

RESULTS FROM BANDING EUROPEAN CORMORANTS

By HARRISON F. LEWIS,¹

EUROPEAN CORMORANTS (*Phalacrocorax carbo carbo*) have been banded in North America only at two breeding colonies on the north shore of the Gulf of St. Lawrence, in the Province of Quebec, Canada. One of these colonies, originally situated entirely on Lake Island, near Cape Whittle, has recently spread to one of the Outer Wapitagan Islands, in the immediate vicinity. The other colony, situated on Cliff Island, in St. Mary Islands Bird Sanctuary, about twenty miles northeast of Cape Whittle, came into existence only in 1930.²

All of the birds banded in these colonies were banded as nestlings. The following table shows when and where the banding was done.

RECORD OF BANDING OF EUROPEAN CORMORANTS

Year	Lake Island	St. Mary Islands	Total
1923	3	....	3
1924	....	....	....
1925	....	....	....
1926	24	....	24
1927	11	....	11
1928	7	....	7
1929	4	....	4
1930	49	....	49
1931	23	....	23
1932	73	....	73
1933	112	16	128
1934	121	39	160
1935	63	....	63
1936	17	23	40
	507	78	585

The total number banded up to the end of 1935 and consequently available to produce recovery records for use in this report is 545. The number of recovery records obtained from these birds, apart from two or three possible records that are considered unavailable because of uncertainty, is 65, or 11.93 per cent of the number banded.

Thirty-one recoveries, or 5.69 per cent of the available banded birds, were reported in the first autumn after banding. Fifteen recoveries, or 2.75 per cent of the available banded birds, were reported in the first winter after banding. Three recoveries, or .55 per cent of the available banded birds, were reported in the first spring after banding. The total of these three items is forty-

¹ The author is Chief Federal Migratory Bird Officer for Ontario and Quebec, Department of Mines and Resources, Canada.

² See *The Canadian Field-Naturalist*, 48:100.

nine recoveries, or 8.99 per cent of the available banded birds, reported prior to the first of June of the year subsequent to hatching.

European Cormorants which might possibly have produced, for inclusion in this report, recovery records in their second year, arbitrarily reckoned as beginning on the first of June, are only those banded prior to 1935, the total of which is 482. There are only twelve second-year recoveries, forming 2.49 per cent of this total.

Only four banded European Cormorants have been definitely reported in North America when past their second year. One of these was reported in its third year and the three others were reported in their fifth year, but two of these three had been dead for some time when found.

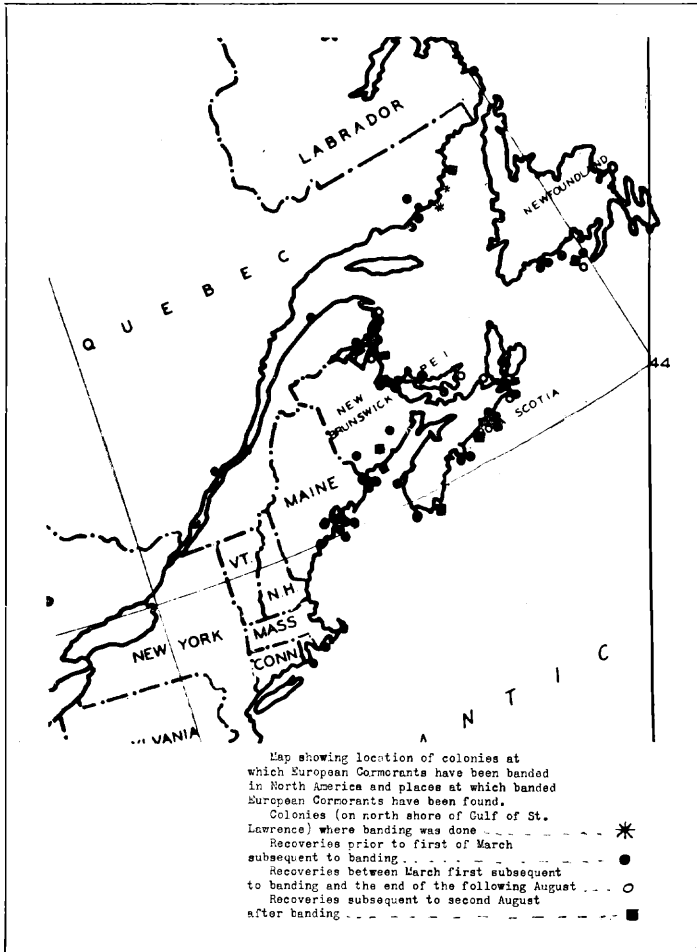
The months showing the heaviest mortality are October, with 15 deaths, of which 14 were in the first year; November, with 14 deaths, of which 12 were in the first year; and January, with 12 deaths, of which 10 were in the first year. No bands have been recovered from European Cormorants on this continent in the months of May and July.

It therefore appears that young European Cormorants have a high mortality rate during their first year of life, especially in



EUROPEAN CORMORANTS.

Adult and young at nest. Lake Island, Saguenay County, Quebec, July 20, 1933. Photograph courtesy of National Parks Bureau, Canada.



autumn and winter, and a lower, though considerable, mortality rate during their second year of life, but that those individuals that survive their first two years have thereafter a low mortality rate and so may live to be many years old.

Adult birds wearing bands have been seen in the Lake Island colony, where they presumably were breeding, on July 25, 1930; July 20, 1933; and July 4, 1935.³ That these birds were hatched

³ See *Bird-Banding*, 2:33, 2:128, and 5:132.

and banded in this colony is practically certain in the case of the banded adults seen in 1930 and 1933, and is highly probable in the case of the one seen in 1935, for none of this species had been banded elsewhere in North America prior to 1933, when banding of European Cormorants at St. Mary Islands first took place. On July 4, 1935, a banded European Cormorant in its second year was also seen at the Lake Island colony.

Of the 65 bands recorded as recovered, 40, or 61.5 per cent, were reported as found on birds that were shot, killed, captured, or injured. In three other instances, forming 4.6 per cent of the total, the birds were caught in fish-nets. One bird, or 1.5 per cent of the total furnishing recovery data, was found in midwinter with much ice frozen to its tail-feathers and died soon afterward, presumably as a result of its exposure to severe weather. Sixteen birds, or 26.2 per cent of the 65 reported, were dead when found and the cause of their death is uncertain. In four cases, or 6.2 per cent of the total number reported, the report merely stated that the bird was "recovered," and it is not known whether it was alive or dead when found.

It is probable that the proportion of European Cormorants killed by man is less than what these figures indicate, for the birds killed by man are, of course, more likely to be reported than are the birds killed by other agencies. It may, nevertheless, be concluded from these data that man is seriously destructive to the unsophisticated young of this large, unprotected non-game bird. The records point to the possibility that a high mortality rate caused by human agency during the migrations of these birds and during their stay on their wintering-grounds may have played a considerable part in the marked decrease in numbers of the North American stock of this species during the latter half of the nineteenth century and the first two decades of the twentieth.

The accompanying map shows the location of the colonies in which the birds were banded and of the places at which they were subsequently reported. The normal winter range of birds from these colonies, at least in the first two years of life, apparently is usually restricted to the central part of the south coast of Newfoundland, the southern and western coasts of Nova Scotia, and the coast of Maine from Penobscot Bay eastward. These are all coasts with relatively mild winter temperatures.

The evidence indicates that the migration of this species is of the diffuse type, without close limitations in either time or space. The general route most commonly followed by young birds in autumn appears to lead more or less closely along the west coast of the Gulf of St. Lawrence, with a marked concentration in Chaleur Bay. Occasionally an individual may stray up the St. Lawrence River. Some young birds evidently go to Newfoundland, but whether this route is taken only by birds that are to winter on the south coast of that island, or whether some migrants proceed to

Nova Scotia by way of Newfoundland is not known. The earliest date on which autumn migration is indicated by the recoveries obtained is August 28th, when a bird of the year was caught in a net at Chatham, on the eastern coast of New Brunswick. There is abundant evidence that the southbound European Cormorants visit New Brunswick and Prince Edward Island in autumn, but the only winter record among the recoveries from these provinces is that of a bird six or seven months old that was found injured at Baltic, Prince Edward Island, on January 1, 1935.

October recoveries are scattered from the north shore of the Gulf of St. Lawrence to Rhode Island. No less than four records for that month are from the State of Maine.

It is perhaps worth noting that none of these banded European Cormorants has yet been reported from the Magdalen Islands, situated in the central region of the Gulf of St. Lawrence, although this species is a regular visitor to those islands and breeds there in small numbers.⁴

The two recoveries from southern New England were both made some time before the beginning of winter and both represent birds of the year. One was "recovered" at Charlestown Beach, on the south coast of Rhode Island, on October 17, 1933, and one was found dead at South Dartmouth, Massachusetts, on the west side of Buzzards Bay, on November 7, 1933.

One winter record is that of a bird a few months old that was shot on January 14, 1924, at Kegashka, Quebec, on the north shore of the Gulf of St. Lawrence, about fifty miles west of its natal colony.

The small number of recoveries in spring that have accumulated up to the present time give very little indication of the migration route followed at that season.

There are only five recoveries from places that are not on or near the coast, namely, one from Magaguadavic Lake, New Brunswick, on November 5th; one from Hatfield Point, New Brunswick, on an inland arm of the Saint John River, on October 1st; one from St. Pierre les Becquets, Quebec, on the St. Lawrence River above Quebec City, on September 26th; one from Wirral, New Brunswick, about thirty miles northwest of Saint John, where it was found dead on September 15th; and one from a point in the Labrador Peninsula, thirty-four miles up stream from the mouth of the Musquarro River, on October 28th. Four of these are records of birds of the year, but the bird found at Wirral, New Brunswick, was in its fifth year.

The resemblances between our North American species of Cormorants are sufficiently close to make positive field identification difficult or impossible when favorable conditions are lacking, and records derived from bird-banding are therefore of special value in building up, in the course of years, a reliable knowledge of the ranges and movements of these birds.

⁴ See *The Canadian Field-Naturalist*, 39:113.

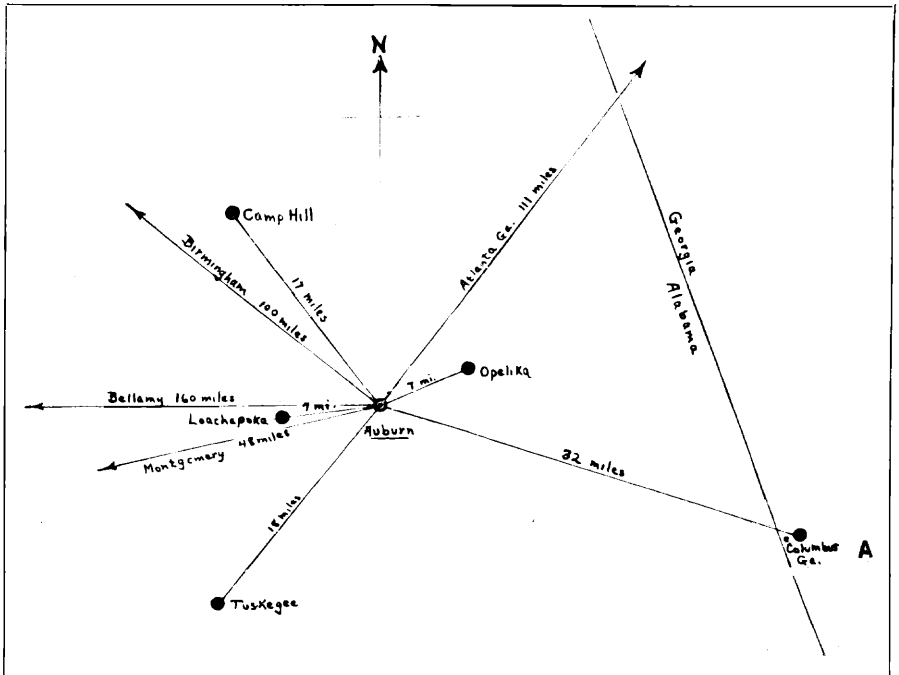


Figure 1. Showing the direction and air-line distance from Auburn, Alabama, to each of the other towns where Chimney Swifts were trapped.

CHIMNEY SWIFT BANDING IN ALABAMA DURING THE FALL OF 1936

BY HAROLD S. PETERS

DURING the eight-weeks period from August 16 to October 11, 1936, 21,503 Chimney Swifts (*Chætura pelagica*) were banded in six towns in Alabama and in Atlanta, Georgia.¹ According to the record of the Biological Survey, this is the largest number of birds of any one species ever banded at one station in a single year. The birds were caught in the chimneys of ten buildings in seven towns. The numbers banded in the sixteen attempts varied from 67 (at Bellamy, Alabama) to 6025 (at Atlanta, Georgia). In two instances it was necessary to release, unbanded, 3500 and 3000 birds respectively,

¹ A number of students at the Alabama Polytechnic Institute assisted in this banding work, and their coöperation is gratefully acknowledged. This work was performed during spare time in early mornings and on week-ends. Had more time been available, many more birds could have been banded.