

PRELIMINARY REPORT: INLAND AUTUMN MIGRATION OF RING-BILLED GULL

by L. J. Robinson, Wellesley

In 1976, from late August through year's end, J. Hines and the author often counted Ring-billed Gulls at Norumbega Duck Feeding Area, located in Weston on the Charles River. These observations revealed a sharp peak in mid-October followed by a steady decline--about every two weeks the population was halved. (Mathematically, the maximum number (N) of Ring-billed Gulls present decreased as $N \propto e^{-0.06t}$, where e is the base of natural logarithms and t is the number of days elapsed since October 15th.)

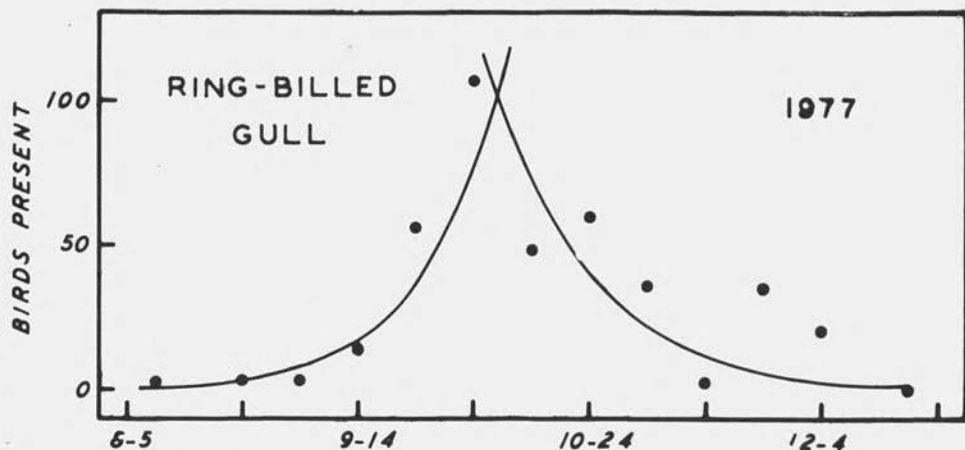
Between August 2, 1977, and December 24th (after which the duck feeding area became virtually ice-covered and inaccessible), the author made 160 counts of Ring-billed Gulls, 80 per cent being taken while traveling to or from work. Since it is well known that gulls undertake diurnal migration, the observed morning and evening counts were adjusted (based upon actual mid-day counts) to reflect the maximum number of birds that were probably present each day (details available upon request). The results were then averaged, and again a power law was fitted to the data. As the accompanying graph shows, during the early stages of migration (August 2 to October 9), the maximum Ring-billed Gull population doubled every 10 days (that is, $N \propto e^{0.07t}$). From September 30 to December 24 it decreased as $N \propto e^{-0.06t}$, the same relaxation constant as determined in 1976! The overlap in dates is due to the inclusion of the peak count in both calculations.

The maximum number of birds observed in 1976 was 117, on October 17th; the peak in 1977 occurred on October 2nd, when 195 Ring-billed Gulls were present. These high counts agree nicely with the intersection of the curves from the two power laws, which were derived from several months of data. Hence, it seems that the Ring-billed Gull migration in Weston (and probably all of Massachusetts) peaks during the first two weeks of October. This assessment is supported also by generalizations in Birds of Massachusetts (Griscom and Snyder, 1955) and Birds in Massachusetts (Bailey, 1955).

The picture may not be quite so clear-cut, however. In the diagram, note the rather pronounced secondary hump in late November. My records show that it included a significantly larger proportional number of adults than did the October peak. In addition to annual and diurnal factors affecting the actual numbers of gulls seen, there is also the human influence, such as feeding on daily, weekly, and seasonal cycles. Indeed, the analysis of this kind of data is extremely complex.

From where do these birds come? In October, 1976, J. Hines found two Ring-billed Gulls with bands, and thanks to Charlotte E. Smith it was learned that they were banded that June "when too young to fly" near Willsboro, New York, on the southwestern shore of Lake Champlain. And how is the Ring-billed Gull doing in the Northeast? The first record for this species at the Norumbega Duck Feeding Area was not obtained until 1965; 13 years later nearly 200 were counted! Like the Herring Gull, the Ringer continues its dramatic population explosion.

Are there other local day-by-day records of Ring-billed Gull to confirm the autumn migratory pattern observed in Weston? Also, though the exact nature of diurnal migration is uncertain, this species seems to follow a repetitive and predictable pattern. More data are needed!



The highest counts of Ring-billed Gulls observed at Norumbega Duck Feeding Area, Weston, are plotted at 10- or 15-day intervals. The curves have been fitted by least squares for the interval August 1 to October 9 (correlation coefficient $R^2 = 0.86$) and September 30 to December 29 ($R^2 = 0.57$).

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