goslings until the young are ten weeks old and can fly. Within a day or two of hatching, parents may lead goslings as far as two miles to grass and water if their nest site does not offer these.



**Photo 10.** An attentive and protective pair of Canada Geese herding small goslings around MacArthur Park in Los Angeles, May 22, 2019.

*Photo: Robert Hamilton*

**Photo 11.** Adult Canada Goose with two large young at El Dorado Park in Long Beach, May 30, 2019.

*Photo: Robert Hamilton*



Adult Canada Geese molt (completely replace flight feathers) each summer and cannot fly during this six-week period. After adults have completed the molt and young geese grow their first flight feathers, they begin to travel in flocks. Resident Canada Geese usually move only short distances for the winter, and it is assumed that the birds at Polliwog Park will either remain there for their entire lives or possibly move short distances to other nearby parks and open space areas.

In the United States, it is illegal to harm Canada Geese or their nests or eggs without permission from the US Fish and Wildlife Service (USFWS). Geese may be harassed or scared away from an area without a permit so long as the birds, their eggs, and their nests are not harmed. The USFWS allows for the eggs of resident Canada Geese to be addled, to prevent them from hatching, after registering online. These topics are discussed in greater detail in the Regulatory Context section of this report.



## Canada Goose Management Issues

As summarized in a fact sheet from the New Hampshire Department of Environmental Services (2019):

- Canada Geese can live upwards of 24 years and can weigh approximately 12 pounds.
- A Canada Goose can consume up to four pounds of grass per day, creating about three pounds of fecal matter daily.
- In large concentrations, goose droppings can contribute to excessive nutrient loading because fecal matter contains 76 percent carbon, 4.4 percent nitrogen, and 1.3 percent phosphorus. These nutrients can cause algal blooms and excessive plant growth in lakes.
- When geese defecate near shore or in the water, they create a health risk to humans. Their fecal material may contain the swimmer's itch organism along with fecal bacteria. Swimmer's itch is a temporary skin rash caused by a small parasite; however, the rash does not require treatment.
- A larger concern is posed by fecal bacteria, or *Escherichia coli* (*E. coli*), bacteria that occur naturally in the digestive tracts of warm-blooded animals. *E. coli*, when present in large amounts, may cause gastrointestinal problems such as nausea, vomiting, and diarrhea. The presence of *E. coli* may also indicate the potential presence of other pathogenic organisms. Members of the public should avoid contact and ingestion of water in areas frequented by geese.
- Geese may be aggressive toward members of the public, especially during the breeding season, when they tenaciously defend their nests and young.

## Canada Goose Management Philosophy

Review of numerous goose management strategies employed across the country leads to an overarching conclusion that no single management approach is likely to solve or substantially reduce conflicts between people and resident Canada Geese. Successful goose management programs employ a combination of techniques that prove effective in the local setting. In summary:

- Canada Goose management plans that are organized with an action plan, community buy-in, an adaptive management approach, and a long-term commitment of time and manpower, are more likely to be successful.
- The management program should employ an "adaptive management" approach, in which personnel experiment with different techniques, evaluate the results, and continually refine the management approach to emphasize effective techniques and reduce or eliminate those that prove ineffective.

- Polliwog Park is a public open space where many people undoubtedly feel a connection to the Canada Geese, even if they do not appreciate the associated mess or the occasional goose attack. Therefore, this plan recommends only non-lethal means of managing the local goose population. The addling of goose eggs, one strategy recommended in this report, does not harm living birds and is endorsed by the Humane Society of the United States.
- Before taking any actions, the City should educate the public about the issues and how the City plans to address them. At minimum, this should include detailed educational signage posted near Polliwog Lake, but it may also be helpful to hold one or more public workshops. The public is more likely to cooperate with these efforts, and to refrain from protesting them, if they understand the problems and are given a voice in addressing them.
- Although short-term techniques can relieve immediate problems, long-term solutions are much more likely to succeed in mitigating human/goose conflicts.
- The goal of Canada Goose management should be to substantially reduce the number and severity of conflicts by (a) making Polliwog Park and nearby sports fields less accommodating to the geese, and (b) reducing goose productivity.

## **Regulatory Context**

All recommendations in this report to manage Canada Geese must be conducted in compliance with applicable federal and state laws and regulations, as summarized below.

### ***Federal Migratory Bird Treaty Act***

The federal Migratory Bird Treaty Act (MBTA) of 1918 implemented the 1916 Convention between the U.S. and Great Britain (for Canada) for the protection of migratory birds. Later amendments implemented treaties between the U.S. and Mexico, the U.S. and Japan, and the U.S. and the Soviet Union (now Russia). At the heart of the MBTA is this language:

Establishment of a Federal prohibition, unless permitted by regulations, to “pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention . . . for the protection of migratory birds . . . or any part, nest, or egg of any such bird.” (16 U.S.C. 703)

Under the MBTA, the term “migratory bird” refers to virtually all native species, including their nests and eggs. As discussed below, however, the federal government has made an exception for control of resident Canada Goose populations.



### ***Federal Regulations for Managing Resident Canada Goose Populations***

In 2006, the US Fish and Wildlife Service (USFWS) published in the Federal Register (71 FR 45964) a final rule establishing regulations authorizing State wildlife agencies, private landowners, and airports to conduct (or allow) indirect and/or direct population control management activities to reduce, manage, and control resident Canada Goose populations in the continental United States and to reduce related damages. Those activities include depredation and control orders that allow destruction of resident Canada Goose nests and eggs by authorized personnel. In 2019, the USFWS amended the rule (84 FR 28769) to (a) specify that all Canada Geese nesting within the lower 48 States and the District of Columbia, at any time of year, are classified as resident Canada Geese, and (b) remove previous date restrictions and allow destruction of Canada Goose nests and eggs, as otherwise authorized, at any time of year. To become authorized to manage resident Canada Geese, visit <https://epermits.fws.gov/eRCGR>.

### ***California Fish and Game Code***

As with many federal laws, California has adopted similar wording in state codes that mirror federal guidelines. Sections 3503 and 3503.5 of the California Fish and Game Code prohibit disruption of nesting by any bird species, “except as otherwise provided by this code or any regulation made pursuant thereto.” This includes Mallards and domestic ducks and geese, but not Canada Geese. Section 503(c) of the California Fish and Game Code allows for destruction of resident Canada Goose nests and eggs, if registered to do so with the federal government as reviewed above. In Los Angeles County, and several other counties, permission from the California Department of Fish and Wildlife is not required prior to tampering with Canada Goose nests or eggs, so long as federal authorization is obtained.

## MANAGEMENT STRATEGIES FOR POLLIWOG PARK

This report identifies four management strategies that appear to have good potential to effectively manage Canada Goose population at Polliwog Park: (1) Food reduction; (2) establishing a barrier around part of Polliwog Lake; (3) hazing geese with green laser; and (4) controlling the population through addling of eggs. Each of these methods is described in detail in the following sections.

### Recommendation 1: Food Reduction

As grazers, geese do not require food handouts, but feeding waterfowl encourages them to congregate in an area and may make geese more aggressive toward people (Smith et al. 1999). If fed an inappropriate diet, such as human foods and commercial poultry feeds, young waterfowl are prone to develop a wing deformity called “angel wing,” slipped wing, or dropped wing. This permanent deformity prevents or limits flight. Inappropriate food can cause other less obvious problems by replacing nutritious food with “empty calories,” much like chips and candy for people. Geese not only feed on the turf grass, but will readily accept food from parkgoers and even forage on trash (Photo 12, below).



**Photo 12.** A group of four Canada Geese, along with a Black-crowned Night Heron, pick through trash at El Dorado Regional Park in Long Beach. September 5, 2023.

*Photo: Robert Hamilton*

Reduction of food for Canada Geese should be addressed through (a) public education, including possible passage of an ordinance prohibiting the feeding of wildlife, combined with (b) careful management of trash loads at Polliwog Park.

### ***Comprehensive Public Education Program***

To obtain full buy-in from members of the public to modify their behavior toward geese at the park, the following steps are recommended:

- Establish a City web page dedicated to local goose management issues, comparable to that of the [City of Foster City](#). Not only does this demonstrate that the City takes the issue seriously, but it efficiently provides important information to the public and increases the public’s sense of participation in the program.



- Create interesting and informative educational materials to be posted at the information kiosk on the west side of Polliwog Lake.
- Create highly engaging signage discouraging the feeding of geese and the dumping of trash at the park. Figure 3, below, provides an example of the type of eye-catching signage that is likely to be more effective than the more typical “Do Not Feed the Birds” signs, which parkgoers routinely ignore.



**Figure 3.** Example of an eye-catching and engaging “Do Not Feed” sign, created by the City of Atlantic Beach, Florida. This type of custom signage, posted around the edge of Polliwog Lake and in other parts of the park where people feed waterfowl, is likely to have better results than the more usual generic signage, which is routinely ignored by members of the public. Signage should be posted liberally along the edge of the lake and in other areas where people are frequently seen feeding waterfowl in the park.

In addition to public education, the City of Manhattan Beach may wish to consider passing an ordinance similar to Section 12.08.105 of the City of Fountain Valley's Code of Ordinances, passed on 2022: "Unless specifically authorized by the director of community services in writing, no person shall feed, disturb, or have physical contact with wildlife on city property." Having an anti-feeding ordinance on the books would lend authority to anti-feeding signage even if the City does not intend to fine parkgoers. It is relevant to consider the experience of an anonymous ranger at Mile Square Park, who reported that some repeat offenders, after repeated requests and educational outreach, could only be convinced to stop feeding waterfowl through the issuance of a citation carrying a fine.

### ***City Waste Management***

The other important aspect of reducing food for geese and other wildlife at Polliwog Park involves the City's management of waste. This can be challenging, especially on weekends when trash receptacles can quickly overflow, and when the public may leave large volumes of trash in places available to wildlife. To the extent feasible, the City should devote resources to ensuring that an adequate number of trash receptacles, covered to prevent wildlife from accessing the contents, are deployed at the park to minimize the problem of subsidizing wildlife on trash. It may also be appropriate to devote extra crews to picking up trash at Polliwog Park on weekend mornings.

### **Recommendation 2: Establish a Barrier to Modify Goose Behavior**

Preferred habitat for Canada Geese consists of a large, unobstructed lawn area close to open water (Smith et al. 1999). At present, Canada Geese and other wildlife are readily able to move between Polliwog Lake and the concrete walkway west of the lake, as well as the large areas of turf southwest of the lake. This is because no barriers exist along the edge of the water that would inhibit Canada Geese or other waterfowl from moving easily between the lake and the concrete surface. This arrangement (1) encourages waterfowl to use the walkway, where their droppings create the most obvious messes; (2) creates ready opportunities for members of the public to feed the birds along the walkway and in areas southwest of the lake; and (3) increases potential for aggressive interactions between aggressive geese and parkgoers.

As one aspect of addressing these issues, it is recommended that the City investigate ways of modifying goose behavior by establishing low bollards, 36 to 48 inches high, with wire strung between them, along the length of the concrete walkway. Because geese prefer open terrain with ready access to water, the barrier should encourage geese and other waterfowl to exit and enter the water at only the north and south ends of the lake, and to feed only in turf near the northern end of the lake, away from the amphitheater and other areas of the park most heavily used by the public. Most sources describing goose barriers recommend that spaces between the wire be no greater than 3 inches, but spacing wires 6 inches apart is probably adequate to significantly discourage geese rather than absolutely excluding them from the area. Figure 4, on the next page, shows 570 linear feet of a schematic goose deterrent barrier wrapping around western and southern shores of the lake.





**Figure 4.** The red line represents, schematically, 570 linear feet of a low barrier, 36–48 inches tall, that could be established along the western and southern edges of Polliwog Lake, to discourage Canada Geese from congregating along the concrete walkway near the play area, or foraging in the amphitheater area. The geese and other waterfowl would still have unfettered access to areas of turf in the northern part of the park, which is used less heavily by members of the public. *Source: Google Earth Pro.*

Before investing in such a major change in the park, it is recommended that the City experiment with temporary barriers to see how the geese react to different barrier lengths configurations, bollard heights, wire configurations, etc., in combination with hazing described in Recommendation 3.

### Recommendation 3: Hazing with Green Laser

Habitat modification techniques alone usually cannot prevent geese from using an area, especially after a flock is established, but habitat modification combined with hazing can have additive effects (Conover and Kania 1991, Smith et al. 1999). The overarching concept is that the number of geese using a given area can be reduced by making the area less hospitable to them through a combination of habitat modification and hazing, thereby causing a substantial number of them to find another open space area to utilize where they are not subjected to regular hazing. One of the more common and effective forms of hazing is to use a trained dog to repeatedly chase geese out of unwanted areas. This, however, is costly, as it typically requires the ongoing services of a trained contractor. Increasingly, however, individuals and municipalities are using green lasers to haze Canada Geese, which can be done safely and effectively by trained maintenance personnel. Many web pages and videos can be readily found online describing and demonstrating simple techniques for using a green laser to quickly scare off goose flocks. Only high-quality, properly filtered green lasers powerful enough to complete the task should be used, safely, and only by fully trained personnel. A laser should never be shined in the eye of any human, bird, or other wildlife.

If this recommendation is followed, the City may find that hazing is best conducted in the early morning hours, when a less powerful laser will be visible to the geese than may be needed in full daylight, and before many people are in the park. Personnel

should not only be trained in the safe use of lasers, but also be prepared to educate members of the public who may express concern that the City is making conditions less appealing to geese and other waterfowl. It is the overpopulation of geese in and around the park, and the associated problems described in this report, that demand a multi-faceted management response from the City. The use of lasers to move geese out of public spaces is a management method [endorsed by the Humane Society of the United States](#).

#### **Recommendation 4: Canada Goose Population Control**

Addling commonly refers to any process by which an egg ceases to be viable. If this approach is used, [goose eggs can be humanely addled by vigorously shaking the eggs, puncturing them with a needle, oiling them, or replacing them with dummy eggs](#). If the eggs are simply removed from the nest, pairs will frequently renest and produce another clutch, so removal of viable eggs is not recommended unless they are replaced with non-viable eggs. Note that, if the eggs are aged by flotation and incubation is beyond 18 days (Westerkov 1950), the eggs can probably be removed without triggering renesting. For resident Canada Geese, the federal government allows managers to addle eggs or destroy nests after [registering online](#).

Because Canada Geese are long-lived (20 years or longer), addling eggs takes a number of years to produce detectable results. To equal the effect of removing an adult goose from the local population, all eggs produced by the adult must be addled. Population simulations indicated that an urban Canada Goose flock could remain stable even with removal of 72 percent of the eggs were removed; and that removing 95 percent of the eggs would result in only 25 percent reduction of the flock over a period of ten years (Owen 1990). Thus, effective population control through addling demands a significant long-term commitment of labor. If pursued diligently, over time this method of population control can be expected to contribute to a successful management program.

Destruction of goose nests is sometimes pursued as a management strategy, but it is very time-consuming, generally requiring daily searches for nests to be effective (Smith et al. 1999), and so this method is not recommended.



## MANAGEMENT STRATEGIES FOR SPORTS FIELDS

Several playing fields near Polliwog Park are affected by excessive droppings from the same flocks of Canada Geese, and other birds, that spend the rest of their time in Polliwog Park. The accumulations of excrement make the fields unsanitary and result in complaints from members of the public. A secondary side effect is that, during periods of field rehabilitation, the waterfowl eat the grass and grass seed and make it difficult to bring the field back to acceptable condition. This report identifies three recommendations to address these problems: (1) hazing with green laser, and (2) use of goose repellants and application of a heavy top-dressing of sand to fields under restoration. This assumes that the City has decided not to replace the fields with artificial turf, which is a consideration beyond the scope of this study<sup>1</sup>.

### Recommendation 1: Hazing with Green Laser

As discussed on page 16 of this report, green lasers can be safely used to haze Canada Geese, which can be done safely and effectively by trained maintenance personnel. This technique may be even better suited to use on open playing fields where birds are congregating, due to the lower likelihood of people being present, than it is to use in Polliwog Park. Many web pages and videos can be readily found online describing and demonstrating simple techniques for using a green laser to quickly scare off goose flocks. Only high-quality, properly filtered green lasers powerful enough to complete the task should be used, safely, and only by fully trained personnel. A laser should never be shined in the eye of any human, bird, or other wildlife.

If this recommendation is followed, the City may find that hazing is best conducted in the early morning hours, when a less powerful laser will be visible to the geese than may be needed in full daylight, and before many people are in the park. Personnel should not only be trained in the safe use of lasers, but also be prepared to educate members of the public who may express concern that the City is making conditions less appealing to geese and other waterfowl. It is the overpopulation of geese in and around the park, and the associated problems described in this report, that demand a multi-faceted management response from the City. The use of lasers to move geese out of public spaces is a management method [endorsed by the Humane Society of the United States](#).

### Recommendation 2: Goose Repellent with Heavy Top-dressing of Sand

Two chemicals are registered in the United States as Canada goose repellents. Anthraquinone triggers a strong digestive irritation. This compound also absorbs light in the ultraviolet range that geese, but not humans, can see. Since geese visually recognize treated areas, they learn to avoid them by sight. Methyl anthranilate is a grape-flavored food additive that, when sprayed on grass, makes the grass unpalatable to geese. Geese must try some treated grass before they learn not to eat at the site.

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<sup>1</sup> Useful information on pros and cons of artificial turf vs. natural grass fields is available at <https://www.gba.org/resources/green-healthy-schools-resources/safer-grass-options-for-athletic-fields/#:~:text=Reasons%20some%20cite%20for%20choosing,faceted%20and%20involve%20trade%20Doffs.>

Repellents receive mixed reviews from managers, as they are washed off during rains and mowed off when grass is cut, and thus must be reapplied frequently. Also, their odors may make them unsuitable for use in Polliwog Park. Nevertheless, Dennis Chiotti at the City of Irvine reported that he has found chemical goose repellents to be effective for use when rehabilitating playing fields. He reported that, to prevent geese from eating the seeds from newly planted fields, his crews have success using chemical repellents in conjunction with a heavy top-dressing of sand. If additional detail is needed, Mr. Chiotti is available via email ([dchiotti@cityofirvine.org](mailto:dchiotti@cityofirvine.org)) or phone (949) 724-7612.

## CONCLUSION

As discussed in this report, Canada Geese are seldom successfully controlled or managed quickly or by employing a single strategy. The greatest chances of success involve an adaptive management approach that employs multiple techniques, evaluates their effectiveness, and then makes appropriate adjustments to arrive at an integrated strategy tailored to the specific conditions at Polliwog Park and nearby sports fields. Decisionmakers and maintenance supervisors should also be aware that no “silver bullets” exist that quickly and easily solve the problems associated with urban waterfowl. The City of Fountain Valley hires contractor to maintain sanitation at Mile Square Park, and the City of Irvine retains a full-time contractor to address sanitation at all of their urban parks. Polliwog Park and the nearby fields may be small enough for City crews to maintain adequately, but with several dozen Canada Geese in this limited area the management challenges are considerable. If following the recommendations in this report do not improve the situation sufficiently, it may be appropriate for the City to consider taking more active measures, which could require CEQA review.

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