THE COMMON LOON IN NEW YORK STATE

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For a number of years a committee of the Federation of New York State Bird Clubs has been planning a new *Birds of New York State* to succeed the monumental two volume work by E. H. Eaton, published by the State Museum a half century ago.

This new book is not envisioned as an all-encompassing state book in the classic tradition. The day is long past for lavish volumes, liberally illustrated, describing and portraying in detail the plumages, the habits, the life histories, and the economic importance of each species ever recorded in the state, just as if there were no other readily-available sources for this information.

The committee believes that what a present-day state book should do is to concentrate on what is specifically germane to the ornithology of the state. It should be an inventory of the state list, a census of the breeding species, an estimate of populations wherever possible, a guide to the seasonal calendar of the species found in New York, an atlas of breeding ranges and migration routes, and an accounting of the unusual species that have been recorded within our boundaries. It should additionally give an accounting of the species normally to be found in the various ecological associations of the state. All this to give as accurate as possible a picture, and historical record, of the bird life of the state as it exists just prior to publication. It should certainly record changes that have taken place over the years, when known, and might even venture a prediction or two about the future.

In order to stimulate interest in the contribution (and simple keeping) of records, information, and services to the state book, the author has prepared a sample species treatment as it is proposed to appear in the finished book. The species selected is ideal, because it is not only a migrant across the state, a winter visitant to the state, a breeding bird in the state, but also a non-breeding summer resident in certain areas. Thus, it will be accorded the fullest possible treatment, whereas many other species of more limited status may receive only part of this attention, and rarities recorded once or twice may be restricted to a few paragraphs. Finally, the species is the logical pioneer, for it is the first bird on the state (and North American) list, the Common Loon, *Gavia immer*.

The following treatment is then the result of a study of more than 300 books, ornithological journals, local news letters, and much personal correspondence. In addition, it is the result of a synthesis of information received when more than 285 questionnaires were sent to ornithologists and clubs throughout the state. It might be noted here that of the 285, only 65 were returned at all, and of these, only 35 had useful information, of which exactly eleven indicated any substantial knowledge of the habits and calendar of the loon in the respondent's area. Clearly, the bird watchers of New York State could put those millions of hours of field work to more purposeful use!

A second questionnaire, directed to Game Protectors of the New York

State Department of Conservation had far greater productivity, with a majority of those canvassed able to supply specific information. A request for breeding site information printed in *The Conservationist* resulted in a score of useful records, although somewhat disappointing in view of the large circulation of that journal among people who know the Adirondacks. Altogether, the present treatment reflects a far greater knowledge of the abundance, breeding, migration, and calendar of the loon in our state than ever before. But even with all the new information gathered, there are still many unanswered questions. How do loons breeding in New York State get to their breeding sites? What is the direction of migration in many areas? What is the total breeding population in the state? Is this population increasing, maintaining itself, or declining? What are specific breeding cycle dates for New York State? (The dates shown on the annual cycle chart for courtship, nest-building, eggs, hatch, etc., are largely extrapolated from data outside New York State.)

One final word on cost. If a state book is to be published, it will have to be financed, and a permanent editor subsidized for a minimum of two years. On this single species study, a rather formidable expenditure was required, for questionnaires and other printing, for maps and photostats, for correspondence, for postage, and even for travel. The cost of a new state book will be sizable, in both time and funds. Perhaps this sample treatment will help in our search for means.

NOTES ON THE SPECIES TREATMENT

Terminology used in the "Status" section is that adopted by the State Book Committee several years ago, and published in Audubon Field Notes 11:63-4, 1957. It is an attempt to bring uniformity and statistical meaning to hitherto vague and generalized terms. In addition to this standard nomenclature, maximum numbers for a day's observation may also be given. Regions are those in use in *The Kingbird*.

The circular annual cycle chart, adapted and simplified from James Fisher, seems to us the most expedient and compact way of presenting the annual calendar for a species in New York State. In any repetitive continuum, such as a year, only a circle can show the continuity of sequences without break, as they are in life. Around the rim of the chart are shown the months and weeks, with the last day of each week being dated. Various phases of the annual cycle of the species can be measured off by placing a straightedge along the various radii until they reach the outer rim. Dates are averages, not absolutes, for the entire state.

The mapping of migration across the state leaves much to be desired, and should be considered little more than tentative conclusions. Perhaps the publication of these maps will stimulate field work that will put definite arrows all over the state.

Since this is a sample treatment, and not the published book, there is still time for additions, corrections, and suggestions Every reader is encouraged to communicate with the author if he can supply any or all of these.

The Kingbird

133

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Common Loon Gavia immer (Brunnich)

Status: Common regular spring and fall transient along major flightlines and in staging areas, irregularly very common to abundant (to 1000 per day, Suffolk County, Lake Ontario, Rochester.) Elsewhere in state very rare to fairly common irregular to regular transient, least recorded in Susquehanna and Delaware-Hudson Regions. Fairly common to common summer resident in Adirondack area, along shores of Lake Champlain and upper St. Lawrence River. Irregular rare summer resident as non-breeder elsewhere. Common winter visitant to Marine Region (to 250 per day) occasionally very common in e. Suffolk County (to 300 per day.) Rare irregular winter visitant elsewhere in state (to 5 per day) as long as open water remains, more regular along Niagara Frontier.

Habitat: Requires deep waters with sufficient food fish supply at all seasons. In winter, frequents estuaries, creeks, bays, and open ocean, as well as ice-free waters of larger lakes and rivers. Breeding site requirements seem to include undisturbed islands or more remote shores of rivers, lakes, and ponds, sometimes marshy, more often wooded to edge. Many observers report the loon will desert waters regularly disturbed by boat traffic. In migration, may stop over at any body of water, occasionally landing on wet pavement in bad weather. Most lakes except largest support one, or at most two pairs widely separated. Will breed in ponds as small as 100 acres, but use surrounding lakes for feeding.

Annual cycle: See chart A. It will be noted that some stages of the loon's life cycle overlap, since all individuals do not migrate, pair, nest, or lay eggs simultaneously, and the spread is greater when averages are computed for many years. Length of breeding season includes replacement nesting, frequent in the species if first nesting fails. Dates shown on the chart are averages for the entire state. Little differences between different regions can be detected from the present data, although it would be suspected that migration dates for Long Island would be one or two days earlier in spring and later in autumn than for northern counties. Dates vary widely from year to year, depending on weather, but averages are derived from many observers over many years, and are therefore accurate.

The Kingbird

134



Chart A

The Kingbird

135



Migration: Migration of the species across New York State presents a complex picture, not easily charted or summarized. From the evidence at hand, the following seems to be a reasonable interpretation, although there are certain contradictions. See Map 1 for migration pattern.

There are two distinct types, or stages, of migration of the loon across New York State. The first and best known is that of birds following recognized and relatively constricted flyways, or flightlines. Foremost of these flyways is the offshore route that takes loons along the outer shores of Long Island in their travels between northern breeding grounds and southern wintering waters. Probably all the birds travelling this route (and its lesser branch through Long Island Sound,) are birds which do not breed in New York State, and mostly do not winter here, but are purely transients. A second definite flyway, of uncertain magnitude, is the Hudson-Champlain valley. A third major flightline seems to take loons along the south shore of Lake Ontario, moving in both directions from gathering areas in the Rochester to Sandy Creek sector. Flyways also follow the Finger Lake valleys, the eastern shore of Lake Erie, and in autumn at least, along Appalachian ridgelines southwestward. Although many loons may utilize these flyways, loons are normally seen in large numbers only at their resting or staging areas along them, eastern Suffolk County (30-40 per mile of shoreline) on Lake Champlain, Lake Ontario, the Finger Lakes, and Lake Oneida, when they may occasionally be recorded in numbers up to 1000 per day.

The second type of migration is distinct from flyway migration, although it may be merely its final stage. This is the specific, individually or pairoriented flight which takes birds from their staging point on a flyway to the breeding site. This departure point may be the ocean off New Jersey or Long Island, or it may be coastal waters farther south. It may actually be a river or valley flyway far inland, since the loon is a migrant in some numbers throughout the eastern United States, in a widely dispersed, but probably flyway-directed, migration. The picture in New York State is further complicated by the fact that loons are using both types of migration across the state. It is probable in fact, that all flyway-type migration across New York State is of non-breeding birds, enroute to Canadian nesting grounds, and that all the large concentrations noted in spring are of birds not breeding here. The Adirondack population, our principal segment, may arrive at breeding sites directly from salt water non-stop. A loon, with a speed of 50-60 m.p.h. in quiet air, could reach any New York State breeding site from salt water in 7 hours. Contradicting this possibility are the reports of most downstate observers that loons migrating overland in spring are headed northeastward. So it may be that our breeding population derives from an overland migration of far greater extent, from the interior. Another interesting fact comes to light in the data: the entire local breeding population is in residence before, or at the latest coincidental with, the actual peak of migration across the state. This can only be accounted for if Canadian nesting birds linger in our waters, awaiting the thawing of their more northerly lakes, after local breeding birds have already occupied their breeding waters, indicating a double calendar of migration, with local breeding birds the earliest arrivals.

John Mayer describes the spring pre-migration activities of the loon in their staging waters along the south shore of Long Island as follows. "Coastal flights follow the shore line, extending from inlets and bays to several miles offshore. Most birds favor a route $\frac{1}{2}$ mile to 2 miles offshore. Overland flights are mostly favored on the western end of Long Island from Jones Inlet to Coney Island. Heaviest flights occur on windy, stormy days, with appreciable lulls in activity on calm, flat days. Either a stiff following wind or a steady headwind is preferred. Peak numbers of a flight day are in the early hours of the morning, and except on heavy flight days taper off sharply by 10 a.m. Calling birds are frequently heard as they pass overhead in spring. The fall overland flights are rarely detected as they are silent and usually very high. Sometimes barely discernable, usually single, rarely loose straggling flocks of up to 20 birds or more. Coastal flights are always more readily observed, the birds low over the water to less than one quarter of a mile high, usually travel in singles, pairs, or small bands up to 35 birds. Rarely flocks of 50 to 300 or more are seen travelling in loose formation. These large flocks are always rather higher and travelling in a direct line." See Map I for migration pattern.

Breeding, past: Undoubtedly the loon was far more widespread as a breeding bird in pre-Columbian and early colonial days, breeding far to the west in the state, and along the shores of Lake Ontario, for the state was then largely forested. Its withdrawal before the steady advance of the farmer, lumberman, summer cottage, and more recently the power boat and airplane, has been gradual but steady. By 1881 the loon was largely confined to its present range, and by 1910 Eaton reported it breeding only in the secluded ponds and lakes of the Adirondacks, most numerous in the western and southwestern parts of that region. Eaton found that a few were present in 1905 in Franklin, St. Lawrence, Herkimer, and Hamilton counties, and none in Essex. It may be, therefore, that the present far greater accounting represents a resurgence and recent expansion within the state, but it is more likely that the apparent increase is illusory, and the result of far more observers with far greater mobility. Since about 95% of all breeding loons now nest in waters within the Adirondack "Blue Line", the future seems fairly bright for a stable population, as long as the forest itself remains protected, and no chemical catastrophe occurs.

Breeding, present: (See Map II). The Common Loon is a regular breeding species throughout the Adirondack area, in Lakes George and Champlain, and in the Thousand Islands area of the St. Lawrence River. In addition, there are scattered sites on the Tug Hill Plateau, St. Lawrence County lowlands, sporadic reports from the Finger Lakes, and a possible site in Orange County. In the Adirondacks, the breeding area seems centered in central and southern Franklin County, southeastern St. Lawrence County, western Essex County, and widely dispersed through northern Herkimer and all of Hamilton counties, predominantly in altitudes above 1500 feet. With more than 90 locations and 120 pairs known, it is estimated that the total state breeding population has a maximum of 360 pairs. The number is more likely to be in order of 240 pairs. Published reports to the contrary, the breeding population has not been markedly lower than this in recent years, although there may have been years, such as 1958, when



adverse conditions reduced the success of the season. In the site list below, dates are for the most recent year reported. When no date is noted, the year is 1962. Questioned records are unverified. Cayuga County: Cayuga Lake (1924) Clinton County: Upper Chateaugay Lake, Lake Champlain Essex County: Elk Lake (1961) Bay Pond? Upper Preston Pond, Lower Preston Pond, Moose Pond, Mink Pond, Frank Pond, Thumb Pond, Beaver Pond, Third Lake Essex Chain, Lake Champlain Franklin County: Spectacle Pond, Upper St. Regis Lake, St. Regis Pond, Little Clear Lake, Lake Clear, Fish Pond, Little Long Pond, Whey Pond, Black Pond, Ledge Pond, Rollins Pond, Floodwood Pond, Madawaska Flow, DeBar Pond, Forestmere Lake, Long Pond (Santa Clara), Lower Saranac Lake (1961) Middle Saranac Lake, Hoel Pond (1961) Colby Pond, Duck Hole, Ampersand Pond, Upper Saranac Lake, Windfall Pond, Duck Pond, Lake Titus (1961), Square Pond (1961). Stony Creek Ponds, Osgood Pond. Hamilton County: Spruce Lake, Cedar Lake, Mason Lake, Metcalf Lake, Wilmurt Lake, Durant Lake, Queer Lake (1940), Ferris Lake (1957), Raquette Lake, West Canada Lake, South Canada Lake, Rock Lake, Shanty Brandreth Lake, Lake Kora, Owl Pond, Little Tupper Lake. Herkimer County: Sunday Creek Reservoir, Soft Maple Flow ?, Moshier Flow ?, Beaver River Flow, Stillwater Reservoir. Little Moose Lake, Moose River, Big Woodhull Lake (1961) Middle Branch Lake, Big Moose Lake, South Lake (1955), Little Salmon River (1961), First Lake (1883). Jefferson County: Wesley Island,

(Lake of Isles), St. Lawrence River, Clayton. Lewis County: Francis Lake. Oneida County: "Statemade Pond?". Ontario County: Canandaigua Lake (1959), Orange County: Highland Reservoir? Orleans County: Hilton (1938). Oswego County: Redfield Reservoir, Lighthouse Hill Reservoir. St. Lawrence County: Silver Lake, Olmstead Pond, Dog Pond, Cranberry Lake, Grass Lake, Massawepie Lake, Long Pond (Colton), Trout Lake (1961), Hickory Lake, St. Lawrence River (Chippewa Bay), Pleasant Lake. Warren County: Lake George, Jabes Pond, Little Jabes Pond, Wilcox Lake.

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