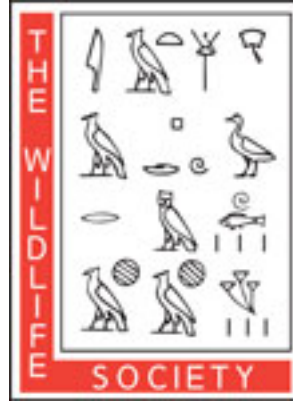


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OVERHEAD WIRES AND MONOFILAMENT LINES EXCLUDE RING-BILLED GULLS FROM PUBLIC PLACES

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Ring-billed gull (*Larus delawarensis*) nesting populations in the Great Lakes have increased greatly in recent years (Ludwig 1974, Blokpoel 1977, Blokpoel and McKeating 1978, Scharf et al. 1978). A colony at the Toronto Outer Harbour in Lake Ontario has increased from 21 nests in 1973 (Blokpoel and Fetterolf 1978) to an estimated 75,000-80,000 pairs in 1982 (Blokpoel, unpubl. data). During the breeding season, gulls forage in Lake Ontario and in and around Toronto. After the breeding season, newly fledged gulls forage in the city as well. At playgrounds, parks, and fast-food outlets the gulls compete with rock doves (*Columba livia*) for food scraps and handouts.

In some areas the gulls are a nuisance because of their noisy and aggressive food-begging and their frequent defecations (Blokpoel 1983). At Toronto City Hall Square, gull droppings contaminated the pool water, defaced park benches, and frightened some tourists. At Ontario Place (an aquatic park constructed over Lake Ontario along the waterfront), gulls annoyed patrons of outdoor restaurants by stealing food and fouling tables.

The use of overhead fishing lines to keep gulls off a hotel swimming pool in Florida was

noticed by R. Hope, Maintenance Supervisor of Toronto City Hall. At his suggestion, portions of City Hall Square and Ontario Place were equipped with overhead monofilament fishing lines. The lines kept gulls away, but during winter 1981-1982 almost all lines broke due to weather, construction activities, vandalism, and, perhaps, deterioration of the lines. In 1982, the method was used again, providing an opportunity to evaluate its effectiveness. This report documents this successful attempt to exclude gulls from 2 public places in Toronto.

STUDY AREAS AND METHODS

The south side of Toronto City Hall Square has a shallow pond about 32 × 57 m with 3 concrete arches that span the eastern part of the pool. The square is surrounded on 3 sides by an elevated concrete walkway (Fig. 1). In 1982, 4 flagpoles were installed on the walkway to suspend a "ceiling" of metal wires over the pool and a restaurant area high enough to clear the arches, which were favorite perches for the gulls. The wires were of multi-stranded steel about 2 mm in diameter with a tensile strength of 540 kg. Between the 2 support wires, 19 lines were strung 2.5 m apart at a height of 8-10 m above the ground. The lines were stainless steel fishing line, about 0.25 mm in diameter, with a tensile strength of 7.2 kg. They were attached by wrapping the ends around the support

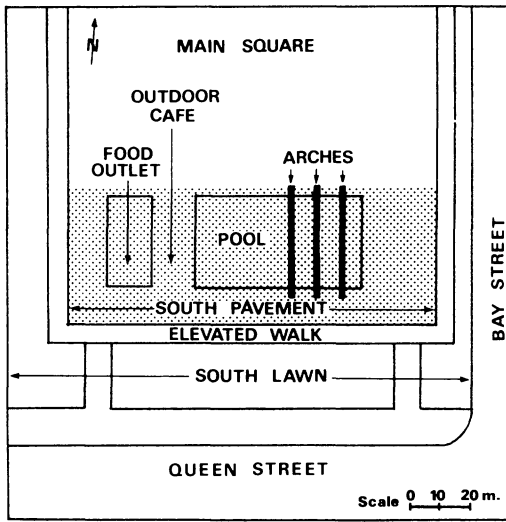


Fig. 1. Toronto City Hall Square. Shading indicates area covered by overhead wires and lines.

wire. The lines were installed during 16–23 July 1982. Observations and counts of gulls were conducted on 6 days before the wires were installed (30 June–13 July) and on 4 days after installation (26–30 July).

Ontario Place is composed of buildings, constructed on stilts or on islands, interconnected by walkways. To keep gulls away from food counters and outdoor restaurants, monofilament fishing lines were re-installed in late June 1982. The lines were attached to existing structures which resulted in an irregularly shaped, dense network of criss-crossing lines at heights of 3–5 m above the ground. We monitored the presence of gulls in 3 areas after the lines had been installed. Area A consisted of an outdoor restaurant and an adjacent public picnic area. Both the restaurant (which was line-covered) and the picnic area (where no lines were installed) were alongside the open water of a large marina. Area B consisted of 2 fast-food outlets and a paved area with picnic tables in front of them. The picnic area was adjacent to a bay of open water on 1 side. The food outlets and the picnic area, except for 1 small triangle next to the water, were completely line-covered. Area C consisted of an open roller-skating rink, surrounded by restaurants and landscaped lawns. The rink and restaurants were line-covered but part of the lawn area was not. Area A was visited on 5 days during 30 June–28 July and Areas B and C on 8 days during 23 June–28 July.

RESULTS

Toronto City Hall Square

Observations before installation of the wires showed that: (1) during the day, gull numbers

increased, peaked during 1100–1430 hours, and then decreased; (2) peak numbers varied from day-to-day ($\bar{x} = 78$, range 47–103, $n = 6$); (3) the gulls moved around the square according to where people fed birds; (4) the arches over the pool were a preferred perch whereas most feedings occurred on the south lawn; (5) virtually all birds observed were adults or subadults (2 year olds) and young-of-the-year were seen rarely (the highest count being 3 of 38 gulls); and (6) gulls defended feeding sites by driving off other gulls and sometimes rock doves.

As the hourly gull numbers on any particular day were not independent, we used the midday censuses to compare the situation before and after installation of the wires. Mid-day censuses occurred during 1300–1400 hours, except for 1 day when the census was at 1500 hours. Gull numbers in the wire-covered area were reduced to almost zero (Table 1). Gull numbers in adjacent uncovered areas were also greatly reduced, indicating that most gulls left City Hall Square altogether rather than linger outside the covered parts. After the wires were installed, about half of the gulls present were young-of-the-year.

To learn if gulls would become habituated to the wires, we visited the area about a month later (1000–1140 hours on 26 Aug). Up to 7 gulls (1 adult, 1 subadult, and 5 young-of-the-year) were present on the south lawn and 1 gull briefly rested a few times on the walkway. Although a gull occasionally walked or flew from the uncovered south lawn to the wire-covered south pavement, it appeared to be nervous and quickly returned to the south lawn.

Ontario Place

The overhead lines effectively eliminated the gull problem in study Areas A and C and reduced the numbers of gulls in Area B (Table 2). In Area B, virtually all gulls seen under the lines were being fed by people. Most gulls begged for food when sitting on the water in

Table 1. Number of ring-billed gulls at Toronto City Hall Square before and after installation of wires. Areas that remained uncovered by wires appear in *italics*.

	Before wiring (n = 6 days)		After wiring (n = 4 days)	
	\bar{x}	Range	\bar{x}	Range
Pool	13.7	3–28	0	
Arches	16.8	11–24	0.25	0–1
Outdoor cafe	4.3	2–24	0	
South pavement and <i>south lawn</i>	13.2	0–36	3.25	0–6
South pavement ^a			0	
<i>South lawn</i>			3.25	0–6
<i>Elevated walkway</i>	15.0	3–27	0.25	0–1
<i>Main square</i>	1.3	0–3	0	
All areas	64.3		3.75	
Pool, arches, outdoor cafe only	34.8		0.25	

^a South lawn and south pavement were considered 1 area before wiring.

the bay and only rarely would a gull enter the line-covered area to solicit food.

During our 26 August visit we found that the gulls did not habituate to the lines: Area A had 15 gulls (none in the line-covered portion), Area C had 15 gulls (none in the line-covered part), and Area B had 33 gulls, 4 of which fed on food remains in the line-covered area but remained close to the edge of the treated area. At Ontario Place, a juvenile bird was seen first in the study areas on 10 July, but by the end of July and again at the end of August more than 80% of the gulls in the study areas were young-of-the-year.

DISCUSSION

To our knowledge, use of overhead wires and monofilament lines to exclude gulls from large public places such as Toronto City Hall has not been reported previously. However, wires have been used over fish ponds (McAtee and Piper 1936) and water supply reservoirs (McAtee and Piper 1936, Amling 1980), and monofilament lines over fish ponds (Ostergaard 1981).

Both stainless steel wires and monofilament lines have been used successfully in our gull-exclusion operations. Stainless steel wires are stronger but tend to kink during installation. Monofilament lines are inexpensive and easy

to install. However, the lines may break when birds collide with them or deteriorate when exposed to sun.

We do not know why the ring-billed gulls were unwilling to fly through the wires or monofilament lines. At City Hall Square gulls would circle overhead, glide down, and leave without penetrating the wires. The few birds that we saw under the wires entered from the side by walking or flying from the south lawn. We noted similar behavior at Area B of Ontario Place: quick, almost furtive, side entries under the line-covered area were responses to the obvious presence of food.

We speculate that flying gulls looking for food focus their eyes on the ground and then unexpectedly fly into a wire or a monofilament line when circling or gliding down. When a gull attempted to fly through the wires

Table 2. Number of ring-billed gulls at 3 sites at Ontario Place after installation of overhead monofilament lines.

Study site	No. birds in entire area		No. birds in line-covered portion of area	
	\bar{x}	Range	\bar{x}	Range
A	18.6	0–52	0	
B	13.5	0–53	3.3	0–7
C	2.9	0–15	0	
Totals	35.0		3.3	

(which were invisible to us) and came close to or struck 1 of the wires, the bird acted startled (after a quick evasive maneuver it ruffled its feathers in flight and left).

Rock doves did not respond to the wires. Doves were seen frequently under the wires at City Hall Square. Although most doves walked or flew in from the side, some descended from above. We saw several evasive maneuvers to avoid striking a wire.

MANAGEMENT IMPLICATIONS

With increasing populations of ring-billed gulls in Ontario, the Ontario Region of the Canadian Wildlife Service has received increasing numbers of reports of damage to aircraft, crops (tomatoes and young shoots of vegetables), commercial products (fouled by defecation), and buildings (removal of insulation materials). Most complaints, however, pertain to the growing nuisance caused by defecations and by aggressive, noisy food-begging (Blokpoel 1983).

Population control of ring-billed gulls is a complicated, costly, and contentious proposition requiring a long-term commitment of money, manpower, and judicious public relations. However, overhead wires or monofilament lines can provide site-specific control. Where large numbers of hungry gulls are attracted to public places, overhead wires or lines can be used as an effective, relatively permanent, and inexpensive method of exclusion in nuisance situations.

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