# Natal Colony Site Fidelity of Herring Gulls at Sandusky Bay, Ohio

*Bruce N Buckingham*
**815 Jackson Drive**
**Port Clinton, OH 43452**
bbuckingham@roadrunner.com

*Benjamin Bacak*
**2725 West Lakeshore Drive**
**Port Clinton, OH 43452**
bacakb@bgsu.edu

## ABSTRACT

*We studied three Herring Gull (*Larus argentatus*) colonies in the Sandusky Bay area, Sandusky, OH, between 1981 and 2006. During this period, we banded 24,022 nestlings and received reports of 347 recovered bands. Forty-nine of these band recoveries were as adults recovered during the nesting season as far as 890 km from their natal colony. Gulls were also captured at five other colonies located in the Great Lakes. Gulls recovered outside the original 10-min block of banding accounted for 47% of the returns. We hypothesize that half of the recoveries of adult Herring Gulls during the nesting season occurred outside their natal colony, because prime nesting locations within a colony became scarce and suboptimal nesting locations were the only option for nesting.*

## INTRODUCTION

It is generally assumed that Herring Gulls (*Larus argentatus*) will come back to their natal colony to breed (Tinbergen 1960). Changes in habitat at colonies, breeding density, contaminants, predation and human disturbance can affect production (Weseloh et al. 1990). Three Herring Gull colonies near Sandusky Bay, Sandusky, OH, had potentially reached their maximum breeding density in the 1990s. The goal of this phase of this long-term banding project was to determine the extent of movement of breeding adult Herring Gulls to other areas outside their natal colony.

## METHODS

We studied three Herring Gull colonies in the western basin of Lake Erie. The largest colony, Sandusky Bay Turning Point (SBTP) colony (10-min block 412-0824), is located on a long and narrow 2.5 ha manmade island in Sandusky Bay, 0.25 km from Sandusky, OH. The Cedar Point colony (10-min block 412-0824) is located 5 km from the SBTP in Sandusky Bay and is on a manmade stone break wall. The smallest colony is the Clinton Reef colony (10-min block 413-0825) and is located 24 km west of the SBTP colony at Port Clinton, OH, and is also on a manmade break wall. Due to its small size, researchers could count all nests each year at this last site. We banded nestlings with standard size 6 U.S. Geological Survey bands at each of the three colonies during May and June, 1981 - 2006. We used data from recovered adult individuals ≥four years of age (hereafter adults) to examine movement of adult Herring Gulls to areas outside their natal colony, because Herring Gulls usually start breeding at four years of age (Moore 1976, Pierotti and Good 1994, Weseloh 1984). We analyzed recoveries only from between 15 Apr and 15 Jun (hereafter referred to as nesting season), as this time period corresponds with the main nesting season for Herring Gulls in this area. We did not include recoveries reported with the code of "band only" in the analysis because date of death was unknown. Researchers checked dead adult gulls found at each of the three colonies for bands during banding operations each year and separated recoveries by colony location. Gulls from all three colonies recovered in the Lake Erie region are shown in Fig. 1. Recoveries outside the Lake Erie region are listed in Table 1.

| Table 1. Recoveries Outside of the Lake Erie area of adult, Sandusky Bay Herring Gulls. | | |
|---|---|---|
| **Natal Colony** | **Recovery Location** | **Distance from Natal Colony** |
| Cedar Point | Fairfield, NC | 890 km |
| SBTP | Geneva, IA | 800 km |
| SBTP | Shawneetown, IL | 600 km |
| SBTP | Gary, IN | 260 km (3 recoveries) |
| SBTP | Morton, NY | 430 km |
| SBTP | Milton, NY | 710 km |
| SBTP | Manheim, NY | 760 km |

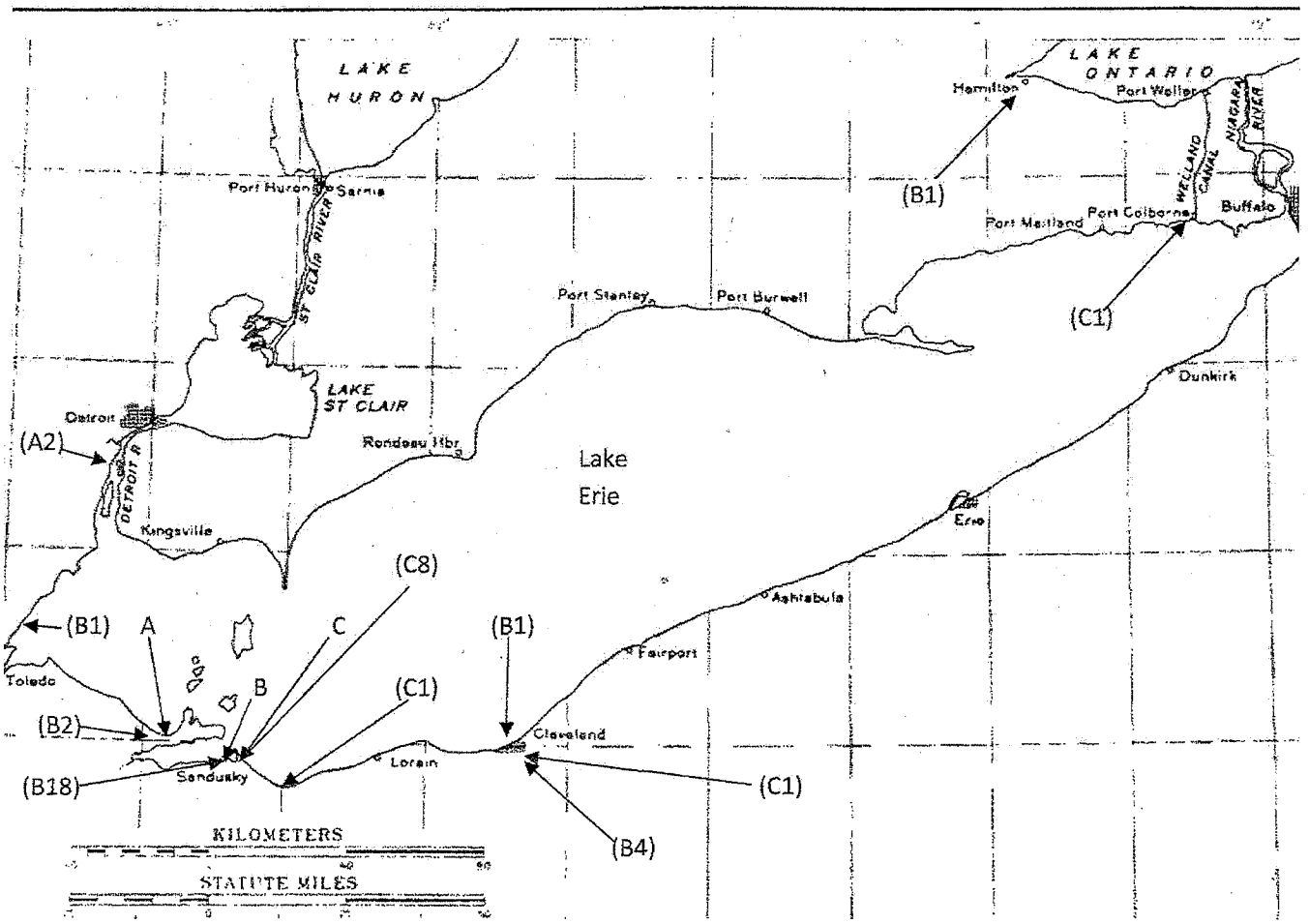


**Fig. 1. Map of Herring Gull nesting colony locations near Sandusky Bay, Ohio, where banding of nestlings was done (A, Clinton Reef; B, Sandusky Bay Turning Point; C, Cedar Point) and locations of gulls recovered as adults (>4 years old) near Lake Erie during the nesting season. Number after letter indicates number of recoveries at that location.**

## RESULTS

We banded a total of 24,022 nestling Herring Gulls with standard numbered bands among all three colonies. Of the 347 total individuals recovered, 49 were recovered as adults within the nesting season. The mean age of these recoveries was 6.7 yr (range 4 to 12 yr). Gulls caught by other researchers accounted for 21 (42%) of the gulls.

***Clinton Reef Colony*** – We banded 1,875 Herring Gulls in the colony. The peak population occurred during the 1980s and early 1990s at about 120 nests per year. Since 2002, the number of nests has decreased to about 30, with few gulls hatching. Recoveries of gulls of all age groups totaled 30 birds. Only two adult gulls were recovered during the nesting season. No recoveries were made within the same 10-min block (413-0825) during the nesting season. Two recoveries were made at a Herring Gull colony on Fighting Island near LaSalle, ON, 75 km from the Clinton Reef colony (Table 1). One (eight-year-old) was found dead and the other (four-year-old) was captured during banding operations.

***Cedar Point Colony*** – We banded 6,276 Herring Gulls in this colony. Peak population at this colony stayed around 800 to 900 nests during most years. Twelve recoveries of adult gulls (Fig. 1 and Table 1) were reported during the nesting season with eight of these recovered within the 10-min block (412-0824) containing the colony. Three of the eight were recovered by another researcher at the Cedar Point colony and released. The remaining four recoveries occurred outside of the original 10 min block and accounted for 33% of the total. Of these four gulls, two birds were recovered during banding operations, one seven-year-old bird caught in a rocket net in North Carolina (Table 1) and another at a colony in southern Ontario. Another gull was found dead along Lake Erie outside the original 10-min block, and one was recovered during a control operation near Cleveland, OH. The average age of recovered birds for both inside and outside of the 10-min block was 6.5 years. Ages ranged from four to eight years for birds recovered within the same 10-min block and five to eight years for birds recovered outside of the same 10-min block.

***Sandusky Bay Turning Point*** – We banded 15,871 gulls at this colony. Since the late 1990s, the number of nests has declined. Thirty-five gulls were recovered during the nesting season. Eighteen of these gulls were recovered within the same 10-min block (412-0824) as the colony. For the 17 gulls (48.5%) recovered outside the of the 10-minute block, eight were from nesting colonies (three near Gary, IN, one from Hamilton Harbor, ON, and four near Cleveland, OH), while the rest were found dead away from colonies (Fig. 1 and Table 1). Four gulls were recovered outside the Great Lakes during the nesting season. Of these four gulls, three were found dead within two weeks of the start of the breeding season time frame.

## DISCUSSION

Mean age for recoveries of individuals banded at the three colonies was similar to Weseloh (1984); but in his study, recovery age ranged from three to 17 yr. By the late 1980s, it appeared that prime nesting sites at all three colonies had reached a saturation point. In 1976, a census showed 980 Herring Gull nests at the SBTP colony (Scharf et al. 1979). During 1989, over 2,964 Herring Gull nests were counted at this site with a density of 1,120 nests/ha (Dolbeer et al. 1990). By the late 1990s trees, which cover about 90% of the SBTP, were beginning to shade out the understory and started to eliminate forbs in the prime nesting areas. Yearly censuses were not conducted at SBTP and Cedar Point because of lack of manpower and the size/habitat of the colonies. Since 2002, the numbers of nesting gulls at the SBTP have appeared to decrease steadily. Gulls at the Cedar Point site were starting to nest in marginal locations such as on adjacent asphalt parking lots by 2003. Since 2006, production at the Cedar Point site has decreased to almost no young produced. It is unclear what has caused the decline in production, but predation by mammals is likely. In 2005, marina development at the Clinton Reef colony started and a decline in production was noted. Prior to development, this colony was mostly covered with sporadic patches of thick forbs.

Gulls were noted nesting on roof tops in both the Sandusky and Port Clinton areas more often during the 1990s, as the three ground colonies became more crowded. These roof colonies were possibly overflow from the main colonies. Roof top nesting by gulls is not uncommon, with up to 4% of the U.S. Great Lakes nesting population of Herring Gulls found on roof tops (Dwyer et al. 1996). Dwyer noted at least 10 roof-top Herring Gull colonies in the Cleveland, OH, area ranging in size from one to 203 nests (Dwyer et al. 1996).

Of the 49 recoveries from all three colonies, 23 (47%) moved to areas outside their natal colony. Of these 23 recoveries, 12 (52%) were found at five separate colonies. These colonies ranged from 70 to 266 km from their natal birth place. Because the SBTP and Cedar Point colonies are only 5 km from each other and recovery data sometimes lacks clarity (e.g., "found near Sandusky"), it is likely that there is some overlap in socializing and breeding. In a 1992 study of landfills Belant et al. (1993) found that nesting Herring Gulls from the SBTP colony traveled daily between 5.7 km and 9.5 km from their nesting colony to feed. Herring Gulls from colonies located in Cuyahoga County, OH, traveled up to 17.9 km daily to feed (Belant et al. 1998). With both of these colonies within the same 10-min block, it is possible that some of the recoveries ended up at the other colony. Both recoveries of Clinton Reef gulls were banded during the same year and were found at the same location. Also, two of the three gulls found at the Gary, IN, colony had been banded during the same year. Except for one recovery in Iowa, all gulls found outside the Great Lakes were near known wintering areas.

During the 2005 breeding season, 70 adult Herring Gulls were caught on nests at the SBTB site. No banded gulls were captured. The same year, 34 adult gulls were captured on nests at the Cedar Point site with only three previously banded gulls caught. A proportion of adult Herring Gulls do not breed every year (Calladine and Harris 1997), which might explain why one adult gull from the Cedar Point colony was rocket netted in late May in North Carolina. With 42% of the recoveries made by researchers trapping at colonies, it is important to note that only a small portion of the active Herring Gull colonies are being studied. There were 229 Herring Gull colonies in the U.S. Great Lakes area in 2010 (F. Cuthbert, pers. comm.) and most of them have not had trapping done. Even though gulls were recovered widely at other colonies, one cannot say that gulls tend to emigrate to one specific area. Our findings of half of the adult gulls recovered during the nesting season outside their natal area suggests that it is likely that established colonies with high nest density may experience a large emigration rate. Thus, we predict that a newly established breeding site with low nest density should have a relatively high natal fidelity. We recommend further study of the extent of movement of adult Herring Gulls outside their natal area during the nesting season and the cause of this movement.

## ACKNOWLEDGMENTS

We thank the many volunteers over the years for their field assistance who endured hot temperatures, regurgitating baby gulls, and extremely angry adult gulls. Tom Seamans of the USDA field office in Sandusky, OH, and Richard Dolbeer provided reviews of earlier versions of this manuscript which is greatly appreciated.

## LITERATURE CITED

Belant, J.L., T.W. Seamans, S.W. Gabrey, and S.K. Ickes. 1993. Importance of landfills to nesting Herring Gulls. *Condor* 95:817-830.

Belant, J.L., S.K. Ickes, and T.W. Seamans. 1998. Importance of landfills to urban-nesting Herring and Ring-billed gulls. *Landscape and Urban Planning* 43:11-19.

Calladine, J. and M.P. Harris. 1997. Intermittent breeding of the Herring gull *Larus argentatus* and the Lesser Black-Backed Gull *Larus fuscus*. *Ibis* 139:259-263.

Dolbeer, R.A., P.P. Woronecki, T.W. Seamans, B.N. Buckingham, and E.C. Cleary. 1990. Herring Gull, *Larus argentatus*, nesting on Sandusky Bay, Lake Erie, 1989. *Ohio Journal of Science* 90:87-89.

Dwyer, C.P., J.L. Belant, and R.A. Dolbeer. 1996. Distribution and abundance of roof-nesting gulls in the Great Lakes region of the United States. *Ohio Journal of Science* 96:9-12.

Moore, F.R. 1976. The dynamics of seasonal distribution of Great Lakes Herring Gulls. *Bird-Banding* 47: 141-159.

Pierotti, R.J. and T.P. Good. 1994. Herring Gull (*Larus argentatus*), The birds of North America online (A. Poole, ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu.bnaproxy.bird.cornell.edubna/species/124 doi:10.2173/bna.124

Scharf, W.C., G.W. Shugart, and M.L. Chamberlin. 1979. Colonial birds nesting on man-made and natural sites in the U.S. Great Lakes. U.S. Department of Interior, Fish & Wildlife Service, FWS/OBS-78/15, U.S. Army Engineer Waterways Experimental Station, Vicksburg, MS.

Tinbergen, N. 1960. The Herring Gulls' world. Harper Torchbook, New York, NY.

Weseloh, D.V. 1984. The origins of banded Herring Gulls recovered in the Great Lakes region. *Journal of Field Ornithology* 55:190-195.

Weseloh, D.V., P. Mineau, and J. Strugger. 1990. Geographical distribution of contaminants and productivity measures of Herring Gulls in the Great lakes: Lake Erie and connecting channels 1978/79. *Science of the Total Environment* 91:141-159.

# Leg Injuries Observed in Banded Female Anna's Hummingbirds *(Calypte anna)* in Central California

***Rita R. Colwell***
**23446 Toyonita Road**
**Los Altos Hills, CA 94024**
colwell.rita@gmail.com

## ABSTRACT

*Three sites in central California reported leg injuries in 7% to 16% of recaptured female Anna's Hummingbirds* (Calypte anna). *Proposed causes of the injuries are accumulated nesting material debris under the bands, combined with normal enlargement of legs during the breeding season. We tested the prediction that altering the bands' diameter might decrease leg injuries; however, leg damage continued to occur with the larger-diameter bands. Also, during the project, avian pox-like lesions were observed on bills, feet, legs, and around eyes in a number of captured hummingbirds. This diseased state may result in permanent injuries in afflicted hummingbirds.*

## INTRODUCTION

Although most marking techniques are selected to avoid adverse physical or behavioral effects on the birds, injuries have been reported from some marking techniques under specific conditions (Marion and Shamis 1977). Bird studies using leg bands made of steel, aluminum, or plastic have reported many incidents of leg or foot injuries with certain species. Plastic color bands also have caused problems when used singly, doubly, or in conjunction with metal bands, specifically in flycatchers and terns (Nisbet 1991, Sedgwick and Klus 1997, Splittgerber and Clarke 2006, Pierce et al. 2007). Serious leg injury increased in Piping Plovers (*Charadrius melodus*) with the use of tall anodized aluminum bands (Amirault et al. 2006). Significant leg injuries have been reported in doves and Snowy Plovers (*Charadrius alexandrinus*) banded only with metal bands (Amat 1999, Grosselet and Michael 2005).