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Distribution and Abundance of Roof-Nesting Gulls in the Great Lakes Region of the United States¹

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ABSTRACT. In 1994, we conducted aerial, mail, and telephone surveys to determine the distribution and abundance of roof-nesting gulls in states bordering the Great Lakes. We documented more than 7,922 nesting pairs of gulls at 30 colonies in four states; species composition was 71% ring-billed (*Larus delawarensis*), 24% herring (*L. argentatus*), and 5% unknown. Colony size ranged from 1 to 1,003 nesting pairs. Proportions of ring-billed gulls nesting less than 5.0 and more than 10.0 km from the Great Lakes were 31% and 39%, in contrast to 63% and less than 1% for herring gulls, respectively. Maximum distances herring and ring-billed gull colonies were located from the Great Lakes were 23.5 and 58.0 km, respectively. Roof-nesting ring-billed and herring gulls represented approximately 2% and 4%, respectively, of the total nesting population for these species in the U.S. portion of the Great Lakes. As previous surveys of colonial waterbirds in the Great Lakes did not document roof-nesting gull colonies, future surveys should include potential inland colony sites, particularly roofs and other urban habitats, to obtain more accurate estimates of total population size and to monitor population trends of roof-nesting gulls.

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INTRODUCTION

Populations of gulls have increased throughout the United States and Canada in recent years (Ludwig 1974, Blokpoel and Tessier 1986, Vermeer 1992, Belant and Dolbeer 1993). For example, the nesting population of ring-billed gulls (*Larus delawarensis*) along the Canadian portion of the lower Great Lakes increased from about 56,000 pairs to 283,000 pairs between 1976-1990; herring gulls (*L. argentatus*) increased from 440 to 1,300 pairs during these same years (Blokpoel and Tessier 1991). The nesting population of herring gulls on Sandusky Bay, Lake Erie, OH, increased at an average annual rate of 11.9% from 1976-1989 (Dolbeer et al. 1990).

Gull population increases in the Great Lakes region have been attributed in part to exploitation of anthropogenic food at landfills (Belant et al. 1993, 1995) and use of human-made habitats for nesting (Blokpoel and Tessier 1987). Consequently, gull populations have increased in urban areas where they have established nesting colonies on buildings (Blokpoel and Smith 1988, Dolbeer et al. 1990). Roof-nesting gulls are generally considered undesirable as they cause damage to structures, plug drains with nest material and food remains, defecate on vehicles, and harass maintenance personnel (Blokpoel and Scharf 1991, Belant 1993).

Previous studies have documented roof-nesting by gulls in portions of the Great Lakes (Blokpoel and Smith 1988, Blokpoel et al. 1990, Dolbeer et al. 1990, Belant 1993); however, no study has summarized the distribution and

extent of roof-nesting gulls for the United States portion of the Great Lakes. Our objective was to determine the prevalence of roof-nesting by ring-billed gulls and herring gulls in states bordering the Great Lakes.

MATERIALS AND METHODS

We conducted an aerial survey of Cuyahoga County (includes metropolitan Cleveland), south-central Lake Erie, using a fixed-wing aircraft on 18 May 1994. The aerial survey coincided with maximum nesting activity, based on observations of three known roof colonies in Cuyahoga County. We surveyed the entire county from an altitude of 460 m, flying parallel north-south transects approximately 2.0 km apart. Two observers in the plane monitored roofs for concentrations of gulls and other evidence of gull nesting activity, including nest material or droppings. The three known colonies (Table 1) were used as visual references to ensure we could detect roof colonies at that altitude. Colony locations were plotted on maps (1:39,400) and visited within one week to determine colony size, species composition, and primary roof substrate where the colony occurred. We also determined the nearest distance (to nearest 0.5 km) of each colony to Lake Erie and whether removal programs (e.g., nest and egg removal) occurred in 1994, and, if known, the number of years the colony had nested on the roof.

To determine the extent of roof-nesting by gulls in the remainder of the Great Lakes region during 1994, 10 biologists of the U.S. Department of Agriculture, Animal Damage Control (ADC) program stationed in the eight Great Lakes states (Minnesota to New York) were surveyed by mail or interviewed by telephone during January-March 1995. ADC biologists receive public complaints of nuisance gulls and also review all federal permit applications to remove gull nests and eggs. Thus, these ADC biologists were knowledgeable of the locations and species composition of all reported roof-nesting

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TABLE 1

Location, number of nests, and species composition of roof-nesting herring (HERG) and ring-billed (RBGU) gull colonies in the Great Lakes region of the United States, 1994.

| State | County | Distance to water (km) | Years known to exist | Roof type | Number of nests | | | | Removal Program in 1994 |
|-----------|-----------|------------------------|----------------------|-----------|-----------------|------|------|-------|-------------------------|
| | | | | | HERG | RBGU | Unk. | Total | |
| Michigan | Macomb | – | 2 | Asph/Grav | 975 | 0 | 0 | 975 | Yes |
| New York | Monroe | 23.5 | 5 | Gravel | 0 | 300 | 0 | 300 | Yes |
| | Monroe | 8.5 | – | Gravel | 3 | 1000 | 0 | 1003 | Yes |
| | Onondaga | 55.0 | 5 | Gravel | 0 | 0 | 20 | 20 | Yes |
| | Onondaga | 58.0 | 5 | Gravel | 0 | 307 | 0 | 307 | Yes |
| Ohio | Cuyahoga | 7.5 ⁺ | 3 | Gravel | 203 | 447 | 0 | 650 | No |
| | Cuyahoga | 7.5 | 0 | Metal | 9 | 0 | 0 | 9 | No |
| | Cuyahoga | 21.0 ⁺ | 5 | Gravel | 0 | 243 | 0 | 243 | Yes |
| | Cuyahoga | 21.0 | 0* | Gravel | 0 | 470 | 0 | 470 | Yes |
| | Cuyahoga | 22.5 ⁺ | 2 | Gravel | 1 | 437 | 0 | 438 | No |
| | Cuyahoga | 16.5 | 1 | Gravel | 0 | 140 | 0 | 140 | No |
| | Cuyahoga | 9.0 | 17 | – | –** | 0 | 0 | – | Yes |
| | Cuyahoga | 8.0 | 7 | – | 22 | 0 | 0 | 22 | Yes |
| | Cuyahoga | 3.0 | – | – | 43 | 0 | 0 | 43 | Yes |
| | Cuyahoga | 3.0 | – | – | 31 | 0 | 0 | 31 | – |
| | Cuyahoga | 3.0 | – | Gravel | 201 | 0 | 0 | 201 | No |
| | Cuyahoga | 3.0 | – | Gravel | 48 | 170 | 0 | 218 | No |
| | Cuyahoga | 8.5 | – | Gravel | 84 | 0 | 0 | 84 | No |
| | Erie | 0.0 | – | Metal | 61 | 0 | 0 | 61 | No |
| | Erie | 0.0 | – | Metal | 37 | 0 | 0 | 37 | No |
| | Erie | 0.0 | 6 | Gravel | 66 | 0 | 0 | 66 | Yes |
| Erie | 0.0 | 6 | Gravel | 70 | 0 | 0 | 70 | Yes | |
| Wisconsin | Marinette | 0.0 | 13 | Metal | 0 | 0 | 238 | 238 | No |
| | Marinette | 0.0 | 15 | Gravel | 0 | 100 | 0 | 100 | Yes |
| | Marinette | 0.0 | 10 | Metal | 0 | 1000 | 0 | 1000 | No |
| | Marinette | 0.0 | 3 | – | 0 | 200 | 0 | 200 | No |
| | Milwaukee | – | 1 | – | 0 | 0 | 1 | 1 | – |
| | Milwaukee | – | 5 | Asph/Grav | 0 | 0 | >100 | >100 | No |
| | Milwaukee | – | 1 | – | 0 | 850 | 0 | 850 | – |
| | Winnebago | – | 1 | – | 0 | 0 | 45 | 45 | – |
| Total | | | | | 1854 | 5664 | 404 | 7922 | |

+Colonies used as visual references in aerial survey of Cuyahoga County.

*Colony established in 1994.

**Number of nests was not determined.

gull colonies within the Great Lakes states. Some colonies may not have been reported, however, if building owners did not seek assistance from ADC personnel. Thus, the number of roof colonies and nesting pairs obtained are minimum estimates. Information requested from ADC biologists was similar to that obtained for colonies in Cuyahoga County. Gulls nesting on adjacent buildings at a single facility were considered one colony.

RESULTS

We documented more than 7,922 nesting pairs of gulls at 30 colonies in four states (Table 1). The number of colonies recorded by state (Great Lake) were: Ohio (Lake Erie), 17 colonies; Wisconsin (Lake Michigan), eight colonies; New York (Lake Ontario), four colonies; and

Michigan (Lake Huron), one colony (Fig. 1). Overall species composition was 71% ring-billed, 24% herring, and 5% unknown. Colony size ranged from 1 to 1,003 nesting pairs. The estimated mean minimum number of years colonies were present on roofs was 5.1 ± 4.8 (SD), with one colony more than 17 years old and another established in 1994.

Proportions of ring-billed gulls nesting less than 5.0 and more than 10.0 km from the Great Lakes were 31% and 39%, in contrast to 63% and less than 1% for herring gulls, respectively. Maximum distances herring and ring-billed colonies were located from the Great Lakes were 22.5 and 58.0 km, respectively.

Recorded roof substrates at colony sites were primarily (81%) gravel or a mixture of gravel and asphalt, followed

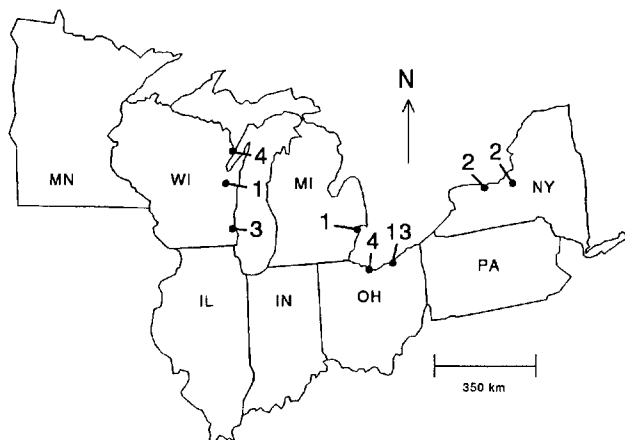


FIGURE 1. Distribution of roof-nesting colonies of ring-billed and herring gulls in the Great Lakes region of the United States. Numbers represent the number of colonies recorded at each location.

by metal (19%). Nest disturbance (e.g., nest and egg removal) was conducted at 50% of the colonies during 1994.

DISCUSSION

Previous studies have documented roof-nesting by gulls in portions of the Great Lakes (Blokpoel and Smith 1988, Blokpoel et al. 1990, Dolbeer et al. 1990, Belant 1993). Roof-nesting by gulls in Ontario probably first occurred in the early 1970s (Blokpoel et al. 1990). The earliest confirmed report of roof-nesting gulls in the U.S. portion of the Great Lakes (Cuyahoga County) was in 1978 (this study). Also, the mean number of years (5.1) colonies were present on roofs suggests that use of roofs as nesting habitat has increased considerably in the Great Lakes region only in recent years. Increased use of roofs as nesting habitat has been reported for other expanding populations of herring gulls and glaucous-winged gulls (*L. glaucescens*) (Monaghan and Coulson 1977, Eddy 1982, Vermeer et al. 1988). Roof nesting by gulls will likely continue and may increase, particularly on the lower Great Lakes where gulls have exploited urban food sources (e.g., landfills) and nesting habitat (e.g., roofs) (Blokpoel and Scharf 1991).

Ring-billed gulls were more abundant at nesting colonies farther from the Great Lakes, whereas herring gulls were more abundant at colonies nearer to the Great Lakes. Inland feeding sites (e.g., landfills, agricultural fields), as opposed to the Great Lakes, are likely of greater importance to ring-billed gulls than to herring gulls (Belant et al. 1993, 1995). Chudzik et al. (1994) documented greater use of anthropogenic food by ring-billed gulls than by herring gulls in Lake Huron. Vermeer (1973) stated that the distribution of herring gulls in northern Canada was restricted to areas around large lakes because of their dependence on aquatic food sources. Also, Belant et al. (1993) determined that fish was the primary food of herring gulls nesting on Sandusky Bay, Lake Erie.

In this study, 50% of the roof-nesting colonies were subjected to removal programs during 1994. Concen-

trations of nesting gulls in proximity to humans can cause economic, safety, or health concerns (Blokpoel and Scharf 1991, Belant 1993). Various techniques such as overhead wires are currently available to reduce or eliminate roof-nesting by gulls (Blokpoel and Tessier 1992). However, gull management should be considered at a scale broader than specific problem sites as displacement of these roof-nesting gulls may cause relocations of the colonies to nearby roofs (Belant and Ickes 1996).

The number of roof-nesting ring-billed and herring gulls represented about 2% and 4% of the total respective 1989-1990 breeding gull populations in the U.S. portion of the Great Lakes (Scharf et al. 1994). Previous surveys did not detect gull colonies located on roofs, however. For example, a 1990 survey of gulls nesting on the Great Lakes reported only one herring gull colony (35 nests) on a breakwall in Cuyahoga County (Scharf et al. 1994). In contrast, we determined that 13 colonies comprising more than 2,549 breeding pairs occurred in Cuyahoga County during 1994 and at least three roof-nesting gull colonies comprising more than 265 breeding pairs occurred in 1990. As Cuyahoga County was the only area intensively surveyed during this study, the number of roof colonies and number of breeding pairs reported for the U.S. portion of the Great Lakes is likely conservative. Future surveys of colonial nesting waterbirds in the Great Lakes should include potential inland colony sites to obtain more accurate estimates of total population size, and to monitor population trends of roof-nesting gulls.

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LITERATURE CITED

- Belant, J. L. 1993 Nest-site selection and reproductive biology of roof- and island-nesting herring gulls. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 58: 78-86.
- and R. A. Dolbeer 1993 Population status of nesting laughing gulls in the United States, 1977-1991. *Am. Birds* 47: 220-224.
- and S. K. Ickes 1996 Overhead wires reduce roof-nesting by ring-billed gulls and herring gulls. *Proc. Vertebr. Pest Conf.* 17: Forthcoming.
- , T. W. Seamans, S. W. Gabrey, and R. A. Dolbeer 1995 Abundance of gulls and other birds at landfills in northern Ohio. *Am. Midl. Nat.* 134: 30-40.
- , T. W. Seamans, S. W. Gabrey, and S. K. Ickes 1993 Importance of landfills to nesting herring gulls. *Condor* 95: 817-830.
- Blokpoel, H. and W. C. Scharf 1991 The ring-billed gull in the Great Lakes of North America. *Acta Congr. Int. Ornithol.* 20: 2372-2377.
- , and B. Smith 1988 First records of roof nesting by ring-billed gulls and herring gulls in Ontario. *Ont. Birds* 6: 15-18.
- and G. D. Tessier 1986 The ring-billed gull in Ontario: A review of a new problem species. *Can. Wildl. Serv., Occas. Pap.* 57. 34 pp.
- and G. D. Tessier 1987 Control of ring-billed gull colonies at urban and industrial sites in southern Ontario, Canada. *Proc. East. Wildl. Damage Control Conf.* 3: 8-17.

- and G. D. Tessier 1991 Distribution and abundance of colonial waterbirds nesting in the Canadian portions of the lower Great Lakes System in 1990. Can. Wildl. Serv. Tech. Rep. Ser. 117. 16 pp.
- and G. D. Tessier 1992 Control of ring-billed gulls and herring gulls nesting at urban and industrial sites in Ontario, 1987-1990. Proc. East. Wildl. Damage Control Conf. 5: 51-57.
- , W. F. Weller, G. D. Tessier, and B. Smith 1990 Roof-nesting by ring-billed gulls and herring gulls in Ontario in 1989. Ont. Birds 8: 55-60.
- Chudzik, J. M., K. D. Graham, and R. D. Morris 1994 Comparative breeding success and diet of ring-billed and herring gulls on South Limestone Island, Georgian Bay. Colon. Waterbirds 17: 18-27.
- Dolbeer, R. A., P. P. Woronecki, T. W. Seamans, B. N. Buckingham, and E. C. Cleary 1990 Herring gulls, *Larus argentatus*, nesting on Sandusky Bay, Lake Erie, 1989. Ohio J. Sci. 90: 87-89.
- Eddy, G. 1982 Glaucous-winged gulls nesting on buildings in Seattle, Washington. Murrelet 63: 27-29.
- Ludwig, J. P. 1974 Recent changes in the ring-billed gull population and biology in the Laurentian Great Lakes. Auk 91: 575-594.
- Monaghan, P. and J. C. Coulson 1977 Status of large gulls nesting on buildings. Bird Study 24: 89-104.
- Scharf, W. C., G. W. Shugart, and J. C. Trapp 1994 A catalog of gull, tern, and cormorant nesting colonies of the U. S. Great Lakes, 1989-1990. U. S. Fish Wildl. Serv. Rep. on Contract 14-16-0009-89-006.
- Vermeer, K. 1973 Food habits and breeding range of herring gulls in the Canadian prairie provinces. Condor 75: 478-480.
- 1992 Population growth rate of the glaucous-winged gull *Larus glaucescens* in the Strait of Georgia, British Columbia, Canada. Ardea 80: 181-185.
- , D. Power, and G. E. J. Smith 1988 Habitat selection and nesting biology of roof-nesting glaucous-winged gulls. Colon. Waterbirds 11: 189-201.