COLONIZATION BY GULLS AND TERNS OF THE EASTERN HEADLAND, TORONTO OUTER HARBOUR

By H. Blokpoel and P. M. Fetterolf

Colonially nesting piscivorous birds in Lake Ontario are under environmental stress from toxic chemicals (Gilbertson, 1974; Gilbertson et al., 1976), increased pleasure boat traffic, and human visits to breeding colonies. Breeding populations of the Herring Gull (*Larus argentatus*), Common Tern (*Sterna hirundo*), and Caspian Tern (*S. caspia*) in the Canadian part of Lake Ontario have decreased in recent years, whereas the Ring-billed Gull (*Larus delawarensis*) increased its breeding population in that area (Blokpoel, 1977).

This paper describes the development of the man-made Eastern Headland, Toronto Outer Harbour, and documents the colonization of the area by breeding populations of these terns and gulls.

METHODS

On 10 and 11 June 1976, we counted all gull and tern nests on the Eastern Headland. The Eastern Headland is east-southeast of downtown Toronto, Ontario, and juts out approximately 5 km from the foot of Leslie Street in a southwesterly direction (Fig. 1). One author (PMF) returned on 6 July 1976 and censused the terns. On the first count we considered a nest to be a structure that contained eggs or young, or clearly had contained young earlier in the season. During the second visit, PMF counted only nests with at least two eggs. Where necessary we divided a colony into strips by temporary markers (sticks, piled rocks, etc.).

To obtain pre-1976 data for the Eastern Headland, we searched the files of the Ontario Nest Record Scheme and contacted people who had kept records of their observations on the Eastern Headland.

RESULTS

Figure 2 shows the yearly development of the Leslie Spit (the common name for the Eastern Headland) from 1967 to 1975. The peninsula is composed of rocky and earthen fill from building sites and sandy dredged spoil from the Outer Harbour (Fig. 1). Major increases in land mass occurred in 1973 and 1974.

Numbers of gull and tern nests on Leslie Spit reported during the period 1970–1976 are shown in Table 1. Distribution and size of the larid colonies on 10 and 11 June 1976 are shown in Figure 3 and Table 2.

Herring Gulls have not been reported nesting on the Eastern Headland prior to 1976 (Table 1). In 1976, 12 Herring Gull nests were found scattered throughout the area, usually among Ring-bill nests (Fig. 3 and Table 2).

Some Ring-billed Gulls attempted to colonize the spit in 1973 (Table 1). In 1974, "small numbers" of nests were reported. We have no data

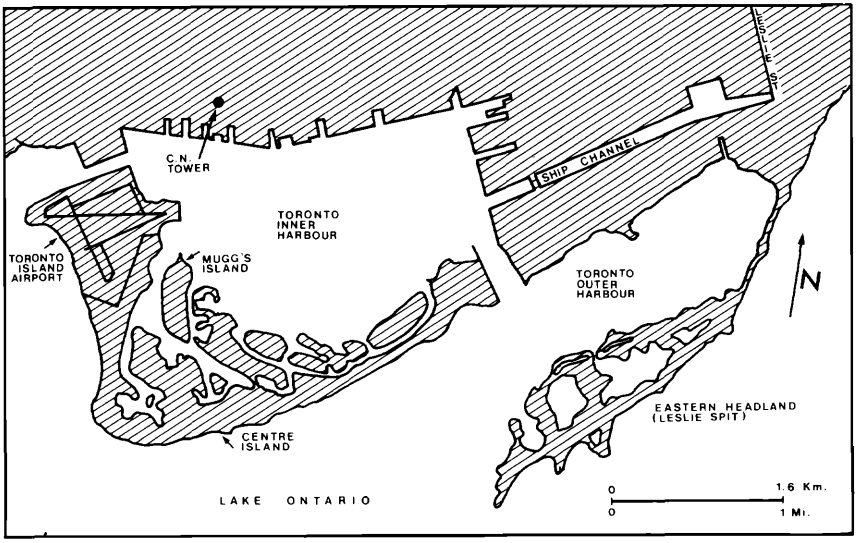

FIGURE 1. Toronto water front and harbour (after map issued by the Toronto Harbour Commission, January 1976).

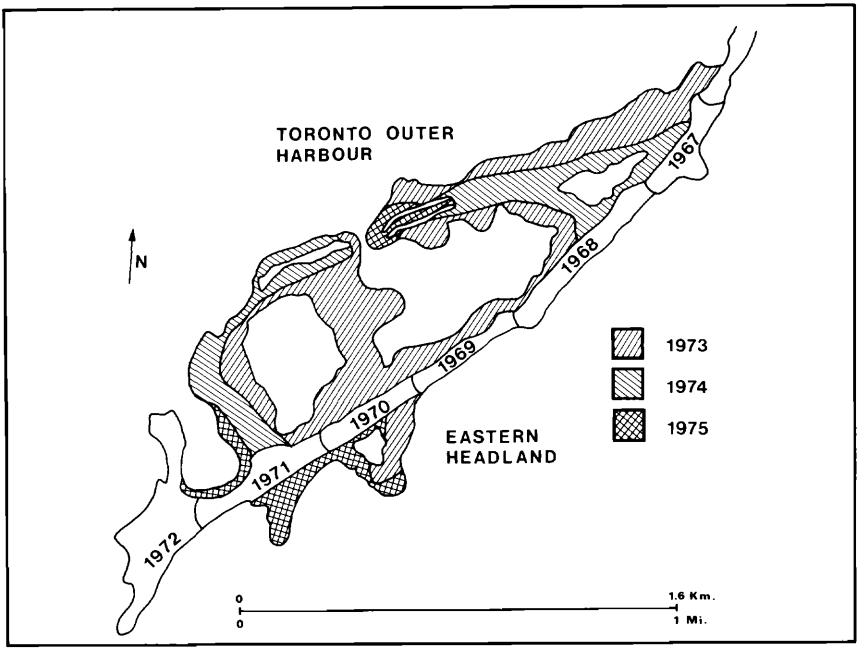

FIGURE 2. Development of the Eastern Headland, Toronto Outer Harbour, 1967–1975 (after annual maps issued by the Toronto Harbour Commission).

TABLE 1
Numbers of nests of gulls and terns on the Eastern Headland, Toronto Outer Harbour.

Year	Date	Herring Gull	Ring-billed Gull	Common Tern	Caspian Tern	Source
1970	—[1]	—	—	—	—	
1971	—	—	—	30–40	—	Ontario Nest Record Scheme
1972	—	—	—	—	—	
1973	30 May	0	9 with eggs 12 without eggs	11	0	R. B. Sutherland
1973	8 June	0	0	70	0	R. B. Sutherland and D. V. Weseloh
1973	last 10 days of June	0	0	170–200	0	G. T. Haymes and R. A. Hunter
1974	—	—	"small numbers"	—	—	R. D. Morris
1975	—	—	—	—	—	
1976	22 May	—	3,000[2]	1,200[2]	—	D. Broughton
1976	10 and 11 June	12	10,382	1,246	4	H. Blokpoel and P. M. Fetterolf
1976	6 July	—	—	1,516[3]	7	P. M. Fetterolf

[1] Unknown or unreported.
[2] Estimate.
[3] 1,246 old nests and 270 new nests (see text).

for 1975. In 1976, we found two colonies each exceeding 4,000 nests near the tip of the headland (areas Q and R, Fig. 3). We found small aggregations in areas A, G, M and N.

A small Common Tern colony had become established on the Eastern Headland by 1971 (Table 1). By 1973, the colony had increased to an estimated total of 170 to 200 nests. On 10 and 11 June 1976, we counted 1,246 nests. On 6 July 1976, PMF found 299 Common Tern nests, each with 2 or 3 eggs. Most of the 299 nests were probably begun after our first visit because 25 days elapsed between the two visits and the incubation period of Great Lakes Common Terns varies from 21 to 24 days (P. Courtney, pers. comm.). On our first visit we found many nest "scrapes" that we did not include in our tally. Furthermore, five eggs sampled randomly during the second visit were within a few days from hatching, suggesting that they were laid shortly after the first visit. Assuming that 10% of the 299 were old nests (with addled eggs) or renests, 1,516 pairs of Common Terns nested on Leslie Spit in 1976. The major

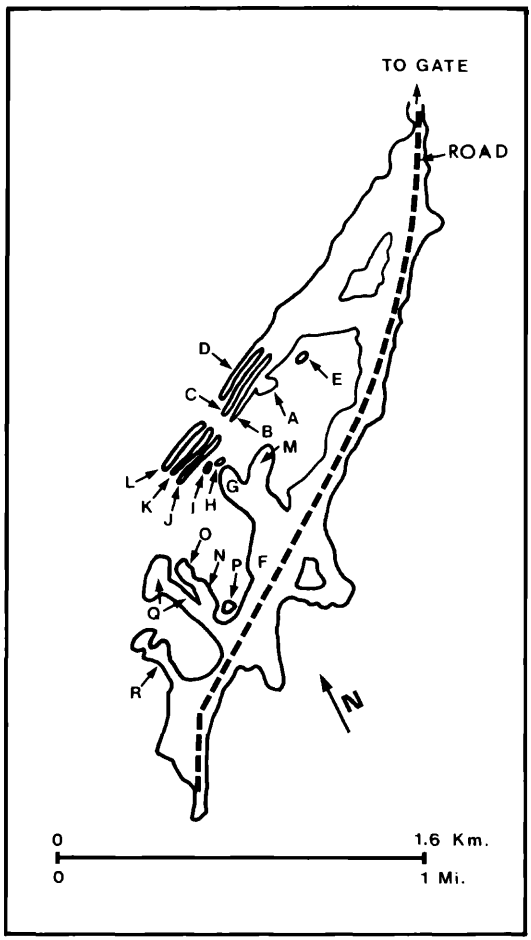

FIGURE 3. Sketch of the Eastern Headland, Toronto Outer Harbour, in spring 1976 showing areas (A through R) that had nesting larids. See Table 2 for details.

nest concentrations were in areas C, D and N (Fig. 3). Small groups of terns nested among the Ring-bills (areas A and F, Fig. 3) but larger groups were adjacent to (areas M and N) or apart from (areas B, C and D) the gull colonies.

Caspian Terns were not reported nesting on the Eastern Headland before 1976. In 1976, we found 4 Caspian Tern nests on 11 June and PMF found 3 new nests on 6 July. All nests were at the north end of area N (Fig. 3).

The rate of colonization by the Ring-billed Gull was very rapid: an increase from about 10 nests that failed in 1973 to well over 10,000 nests in 1976. The Common Tern population increased at a slower rate: from 30 to 40 nests in 1971 to over 1,500 nests in 1976.

TABLE 2

Numbers of nests of larids on the Eastern Headland, Toronto Outer Harbour, 10 and 11 June 1976. See Figure 3 for location of areas.

Area	Herring Gull	Ring-billed Gull	Common Tern	Caspian Tern
A	3	266	5	0
B	0	0	26	0
C	0	3	689	0
D	0	0	178	0
E	0	0	8	0
F	1	5	20	0
G	1	69	1	0
H	0	2	14	0
I	0	0	0	0
J	0	0	1	0
K	0	0	0	0
L	0	0	4	0
M	0	48	31	0
N	0	149	196	4
O	1	4	0	0
P	0	0	54	0
Q	5	4,342	12	0
R	1	5,494	7	0

The Common Terns were probably the first larids to nest on Leslie Spit. One report in the Ontario Nest Record Scheme file mentioned that the Common Tern colony began in 1970 or 1971. In spring 1973, the headland consisted of the main road and a few adjacent areas of accumulated materials. At that time 94% of the terns were nesting on the south side of the road (Fig. 3). Their nests were about 3 to 5 m from the water and about 15 to 25 m away from the road used intensively by dump trucks (G. T. Haymes, R. A. Hunter, and D. V. Weseloh, pers. comm.). By 1976, the largest concentrations of tern nests were on the newly created banks of dredged material (Fig. 3).

Ring-billed Gulls began nesting in 1973 in the same area as the Common Terns, but their nests failed. At that time thousands (up to 12,000) of "loafing" Ring-bills were found at the tip of the spit but none nested there (Weseloh, pers. comm.). By 1976, the greatest Ring-bill colonies were near the tip of the spit (Fig. 3).

DISCUSSION

The Eastern Headland must be attractive nesting habitat for larids because both gulls and terns have readily colonized the habitat as it became available. The attractive features include: immediate vicinity of

water, ample food supply, low levels of disturbance by pedestrians or mammalian predators, suitable nesting substrates, sparse and low vegetation, and an unobstructed view in most or all directions.

The Outer Harbour offers a rich food supply. Small fishes are numerous partially because of thermal discharge into the Outer Harbour. The run of the Rainbow Smelt (*Osmerus mordax*) takes place in late April and early May. The run of the Alewife (*Alosa pseudoharengus*) begins somewhat later than that of the smelt but continues throughout June (I. D. Macnab, pers. comm.).

In 1976, the headland was closed to the public except on Sundays when people were allowed to visit the area on foot or on bicycle. During our visits we saw some tracks of both humans and dogs in the main tern colony, but we noticed no destruction of nests or eggs.

The road and south end of the spit consist of coarse fill, whereas the remainder consists of sandy material dredged from Toronto's Harbour. Although the four larid species may have different preferences with respect to nesting substrate, all four have been found nesting on sand, soil, gravel, and rock (Bent, 1963; Ludwig, 1965; HB and PMF, pers. obs.). Thus, the materials that compose Leslie Spit provide adequate nesting substrate for the four larid species. Being ground nesters, the four larid species generally prefer nesting habitat with sparse and low vegetation (Bent, 1963; Vermeer, 1970). Although plants have begun to colonize the area, most of the spit is still sparsely covered with low vegetation. Thus, in the present stage of plant succession Leslie Spit offers preferred nesting habitat for the four species.

Leslie Spit is the most important site for larid colonies in Lake Ontario (Blokpoel, 1977). Gull Island, Presqu'ile Provincial Park, has approximately 24,000 pairs of Ring-billed Gulls, and a small number of Herring Gull pairs, but no Caspian Terns nest there and the small Common Tern colony can only be maintained artificially (R. D. Morris, pers. comm.). Little Galloo Island on the U.S. side of Lake Ontario supports a Ring-billed Gull colony of 30,000 pairs and a Herring Gull colony of 200 pairs, but no Common or Caspian terns (Scharf et al., 1977). The only other documented Caspian Tern colony in Lake Ontario is on Pigeon Island, and it has decreased in recent years (Blokpoel, 1977).

The relative importance of Leslie Spit as a larid nesting site in the lower Great Lakes basin can be determined from recent census data for other larid colonies in that area. By combining the results of a 1976 survey of the U.S. parts of Lake Ontario, Niagara River, Lake Erie and Detroit River (Scharf et al., 1977), of a 1976 survey of the Canadian part of Lake Ontario (Blokpoel, 1977) and of a 1977 survey of the Canadian parts of Lake Erie and Niagara and Detroit rivers (Blokpoel and McKeating, Ms), we arrived at the following nest totals for the lower Great Lakes basin: Herring Gull—just over 3,000; Ring-billed Gull—about 95,000; Common Tern—about 3,800; and Caspian Tern—47. These figures indicate that in the lower Great Lakes basin the Eastern Headland is a very important nesting site for Common Terns because

it supports 40% of the total nesting population of this species. It is also an important site for Ring-billed Gulls. At present it is of little significance for Herring Gulls and Caspian Terns, but it has good potential as a semi-urban nesting site for these two species. Consequently, conservation of its larid colonies is desirable.

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