

RECENT CHANGES IN WATERFOWL POPULATIONS IN NEW YORK

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When it comes to the reliable recording of changes in waterfowl populations, there is much to be desired. Even we who are charged with the protection and management of our waterfowl species wish that there were better means of censusing them. The Conservation Department now has a wealth of information on breeding, migratory and wintering abundance, obtained by both ground and aerial survey, but we are constantly striving to make the "counts" better.

The first meaningful figures on waterfowl abundance were made on an experimental basis in the Ontario-St. Lawrence District in 1945 and 1946, based on aerial techniques developed by the Fish and Wildlife Service in the Canadian Prairies. In 1947 these flights were broadened to cover most of the state, and in 1948 the regular standardized state route was established (Figure 1). This route was flown periodically throughout the falls of 1948

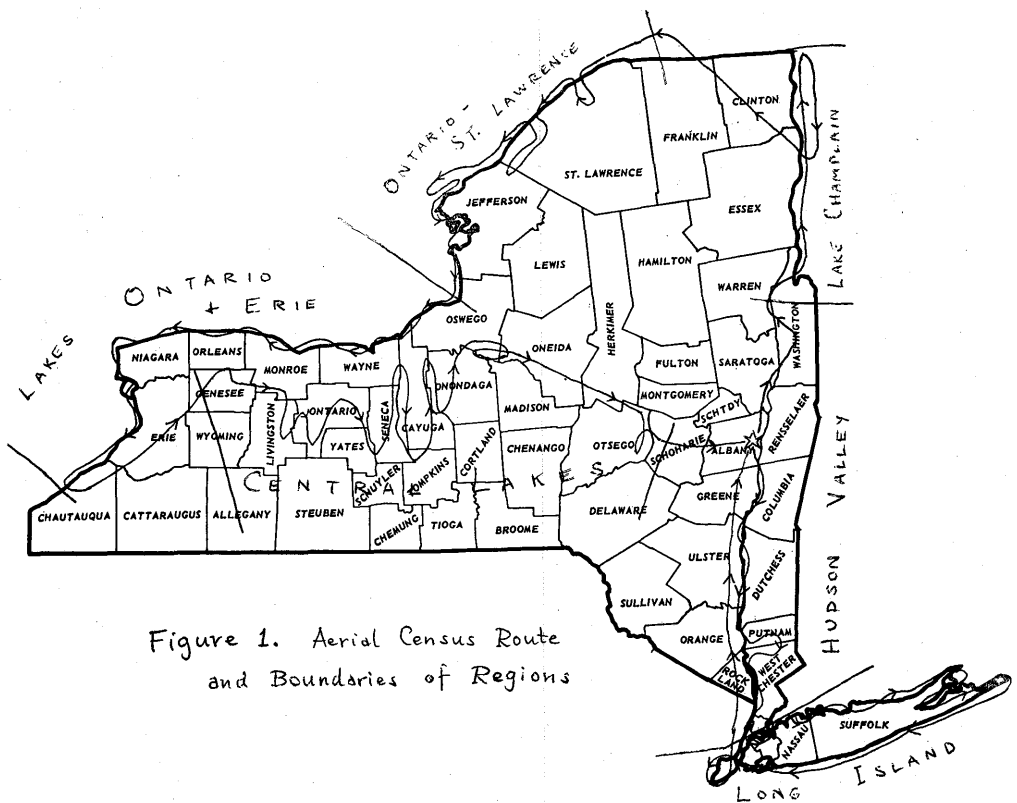


Figure 1. Aerial Census Route
and Boundaries of Regions

through 1953, and each January (as a mid-winter "inventory") up to the present. For most of this time the data have been taken by the same pilot and observer, although they are now on their third airplane.

In the early days of the flights, the aerial census flights were an eye-opener in many ways:

First, we had to learn how the various species of waterfowl looked from an eagle's-eye view, and while they appeared almost completely different we found it actually easier than ground observations after a little practice. A big help was the way the birds came southward on migration: slowly and in comparatively small numbers in early fall, which gave us time for study so that we were ready when we ran into the really big concentrations later on. The flights also impressed on us how the various species of waterfowl came through at different times and often chose different water areas for resting and feeding.

TRANSIENT POPULATIONS

If we break the figures down into the six regions of the State from a waterfowl standpoint, and considering all the data collected by aerial observation over the 1948 - 1953 period, the regions look about like this (Table 1):

Table 1. Percent Occurrence by Region of Total Observations of Waterfowl by Aerial Census from 1948 through 1953.

Year	Lake Champlain	Ontario - St. Lawrence	Lake Ontario	Central Lakes	Hudson Valley	Long Island
1948-49	11.4	14.3	5.3	19.2	4.2	45.6
1949-50	6.9	12.5	6.1	14.2	4.0	56.3
1950-51	8.3	16.6	10.6	14.8	5.2	44.5
1951-52	6.4	14.9	7.4	12.2	3.7	55.4
1952-53	7.3	16.9	7.2	11.8	5.0	51.8
Average	7.8	14.9	7.4	14.2	4.4	51.3

The averages for the various regions fluctuated only slightly from year to year and are probably representative.

The composition of the species varied markedly from region to region but in every instance black ducks were the most numerous dabblers while scaup were the most abundant divers.

Taking one region as an example, we can show (Figure 2) how we have plotted the abundance throughout the fall of the various species. This example shows clearly the average buildup and decline of black ducks in the Hudson Valley from September through January. With the peak reached on or about November 1, we have reasoned that a hunting season opening just previous to this would be most equitable to the hunter and most favorable to the birds themselves. This normal opening around October 15 each year prevents undue hunting pressure on local breeding populations by waiting for migrants from the north, and at the same time it allows the hunters reasonable sport and length of season, depending upon what framework the Fish and Wildlife Service allows.

Species-wise, the State figures have indicated that waterfowl proceed southward through New York in about these percentages of the total observed (Table 2):

Table 2. Per cent Occurrence by Species of Waterfowl Observed by Air, 1948-1953.

Species	Per Cent
Black Duck -----	25.5
Mallard -----	4.8
Wood Duck -----	0.9
Blue-winged Teal -----	0.8
Green-winged Teal -----	0.9
Baldpate -----	2.9
Pintail -----	0.3
Gadwall -----	0.1
Shoveller -----	Trace
Sub-Total, marsh ducks -----	36.2
Scaup and Redhead -----	33.8
Goldeneye -----	5.3
Canvasback -----	1.8
Bufflehead -----	0.2
Old-Squaw -----	0.4
Ruddy Duck -----	0.1
Scoters (all Species) -----	13.5
Sub-total, diving ducks -----	55.1
Canada Goose -----	1.7
Snow Geese -----	Trace
Other Geese -----	Trace
Brant -----	0.7
Sub-total, geese and brant -----	2.4
Merganser (all species) -----	5.2
Coot -----	1.1
Swan * -----	Trace
Unidentified -----	Trace
Sub-total, miscellaneous -----	6.3
Total birds observed ** -----	4,234,499

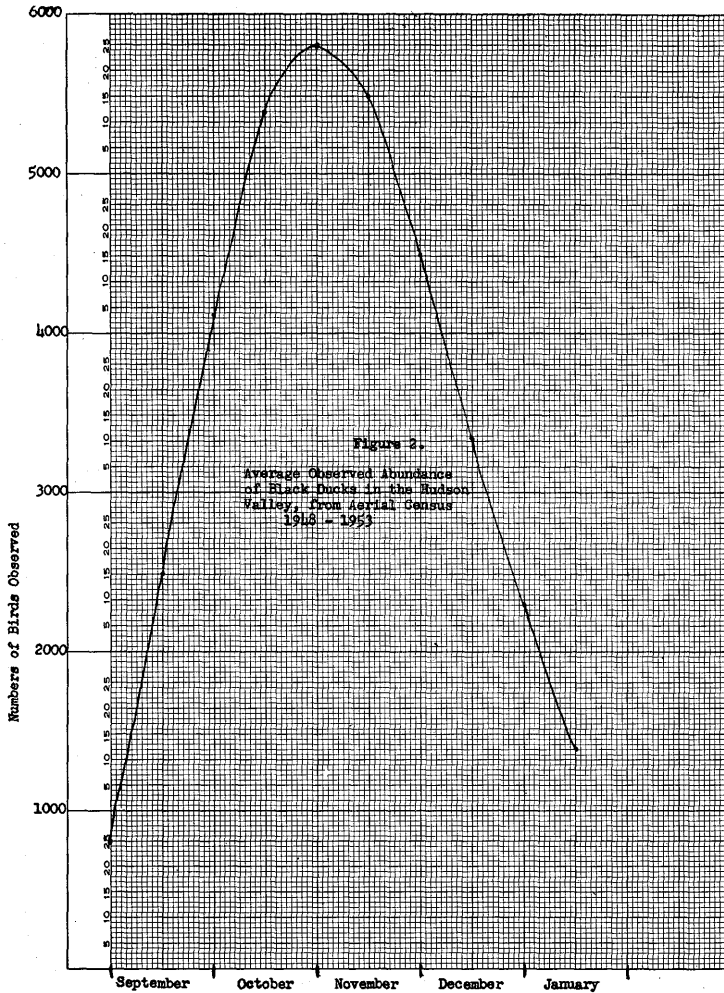
* Does not include mute swan.

** Eight flights each year except 1952 - 53 when only 5 flights were made.

We realize these are not absolutely accurate figures since they omit many species (some of which cannot, or at least have not, been separated, from the air) and do not truly census such species as wood ducks which normally inhabit dense cover. But we feel they provide fair *indices* when done the same way each year.

CHANGES SEEN

Over the years of the periodic "censuses," we have recorded changes in the numbers observed of some species. In 1948, for instance, baldpate comprised only 2.4 per cent of those observed, and every year there has been an increase until on the mid-October flight of 1957 they amounted to nearly 6 per cent. Along with this overall increase, we have noticed that baldpate, instead of being restricted largely to the better quality marshes of central New York, now migrate down over most of the State and New England.



Mallards also have been seen to increase as migrants over late years, especially in the central and western parts of the State, but also over most eastern parts as well. Whether this is due to an eastern extension of range into what used to be mallard breeding habitat (but from which they were supposedly extirpated in the late 1800s) or whether the increase is a result of large-scale game farm stocking by several states, including New York, is not known. Possibly it is due to both factors.

Canada geese have also exhibited some startling changes in recorded abundance. Over most falls of the survey, geese did not average much more than one per cent of all waterfowl observed, but during 1950 the thousands seen along Lake Ontario and the Finger Lakes amounted to nearly 4 per cent of all birds counted. And we are all aware of the extremely heavy

migration enjoyed over the eastern half of the continent last fall. Apparently the combination of a good breeding season and an early triggering of migration from the North sets the stage for a widespread "invasion" by geese in the states, and possibly the establishing of traditions to be used later.

While not visible from New York's figures alone, the recent decline in redheads and canvasback is clearly seen when Atlantic Flyway yearly totals are compared. At this point, I should emphasize that during the mid-winter "inventory" each January, all areas on the continent are censused, either by the state or province concerned or by pilots and crews of Fish and Wildlife Service. The recorded abundance of redheads on the wintering grounds, for instance, dropped from about 900,000 five years ago to less than 250,000 in January 1960. Less than 40,000 were recorded in the Atlantic Flyway. You can easily see the value of such data in this case, and the reason for the curtailment of seasons for such endangered species.

BREEDING SPECIES

There is no real good way of assessing the relative abundance of the breeding populations in eastern North America from year to year. Several years ago we attempted similar types of aerial transect coverages that are presently operational on the prairie "duck factory," but our data were too variable for proper analysis. Factors which we here in New York had to overcome but were not present in the West were ruggedness and changeability of the terrain, non-homogeneity of the waterfowl habitat, low duck density, and cluster problem areas such as marshes, lakes and rivers. Analyses of three years of such data from New York showed me that some other approach was needed. We still need one, although certain types of ground surveys covering a representative section of habitat types, when coupled with phenological data and especially water level studies, will possibly provide fairly good indices.

The major breeding waterfowl species in New York are the black duck, mallard, wood duck and blue-winged teal, and together these probably make up over 95 per cent of the yearly production here. The other five per cent is made up largely of scattered broods of the various mergansers (the hooded being most widely distributed) and intermittent nestings of green-winged teal, gadwall, pintail, goldeneye, ruddy, and a small area in the Adirondacks where ring-necks breed. In addition to this, we have tried to establish the redhead on certain good-quality marshes, and in 1960 they bred at four sites. On one of these, our newly-impounded Wilson Hill Game Management Area near Massena, we also recorded three broods of baldpate this year, which made us quite happy. This area, which would make an excellent field trip, has also supported breeding populations of blacks, mallards, blue-winged teal, green-winged teal, woodies, hooded mergansers, shovellers, and perhaps gadwall and ruddies, the last two years. Mute swans nest on Long Island and the lower Hudson Valley, and geese on and near our larger Game Management Areas. There have been reports of nesting brant and scaup, but without authentication, I believe.

CHANGES SEEN

The ups and downs of our breeding species are hard to determine even on one large, complex wetland area, and nearly impossible on a statewide basis. But we felt that for some species, places and years we have been able

to detect changes, these usually being tied in with those phenological factors mentioned before.

Over the years, the black duck, the mainspring of our waterfowl population, has remained at a fairly stable level in the statewide picture. Locally, conditions may have changed materially, and small swamps and marshes may actually have been obliterated, but the blacky is an extremely hardy, adaptable and secretive bird and can change its habits to fit a wide variety of conditions. In studying a series of local water units we have seen the production on one or another drop, while the total production of the whole complex might remain very similar, the "slack" being taken up by one of the other areas. It is such principles as these, to which most animal species respond, which are hard for many persons to understand when their background includes only a superficial knowledge of some of the factors involved.

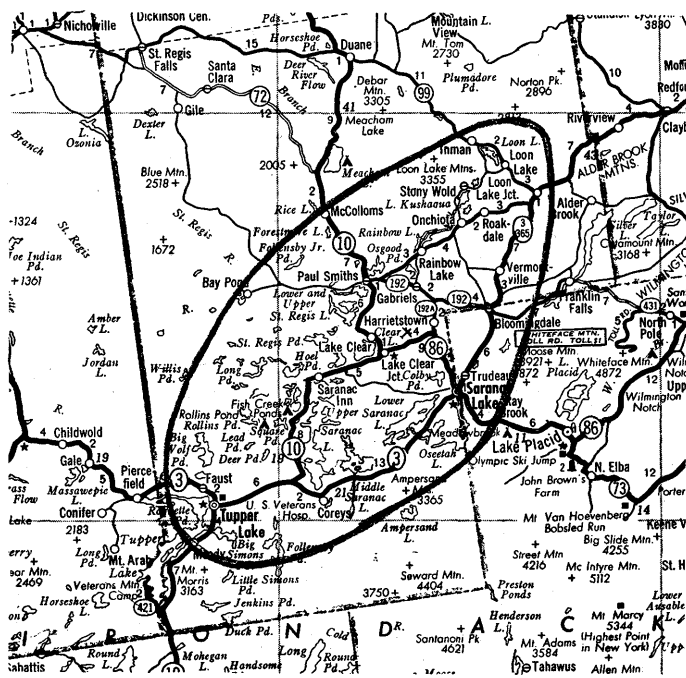


Figure 3. Known Breeding Range of the Ring-necked Duck in New York

The ring-necked duck, which "invaded" the East in the '30s and '40s, first being recorded in New Brunswick and Maine (although I may have seen it on Middle Saranac about 1932), and was first found with a brood at Jones Pond in 1945, is now known to breed over a 500-square mile area in the vicinity of Saranac Lake, Tupper Lake, McCollums and Inman (Figure 3). We are much interested in this species from many standpoints, and would like to hear of any other records of nesting either from within or outside this territory. From all reports, however, the initial "pioneering"

period is well over, probably having been stimulated by the drastic reduction in habitat in central Canada during the Duck Depression of the '30s, and possibly large-scale changes in distribution may not occur again unless another such catastrophe happens.

The common goldeneye, such an interesting bird with such beautiful downy young, may be on the downgrade in the Adirondacks. Being one of our three hole-nesters, it may have been greatly affected by the big blowdown of 1950. In the Scandinavian countries management of this bird involves the placement of nesting boxes, and it is possible that a similar program here would do for the goldeneye what we have done for the wood duck in some areas.

On Long Island is our only consistently-used breeding area for gadwall. Discovered with young on Jones Beach Pond in 1947, this bird apparently built up to a high density of up to 20 broods through 1950-52, but since then has declined to fewer and fewer broods each year. This is probably due to the changes in the nesting habitat which have occurred. In the 40s, much of the surrounding sand dunes were just becoming covered by fast-pioneering grasses and forbs, which no doubt seemed just like home to this prairie grassland nesting species. As the woody species moved in over the years (cat-brier, poison ivy, and bayberry), the grasses lost out, and so did the gadwall. Luckily, however, our Department's agreement with the Town of Oyster Bay has every hope of bringing this area back to optimum waterfowl use.

WINTERING SPECIES.

Many of the same species which come through during the fall remain with us over winter, although not to the same extent upstate as they do on Long Island. In the Hudson Valley the principal wintering bird is the black duck, remaining wherever there is open water, and only a comparatively few mallards, goldeneyes, canvasback and mergansers keep them company. The average wintering population here has been about 4,000 birds. Lake Champlain's average is even less, but chiefly because it more often freezes and drives most birds away.

The Ontario-St. Lawrence normally winters from 10,000 to 20,000 waterfowl, the greatest percentage of which are scaups and goldeneye, but up until a few years ago large numbers of canvasbacks stayed here for most of the colder months.

Lake Ontario (together with Niagara River and part of Lake Erie) has held on the average about 10,000 birds, although in recent years this average has generally been exceeded, principally due to large numbers of goldeneye and scaup on the lower Niagara and Lake Ontario nearby, and to canvasbacks on the upper River.

The Central Lakes winter habitat, composed chiefly of the larger Finger Lakes, harbors anywhere from 15,000 to 20,000 birds during our January census. These would run nearly $\frac{1}{4}$ dabblers and $\frac{3}{4}$ divers with only a few geese and miscellaneous species. Dominant divers are scaup, canvasback and redhead; the black duck is the big dabbler.

Long Island winters the lions share of New York's waterfowl, nor-

mally between 60 and 70 per cent. Of these, about half are the various divers of which greater scaup is the most numerous at this season. The black is again the mainstay of the dabblers, but there are also large numbers of mallards and, in recent years, an upswing in the numbers of baldpate. Scoters, brant, goldeneye, merganser and canvasback are others that loom fairly large, although some of these are not widely distributed.

CHANGES SEEN.

Almost every January has resulted in some changes in wintering populations from the year preceding. Sometimes an increase in New York could be correlated with an overall increase in the Atlantic Flyway, as with the black duck through the early years of the census; but often there seemed to be little connection, as with the canvasbacks and redheads the last several years. While we saw ups and downs in the state totals for these species, there was no downward trend revealed until we analyzed the Flyway data. Apparently, we were merely wintering a larger proportion of the Flyway's birds on occasion, and these are difficult things to anticipate or even account for. Some of the Atlantic Flyway's difficulties are inherent in the fact that many species arrive here only after passing through the northern part of the Mississippi Flyway, where varying proportions of them may spend the winter from year to year. For instance, sometimes we have been able to time the arrival of sizeable additional flocks of canvasbacks or scaup on Niagara River or Finger Lakes with the freezing of the Detroit River, Lake St. Clair or Long Point Bay. But by and large, we generally make no pronouncements based on our own State's "inventory", and rarely even after we have digested the composite data for the whole Flyway. The Fish and Wildlife Service is in the best position to do this, and they do use the information, both as a check back on the previous year's production minus the calculated kill and also as a background from which the succeeding year's production must come. This latter fact is especially important to this Flyway, since we presently do not have operational breeding ground surveys of any real value in eastern Canada.

This theme of cooperation is a good one with which to conclude. Not only do all states in this Flyway have excellently trained waterfowl technicians engaged in investigative work, but the Fish and Wildlife Service maintains two Flyway Biologists here, as well as other less specialized personnel, to help coordinate all this work. In addition, many of the Canadian Provinces and the Dominion Wildlife Service have dedicated people studying the situation. The wetland and waterfowl problem has probably the best organized and coordinated program of any in the wildlife field today. And while we may say that it is small indeed in terms of money and manpower when compared with the assault made on certain medical problems, the results have been considerable and promise to be greater all the while. We can be sure of waterfowl for the future, and of places to hunt and otherwise enjoy them.

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