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THE BIRD LIFE OF THE GRAND MANAN ARCHIPELAGO.*

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ABSTRACT.

This paper is a survey of the bird life of the Grand Manan archipelago which lies in the Bay of Fundy in the Province of New Brunswick. To date 275 birds have been recorded in the region, of which 74 are known to breed. Twelve others are considered hypothetical. The material in this paper is presented under five headings as follows: (1) *Geography*. A general description of the surface of the archipelago, its people, climate and products. (2) *Ornithological Work*. A history of field studies from the time of John James Audubon's first visit. (3) *Acknowledgments*. (4) *Bird Life*. A discussion of the present and past distribution of birds, factors accounting for the changes in the distribution of birds since the time of Grand Manan's settlement, and noteworthy features of present-day bird life. (5) *Annotated List*. A systematic listing of all birds recorded in the archipelago with discussions pertaining to each form giving, if warranted, the status, migration dates, exceptional dates of occurrence, specimens taken, breeding data, census figures, taxonomic remarks, and historical notes.

GEOGRAPHY.

The Grand Manan archipelago lies directly adjacent to the northeastern coast of Maine at the mouth of the tide-famed Bay of Fundy. Although it is politically a part of New Brunswick, West Quoddy Head, Maine, is the nearest point of the mainland, being 5.79 miles across the intervening Grand Manan Channel through which passes the International Boundary Line.

The Grand Manan archipelago comprises a group of closely lying, rectilinear islands whose general trend is north-

* Contribution No. 5 from the Bowdoin Scientific Station, Kent's Island, Bay of Fundy, N. B.

east and southwest, parallel to the mainland. These vary in size from small, slightly emerged ledges to the large island of Grand Manan which is 15.31 miles in greatest length and 6.70 miles in greatest width. The principal islands of the group, other than Grand Manan, are consecutively from north to south: Long Island, Nantucket Island, Big Duck Island, Ross Island, Cheney Island, White Head Island, Inner* and Outer Wood Island, and so-called Three Islands comprising Hay, Sheep and Kent's Island. These islands are all many times smaller than Grand Manan and are scattered off its eastern shore. The largest of these, White Head Island, is only two and one-half miles in length. The channel between any two of these islands is no greater than two and one-half miles and usually much less than a mile.

Grand Manan, because of its comparatively large size, dominates the group. Its western frontage from Northern Head to Southern Head rises abruptly from Grand Manan Channel in impressive red-walled cliffs from 53 to 400 feet in height. Save for the fjordlike indentations of Money Cove, Dark Harbour, and Little Dark Harbour, the coastline is remarkably regular. The eastern shore is deeply cut by many coves and harbors. It is low and generally level with gravel beaches, tidal flats, and now and then a small bluff. In many places the sea has encroached upon the island's soil, leaving yellow, sharply hewn gravel banks. Back from the shore there are moundlike hills and poorly drained lowlands with sphagnum bogs and small, marshy ponds. The general terrain of Grand Manan rolls steadily upwards from the eastern shore until, along the middle of the island, the elevation of 250 to 400 feet is reached. This height is steadily maintained to the western cliffs, thus rendering this part more or less plateaulike and dissected only by stream-formed gulleys.

The central and western portions of Grand Manan are thickly wooded. Here the original growth of red and white spruce and fir still predominates in restricted areas where lumbering activities and fires have not yet penetrated; not

* On the accompanying map Inner Wood Island is referred to as "Wood Island".

far inland from Dark Harbour a little of this growth still stands in awesome proportions. Elsewhere there is a variety of gray, white and yellow birch, poplar, beech, maple, and an occasional white pine and red oak. In certain places the woods are wholly deciduous. Black spruce and alders are common along the sphagnum bogs which are themselves largely grown up with Labrador tea and other shrubs. Towards the edges of the great cliffs on the western coast and at Northern and Southern Heads—places severely exposed—the trees are thick and scrubby and almost wholly of spruce. Only the eastern portion of Grand Manan is humanly inhabited. Here are open, well-cultivated fields, pastures, orchards, and a frequent small woods of secondary growth. A grassy salt marsh with tidal channels and stagnant sloughs is located at Castalia. Extremely high tides usually inundate the area. Just inland from Whale Cove there is a small cat-tail marsh.

The present population of Grand Manan is approximately 2,500. While farming is indulged in, fishing is the main source of livelihood. Most of the dwellings are, therefore, centered about the fish smokehouses, the majority of which are located in the villages of Castalia, Woodward's Cove, Grand Harbour, and Seal Cove. North Head, the fifth village of the island, is largely a summer resort and is the chief port of entrance for visitors. Improved gravel roads connect the villages with one another, with Northern and Southern Heads, and with Dark Harbour.

The other principal islands of the archipelago are low-lying, the highest elevation of 74 feet being found near Prangle Point on White Head Island. Their terrains are small counterparts of Grand Manan itself, having precipitous bluffs, gravelly beaches, bogs, ponds and tidal flats. They are wooded primarily with spruce. Some of this natural growth has been cut away to provide for fish smokehouses and dwellings, navigation signals and fields for some agriculture and sheep grazing. The remaining woods are probably of virgin stand or old secondary stand and, except in the central portions of the islands, are characteristically scrubby.

The smaller islands of the archipelago range anywhere from emerged ledges capped with humus soil and herbaceous plants to bare ledges that appear only during low tides. Several of these islands, because they are somewhat apart from the archipelago and are, therefore, not included in the accompanying map, deserve special mention.

Gannet Rock is a small barren ledge seven miles southeast of Southern Head. The tall, black and white lighthouse constructed on its highest point is a familiar landmark.

The Murr Ledges extend four and one-half miles west from Gannet Rock and are separated from one another by broad channels. One of these, Yellow Murr Ledge, is sufficiently high above the high-tide mark to remain constantly above water.

Machias Seal Island with an adjoining ledge called Gull Rock is about ten miles to the southwest of Southern Head and slightly less distant from Cutler, Maine. A lighthouse and whistlehouse, two keepers' houses and other smaller accessory buildings are located on its fifteen-acre surface. These buildings are owned and operated by the Canadian Government. The island is treeless but there are several acres of grass-covered soil.

The summer climate of the Grand Manan archipelago is generally cool, the temperature averaging between 50° and 55°F. on the smaller islands and slightly higher on the main island. It is not unusual for the thermometer to drop below 45°F. during the night. The relative humidity is unusually high during June and July and dense fog sometimes persists for days, sometimes for weeks at a time. In the interior of Grand Manan the temperature rises occasionally to 85° or 90°F. Here it is more or less sheltered from the fog and cooling influences of the surrounding water. Elsewhere in the archipelago such temperatures are exceedingly rare. Winters are seldom severe and there is only a moderate amount of snow. At the Bowdoin Scientific Station on Kent's Island during the winter of 1936-37 the maximum temperatures recorded during December, January and February were 50°,

49°, and 46°F. respectively, while the minimum temperatures were 10°, 4.5° and 13.4°F. respectively. The archipelago is openly exposed to strong prevailing winds making the weather at times extremely disagreeable.

ORNITHOLOGICAL WORK.

Although the Grand Manan archipelago was first definitely settled at Grand Harbour in May, 1784, it did not spring into ornithological prominence until John James Audubon twice visited it while stopping over at Eastport during the first part of his Labrador journey in 1833. On the American revenue cutter "Swiftsure" he was first taken to Gull Cove, White Head Island, on May 22, where he was the guest of the island's owner, William Frankland. The greater part of his stay was occupied in studying the Herring Gull colony located on this island. He was greatly impressed with the way the gulls nested in trees and wrote of this in his "Ornithological Biography"¹. Later on the revenue cutter's tender, the "Fancy", he was taken to the main island of Grand Manan.

In the early part of the summer of 1850 Dr. T. M. Brewer visited Grand Manan during his trip to the Maritime Provinces. Shortly thereafter he published a short list² and later included numerous random notes in "A History of North American Birds"³⁻⁶, which he jointly published with Spencer Fullerton Baird and Robert Ridgway. Brewer visited the Grand Manan archipelago again in 1859.

From June 16 to July 8, 1856, Dr. Henry Bryant made an excursion to Grand Manan and Yarmouth, Nova Scotia, in company with J. E. Cabot. A. E. Verrill was on Grand Manan in 1859. Both Bryant and Verrill published lists⁷⁻⁸

¹ Audubon, "Ornithological Biography", Adam and Charles Black, Edinburgh, 1835, vol. 3, xvi+635 pp.

² Brewer, *Boston Jour. Nat. Hist.*, 6, 297-308 (1852).

³ Baird, Brewer and Ridgway, "A History of North American Birds. Land Birds", Little, Brown and Co., Boston, 1874, vol. 1, xxviii+596+vi pp.

⁴ Baird, Brewer and Ridgway, "A History of North American Birds. Land Birds", Little, Brown and Co., Boston, 1874, vol. 2, 590+vi pp.

⁵ Baird, Brewer and Ridgway, "The Water Birds of North America", Little, Brown and Co., Boston, 1884, vol. 1, xi+537 pp.

⁶ Baird, Brewer and Ridgway, "The Water Birds of North America", Little, Brown and Co., Boston, 1884, vol. 2, 552 pp.

⁷ Bryant, *Proc. Boston Soc. Nat. Hist.*, 6, 114-123 (1857).

⁸ Verrill, *Proc. Boston Soc. Nat. Hist.*, 9, 233-234 (1863).

based on their respective trips. Spencer Fullerton Baird visited the Grand Manan archipelago in 1869 and 1872. He studied, among other things, the various shell-heaps and in a subsequent paper⁹ discussed his work in the region. Charles J. Maynard came to Grand Manan in 1872. In his "The Birds of Eastern North America, etc."¹⁰ he mentions seventeen species as occurring at Grand Manan.

The first and only comprehensive list of birds for Grand Manan was published by Harold Herrick¹¹. Containing 194 species it was based largely on observations obtained in two visits made to Grand Manan, one in May, 1871, and the other during June, July, and August, 1872.

R. F. Pearsall visited Grand Manan in the summers of 1877 and 1878 and afterwards published a few notes¹². In the spring of 1877 the Bristol (Massachusetts) Ornithological Club made an excursion to Grand Manan. Three of its members, C. H. Andros, F. H. Carpenter, and E. A. Capen, gave various reports of different species observed in the "Ornithologist and Oologist". Everett Smith investigated the bird colonies on a number of the islands of the archipelago about 1882.

In 1891 Arthur Cleveland Bent and Owen Durfee arrived at Nantucket Island as guests of Simeon F. Cheney. Making their headquarters with him, they visited several of the surrounding islands. As a physical achievement their trip in a rowboat to Machias Seal Island on June 19 was the most notable. With the two sons of their host, Webster and Wilson, they left Nantucket Island at 4 a.m. and by hard rowing reached the island at 2 p.m. On the same day they returned reaching Two Island Harbour at 9 p. m.,—around trip approximating twenty-five miles! Bent and Durfee left the archipelago on June 22.

During the last half of the nineteenth century many rare birds in the Grand Manan archipelago were obtained by

⁹ Baird, *Proc. U. S. Nat. Mus.*, 4, 292-297 (1882).

¹⁰ Maynard, "The Birds of Eastern North America, etc.", C. J. Maynard and Co., Newtonville (Mass.), 1881, iv + 532 pp.

¹¹ Herrick, *Bull. Essex Inst.*, 5, 28-41 (1873).

¹² Pearsall, *Forest and Stream*, 13, 524-525 (1879).

student of birds, a "natural naturalist" according to Baird, and, although there are no ornithological observations published under his name, he sent migration notes to the Bureau of Biological Survey, Washington, D. C., and supplied many persons with important information.

Visitors to the Grand Manan archipelago in recent years have been Dr. Charles W. Townsend (July-August, 1923), Dr. F. A. Saunders (August 19-September 5, 1926), Francis H. Allen (August 14-27, 1929), Maj. Allan Brooks (September-October, 1930), James Bond of the Philadelphia Academy of Sciences (June, 1933), and J. J. Hickey (June, 1934). Machias Seal Island has been visited a number of times by Arthur H. Norton of the Portland Society of Natural History, his first trip being in 1902. Three representatives of the National Association of Audubon Societies have been to this island, namely, Dr. T. Gilbert Pearson (July, 1911), Robert P. Allen (June, 1931), and Allan D. Cruickshank (July 19-21, 1935).

In 1930 J. Sterling Rockefeller purchased Kent's Island and set it aside as a bird sanctuary. In the summer of that year, with his permission, Dr. Alfred O. Gross of Bowdoin College made a study of the American Eiders. In 1932, his son, W. A. O. Gross, began an investigation of the Leach's Petrel, the final results of which were recently published⁶. Dr. Ernst Mayr of the American Museum of Natural History visited Kent's Island from June 22 to July 5, 1933, to make a census of the bird life for Rockefeller and to study possible means for the conservation of bird life there. During this same summer Herman R. Sweet and Paul E. Floyd, two students just graduated from Bowdoin College, studied several species of land birds, Sweet specializing on the Black-poll Warbler. In 1934 four Bowdoin College students in connection with the Bowdoin-MacMillan Arctic Expedition spent the summer months on Kent's Island. These students, W. A. O. Gross, F. Burton Whitman, Jr., Paul G. Favour, Jr., and Frederick A. Fisher, Jr., were primarily interested in the

⁶ Gross, W. A. O., *Auk*, 44, 479-493 (1935).

George Augustus Boardman, for many years a resident of Calais, Maine. Although the St. Croix River Valley was his principal collecting ground, he welcomed specimens from the Grand Manan archipelago and the other islands on the west side of the Bay of Fundy. His collection was started soon after 1841 and was gradually augmented throughout his life. Being a man of some means, he solicited the services of many collectors, not only on the mainland, but on the Grand Manan archipelago as well. After Boardman's death in 1901 his entire collection was transferred to Fredericton, New Brunswick, where it was installed in the Parliament House.

Boardman published two important lists based on his collection. The first appeared in 1862¹³ at the instigation of A. E. Verrill. By this time his collection had assumed significant proportions. The second was published in the "Calais Weekly Times" from November 23, 1899, to February 5, 1900. It was a revision of his old list to which many additions were made. Later it appeared together with much of his correspondence and natural history sketches in a privately published memorial volume edited by his nephew, Samuel Lane Boardman, and entitled "The Naturalist of the St. Croix"¹⁴. Many records of birds for the Grand Manan archipelago are contained in this volume. In the listing of rare birds, however, it is regrettable that such information as the numbers collected or observed, the sexes, the exact dates, and the specific localities are not stated, particularly since many of these birds are not only the first records for the area but also the only ones ever to be collected.

The name of Simeon F. Cheney appears not only in Bent and Durfee's account of their Grand Manan sojourn but in the accounts of many other ornithologists who came to Grand Manan during the latter part of the last century. It was he who aided Boardman and Herrick in securing many of their specimens. Cheney was apparently a well-informed

¹³ Boardman, G. A., *Proc. Boston Soc. Nat. Hist.*, 9, 122-132 (1862).

¹⁴ Boardman, S. L., "The Naturalist of the St. Croix", (privately printed) Bangor, 1903, xvi+351 pp.

bird life of the island. Largely because of the great amount of enthusiasm shown by these students in their investigations together with the excellent results obtained, in 1935 Rockefeller presented the island as a gift to Bowdoin College for the establishment of a scientific station, believing that in this way the bird life of the island would not only be guaranteed protection but that it would also serve a very serious purpose. Eleven students, largely from Bowdoin College, established the Bowdoin Scientific Station that summer under W. A. O. Gross as director¹⁶. In 1936 and 1937 still larger groups of students were members of this station. Those individuals who devoted their time to ornithological work in 1936 were Latimer B. Hyde and Howard B. Miller.

In 1932 I visited Machias Seal Island with Edward F. Dana, staying there from July 8 to 15. Three years later I came to Grand Manan for the purposes of studying the bird life¹⁷. I arrived at North Head on May 31, bringing a car with me. I eventually established my base at Deep Cove and during the ensuing weeks worked from that location. My wife joined me on June 21. Mr. and Mrs. Edgar R. Russell with whom we stayed during our sojourn were most helpful in acquainting us with the out-of-the-way places of Grand Manan and in making us perfectly comfortable. Ross and Ronald Russell transported us in their boat to many of the outlying islands. We left Grand Manan on July 22. In 1936 I visited Kent's Island from July 30 to August 7 and in 1937 I carried on studies of the bird life of Machias Seal Island from July 2 to July 28.

In recent years no one person has contributed more to our knowledge of the birds of the Grand Manan archipelago than Allan L. Moses of North Head. A life-long resident of Grand Manan, much of his time has been devoted to the study of the local bird life. A skilled taxidermist, he has at North Head a small natural history museum in which are

¹⁶ An account of the establishment of this Station is interestingly told by W. A. O. Gross in "Kent's Island—Outpost of Science" (*Nat. Hist.*, 37, 195-202 (1936)).

¹⁷ A general report of my various activities and observations at Grand Manan in 1935 is given in my "Impressions of Grand Manan Bird Life" (*Wilson Bull.*, 48, 111-119 (1936)).

to be seen, handsomely mounted, a representative collection of birds of the region. Among them are specimens taken in the archipelago which were far beyond their normal ranges and which definitely confirm their occurrence here. While much of the data which he has acquired have been published elsewhere by persons to whom he has generously given them, he has published but three short ornithological accounts¹⁸⁻²⁰.

A review of the ornithological work accomplished in the archipelago would not approach completeness without mentioning the name of Ernest A. Joy who is at the present time the keeper of the Bowdoin Scientific Station. Like Moses, he has been a life-long resident of the archipelago and the fund of natural history knowledge which he has acquired during the years is readily apparent when he is engaged in conversation. He has been responsible for the collection of a number of rare specimens in Moses' collection.

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¹⁸ Moses, *Jour. Maine Ornithol. Soc.*, 10, 90-91 (1908).

¹⁹ Moses, *Jour. Maine Ornithol. Soc.*, 11, 12-15 (1909).

²⁰ Moses, *Jour. Maine Ornithol. Soc.*, 11, 24 (1909).

historical notes. Mr. Robie W. Tufts, Chief Migratory Bird Officer of the Maritime Provinces, and Mr. Hoyes Lloyd, Supervisor of Wild Life Protection, Department of the Interior, Canada, for various courtesies extended and for several important notes. Mr. F. Burton Whitman, Jr., for giving me access to his unpublished manuscript, "The Birds of Three Islands, New Brunswick", and permitting me to draw from it any records that I wished. Mr. Allan L. Moses for not only graciously allowing me to study the specimens in his museum at North Head and to publish the data, but also for his personal guidance to various parts of the archipelago of ornithological interest that I might otherwise have missed. Mr. Ernest A. Joy for giving me his daily records of birds kept from September, 1935, to July, 1937, while residing at the Bowdoin Scientific Station. Mr. Arthur H. Norton of the Portland Society of Natural History for many historical notes and comments and for critically reading this manuscript. Mr. Percy A. Taverner of the National Museum of Canada and Dr. Alfred O. Gross of Bowdoin College for perusing this manuscript and giving helpful suggestions and for the use of several of his excellent photographs.

BIRD LIFE.

Generally speaking the Grand Manan archipelago lies in the Canadian Life Zone. In its forests where conifers still predominate are to be commonly found during the nesting season the Yellow-bellied Flycatcher, Acadian Chickadee, Red-breasted Nuthatch, Winter Wren, Hermit and Olive-backed Thrushes, Golden-crowned Kinglet, Bay-breasted, Black-poll, Magnolia, and Myrtle Warblers, Red and White-winged Crossbills, Slate-colored Junco, and White-throated Sparrow. The area, nevertheless, shows definite southern affinities by the presence, in the deciduous wooded portions and in the cultivated portions, of such Alleghanian forms as the Black-billed Cuckoo and Kingbird and the occasional presence of such forms as the Virginia Rail, Mourning Dove, Yellow-billed Cuckoo, Baltimore Oriole, and Field Sparrow.

In spite of the bird life being so strongly Canadian, certain kinds which belong to this zone, such as the Canada Jay and Spruce Partridge are, to the best of my knowledge, entirely absent, while the Goshawk, Arctic Three-toed Woodpecker, Tennessee, and Canada Warblers are apparently scarce.

The present distribution of land birds is probably quite different now from that found by Grand Manan's first settlers. Then, it may be logically assumed, the islands were almost continuously covered with rich growths of spruce and fir and contained birds strictly characteristic of the Canadian Zone. The changes gradually brought about by man in the cutting of the original "climax" growth created such new environments as open fields, pastures, orchards, villages, and woods of secondary growth. With these new environments came new bird associations. Birds *strongly* adapted to coniferous woods were forced either to areas where such an environment remained or from the islands altogether. To-day the Black-poll Warbler occurs only in the vicinities of scrub spruce on Grand Manan and the outlying islands. It is not "the most common warbler" noted by Herrick¹¹ (p. 31); instead the Black-throated Green Warbler is the most common warbler with the Redstart, Nashville Warbler, and Northern Yellowthroat running it close seconds. Furthermore, in the interior of Grand Manan, one finds common such birds as the Ovenbird, a species which Bryant⁷ never mentioned and Herrick¹¹ (p. 31) considered quite rare. A few birds like the Winter Wren and White-throated Sparrow, whose spruce-covered habitat has been reduced, have readapted themselves, the former to the deep, deciduous woods, the latter to the "slash" areas in pastures. Other birds such as the Spruce Partridge and Canada Jay have found the remaining coniferous woods too restricted and have been unable to adapt themselves to a new environment, hence their disappearance. Along the roadsides and about the farms the Yellow Warbler and the Song Sparrow are common and the Chipping Sparrow rare. None of these birds were mentioned by Bryant⁷ but Herrick found the Song Sparrow "rather uncommon"¹¹ (p. 32) and

the Yellow Warbler "rare"¹¹ (p. 31). Open-country birds such as the Bobolink have included Grand Manan in their range but the grass-covered fields and meadows are large enough to support only a few of them.

Certain insectivorous birds are present on Grand Manan in enormous numbers. The abundance of swallows, though always to be expected in coastal regions, cannot escape one's notice. Their presence has, of course, been encouraged by the residents, both intentionally by setting up suitable houses for the Tree Swallows, and unintentionally by the peculiar construction of the fish smokehouses, thus allowing Barn Swallows many desirable nesting sites. Three species of flycatchers nest commonly on Grand Manan,—the King-bird, Yellow-bellied and Alder Flycatchers. Three others, the Phoebe, Wood Pewee, and Olive-sided Flycatcher are to be seen from time to time. Many species of warblers are common. In 1935 there was not one locality in Grand Manan's interior where I could not hear at least one Black-throated Green Warbler singing.

The absence of a typical marsh community of Red-wings, rails, and bitterns is problematical. The plant associations in the marshes at Castalia, Whale Cove, and Big Pond seem capable of supporting at least a small assemblage; yet the Red-wing and Sora have never been found nesting, while the Virginia Rail has been found nesting once at Whale Cove Marsh and the American Bittern once at the Castalia Marshes.

During the breeding season hawks and owls seem to be comparatively few in the archipelago, only the Marsh Hawk being frequently seen. I observed the Sharp-shinned Hawk but twice and found one nest each of the Sparrow Hawk and Broad-winged Hawk. I did not see or hear an owl during my sojourn. From the records which Joy has acquired at Kent's Island, it appears that the archipelago lies well within the migration route of certain hawks and that they are fairly common during migration. In September, 1936, he noted a hawk 258 times as follows: Pigeon Hawk, 83; Sharp-shinned Hawk, 77; Sparrow Hawk, 60; Marsh Hawk,

31; Duck Hawk, 7. In the following month he saw a hawk 83 times as follows: Pigeon Hawk, 37; Sharp-shinned Hawk, 19; Marsh Hawk, 6; Sparrow Hawk, 4; Red-shouldered Hawk, 2; Broad-winged Hawk, 1.

The sea bird life of the Grand Manan archipelago is almost typically Sub-Arctic. The Yellow Murr Ledge is the southermost breeding ground of the Razor-billed Auk. The Atlantic Puffin nests in considerable numbers on Machias Seal Island; not more than a dozen pairs breed farther to the south at Matinicus Rock, Maine. The Black Guillemots and American Eiders are to be found nesting along the Maine coast but nowhere in the great numbers that are to be found from the archipelago northward.

The sea bird population has been subjected to many noteworthy changes since the archipelago was settled. An examination of early ornithological accounts shows quite clearly that either the Common or Double-crested Cormorant or both were breeding on Grand Manan, at least at Southern Head. On the main island, too, the Black Guillemot nested abundantly among the cliffs and the Herring Gull nested at Northern and Southern Heads, in the various bogs, and probably along its eastern and western shores. On the outlying spruce-covered islands such as White Head Island, Three Islands, Nantucket, and Outer and Inner Wood Islands Herring Gulls were likewise nesting. Some of the smaller treeless islands such as the White Horse and Western Green Island were the nesting grounds of the Arctic and Common Terns. Here they probably nested without the intrusion of the Herring Gull. Black Guillemots were scattered among these islands according to the availability of their particular type of nesting habitat. So far as it is known the Atlantic Puffin has always been confined to Machias Seal Island. The Razor-billed Auk, in addition to nesting on the Yellow Murr Ledge, may have nested commonly with the Puffins at Machias Seal Island. The fact that this species appears almost daily during the nesting season and has been known to nest once shows certain propensities for this locality. The

Gannets nested only on Gannet Rock while the Leach's Petrels and American Eiders were commonly distributed among the various islands.

The changes in the sea bird life of the Grand Manan archipelago have been brought about by the following known factors:

1. *General Encroachments of Civilization.*—The creation of villages, roads, farms, and lumbering activities on Grand Manan doubtlessly drove the Herring Gulls from the eastern shore, forcing them to nest only on Northern and Southern Heads and along the western shore. Likewise on the smaller islands which became inhabited, the Herring Gulls were forced to nest on certain portions not used by man. The erection of the lighthouse on Gannet Rock monopolized this small area and caused the disappearance of the Gannet; at Machias Seal Island a similar happening caused a reduction in the numbers of the Puffin and forced the Razor-billed Auk, a species more wary than the Puffin, to nest only at the Yellow Murr Ledge.

2. *Indians.*—While Grand Manan has no record of an Indian population, members of the Passamaquoddy tribe on the nearby mainland used to make frequent visits to the archipelago. The effect of their presence on the bird life is questionable. However, George H. Russell of the Grand Manan Historical Society and others tell of these Indians shooting sea birds for the millinery trade. The gulls, terns, and eiders were the chief victims. While their depredations caused a general reduction in numbers, it is doubtful if they caused any changes in the distribution of the sea birds among the islands.

3. *Egging.*—The taking of gulls' eggs for food has long been a custom of Grand Manan residents. In the early days the eggs were undoubtedly taken without any regulation whatsoever but it was not long before the residents effected a means of conserving this valuable asset. S. E. M. Smith²¹ (pp. 55-56) writes of these regulations as applied to the out-

²¹ Smith, S. E. M., *Maine Nat.*, 2, 53-58 (1922).

lying islands, thus: "The gulls lay two, often three eggs, then incubation begins. The people have found by taking the first, the gulls can be made to lay again and again up to nine eggs. The last two or three they leave to the birds to be hatched and reared. This has been found to work out very well, with no inconvenience to the gulls, save a lengthening out of the breeding season. Something beneficial if anything, as the birds depend on the herring to rear their families; and no considerable numbers of herring are taken until early fall. Barrels of these eggs were preserved in water glass to last the entire year, thousands were sold fresh, as they are delicious for all purposes. This brought a fair revenue to the people. The way it worked out in practice was something like this: The islands were rented out by the day to parties coming from Grand Manan and other islands where no eggs are taken. These hunting parties began around 7 A.M., and hunted until 6 P.M. But it was understood the island owners were to have all the eggs they could find outside the hours specified. This work is carefully attended to, and frequently the net results for the owners was greater than the eggs taken by the parties paying well for the privilege." At the present time the gathering of eggs is permitted by the Canadian Government²².

It is doubtful if egging during the past fifty years has caused any decrease in the numbers of the Herring Gull. Previous to that time it is probable that egging, coupled with two factors mentioned below, may have been of considerable importance. With the few enemies which the Herring Gull has to-day, it is unlikely that egging as now conducted can cause any serious reduction in numbers.

4. *Foxes*.—Foxes apparently never existed on Grand Manan until they were introduced at Southern Head in August, 1874, by the Pleasant Point Indians (a Passamaquoddy tribe) through the influence of W. B. McLaughlin (Copeland

²² The Canadian Department of the Interior has seen fit to grant under Section 20 of the Federal Regulations for the protection of Migratory Birds (Ottawa, 1937), permission to the owners or lessees of land of the Grand Manan archipelago to destroy gulls by taking their eggs as well as by shooting.

and Church²³, p. 125 and George H. Russell, *in litt.*, 1936). Thus isolated, the foxes multiplied and soon overran Grand Manan. The huge Herring Gull colony rapidly dwindled and, by 1883, it had disappeared. Further damage to the Herring Gull on some of the smaller islands is described by Andros²⁴ (p. 173) thus: "The distance to certain of the outlying islands is so short at ebb tide that the foxes have gained access to them, and thus not only have the ground breeders of the main suffered, but those on the pregnable islands, owing to the limited area, are depopulated to even a greater extent, and the former breeding grounds of the Ring necks [Semipalmated Plovers] are destroyed."

It seems plausible to me that this sudden change in the distribution of the Herring Gull caused by the foxes brought about indirectly the evacuation of the terns from all the islands but Machias Seal Island. The breeding Herring Gulls whose nests were continually broken up by the foxes were forced to seek new territories where the foxes would be less likely to intrude. Thus they resorted to the openly exposed, treeless islands where foxes would not remain any length of time and consequently usurped the breeding grounds of the terns. Records show that the terns were nesting in considerable numbers on the White Horse at about the time the Herring Gulls were being extirpated on Grand Manan and that the numbers apparently dwindled soon afterwards. Today the Herring Gulls have full possession of these islands, the terns last being recorded here in 1923.

5. *Raccoons*.—Raccoons were first introduced to Grand Manan about 1905. Like the foxes, these mammals reproduced rapidly. The Black Guillemots were undoubtedly subjected to their predation. Being capable of climbing down the steep cliffs, these mammals probably robbed the most inaccessible nests. While direct evidence of their actually preying upon the guillemots is lacking, it is significant that there have not been during the past thirty years the great

²³ Copeland and Church, *Proc. Biol. Soc. Wash.*, 19, 121-125 (1906).

²⁴ Andros, *Ornithol. and Ool.*, 12, 172-173 (1887).

numbers once reported. While there are flourishing colonies on Outer Wood Island and Kent's Island—places where these mammals have not been reported—the numbers of breeding birds remain decidedly few on Grand Manan where adequate nesting sites are proportionately more numerous. The raccoons are still very common on Grand Manan.

The absence of Leach's Petrels and Eider Ducks on Grand Manan may be attributed in part to the activities of both the foxes and raccoons.

6. *Avian Predators.*—At the present time the activities of avian predators are negligible insofar as they affect the nesting sea bird life. During my July sojourn at Machias Seal Island in 1937 not one hawk, owl, raven, or crow was observed. On the islands adjoining Grand Manan the Marsh Hawk is frequently observed. I have no evidence of its having molested the young of the gulls or eiders. The effect of these birds on past sea bird life is a matter of surmisal. If we may judge by the ornithological accounts, predatory birds have never been sufficiently numerous to be an outstanding factor in the decrease of sea bird life.

* * * *

To date 275 kinds of birds have been recorded in the archipelago, twelve others are considered of hypothetical occurrence. Due to the proximity of the mainland, none of the species or subspecies are at all peculiar to the region.

The following seventy-four birds have been definitely known to breed in the archipelago. Those marked with an asterisk (*) do not breed now.

Leach's Petrel.	Bank Swallow.
*Gannet.	Cliff Swallow.
Great Blue Heron.	Purple Martin.
Black-crowned Night Heron.	Northern Raven.
American Bittern.	Eastern Crow.
Black Duck.	Black-capped Chickadee.
Blue-winged Teal.	Acadian Chickadee.
American Eider.	Red-breasted Nuthatch.
Sharp-shinned Hawk.	Brown Creeper.

Bald Eagle.	Eastern Winter Wren.
Marsh Hawk.	Eastern Robin.
Osprey.	Eastern Hermit Thrush.
*Duck Hawk.	Olive-backed Thrush.
Eastern Sparrow Hawk.	Eastern Bluebird.
Ruffed Grouse.	Eastern Golden-crowned Kinglet.
Virginia Rail.	Cedar Waxwing.
*Semipalmated Plover.	Starling.
American Woodcock.	Red-eyed Vireo.
Spotted Sandpiper.	Eastern Yellow Warbler.
Great Black-backed Gull.	Magnolia Warbler.
Herring Gull.	Myrtle Warbler.
Common Tern.	Black-throated Green Warbler.
Arctic Tern.	Bay-breasted Warbler.
Razor-billed Auk.	Black-poll Warbler.
Black Guillemot.	Oven-bird.
Atlantic Puffin.	Northern Yellow-throat.
Black-billed Cuckoo.	American Redstart.
Short-eared Owl.	Bronzed Grackle.
Richardson's Owl.	Northern Pine Siskin.
Saw-whet Owl.	American Goldfinch.
Belted Kingfisher.	Savannah Sparrow.
Flicker.	Acadian Sparrow.
Hairy Woodpecker.	Slate-colored Junco.
Downy Woodpecker.	White-throated Sparrow.
Yellow-bellied Flycatcher.	Lincoln's Sparrow.
Alder Flycatcher.	Swamp Sparrow.
Tree Swallow.	Song Sparrow.

The following thirty-six birds probably breed in the archipelago and definite records should be obtained.

Pied-billed Grebe.	Blue-headed Vireo.
Eastern Goshawk.	Black and White Warbler.
Sora.	Nashville Warbler.
Eastern Mourning Dove.	Northern Parula Warbler.
Yellow-billed Cuckoo.	Cape May Warbler.
Great Horned Owl.	Black-throated Blue Warbler.
Long-eared Owl.	Blackburnian Warbler.
Eastern Whip-poor-will.	Chestnut-sided Warbler.
Nighthawk.	English Sparrow.
Chimney Swift.	Bobolink.
Ruby-throated Hummingbird.	Baltimore Oriole.
Yellow-bellied Sapsucker.	Scarlet Tanager.
Eastern Kingbird.	Rose-breasted Grosbeak.

Eastern Phoebe.	Indigo Bunting.
Least Flycatcher.	Eastern Purple Finch.
Olive-sided Flycatcher.	Red Crossbill.
Northern Blue Jay.	White-winged Crossbill.
Catbird.	Eastern Chipping Sparrow.

Regular transients and visitants compose the remaining number of birds recorded in the archipelago. They make up more than half the total number of birds and account for the impressive length of the present list.

The presence of such a great number of regular transients is due to several factors. The Grand Manan archipelago is sufficiently near the coastline to be well within the common route of many birds undergoing migrations to and from their northern breeding grounds. The features of the island of Grand Manan are enough like those of the mainland to bring similar numbers of birds. Furthermore the rich and more isolated feeding grounds in the vicinities of the smaller, uninhabited islands bring added numbers of birds to stop temporarily or remain throughout the winter. There are, for instance, the salt flats and bars which are uncovered daily by the recession of the tides. Here shore birds gather in countless thousands to feed undisturbed. Fish abound in the surrounding waters for loons, grebes, cormorants, gannets, mergansers, and gulls. There is apparently ample aquatic vegetation for brant and sea ducks. There are the "tide-rips" where strong tidal currents rush over shoals, places that stir up organisms for enormous numbers of phalaropes.

The Grand Manan archipelago, on the other hand, is far enough from the mainland to be in the vicinity of such pelagic birds as the petrels and shearwaters. Many are attracted to the boats of the resident fishermen in search of bait and fish offal.

The presence of a great number of occasional and accidental visitants is the result of several factors. Being a group of sea islands, the archipelago is in a position to check southern sea birds driven northward by storms and hurricanes. The records of Black Skimmers acquired in 1879 were doubtless-

are to be seen great numbers of the Black Guillemot, some of which undoubtedly nest in crevices of the cliffs. While there are nesting colonies of this bird which can be viewed to better advantage elsewhere in the archipelago, here the observer has an unusual opportunity to watch from a high elevation these birds diving, "flying" under water, and performing various courtship antics.

5. *Kent's Island*.—Although many of the islands in the archipelago possess colonies of different species of sea birds, Kent's Island has the greatest variety. The largest Herring Gull colony is located here together with the largest number of breeding American Eiders. Also to be found nesting here are Leach's Petrels, Great Black-backed Gulls, Black Guillemots and Northern Ravens.

There is unquestionably no better locality to view the late summer shore bird migration than the so-called "Basin" at Kent's Island. A suitable small harbor and docking place at flood tide, at ebb tide this area becomes an extensively sheltered mud-flat across which flow several fresh-water streams draining the island's interior. Actually thousands of smaller shore birds concentrate here to feed. Along the open beaches of the island the larger shore birds such as the Hudsonian Curlew and Black-bellied Plover invariably gather.

Even though the Basin is periodically emptied of water when the tide recedes, a boat may always be moored in the sheltered deep water called "Three Island Harbour". A boat is perfectly safe here during the roughest of weather.

6. *Yellow Murr Ledge*. Among the crevices formed by the loose rocks on this ledge, there are to be found nests of a small colony of Razor-billed Auks. This is the only colony in the archipelago. Only in the very mildest of weather should a trip to this isolated islet be undertaken. Navigation is extremely dangerous as many of the ledges are just slightly submerged at certain tidal levels. There is no sheltered lee or cove and a boat has to be drawn up directly on the inclined portions of the ledge. A trip to the Yellow Murr Ledge is of added interest in the late summer as one is likely to see flocks

of phalaropes feeding in the "tide-rips" as well as a few petrels, shearwaters, and jaegers.

7. *Machias Seal Island*.—Although treeless there is here sufficient soil for the nesting burrows of many Leach's Petrels. Machias Seal Island not only possesses the only present-day colony of Common and Arctic Terns in the Grand Manan archipelago but it is further distinguished by having a colony of nesting Atlantic Puffins. Unfortunately a safe landing can be made here only when the water is moderately calm as the island is without a harbor and is openly exposed to the Bay of Fundy and Atlantic Ocean.

ANNOTATED LIST.

The ensuing annotated list of birds known to occur in the Grand Manan archipelago²⁶ contains not only the forms which I have personally observed but also such forms as have been recorded in literature, such forms as are represented in Moses' collection, such forms as have been reported seen by others who have either visited the archipelago or are residents of it, and such forms as have been listed in unpublished notes and manuscripts.

Several explanations of the plan of the list are deemed necessary. The sequence of species and nomenclature follow in the main the "Check-List of North American Birds" (fourth edition, 1931) prepared by a Committee of the American Ornithologists' Union. Subspecific names have been used sparingly. In most cases this is because either a sufficient number of specimens have not been collected or examined critically for subspecific determination or because there is some question in the author's mind as to their validity. In the discussions pertaining to the majority of forms listed, the data have been arranged according to a definite plan. The first paragraph contains a statement of its present status. Here certain comparative terms are used to denote numerical

²⁶ There is some question whether Machias Seal Island is Canadian or American territory. In this paper it is held as geographically a part of the archipelago and its bird life is considered a part of the same region. Other persons may decide, if need be, whether the bird records established on this island and here incorporated are Canadian or American.

status, these terms grading from "very abundant" to "accidental" in the following order: very abundant, abundant, very common, fairly common, common, uncommon, rare, very rare, casual, accidental. The remainder of the first paragraph contains, if available or warranted, such information as migration dates, exceptional dates of occurrence out of the normal seasons, specimens taken, etc. Separate paragraphs are used for breeding data, for census figures, for taxonomic remarks, and for historical notes. The above plan has been abandoned when a form is placed in the list on the basis of only one to three records; the data are merely given without further discussion. Forms considered "hypothetical" are those whose records for the archipelago are not satisfactorily verified by actual specimens collected or observed. Extinct birds recorded in the archipelago without specific information are held as hypothetical. No form deemed hypothetical is counted in the list.

1. *Gavia immer immer* (Brünnich). Common Loon.

Fairly common transient and winter resident; frequently observed during the late spring and summer. On June 3, 1935, while inspecting the sea bird colony on Machias Seal Island, my attention was suddenly directed to an individual calling from the surface of the water not far from shore. Bent and Durfee saw one near Hay Island on June 16, 1891. Two were recorded by Whitman in the vicinity of the Yellow Murr Ledge on August 8, 1934. Saunders saw one at Grand Manan on August 19, 1926. Norton saw another a mile east of Machias Seal Island on August 27, 1936.

The assertion by Herrick¹¹ (p. 41) that the Common Loon does not breed on Grand Manan is undoubtedly true, there being no ponds sufficiently large for nesting habitats. Joy, however, noted one at intervals from April to October, 1901, on Big Pond near Seal Cove, though he found no evidence to indicate its breeding.

Gavia arctica pacifica (Lawrence). Pacific Loon.

Hypothetical. Herrick¹¹ (p. 41) included the Pacific Loon [= "*C. arcticus* Black-throated Diver"] in his list, stating that it occurs in winter. Because he did not cite the source of his information, this western form is deleted from the present list.

2. *Gavia stellata* (Pontoppidan). Red-throated Loon.

Transient and, on the authority of Herrick¹¹ (p. 41), a winter resident. Moses and Joy have found it common at times in the outlying waters during the spring and fall. Moses took one male near North Head on October 26, 1908. Neither Moses nor Joy has ever recorded the Red-throated Loon during the winter months.

3. *Colymbus grisegena holboelli* (Reinhardt). Holboell's Grebe.

Fairly common transient and winter resident. Moses has two males in his collection from Pettes Cove, Grand Manan, one being taken on December 10, 1910, the other on April 1, 1916. Tufts²⁷ (p. 38) saw three birds in full breeding plumage along the shore of Kent's Island on April 16, 1926. Joy's earliest fall record is a bird seen at Kent's Island on October 8, 1935.

4. *Colymbus auritus* Linnaeus. Horned Grebe.

Common transient and winter resident. One male was taken by Moses at North Head on December 10, 1910; another at Nantucket Island on May 19, 1917. Joy saw his first fall Horned Grebe at Kent's Island on October 29, 1935.

5. *Podilymbus podiceps podiceps* (Linnaeus). Pied-billed Grebe.

Transient, apparently more common in the fall than in the spring; sometimes seen in the summer. In August, 1932, Joy saw one of these birds swimming and diving in the Basin at Kent's Island. Saunders observed one at Grand Manan on September 1, 1926.

It is possible that the species breeds among the rushes along the shores of Great and Long Ponds. Joy and Henry R. McLaughlin have noticed individuals on these ponds during the summer months.

6. *Thalassogeron chlororhynchus* (Gmelin). Yellow-nosed Albatross.

A record of the occurrence of this form normally inhabiting the oceans of the Southern Hemisphere was established by Joy when, on August 1, 1913, he shot a specimen six miles southeast of Machias Seal Island. Its sex was undetermined (Murphy²⁸, p. 58). The specimen was eventually secured by Dr. Leonard C. Sanford and now resides in the collection of the American Museum of Natural History.

7. *Puffinus griseus* (Gmelin). Sooty Shearwater.

Common visitant in summer and fall. Moses has in his museum at North Head a female taken near Grand Manan on July 19, 1922.

²⁷ Tufts, *Canad. Field-Nat.*, 48, 38 (1934).

²⁸ Murphy, *Auk*, 39, 58-65 (1922).

On August 26, 1936, Norton secured an excellent view of one near the Yellow Murr Ledge. Later the same day he saw nine more about two miles from Gannet Rock.

8. *Puffinus gravis* (O'Reilly). Greater Shearwater.

Fairly common visitant in summer and fall. Moses has two specimens taken near White Head Island on October 18, 1921. One is a male and the other a female.

9. *Fulmarus glacialis* (Linnaeus). Atlantic Fulmar.

The statement by Herrick¹¹ (p. 40) that this bird occurs on the "fishing grounds in autumn" is supported by Moses who tells me that he has observed it several times in the outlying waters during the fall and winter. George A. Boardman (cf. S. L. Boardman¹⁴, p. 192) wrote of having added this form [= "Fulmar Petrel"] to his list of birds taken at Grand Manan.

10. *Oceanodroma leucorhoa leucorhoa* (Vieillot). Leach's Petrel.

Abundant during the late spring, summer, and early fall; breeds on many of the smaller islands. At Kent's Island Joy recorded the first petrel in 1936 on May 9, in 1937 on April 23. At Machias Seal Island Harvey E. Benson noted the first bird in 1937 on May 5.

During a visit to Machias Seal Island from July 8 to 15, 1932, I estimated approximately 2,000 pairs of Leach's Petrels to be nesting here. At this time the nesting season was well underway and fresh eggs were present in all the burrows examined. No young were found. Three years later I visited the island earlier in the season on June 3. At this time only a few newly made burrows were noticed although there were many places where they had just been started. Six completed burrows were examined but no eggs were present. According to Samuel E. Harvey, eggs are not commonly found in the Machias Seal Island colony until the third week of June. By the first week of August young are usually present. At Kent's Island W. A. O. Gross¹⁵ (p. 385) saw no indications of petrels breeding until "the first or second week of June" and (p. 391) not until "the end of August" did most of the occupied burrows contain young.

Approximately 26,500 Leach's Petrels are believed to nest in the archipelago. These birds are distributed among the various islands as follows: Machias Seal Island, 2,000; Kent's Island, 10,000; Outer Wood Island, 12,000; Southern Green Island, 2,000; White Head Island, 500.

It is barely possible that there are a few isolated places on Grand Manan where Leach's Petrels nest. For instance, I heard this species calling as it flew above my camp at Deep Cove. This was

late in the evening of July 19, 1935. Several days later while walking along the grassy crests of the cliffs at Wilcox Point, I came upon what appeared to be petrel burrows. The circumference of their openings, their courses through the soft soil, and their abrupt endings closely resembled the burrows on nearby Outer Wood Island. Yet the odor which is usually prevalent in occupied burrows was lacking, while an examination of a number of the burrows and a visit here late at night revealed no positive evidence of their nesting.

11. *Hydrobates pelagicus* (Linnaeus). Storm Petrel.

Verrill⁸ (p. 234) listed one specimen from Grand Manan. Later George A. Boardman (cf. S. L. Boardman¹⁴, p. 315) included this petrel in his newspaper list of birds of Maine and New Brunswick with the following statement: "Accidental; only Grand Manan".

12. *Oceanites oceanicus* (Kuhl). Wilson's Petrel.

Sporadically common visitant during the late spring and summer. Moses has found it more common in August. During the foggy weather of the early summer he has noted individuals within the harbors and coves of Grand Manan. Whitman recorded Wilson's Petrels a mile off Kent's Island on July 15, 1934. On July 18, 1937, an injured male bird was picked up at the base of the Machias Seal Island lighthouse. Severe bruises on the forehead gave fair indication that it had flown into the light the night before. I saw three birds which I determined to be of this species near Gannet Rock on July 20, 1935. Moses took a male specimen near Grand Manan on September 19, 1921.

13. *Pelecanus erythrorhynchos* Gmelin. White Pelican.

Herrick¹¹ (p. 39) wrote that a specimen "was taken some years since" in the Grand Manan area. This record of an accidental visitant, while more or less indefinite, does not seem extraordinary when taking into consideration the more satisfactory records for the nearby Maine Coast. (See Forbush²⁵, pp. 164-165).

14. *Morus bassana* (Linnaeus). Gannet.

Common transient in spring and fall; sometimes seen in the late spring and summer. Moses has a specimen taken by Joy at Inner Wood Island on June 4, 1901. Bent and Durfee saw two off the Yellow Murr Ledge on June 17, 1891. Joy observed four individuals several miles north of Machias Seal Island on August 2, 1935. Norton noted three "pre-nuptial" birds flying about just off the Yellow Murr Ledge on August 26, 1936.

While the Gannet does not nest in the archipelago at the present time, there was once a colony on Gannet Rock. Here it apparently

thrived until the completion of the lighthouse which was lighted for the first time in 1831. From this time on, however, the colony apparently dwindled in numbers since the presence of the structure usurped much of its nesting area. According to Gurney²⁹ (pp. 311-312) only one or two pairs were found nesting by Verrill and Brewer in 1859 but the rock "was probably not entirely deserted until about 1866".

15. *Phalacrocorax carbo carbo* (Linnaeus). European Cormorant.

Apparently common transient and winter resident; does not breed. Moses has a female taken near Grand Manan on February 7, 1923. Tufts and Townsend³⁰ (p. 150) reported the above specimen as being shot at North Head and stated that a flock of "about two hundred" were wintering there.

Samuels³¹ (p. 535) mentioned this species as breeding at Grand Manan. Later Bent³² (p. 242) and Forbush³³ (p. 159) listed Grand Manan as a former breeding ground. The exact localities, however, were not named by these authorities. Audubon³³ (p. 486) spoke of seeing "thousands of Gulls and Cormorants" as his party approached the northern end of Grand Manan. It may well have been that this portion of the archipelago was a nesting ground of this form.

16. *Phalacrocorax auritus auritus* (Lesson). Double-crested Cormorant.

Common transient and summer visitant; does not nest. This form breeds on a few of the islands close to the nearby western mainland, which accounts in a large measure for the occurrence of the bird here during the summer months. I saw one near the shore at Deep Cove on June 7, 1935. During July, 1937, individuals and small flocks were seen almost daily at Machias Seal Island. Allen noticed a flock of seventeen flying south over Grand Manan on August 23, 1929. Saunders observed many of these birds between August 19 and September 5, 1926.

17. *Ardea herodias herodias* Linnaeus. Great Blue Heron.

Fairly common summer resident; undoubtedly nests. Almost invariably I observed a Great Blue Heron during visits made to

²⁹ Gurney, "The Gannet a Bird with a History", Witherby and Co., London, 1913; li+567 pp.

³⁰ Tufts and Townsend, *Auk*, 41, 150 (1924).

³¹ Samuels, "The Birds of New England and Adjacent States", Noyes, Holmes and Co., Boston, 1870, vii+591 pp.

³² Bent, *U. S. Nat. Mus. Bull.* No. 121, xii+343 pp. (1922).

³³ Audubon, "Ornithological Biography", Adam and Charles Black, Edinburgh 1834, vol. 2, xxxii+588 pp.

the Castalia Marshes. Saunders listed it as seen "daily", Allen as seen "frequently". Members of the Bowdoin Scientific Station noticed a Great Blue Heron at Three Islands on August 1, 1936, and Whitman saw another there on August 4, 1934. Joy's earliest migration date for Kent's Island is March 30, 1936, and his latest December 13, 1935.

Joy tells of there once being nesting colonies of the Great Blue Heron during the middle of the last century on Outer and Inner Wood Islands. At that time these places were more heavily wooded with spruce than they are to-day.

18. *Casmerodius albus egretta* (Gmelin). American Egret.
 "Very rare; Grand Manan" (George A. Boardman, cf. S. L. Boardman¹⁴, p. 309). On April 5, 1936, a specimen was found dead at Hay Island by Henry Ingalls. The plumes and primaries were saved and I had opportunity to examine them during a visit to the island the following summer. Perley Lambert collected a bird (sex undetermined) at North Head on April 12, 1930. This now resides in Moses' museum. C. J. Maynard told Deane³⁴ (p. 63) of examining an immature specimen in the flesh that was shot at White Head Island on November 3, 1878.
19. *Egretta thula thula* (Molina). Snowy Egret.
 "Very rare; Grand Manan" (George A. Boardman, cf. S. L. Boardman¹⁴, p. 309). The above statement was presumably substantiated by at least one specimen for Knight³⁵ (p. 137) wrote that the form had been taken by Boardman at Grand Manan.
20. *Florida caerulea caerulea* (Linnaeus). Little Blue Heron.
 Rare visitant. Moses has in his collection a specimen which, so he informed me, was taken at Grand Manan. Moses (cf. Legge³⁶, p. 56) saw another on April 17, 1909, and remarked that this was the fourth time the bird had been recorded at Grand Manan. Charles B. Moseley and Henry A. Gleason, Jr., saw an individual in adult plumage at Kent's Island on August 1, 1936. Brooks³⁷ (p. 70) saw two young birds during his stay at Grand Manan in September and October, 1930.
21. *Butorides virescens virescens* (Linnaeus). Eastern Green Heron.

Summer resident. Herrick¹¹ (p. 37) wrote: "Not rare; it may breed but I do not think it does." Moses possesses a female taken at Seal Cove on June 1, 1926.

³⁴ Deane, *Bull. Nuttall Ornithol. Club.*, 4, 63 (1879).

³⁵ Knight, *Univ. Maine Bull.* No. 3, 184 pp. (1897).

³⁶ Legge, *Jour. Maine Ornithol. Soc.*, 11, 56 (1909).

³⁷ Brooks, *Canad. Field-Nat.*, 47, 70-72 (1933).

Moses believes that the Green Heron may nest at Kent's Island for he has observed it there a number of times during the probable breeding season. Members of the Bowdoin Scientific Station, however, have not seen it there during the last three seasons.

22. *Nycticorax nycticorax hoactli* (Gmelin). Black-crowned Night Heron.

Local summer resident. Whitman noted an individual flying over Three Islands at dusk on August 12, 1934. Joy took a female at Inner Wood Island on April 21, 1926. It is now in Moses' collection.

Recently Moses found the Black-crowned Night Heron breeding on Nantucket Island. We visited this area of approximately one hundred acres on July 17, 1935, and found eleven nests. Five of them were located near the tops of the thick conifers in one section of the island, while the other six were similarly located not far away. The young had left the nests and could be seen perching tenaciously among the uppermost branches.

23. *Nyctanassa violacea violacea* (Linnaeus). Yellow-crowned Night Heron.

The only Yellow-crowned Night Heron known to appear in the archipelago was collected by Moses at North Head on April 2, 1931. It was a female and is now preserved as an unmounted skin in Moses' museum.

24. *Botaurus lentiginosus* (Montagu). American Bittern.

Fairly common summer resident; breeds.

During my visits to the Castalia marshes I usually flushed one bird from different sections. I found no evidence of the species breeding there until July 10, 1935, when I was surprised to find myself suddenly standing within a few feet of two birds that at first appeared to be full grown. I was not a little astonished, therefore, to find that I could walk up to within arm's reach of them without flushing them. As I reached out to pick one up, it thrust its beak at me angrily, then awkwardly flew away a few feet. Eventually I caught the bird and discovered a bit of down still clinging to the freshly grown feathers,—evidence of its immaturity.

25. *Ixobrychus exilis* (Gmelin). Least Bittern.

William E. Joy took a specimen at Seal Cove in June, 1933. The specimen was later identified by Moses but it was so severely shot up that no attempt was made to preserve it. This was the only known instance of this bird's occurrence in the archipelago.

26. *Branta canadensis canadensis* (Linnaeus). Common Canada Goose.

Common transient. Near Kent's Island Joy recorded six on March 15, 1936 and 75 five days later.

Herrick¹¹ (p. 38) and Andros³⁸ (p. 151) indicated that Grand Manan was once a breeding ground of the Canada Goose.

27. *Branta bernicla hrota* (Müller). American Brant.

Common transient. At Kent's Island in the spring of 1935, A. O. Gross (cf. Lewis³⁹, p. 74) counted 250 in Three Island Harbour on May 24-26. Here a year later Joy counted 50 on March 16 and saw one as late as June 3. The greatest number estimated on any one day was 250 on March 30. In the spring of 1937 Joy saw the first bird on March 18 and on April 11 estimated 3,000 present. The last spring bird was seen again on June 3. Joy's latest fall date for Kent's Island is November 8, 1935.

Anser albifrons (Scopoli). White-fronted Goose.

Hypothetical. George A. Boardman (cf. S. L. Boardman¹⁴, p. 312) listed this bird with Grand Manan as the stated locality. Knight³⁵ (p. 137) said that Boardman gave it as "accidental" at Grand Manan. No records admittedly based on specimens are available, so far as I know.

28. *Chen hyperborea* (Pallas). Snow Goose.

One male was taken by Moses at Grand Harbour on October 6, 1912. The bird is noticeably small, the wing measuring only 16.75 in. It is undoubtedly referable to the smaller race, *C. h. hyperborea*, as Brooks³⁷ (p. 71) has previously indicated. George A. Boardman (cf. S. L. Boardman¹⁴, p. 312) has listed both the lesser and greater forms as occurring at Grand Manan, the former being estimated as "Accidental", the latter as "Rare".

29. *Anas platyrhynchos* Linnaeus. Mallard.

Herrick¹¹ (p. 38) considered this bird very rare. It is held as a rare transient to-day by Moses and Joy who have shot several birds.

30. *Anas rubripes* (Brewster). Black Duck.

Fairly common to common resident; nests.

At Kent's Island on April 11, 1937, Joy found a nest with eleven eggs. The year before he found a nest with seven eggs on May 11.

³⁸ Andros, *Ornithol. and Ool.*, 12, 151-152 (1887).

³⁹ Lewis, *Auk*, 54, 73-95 (1937).

Henry R. McLaughlin informed me that he had seen seven broods of Black Ducks at one time on Long Pond during June, 1935. While working over the Castalia Marshes on June 6, 1935, I surprised an adult which, instead of flying away, flopped along on the ground in front of me, obviously feigning injury. In a few moments it flew into the air and circled me again and again, quacking almost constantly. Try as I would, I could not locate any nest or young. During a later visit to this same place on June 22, 1935, I found the bird and witnessed a similar performance but this time I found two young partially feathered and still with a large amount of down on their backs. They were unable to fly.

The legs and feet of the adult which I watched feigning injury were noticeably dark, there being little, if any, indication of redness. I feel safe in assuming that this bird was *A. r. tristis* and not the questionably valid race, *A. r. rubripes*.

Chaulelasmus streperus (Linnaeus). Gadwall.

Hypothetical. "Rare" (Herrick¹¹, p. 38). Herrick's inclusion of the Gadwall in his list with the above statement of its status is apparently not based on specific records.

31. *Mareca penelope* (Linnaeus). European Widgeon.

Preserved in Moses' collection is a female specimen taken at Nantucket Island on November 1, 1927.

32. *Mareca americana* (Gmelin). Baldpate.

Rare transient; a few, according to Moses and Joy, being observed during the fall of the year. A female, shot by Joy at North Head on December 5, 1901, resides in Moses' museum.

33. *Dafila acuta tzitzihoa* (Vieillot). American Pintail.

Rare to fairly common transient. Moses and Joy have found Pintails more common in the fall, coming early in September. Moses has a female taken on one of the Duck Islands on March 2, 1918. Joy saw ten at Kent's Island on March 13, 1936, and six the previous fall on October 20.

34. *Nettion carolinense* (Gmelin). Green-winged Teal.

Rare as spring transient but fairly common fall transient. A male was taken by Moses at White Head Island on March 1, 1916, and is now mounted in his museum.

35. *Querquedula discors* (Linnaeus). Blue-winged Teal.

Rare as a spring transient and summer resident; fairly common to rare fall transient; breeds. Moses has a male taken at Sheep Island

on April 15, 1919. Joy saw twenty on a pond on that island on September 20, 1935.

Dr. Anne E. Perkins saw a female with seven newly hatched young on Whale Cove Pond on July 15, 1935. The following day I visited the area and flushed the female from the shore. The bird circled me a number of times, protesting my presence vociferously. The young I failed to see since they were apparently hidden in the thick grass bordering the pond. During this same breeding season Moses knew of a pair nesting at Long Pond.

36. *Spatula clypeata* (Linnaeus). Shoveller.

On January 5, 1935, Moses collected a male Shoveller on Nantucket Island. This specimen was deposited in the National Museum of Canada⁴⁰.

37. *Aix sponsa* (Linnaeus). Wood Duck.

Moses informs me that he has known only two Wood Ducks to be recorded in the archipelago. Both of these birds were collected, one coming from Ohio Pond and the other from Three Islands. These specimens he mounted and later sold.

38. *Nyroca americana* (Eyton). Redhead.

Apparently a rare transient and winter resident. Moses has two specimens in his collection. One, a male, was taken at Nantucket Island on October 20, 1927; the other, a female, was taken near Grand Manan on January 4, 1906.

Nyroca valisineria (Wilson). Canvas-back.

Hypothetical. "Rare" (Herrick⁴¹, p. 38). Herrick's reasons for listing the Canvas-back are unknown to me. No references to specific records have come to my attention.

39. *Nyroca marila* (Linnaeus). Greater Scaup Duck.

A common spring and fall transient; occasional winter resident. Moses has one specimen in his collection which I believe, on cursory examination, to be referable to this species. This is a female taken at Nantucket Island on February 10, 1917. Its wing measures 8.75 in.

40. *Nyroca affinis* (Eyton). Lesser Scaup Duck.

In all probability this species occurs as a rare spring and fall transient. Joy knows of one being shot between Hay and Sheep Islands. Moses has a male specimen taken at North Head on April 1, 1904. Its wing measures 7.87 in.

⁴⁰ Taverner, *Canad. Field-Nat.*, 50, 142 (1936).

41. *Glaucionetta clangula americana* (Bonaparte). American Golden-eye.

Moses¹⁹ (p. 14) saw two on December 26, 1908. He has in his collection a male taken at Grand Manan on December 18, 1922, and a female taken at Nantucket Island on January 3, 1912.

42. *Glaucionetta islandica* (Gmelin). Barrow's Golden-eye.

Very rare transient; probably rare winter resident. Moses has a male specimen shot at Little Duck Island on November 25, 1921.

43. *Charitonetta albeola* (Linnaeus). Buffle-head.

Transient and winter resident. "Very common in winter" (Herrick¹¹, p. 38). Moses and Joy now consider the Buffle-head as rare at all times at Grand Manan. A female taken at North Head on November 20, 1909, and a male taken at Nantucket Island on October 16, 1925, are in Moses' collection.

44. *Clangula hyemalis* (Linnaeus). Old-squaw.

Common transient and winter resident. Moses¹⁹ (p. 14) saw many of these birds on December 26, 1908. He has two specimens collected on January 18, 1908—a female from Long Island and a male from Grand Manan. Joy estimated 550 in the vicinity of Kent's Island on February 10, 1936; 400 on March 24, 1936; and 100 on March 31, 1936. In the files of the Bureau of Biological Survey, Washington, D.C., are a series of migration records of this species kept by Simeon F. Cheney from 1888 to 1891. His latest spring record is May 10, 1889. He noted them as early in the fall as October 16, 1887.

Herrick¹¹ (p. 38) saw a pair in "full breeding plumage" that had been shot on June 18 and concluded that the species might be breeding in the vicinity. Sweet and Floyd (Whitman, MS) observed an immature male in the vicinity of the Basin at Kent's Island during most of August, 1933. It is very unlikely that the Old-squaw has ever bred in the archipelago.

45. *Histrionicus histrionicus histrionicus* (Linnaeus). Eastern Harlequin Duck.

Very rare winter resident. "Common in winter" (Herrick¹¹, p. 38). Moses has a male and a female taken at Grand Manan on February 3, 1908.

Audubon¹ (p. 612) reported the Harlequin Duck as breeding on "the Seal, White Head and Grand Manan Islands". He wrote (p. 163): "On the 31st of May, 1833, I found them breeding on White Head Island, and other much smaller places of a similar

nature, in the same part of the Bay of Fundy. There they place their nests under the bushes or amid the grass, at the distance of twenty or thirty yards from the water." Brewer² (pp. 298-299) considered Audubon in error, stating that he probably confused the species with breeding Red-breasted Merganser. One is decidedly inclined to accept Brewer's criticism as logical, believing it very improbable that this form ever bred as far south as Grand Manan, at least in the great numbers indicated.

46. *Camptorhynchus labradorius* (Gmelin). Labrador Duck.

The last specimen of this now extinct species to be taken at Grand Manan is accounted for by George A. Boardman (cf. Dutcher⁴¹, p. 214). He wrote: "The last one I know to have been taken was shot by S. F. Cheney, at Grand Manan, in April, 1871. It was given to Harold Herrick, who subsequently gave me the skin. I sent it to John Wallace of New York to be mounted for Prof. S. F. Baird of the Smithsonian Institution. Not knowing its value, Wallace let some one get the skin from him and it was lost to the Smithsonian, as he could not tell who had it."

47. *Somateria mollissima borealis* (Brehm). Northern Eider.

Apparently an uncommon to fairly common winter resident. Moses took one bird near Three Islands during the middle of December, 1925.

48. *Somateria mollissima dresseri* Sharpe. American Eider.

Common summer resident. In 1936 Joy noticed the first bird to arrive at Kent's Island on April 7.

In 1936 approximately 150 pairs were believed to have bred on Three Islands, 15 pairs on Outer Wood Island, and 20 pairs on the White Horse. Joy found a nest at Kent's Island as early as May 9, 1936, and counted 160 males in the surrounding water the following day. On May 24, 1935, A. O. Gross found a number of nests at Kent's Island. One contained five eggs, three contained four eggs, and five contained three eggs. Joy saw downy young eiders there on June 3, 1936 and Whitman reported a nest with newly hatched young as late as August 12, 1934. On July 20, 1935, I saw two females, one with three and one with four downy young, swimming about in the vicinity of two of the outermost Murr Ledges, at least three and a half miles from Kent's Island, the nearest possible breeding ground.

Apparently the American Eider was once a very common, if not abundant, breeding bird in the Grand Manan archipelago. Audubon¹ (p. 343) reported that on May 31, 1833, his son's party killed

⁴¹ Dutcher, *Auk*, 8, 201-216 (1891).

six eiders on Grand Manan "where the birds were seen in considerable numbers, and were just beginning to breed". Herrick¹¹ (p. 38) noted it "breeding in abundance on all the small islands about Menan" but stated that it was fast decreasing in numbers due to the depredations of man. Pearsall¹² (p. 524) and Andros³⁸ (p. 151) likewise spoke of the decrease in numbers. During July and August, 1923, Townsend⁴² (p. 142) believed it "nearly gone". He saw only three or four individuals near the White Horse and "Green Islands"

49. *Somateria spectabilis* (Linnaeus). King Eider.

Very rare transient and winter resident. In Moses' collection there is one female taken at Nantucket Island on November 17, 1908.

50. *Melanitta deglandi* (Bonaparte). White-winged Scoter.

Common transient and winter resident. Moses has a male specimen taken on one of the Duck Islands on November 1, 1908. He¹⁹ (p. 14) saw four on December 26, 1908, at Grand Manan. Bent and Durfee saw five near Hay Island on June 15, 1891, probably late transients.

Audubon¹ (p. 356) said that this scoter bred at Grand Manan. No doubt this was an error or lapse of memory.

51. *Melanitta perspicillata* (Linnaeus). Surf Scoter.

Fairly common transient and winter resident. A male taken at Duck Island on December 11, 1908, is in Moses' possession. On December 26, 1908, Moses¹⁹ (p. 14) saw one individual. Herrick¹¹ (p. 38) told of a specimen which alighted in a yard on White Head Island one June day and was captured alive. This bird was probably crippled.

52. *Oidemia americana* Swainson. American Scoter.

Transient and winter resident. "Common in winter" (Herrick¹¹, p. 38). Moses and Joy believe this bird to be the least common of the three scoters.

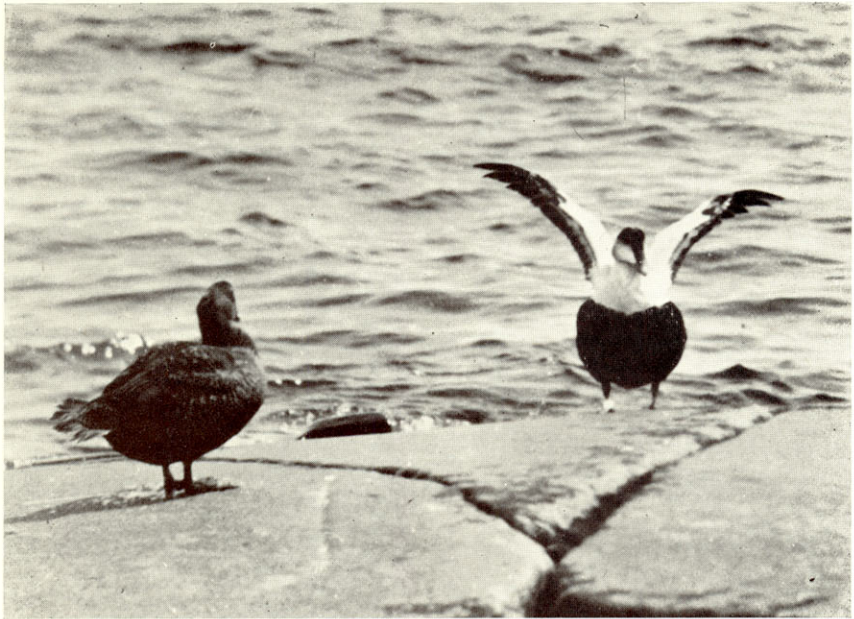
53. *Erismatura jamaicensis rubida* (Wilson). Ruddy Duck.

"Uncommon" (Herrick¹¹, p. 39); probably occurs only as a straggler to-day. Joy has observed an individual twice on the smaller ponds of Grand Manan and once in the salt water directly off shore.

54. *Lophodytes cucullatus* (Linnaeus). Hooded Merganser.

Apparently a very rare transient and winter visitor. "Not common and does not breed" (Herrick¹¹, p. 39). During one fall Moses saw two individuals at Grand Manan. Carol Wilcox shot one male in full breeding plumage in the fall of 1934.

⁴² Townsend, *Canad. Field-Nat.*, 37, 141-144 (1923).



A female and male American Eider on the shore of Kent's Island. The male bird is just leaving the water.



A newly hatched brood of seven American Eiders at Kent's Island.
Photographs by Alfred O. Gross.

55. *Mergus merganser americanus* Cassin. American Merganser.

Rare transient. "Common" (Herrick¹¹, p. 39). Moses has one male taken at Eel Lake on April 5, 1909.

56. *Mergus serrator* Linnaeus. Red-breasted Merganser.

Common transient and winter resident; probably a summer resident at one time. Two birds, one definitely determined to be a male, were taken at Long Island on January 18, 1908, and reside in Moses' collection. Moses¹⁹ (p. 14) saw fifty on December 26, 1908, nearly all of which were males. I observed one male off the shore of Machias Seal Island on June 3, 1935.

Herrick¹¹ (p. 39) stated: "It used to breed but has almost entirely left the island during the season of incubation, those remaining being only immature or unproductive birds." In recent years very few birds have been observed in the archipelago during the breeding season and it is very unlikely that it breeds there now.

57. *Cathartes aura septentrionalis* Wied. Turkey Vulture.

Joy shot a Turkey Vulture on Inner Wood Island during the early fall of 1900. His uncle, Mariner Wilcox, shot another "some years before".

58. *Coragyps atratus atratus* (Meyer). Black Vulture.

George A. Boardman (cf. S. L. Boardman¹⁴, p. 178) wrote of a Black Vulture having been taken at Grand Manan in the year 1869. This was a bird new to his list. Townsend⁴³ (p. 130) was certain of the identification of a Black Vulture near North Head on August 9, 1924.

59. *Astur atricapillus atricapillus* (Wilson). Eastern Goshawk.

Rare transient and winter resident. Moses has a male taken at North Head on November 14, 1927.

While the Goshawk should nest in the extensive coniferous forests in the interior of Grand Manan, I know of no records of its breeding or of its occurrence here during the summer.

60. *Accipiter velox velox* (Wilson). Sharp-shinned Hawk.

Common transient and fairly common summer resident; casual in winter. Moses has one male taken at Grand Manan on April 8, 1908. He (cf. Legge³⁸, p. 56) saw a large flight of this form on April 6, 1909. I saw one individual flying along the Dark Harbour road on June 8, 1935, and saw another at Deep Cove on June 11,

⁴³ Townsend, *Auk*, 42, 130 (1925).

1935, being angrily pursued by a Robin. Allen observed the bird twice at Grand Manan. Norton observed a Sharp-shinned Hawk being assailed by the terns feeding in the vicinity of the Yellow Murr Ledge on August 26, 1936. A day later he saw another being driven by the terns as it attempted to fly over Machias Seal Island. Whitman recorded an individual flying low over Kent's Island on August 29, 1934. Joy noted one at Kent's Island on November 7, 1935, and collected one there on February 8, 1936.

Herrick¹¹ (p. 36) once secured a nest containing four eggs from White Head Island.

61. *Accipiter cooperi* (Bonaparte). Cooper's Hawk.

Allen observed a pair at Dark Harbour on August 22, 1929. This species is undoubtedly of more frequent occurrence than observations show.

62. *Buteo borealis borealis* (Gmelin). Eastern Red-tailed Hawk.

Rare to uncommon transient; casual in summer; not known to breed. Favour (Whitman, MS) observed one at Three Islands on August 14, 1934. Joy recorded two at Kent's Island on October 1, 1935. Moses has two birds collected at North Head,—a female taken on October 1, 1910, and a male taken on October 10, 1915.

63. *Buteo lineatus* (Gmelin). Red-shouldered Hawk.

"Not rare" (Herrick¹¹, p. 36). Casual in summer; not known to breed. Saunders observed one at Grand Manan on August 21, 1926. Although there is a paucity of records for this species during the spring and fall, it seems likely that the Red-shouldered Hawk must now be at least *uncommon* during migration.

Birds occurring in the archipelago are presumably referable to the northern race, *B. l. lineatus*.

64. *Buteo platypterus platypterus* (Vieillot). Broad-winged Hawk.

Apparently a rare transient and summer resident. Townsend⁴⁴ (p. 143) saw one bird on August 16, 1923, and another on August 17, 1923, both at North Head. Saunders identified one at Grand Manan on September 2, 1928.

On June 18, 1935, Sirdar Ingalls showed me a nest of the species containing three eggs. The nest was located about a mile up the Seal Cove Stream in the crotch of a large white birch nearly twenty feet from the ground. The nesting bird was collected and proved to be a female.

65. *Buteo lagopus s.johannis* (Gmelin). American Rough-legged Hawk.

Fairly common transient and rare winter resident. Moses has one specimen, a female, taken at Grand Manan on February 24, 1926.

Herrick¹¹ (p. 36) stated that this bird "may breed" but it is highly improbable.

66. *Aquila chrysaetos canadensis* (Linnaeus). Golden Eagle.

Rare transient and visitant. Audubon²² (p. 485) wrote of a Golden Eagle "soaring aloft" as he approached Grand Manan. Moses has in his collection a female taken at Grand Manan on October 1, 1905, and a male taken at White Head on October 1, 1915.

67. *Haliaeetus leucocephalus* (Linnaeus). Bald Eagle.

Resident and transient. On June 5, 1935, I saw an immature bird resting on a stump in the Castalia Marshes and on the following day I noticed another flying low over the Dark Harbour road. During a visit to Dark Harbour on June 8, 1935, I observed an adult circling far up in the sky. A native of the vicinity, who was working along the shore, saw me watching the bird and remarked that he had seen the bird almost every day during the spring. I have no doubt but that the bird had a nest in the big timber back from the cliffs. Joy recorded Bald Eagles regularly at Kent's Island from December 18, 1935, to March 8, 1936.

Herrick¹¹ (p. 36) listed the species as a very common resident. On February 20 (year not mentioned), he said, Cheney found a nest with one egg in a tall pine "up the main island". The embryo was "well advanced, but frozen". The parent birds were seen "sailing overhead at a respectful distance". Pearsall¹² (p. 524) procured a set of eggs which were taken in April.

The summer resident Bald Eagles probably belong to the southern race, *H. l. leucocephalus*. Many of the winter birds, however, are very likely to be of the northern race, *H. l. alascanus*. A male specimen in Moses' museum which was taken at Fish Head on February 12, 1923, bears out this belief. It is obviously large with a wing measuring 23.60 in.

68. *Circus hudsonius* (Linnaeus). Marsh Hawk.

Common transient and summer resident. Moses has a male taken at Grand Manan on March 10, 1926. At Kent's Island Joy recorded the first Marsh Hawk for 1936 on April 1 and for 1937 on April 13. I observed it frequently during my stay at Grand Manan and found it to be unquestionably the most common hawk.

The Marsh Hawk breeds commonly on many of the isolated heaths. Carol Wilcox showed me an old 1934 nest of the species on a large

heath about a mile and a half to the west of Seal Cove. Vinton Green reported a nest containing five well-feathered young found near Ingall's Head on June 20, 1935.

69. *Pandion haliaëtus carolinensis* (Gmelin). Osprey.

Fairly common transient and summer resident. I saw one bird at Castalia on June 12, 1935; another at Red Head Point on June 13, 1935; and still another at Deep Cove on June 14, 1935.

On June 19, 1935, Samuel E. Harvey and I found a nest of the Osprey near the edge of Miller's Pond. The nest was situated on the top of a thirty-foot stump entirely devoid of branches. Although it was impossible to examine the contents, from the behavior of the parent birds, we judged that young were present.

70. *Falco rusticolus* Linnaeus. Gyrfalcon.

Rare winter visitant. Moses has three specimens taken at North Head on the following dates: November 10, 1911; November 1, 1900; February 10, 1927. During November, 1935, Joy noted seven Gyrfalcons at Kent's Island. Four were in gray plumage and three were in white. Two of the white birds were shot but not saved.

The specimens in Moses' collection have not been critically examined, consequently their subspecific status remains undetermined.

71. *Falco peregrinus anatum* Bonaparte. Duck Hawk.

Fairly common transient. In Moses' collection there is a male taken at North Head on March 2, 1910, and a female taken in the same vicinity on September 22, 1908. Allen saw a pair above the cliffs on the northeastern side of Grand Manan. Saunders saw "several" during his visit.

The Duck Hawk used to breed on Grand Manan, probably in considerable numbers, for the high cliffs along the northern and entire western shore are particularly suited to their needs. Yet, oddly enough, there is only one reported breeding locality. This was first described by Herrick¹¹ (p. 35) thus: "There is a place between 'Fish Head' and the 'Old Bishop' known as the 'Seven Days' Work', where the cliff is divided into seven strata as sharply defined as lines of masonry. On an indentation in the face of this cliff, about one hundred feet from the top, and one hundred and fifty feet from the bottom, a pair of these falcons have had their eyry for a succession of years; secure alike from the assaults of the most zealous naturalist and the small boy of bird's-egging proclivities." The Duck Hawk continued to nest regularly on these cliffs for years thereafter. When Brownson⁴⁴ (pp. 75-76) visited the vicinity of

⁴⁴ Brownson, *Jour. Maine Ornithol. Soc.*, 10, 72-77 (1908).

Seven Days' Work with Moses on August 4, 1908, he saw three birds and assumed that they were a nesting female and her two young. As Smith²¹ (pp. 54-55) has intimated, however, it was not long after Brownson's visit that the Duck Hawk was intentionally extirpated. It has not since attempted to nest there.

72. *Falco columbarius columbarius* Linnaeus. Eastern Pigeon Hawk.

Irregularly common transient. Moses has in his collection a bird taken at Three Islands on April 15, 1931. About May 15, 1935, Samuel E. Harvey saw a large flight of this species at Machias Seal Island and shot four, the decomposed bodies of which I examined on June 3, 1935. Whitman reports one seen at Kent's Island on July 30, 1934. Saunders saw four during his visit to Grand Manan.

73. *Falco sparverius sparverius* Linnaeus. Eastern Sparrow Hawk.

Common transient and rare summer resident. Joy saw two at Kent's Island on April 1, 1936. Moses (cf. Legge³⁸, p. 56) reported them "abundant" at Grand Manan on April 6, 1909. He has one in his collection taken at Grand Manan two days later. Sweet (Whitman, MS) saw one at Kent's Island during July, 1933. Whitman reported another there on August 4, 1934.

Moses tells me that the Sparrow Hawk was once a common nesting species on Grand Manan, but that he has not observed it during the breeding season in recent years. On July 15, 1935, I located a pair of nesting birds about two miles up the Grand Harbour Brook. The hole in which the nest was placed was in a tall dead tree in a large open area and could not be climbed. These were the only birds I observed in the archipelago.

74. *Bonasa umbellus* (Linnaeus). Ruffed Grouse.

Common resident. I observed grouse on a number of occasions in 1935, finding it widely distributed in the interior of the island.

On July 8, 1935, Lincoln Harvey and Ronald Russell flushed a brood of grouse at Deep Cove. The chicks were newly hatched. Sirdar Ingalls found a nest containing nine eggs on June 18, 1935. The eggs hatched on July 27. I flushed one brood at Watt Pond on June 28, 1935, and came upon two more in the woods between Dark Harbour and Little Dark Harbour on July 1, 1935. The young in all cases were well able to fly.

As these birds observed were not collected, it cannot be stated whether they were *B. u. togata*, the so-called Canada Ruffed Grouse, or *B. u. thayeri*, the more easterly race.

75. *Rallus limicola limicola* Vieillot. Virginia Rail.

Rare transient and very rare summer resident.

On June 3, 1908, Moses found a nest of this rail in Whale Cove Marsh. The eggs together with the incubating bird were taken and are now in his collection.

76. *Porzana carolina* (Linnaeus). Sora.

Fairly common transient; possibly a summer resident and breeding bird. Moses (cf. Legge³⁶, p. 56) heard one at Grand Manan on April 21, 1909. He has in his collection three birds taken at North Head on the following dates: September 2, 1908 (male); September 10, 1908 (female); December 11, 1908 (female).

Bent⁴⁵ (p. 313) has listed Grand Manan as being a breeding ground of the Sora, although the reason for so doing is not known to me. Joy believes that the Sora once nested in the marsh grass surrounding the fresh water pond on Hay Island.

77. *Coturnicops noveboracensis* (Gmelin). Yellow Rail.

Apparently very rare transient. In 1880 George A. Boardman (cf. S. L. Boardman¹⁴, pp. 183-184) wrote that he heard of one being killed "at the Grand Manan lighthouse". Brooks³⁷ (p. 70) attempted to collect a bird at Whale Cove Marsh on October 7, 1930, but the specimen was "winged and lost".

78. *Ionornis martinica* (Linnaeus). Purple Gallinule.

Under the date of December 18, 1869, George A. Boardman (cf. S. L. Boardman¹⁴, p. 178) wrote of adding three new birds to his list for the year, of which one was a Purple Gallinule taken at Grand Manan. Moses' father, John R. Moses, found a specimen near the Swallow Tail lighthouse "about 1885". It was mounted and remained in his collection for a number of years but was eventually destroyed.

79. *Gallinula chloropus cachinnans* Bangs. Florida Gallinule.

Another bird which George A. Boardman (ibid.) added to his list for 1869 was a Florida Gallinule, likewise taken at Grand Manan. Brooks³⁷ (p. 70) collected a young Florida Gallinule at Whale Cove Marsh on October 10, 1930.

80. *Fulica americana americana* Gmelin. American Coot.

Rare fall transient. Moses has a female taken at Long Pond on November 5, 1921.

⁴⁵ Bent, *U. S. Nat. Mus. Bull.* No. 135, xii+490 pp. (1926).

81. *Haematopus palliatus palliatus* Temminck. American Oyster-catcher.

George A. Boardman once told Brewer (cf. Baird, Brewer and Ridgway⁶, p. 113) that a single specimen had been taken at Grand Manan.

Upon the authority of Audubon¹ (p. 182), the Oyster-catcher once bred in the Bay of Fundy. It may, therefore, have been a summer resident of the archipelago.

82. *Vanellus vanellus* (Linnaeus). Lapwing.

In December, 1927, Joy secured three specimens, one at Three Islands and two at Outer Wood Island. Moses has a female taken at Hay Island on January 6, 1928.

83. *Charadrius melodus* Ord. Piping Plover.

Fairly common transient. Moses has a specimen taken on Nantucket Island on May 1, 1919. Saunders observed the species twice.

The statement by Boardman¹³ (p. 128) that the Piping Plover breeds "on islands the middle of June" infers that the species once nested in the archipelago. Nevertheless, Moses and Joy have never found evidence of its breeding.

84. *Charadrius semipalmatus* Bonaparte. Semipalmated Plover.

Abundant transient; frequently observed during all the summer months. Whitman saw the species at Three Islands on June 25, 1934. A. O. Gross noted flocks of from thirty to fifty at Kent's Island on July 1, 1932, and by July 5 he found them very common.

The Semipalmated Plover has bred in the archipelago in the past. In the United States National Museum there is a set of eggs (no. 21285) taken on Nantucket Island by E. Cheney on June 21, 1875. Pearsall¹² (p. 524) stated that a single pair bred for several successive years on Nantucket Island. In 1878 he found a young bird there "just hatched".

85. *Oxyechus vociferus vociferus* (Linnaeus). Killdeer.

Generally a rare transient. Moses has a female taken at Nantucket Island on March 19, 1918. George A. Boardman (cf. Chadbourne⁶⁶, p. 259) noted "quite a flight" at Grand Manan from December 1-15, 1888.

86. *Pluvialis dominica dominica* (Müller). American Golden Plover.

Fairly common transient, particularly in the fall. Moses has a specimen, a female, taken on Nantucket Island on November 10, 1926.

⁶⁶ Chadbourne, *Auk*, 6, 255-263 (1889).

87. *Squatarola squatarola* (Linnaeus). Black-bellied Plover.

Common transient. Moses has three males, one taken at Nantucket Island on May 5, 1912, another at Ross Island on August 1, 1909, and another at the Castalia Marshes on August 7, 1908. Whitman observed this species at Kent's Island for the first time in 1934 on August 2. From then on until August 20 the flocks of this species increased in size. When he left the island at the end of August, he reported "hundreds".

88. *Arenaria interpres morinella* (Linnaeus). Ruddy Turnstone.

Very common transient. I saw two birds at Machias Seal Island on July 19, 1937, and observed the species every day from then on during my stay. Hyde observed three at Kent's Island on July 24, 1936. Moses has a male taken at Woodward's Cove on August 24, 1908.

89. *Philohela minor* (Gmelin). American Woodcock.

Common transient and summer resident. I heard three males at one time going through their flight performances on the evening of May 31, 1935, at Deep Cove. On June 4, 1935, a specimen was given me that had apparently been killed by flying into a telephone wire. On June 11, 1935, I flushed four birds at different intervals during a walk through the woods to the west of Deep Cove. Allen observed one bird on August 14, 1929, and five on August 16, 1929, along the "lower road" from Whale Cove to North Head. Whitman flushed a bird at Kent's Island on August 12 and 19, 1934. Saunders saw one on August 23, 1926.

The Woodcock undoubtedly breeds commonly on Grand Manan although I personally found no nests or young. Joy, however, found a nest with four eggs near Seal Cove on April 10, 1935. Pear-sall¹² (p. 524) found a family, the "young just able to fly", on June 10 (year not stated).

90. *Capella delicata* (Ord). Wilson's Snipe.

Rare transient. Moses has three specimens taken at Grand Manan on the following dates: April 21, 1908; April 22, 1908 (male); October 21, 1908 (female). At Kent's Island Joy recorded the Wilson's Snipe as early as April 1, 1936, and as late as October 16, 1935.

Numenius americanus Bechstein. Long-billed Curlew.

Hypothetical. "Not rare in autumn" (Herrick¹¹, p. 37). Since the Long-billed Curlew, as Forbush²⁵ (p. 545) believes, may have been "an irregularly common to uncommon or

rare migrant" along the New England coast and may have ranged north to Newfoundland and Labrador, Herriek's inclusion of this bird may have been thoroughly justified. Nevertheless, no birds are known to have been taken or definitely recorded in the archipelago.

91. *Phaeopus hudsonicus* (Latham). Hudsonian Curlew.

Fairly common transient. Moses has a specimen taken at Bancroft's Marsh on August 10, 1909. Whitman recorded this species at Kent's Island on July 24, 1934. From then on until the middle of August he remarked that as many as eight were seen at a time.

Phaeopus borealis (Forster). Eskimo Curlew.

"Rare" (Herriek¹¹, p. 37). Undoubtedly this now virtually extinct form was once a common, if not abundant, transient in the Grand Manan archipelago. Yet there are no specimens and records reported from this region.

92. *Bartramia longicauda* (Bechstein). Upland Plover.

Rare transient and summer visitant. Moses has a male that he collected at Kent's Island on August 29, 1932. Joy saw one at Kent's Island as late as October 1, 1935.

93. *Actitis macularia* (Linnaeus). Spotted Sandpiper.

Common summer resident on nearly all the large islands of the archipelago.

Mayr estimated seven pairs residing at Kent's Island in 1933 and Whitman estimated the same number the following year. In 1932 I found four pairs nesting on Machias Seal Island; in 1935 Cruickshank found six pairs; in 1937 I banded the downy young of five broods and estimated eight pairs nesting there altogether. The earliest nesting date for the archipelago is that of a nest with three eggs found by Mrs. Edgar R. Russell at Machias Seal Island on June 3, 1935. A fourth egg appeared in the nest on the following day. Other breeding records for the archipelago are as follows: A nest with one egg at Kent's Island, June 9, 1935 (Joy); a nest with four eggs at Seal Cove, June 13, 1935 (Pettingill); a nest with four eggs on the White Horse, June 15, 1891 (Durfee); a nest with eggs hatching at Kent's Island, June 23, 1932 (A. O. Gross); a nest with eggs at Machias Seal Island, July 19, 1935 (Cruickshank).

94. *Tringa solitaria* Wilson. Solitary Sandpiper.

Rare transient and summer visitant; common according to Herriek¹¹ (p. 37). Favour (Whitman, MS) observed one at Kent's Island on August 9, 1934. Saunders saw two on August 31, 1936.

Birds occurring here are probably of the typical eastern race, *T. s. solitaria*, undergoing migrations to and from their more northerly breeding grounds.

95. *Catoptrophorus semipalmatus semipalmatus* (Gmelin). Eastern Willet.

Rare summer visitant. Moses has a male specimen taken at Grand Manan on August 25, 1921. Whitman recorded one at Kent's Island on August 20, 1934.

96. *Totanus melanoleucus* (Gmelin). Greater Yellow-legs.

Very common transient. A male specimen taken at Grand Manan on May 18, 1908, is in Moses' collection. I noted one on the Castalia Marshes on June 15, 1935. Whitman saw one at Three Islands on July 21, 1934. Moses has a female taken on Bancroft's Marsh on August 29, 1909.

97. *Totanus flavipes* (Gmelin). Lesser Yellow-legs.

Probably rare spring transient but fairly common fall transient. Cruickshank observed the species at Machias Seal Island on July 19, 1934, and Whitman observed three birds at Hay Island on July 24 of that same year. Whitman saw individual groups quite frequently during the first part of August, 1934. Moses has a female taken at Kent's Island on August 5, 1895.

98. *Calidris canutus rufus* (Wilson). American Knot.

Generally rare transient but at times fairly common during the late summer and fall migration. At Machias Seal Island on July 20, 1937, I saw one flock containing fifteen birds. Smaller flocks were seen about the island during the remainder of my stay. On July 27 I secured one female at nearby Gull Rock. Whitman reported a small flock seen off Sheep Island on August 22, 1934. Saunders saw the Knot on August 25, 1926.

99. *Arquatella maritima* (Brünnich). Purple Sandpiper.

Very common transient and winter resident. Moses has two male specimens that were taken at "Little Wood Island" [= Outer Wood Island] on May 30, 1925. Herrick¹¹ (p. 37) took a single specimen on August 13, 1872. Norton saw seven birds at the Yellow Murr Ledge on August 26, 1936. Moses¹⁹ (p. 14) saw a flock of about forty at Long Island on December 19, 1908.

100. *Pisobia melanotos* (Vieillot). Pectoral Sandpiper.

Rare spring and common late summer and fall transient. Cruickshank saw one at Machias Seal Island on July 20, 1935. Moses

has a female taken at Castalia on August 14, 1908. Allen saw two at the Yellow Murr Ledge on August 23, 1929.

101. *Pisobia fuscicollis* (Vieillot). White-rumped Sandpiper.

Rare spring transient; common during the late summer and fall migration. Moses has a female taken at Kent's Island on August 5, 1925, and a male and female taken at Woodward's Cove on August 24, 1908. In 1934 Whitman found the species "most common" at Three Islands during the middle of August, being first observed August 9. He said that sometimes there were flocks as large as a hundred.

102. *Pisobia minutilla* (Vieillot). Least Sandpiper.

Abundant transient, seen commonly even in June and July. I saw eight at Deep Cove on June 3, 1935, and well over a hundred at Kent's Island on July 11, 1935. Whitman has noted that they are very common at Three Islands from about July 10 on into the fall.

Erolia testacea (Pallas). Curlew Sandpiper.

Hypothetical. Although this species is listed by George A. Boardman (cf. S. L. Boardman¹⁴, p. 310) as accidental at Grand Manan no reference is made to a specimen having been taken.

103. *Pelidna alpina sakhalina* (Vieillot). Red-backed Sandpiper.

Rare transient except in the fall when it is sometimes fairly common. Moses has a male specimen taken at Nantucket Island on November 10, 1919.

104. *Limnodromus griseus* (Gmelin). Dowitcher.

Rare transient in the spring; very common transient in the late summer and fall. I observed a flock of 35 Dowitchers at Machias Seal Island on July 11, 1937, and noted many smaller flocks there during the remainder of the month. I saw six on the Yellow Murr Ledge on July 19, 1935. Pearsall¹² (p. 524) shot a female at Grand Manan on July 13, 1877. Moses has two females, one taken at Kent's Island on August 5, 1925, and the other taken at Three Islands on August 10, 1925.

105. *Micropalama himantopus* (Bonaparte). Stilt Sandpiper.

Very rare transient. Sweet and Floyd (Whitman, MS) saw one bird in the Basin at Kent's Island during August, 1933. In the National Museum of Canada there is a specimen in the barred plumage which was taken at North Head on August 3, 1925.

106. *Ereunetes pusillus* (Linnacus). Semipalmated Sandpiper.
Abundant transient. During the summer of 1934 Whitman first saw the species at Three Islands on July 4; later in the summer he saw "thousands" of them. In 1937 I recorded the first Semipalmated Sandpiper at Machias Seal Island on July 7 and saw increasing numbers of them on every day thereafter. I saw a flock of well over a hundred birds at the Castalia Marshes on July 19, 1935. On the following day I saw five at the Yellow Murr Ledge.
107. *Limosa haemastica* (Linnaeus). Hudsonian Godwit.
Apparently very rare transient. Cheney sent Herriek¹¹ (p. 37) a pair of these birds that he shot in November, 1871. Cheney said that these were the only ones he had ever seen.
108. *Philomachus pugnax* (Linnaeus). Ruff.
Brewer (cf. Baird, Brewer and Ridgway⁵, p. 294) stated that "examples [of Ruff] have been taken at Grand Manan". In the collection of the United States National Museum there is a specimen (no. 52391) of an adult bird, unsexed, labelled "Grand Manan, G. A. Boardman", with no date.
109. *Crocethia alba* (Pallas). Sanderling.
Rare spring and fairly common fall transient; sometimes seen during the summer. At Three Islands Whitman saw the species for the first time during the summer of 1934 on July 7. Moses has a male specimen taken at Nantucket Island on August 14, 1908.
110. *Himantopus mexicanus* (Müller). Black-necked Stilt.
Brewer (cf. Baird, Brewer and Ridgway⁵, p. 346) remarked that "several individual birds have been taken at Grand Manan".
111. *Phalaropus fulicarius* (Linnaeus). Red Phalarope.
Rare transient, though sporadically common during the fall migration. Moses has a female specimen taken at Grand Manan on March 6, 1908, and a male specimen taken at Gannet Rock on June 3 (year not recorded). Whitman observed three during a trip to Machias Seal Island on August 15, 1934. Allen saw two solitary birds between Grand Manan and Machias Seal Island on August 20, 1929.
112. *Steganopus tricolor* Vieillot. Wilson's Phalarope.
Very rare visitant. Moses (cf. Legge³⁶, p. 56) saw one on March 6, 1909, the only time he has ever seen the species.
113. *Lobipes lobatus* (Linnaeus). Northern Phalarope.
Very common to abundant transient. In many of the areas of shallow water, particularly the shoals lying in the vicinity of the

Murr Ledges, the Northern Phalaropes congregate in enormous numbers during their migration. I collected one and saw several others on July 19, 1935, halfway between Grand Manan and the Murr Ledges. Whitman reported that a flock of "about seven hundred" spent most of the day of August 16, 1934, off the northern end of Kent's Island.

114. *Stercorarius pomarinus* (Temminck). Pomarine Jaegar.

Rare transient. "Common in autumn on the fishing grounds" (Herrick¹¹, p. 40). Moses (cf. Tuttle⁴⁷, p. 482) observed one capturing a phalarope near Grand Manan on May 26, 1911. Hickey and others observed an individual six miles northeast of Machias Seal Island on June 17, 1934.

115. *Stercorarius parasiticus* (Linnaeus). Parasitic Jaegar.

Fairly common transient. Herrick¹¹ (p. 40) speaks of it as follows: "Common fall visitant; comes about the fishing boats to pick up bits of bait, and is so tame that it is often killed with a gaff." Saunders saw one on August 22, 1926.

116. *Stercorarius longicaudus* Vieillot. Long-tailed Jaegar.

Very rare transient. Moses has a specimen taken at Long Pond Bay on October 4, 1923.

117. *Larus hyperboreus* Gunnerus. Glaucous Gull.

Uncommon to fairly common winter visitant. Moses has a specimen taken at Grand Manan on December 15, 1912.

118. *Larus leucopterus* Vieillot. Iceland Gull.

Fairly common winter visitant. A specimen in Moses' collection was taken on March 1, 1906.

Brewer² (p. 304) spoke of a few being found in the vicinity of White Head and "Two Islands" [=Outer and Inner Wood Islands] but the statement that they "breed on the same islands" is very much doubted. One wonders if Brewer did not observe nesting there several albino Herring Gulls such as the albino Herring Gull observed nesting at Kent's Island in 1932 (Whitman, MS).

119. *Larus kumlieni* Brewster. Kumlien's Gull.

Apparently very rare winter visitant. Moses possesses a male specimen taken at Grand Manan on February 10, 1916.

120. *Larus marinus* Linnaeus. Great Black-backed Gull.

Common summer resident, and fairly common winter resident. Moses¹⁹ (p. 14) saw 100 on December 25, 1909. Joy saw about

⁴⁷ Tuttle. *Auk*, 28, 482 (1911).

seventy-five at Kent's Island on January 10, 1936, and thirty on February 18, 1936.

It is only within the last few years that this gull has been considered a common nesting species. Herrick¹¹ (p. 40) wrote that it "used to breed with the Herring Gulls, but being of a wilder nature it was the first to move in the direction of new and more secure breeding grounds". Townsend¹² (p. 142) saw "a few only" and said that Joy believed a pair recently bred at "Green Island". In July, 1933, Mayr found one pair nesting at Kent's Island. The following year Whitman reported four pairs nesting on Sheep Island but none on Kent's Island. In 1935, 1936, and 1937 ten pairs were estimated nesting on Three Islands. In 1936 and 1937 Joy found the first egg here on April 29.

121. *Larus argentatus smithsonianus* Coues. Herring Gull.

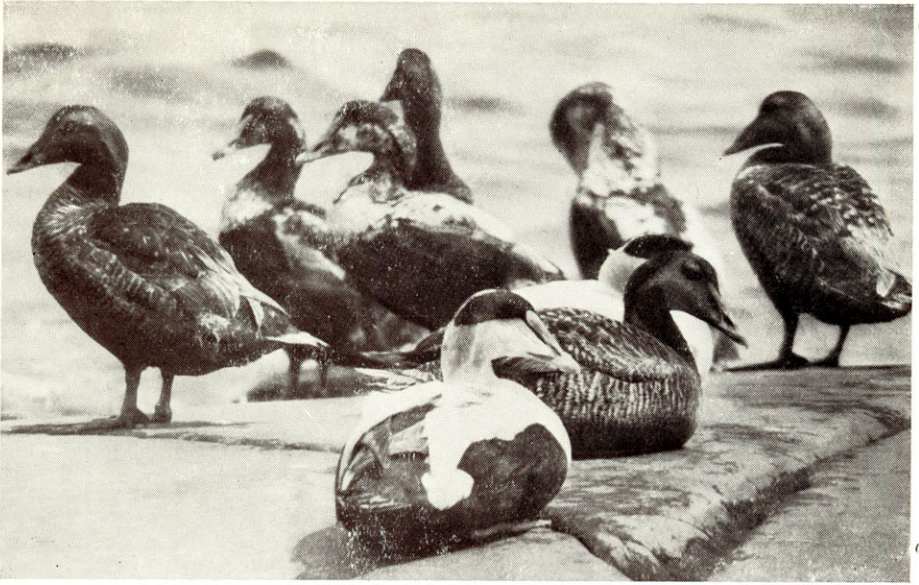
Very abundant summer resident and occasional winter resident. At Kent's Island Joy recorded the first Herring Gull in 1936 on February 25 and in 1937 on February 24.

At Kent's Island Joy has found the first eggs of the year as early as May 12, 1936, and May 16, 1937. On May 24, 1935, A. O. Gross found over a hundred nests in the process of construction at Kent's Island. Three of them contained one egg each.

From 1935 to 1937 the breeding population of Herring Gulls in the Grand Manan archipelago has been broadly estimated in pairs to be 22,354 and is distributed among the islands as follows: Outer Wood Island, 800; Inner Wood Island, 100; Northern and Southern Green Islands, 4; Western Green Island, 700; the White Horse, 100; Three Islands, 20,000; Nantucket Island, 250; White Head Island, 400.

The Herring Gull once nested in great abundance at Southern Head, Grand Manan. Of this colony Herrick¹¹ (p. 40) wrote: "On the Southern Head is a very extensive nursery, and from the edge of the cliffs the eggs can be counted by the hundred, all the way down, until they grow indistinguishable in the distance." According to some of the older residents of Grand Manan the birds also nested on the more or less level terrain directly back from the cliffs, a place which was familiarly known as "Gull Heath". It was shortly after Herrick's visit, however, that foxes were introduced to Grand Manan and brought about the almost immediate disappearance of the Herring Gull as a nesting bird. (See introduction.) By 1883, so Joy relates, the Herring Gull no longer bred at Grand Manan.

Occasionally the Herring Gull has attempted to nest on some of the islands where it does not regularly do so. On June 17, 1891, Bent and Durfee found a nest containing one egg at the Yellow



A group of American Eiders at Kent's Island.



Herring Gull. Few Herring Gull colonies are larger than the one on Kent's Island.
Photographs by Alfred O. Gross.

Murr Ledge. On July 2, 1935, Lincoln Harvey found two nests with eggs on Gull Rock directly off the shore of Machias Seal Island.

When Audubon¹ (pp. 588-590) landed on White Head Island on May 23, 1833, he was greatly impressed with the fact that the nests were placed in trees and wrote at length on the subject. In his time undoubtedly White Head Island and many of the other islands were heavily wooded with spruce and the birds used these nesting sites for want of space on the ground. On Kent's Island at the present time a few Herring Gulls, perhaps three or four dozen pairs, can still be found nesting in trees, but the vast majority of them have resorted to the open surfaces of the island.

122. *Larus delawarensis* Ord. Ring-billed Gull.

Apparently an uncommon transient and rare winter visitant. Moses observed one bird on April 15, 1937, and has noted several others about this time in previous years. Herrick¹¹ (p. 41) considered the Ring-billed Gull common during migration.

Audubon¹ (p. 99) mentioned this bird [= "*L. zonorhynchus*"] as breeding on an island "close to Grand Manan", but his statement was never verified by any later observer.

123. *Larus atricilla* Linnaeus. Laughing Gull.

Very rare summer visitant. Moses has seen three Laughing Gulls during the late summer, one on the Castalia Marshes, one near Nantucket Island, and one at Low Duck Island. These individuals were observed between 1925 and 1930.

124. *Larus pipixcan* Wagler. Franklin's Gull.

Moses took a female at North Head on December 6, 1925. The identification of the specimen was subsequently confirmed by Taverner⁴³ (pp. 217-218).

125. *Larus philadelphia* (Ord). Bonaparte's Gull.

Probably a common transient and regular winter visitant. Allen saw one at Machias Seal Island on August 20, 1929.

126. *Pagophila alba* (Gunnerus). Ivory Gull.

"Winter visitant" (Herrick¹¹, p. 41). "Accidental; Grand Manan" (George A. Boardman, cf. S. L. Boardman¹⁴, p. 314). Knight³⁵ (p. 135) wrote that a specimen had actually been taken by Boardman at Grand Manan. On December 31, 1908, Moses¹⁹ (p. 15) saw one bird, the first and only one he has ever seen alive.

127. *Rissa tridactyla tridactyla* (Linnaeus). Atlantic Kittiwake.

Common transient and winter resident. Moses has two specimens taken at Grand Manan on January 4 and December 25, 1908. On

⁴³ Taverner, *Auk*, 44, 217-228 (1927).

December 30 of that same year he¹⁹ (pp. 14-15) saw these birds at North Head "sitting in a white line" on the outlying water as far as he could see. Cruickshank saw eight of these birds at Machias Seal Island on July 21, 1935. Saunders observed them in the archipelago on August 19 and 31, 1926.

128. *Xema sabini* (Sabine). Sabine's Gull.

Casual visitant. Moses has observed but three birds, two in December about 1922 and one in August about 1926. All were seen in Long Island Bay.

129. *Gelochelidon nilotica aranea* (Wilson). Gull-billed Tern.

George A. Boardman gave Deane⁴⁹ (p. 63) the record of a specimen shot at Grand Manan in the latter part of August, 1879, by one of his collectors.

130. *Sterna hirundo hirundo* Linnaeus. Common Tern.

Probably common transient; summer resident, nesting only on Machias Seal Island.

In July, 1932, I estimated approximately 50 pairs breeding on Machias Seal Island. According to Samuel E. Harvey, then keeper of the lighthouse, this number had remained fairly constant year after year. In July, 1937, I believed the number to be the same.

Formerly the Common Tern nested on some of the other islands of the archipelago. Bryant⁷ (p. 120) stated that a "dozen pairs were breeding on the inner Green Island at Manan". In recent years Townsend⁴² (p. 142) found a few breeding on "Green Island". The locality referred to in these records is undoubtedly Western Green Island.

131. *Sterna paradisaea* Brünnich. Arctic Tern.

Probably a common transient; summer resident, nesting on Machias Seal Island.

I estimated nearly 2,000 pairs of Arctic Terns nesting on Machias Seal Island in July, 1932. The number seemed to have remained the same during my visits in 1935 and 1937. Samuel E. Harvey informs me that the number of nesting terns has increased greatly during the past twenty years. When he first came to the island at the beginning of the century, there were not over a hundred pairs here. His earliest record for the Arctic Tern's appearance in the spring is May 1, 1932, while his two earliest records for eggs are May 13, 1935, and May 29, 1929. In 1937 Harvey E. Benson saw the first tern on May 6 and found the first egg on May 28.

Like the Common Terns, the Arctic Terns must have nested com-

⁴⁹ Deane, *Bull. Nuttall Ornithol. Club*, 5, 63-64 (1880).

When Whitman visited the ledge on August 16, 1934, no young were to be found although a small group of adults was observed. Allen saw but twelve birds here late in August, 1929. The Yellow Murr Ledge is one of the several so-called Murr Ledges. Herrick¹¹ (p. 41), and Pearsall¹² (p. 524) refer to this general area as the breeding ground of the species. From all appearances, however, the Yellow Murr Ledge is the only one which rises sufficiently high above the high-tide mark to permit the Razor-billed Auks to nest. It is highly probable the species has at one time or another nested on Machias Seal Island. In 1922 Samuel E. Harvey noticed an egg in the resident colony of Puffins which, from his description, seems to be unquestionably that of the Razor-billed Auk. During July, 1937, Razor-billed Auks were seen daily resting along the shore bordering the Puffin colony. Several times they were actually noticed to alight on the ledges in the midst of the colony; but none of them were ever seen to disappear among the crevices where the Puffins were nesting.

Plautus impennis (Linnaeus). Great Auk.

According to Herrick¹¹ (p. 41) the bones of this extinct bird have been dug up on Nantucket Island.

137. *Uria aalge aalge* (Pontoppidan). Atlantic Murre.

Rare transient and winter visitant. Moses has a male taken at Grand Manan on April 12, 1927, and another taken there on February 12, 1908.

138. *Uria lomvia lomvia* (Linnaeus). Brünnich's Murre.

Fairly common transient and winter visitant. Moses (cf. Legge²², p. 56) saw one on March 31, 1909. He¹⁹ (p. 14) saw two others on December 25, 1908. In Moses' collection are two specimens, a female taken at North Head on January 19, 1926, and a male taken at Grand Manan on February 1, 1908.

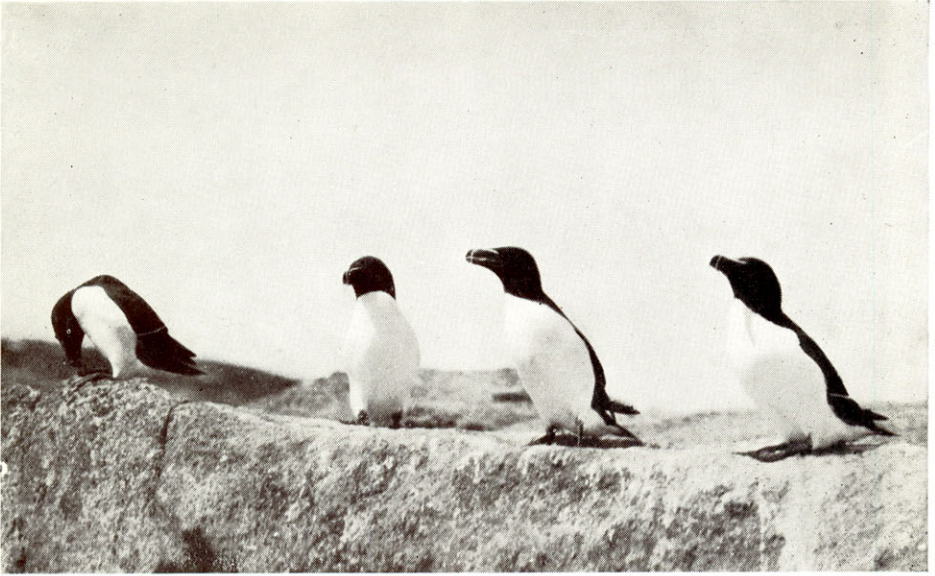
139. *Alle alle* (Linnaeus). Dovekie.

Irregularly common to abundant transient and winter resident. Moses (cf. Legge²², p. 56) saw one on May 4, 1909. He¹⁹ (p. 13) saw a "great many" on December 22, 1908, and (ibid., p. 14) reported them "very plentiful" on December 26, 1908. Moses has two females in his collection, one taken on January 11, 1908, and the other taken on January 12, 1926.

140. *Cephus grylle grylle* (Linnaeus). Black Guillemot.

Common resident.

On the small islands of the archipelago the following numbers of pairs have been estimated as breeding in 1936: Inner Wood Is-



Razor-billed Auks. A small colony of these shy sea birds is found each year on the Yellow Murr Ledge.



Atlantic Puffin. Two puffin colonies are to be observed south of the Maritime Provinces —one is on Machias Seal Island.

Photographs by Alfred O. Gross.

land, 6; Outer Wood Island, 300; Northern and Southern Green Islands, 80; the White Horse, 10; Kent's Island, 70; Sheep Island, 20; Western Green Island, 2. On the western shore of Grand Manan and at Northern and Southern Heads there are innumerable crevices in the giant cliffs which appear to offer suitable nesting sites for the Black Guillemot. While no estimations have ever been made, it is probable that several hundred pairs nest in this extensive area. In the vicinity of "The Southern Cross" near Southern Head I estimated 25 breeding pairs. Townsend⁴² (p. 142) found nearly "twenty or thirty" birds near "The Bishop" at Northern Head and implied that they were breeding.

According to Joy the Black Guillemot first appears in the vicinity of the breeding grounds at Kent's Island about March 12. Not until the first part of April do they leave the water and come up onto the rocks under which they nest. In 1937 Joy noted the first bird on the breeding grounds on April 8. Joy's earliest record for eggs at Kent's Island is June 4, 1936. I found eggs present in the Outer Wood Island colony on June 7, 1935. The eggs in one set collected were found to be fresh. Several newly hatched young were present in the Kent's Island colony on July 11, 1935. Townsend⁴² (p. 142) found eggs still present at Outer Wood Island on July 30, 1923, but most of them had hatched and some of the young were "fairly well grown".

141. *Fratercula arctica arctica* (Linnaeus). Atlantic Puffin.

Common summer resident in the vicinity of Machias Seal Island. Elsewhere in the archipelago the Puffin is infrequently seen for the bird seldom wanders more than three or four miles from its breeding grounds.

In 1932 and 1935 I estimated approximately 400 pairs nesting among the ledges and loose rock on the southwestern portion of the island. In 1937 I believed that at least a hundred more pairs were nesting there for the colony had expanded to include a number of rocks which had been vacant the years before.

Samuel E. Harvey tells me that the Puffins usually arrive in the vicinity of Machias Seal Island about April 20. In 1937 the first bird was seen on April 14. Generally they do not alight on the rocks of their breeding grounds until May 1. When I visited the island on June 3, 1935, the birds were nesting and I saw three eggs altogether. Whitman found that the Puffins were through nesting for the most part on August 15, 1934, although he was able to capture five well-grown young about ready to leave their nests.

Two lighthouses were built on Machias Seal Island in 1832. They were in operation until 1905 when they were replaced by the

⁵¹ Dutcher, *Auk*, 21, 97-208 (1904).

present one. According to Harvey, the keepers of the old lighthouses disliked the hundreds of Puffins and other birds nesting on the island and proceeded to drive them away. Harvey's statement is substantiated by further evidence. About 1883 Everett Smith, as reported by Norton (cf. Dutcher⁶¹, p. 160) found only sixty birds on the island. Later, in 1903, Norton (cf. Dutcher, *ibid.*) reported three hundred birds present. The keepers of the new lighthouse, however, have been sympathetically disposed toward the birds with the result that the Puffin colony has increased in numbers considerably.

142. *Zenaidura macroura carolinensis* (Linnaeus). Eastern Mourning Dove.

Rare transient and summer resident. One was seen by Joy at Kent's Island on April 26, 1936. Moses has a female taken at Grand Manan on October 21, 1921. He flushed one from a road at North Head on July 9, 1935. On July 15, 1935, I heard one individual along the Grand Harbour Brook. Whitman and Fisher watched one feeding at Kent's Island on August 8, 1934. Joy's latest record for Kent's Island is November 1, 1936.

Ectopistes migratorius (Linnaeus). Passenger Pigeon.

Of the occurrence at Grand Manan of this now extinct species Herrick¹¹ (p. 36) wrote: "Not rare; said to breed in the interior of the island."

143. *Coccyzus americanus americanus* (Linnaeus). Yellow-billed Cuckoo.

Transient and very rare summer resident or visitant. Moses has a specimen taken at Grand Manan on September 30, 1930. Joy once observed the bird at Three Islands in September, 1934.

144. *Coccyzus erythrophthalmus* (Wilson). Black-billed Cuckoo.

Fairly common summer resident. I observed the species at Castalia on June 14, 1935, and again along the Grand Harbour Brook on July 15, 1935. Allen recorded it on August 14, 1929. An individual was captured and banded by members of the Bowdoin Scientific Station at Kent's Island on August 21, 1936.

On July 10, 1872, Herrick¹¹ (p. 35) took a nest containing three fresh eggs. Moses found a nest at North Head several years ago.

Otus asio (Linnaeus). Screech Owl.

Hypothetical. Herrick¹¹ (p. 35) included the Screech Owl [= "*Scops asio*. Mottled Owl"] in his list of Grand Manan

birds and said: "Common; breeds." While there is nothing improbable in a Screech Owl having wandered northward to the archipelago, it is most unlikely that it has ever established itself sufficiently to be considered common. Certainly the extensive coniferous forests of Grand Manan are wholly unsuited to the species.

145. *Bubo virginianus* (Gmelin). Great Horned Owl.

A rare resident or visitant, though probably more common than the records show. Joy noted the bird once on Three Islands in January, 1933.

146. *Nyctea nyctea* (Linnaeus). Snowy Owl.

Irregularly rare to common fall and winter visitant. Moses has a specimen taken at Grand Manan on December 1, 1926, and another taken at Duck Island on December 20, 1922. Deane⁵²⁻⁵⁴ and A. O. Gross⁵⁵ have reported many birds occurring here during the late fall and winter months. The earliest fall bird is that reported to Deane⁵² (p. 10) by S. F. Cheney as being seen on October 20, 1876.

147. *Surnia ulula caparoch* (Müller). American Hawk Owl.

Rare visitant. On August 23, 1926, Saunders saw one in a brushy open space about halfway between Whale Cove and the fog whistle at Long Eddy Point.

Scotiapterx nebulosa (Forster). Great Gray Owl.

Hypothetical. "Occurs in winter" (Herrick¹¹, p. 35). While it is quite possible that this owl may occur as a winter visitant, Herrick's statement is not confirmed by records.

148. *Asio wilsonianus* (Lesson). Long-eared Owl.

Resident, probably fairly common. Moses has a male taken at North Head on March 27, 1908. Elmer Wilcox ran over a specimen with his car late in the summer of 1930. He now has it mounted.

149. *Asio flammeus flammeus* (Pontoppidan). Short-eared Owl.

Rare resident. Moses has a male taken November 19, 1908.

Bryant⁷ (p. 115) wrote that J. E. Cabot found a nest of this bird "in the midst of a peaty bog... built on the ground, in a very slovenly manner, of small sticks and a few feathers, and presented hardly any excavation." It contained four eggs. Herrick¹¹ (p. 35) secured a set of eggs from White Head Island.

⁵² Deane, *Bull. Nuttall Ornithol. Club*, 2, 9-11 (1877).

⁵³ Deane, *Auk*, 19, 271-283 (1902).

⁵⁴ Deane, *Auk*, 23, 283-298 (1906).

⁵⁵ Gross, A. O., *Auk*, 44, 479-493 (1927).

150. *Cryptoglaux funerea richardsoni* (Bonaparte). Richardson's Owl.

Rare resident. Townsend⁶⁶ (p. 131) observed one near North Head on August 7, 1924. Moses has a specimen, a male, taken near North Head on November 15, 1907.

On April 11, 1924. Tufts⁶⁷ (pp. 85-86) discovered a nest containing five eggs on "one of the smaller islands" of the Grand Manan archipelago.

151. *Cryptoglaux acadica acadica* (Gmelin). Saw-whet Owl.

Resident, probably fairly common. Moses has a male taken at White Head Island in March, 1921.

Tufts took a set of fresh eggs at Grand Harbour on April 17, 1932.

152. *Antrostomus vociferus vociferus* (Wilson). Eastern Whip-poor-will.

Rare transient and probably rare summer resident. One male was picked up dead at Gannet Rock on May 22, 1935, and given to Moses who now has it mounted. Clifford Morse told me that he heard one calling at Castalia on June 25, 1935.

153. *Chordeiles minor* (Forster). Nighthawk.

Common transient and fairly common summer resident; "breeds", according to Herrick¹¹ (p. 34). I heard one individual at Seal Cove early in the evening of June 6, 1935, and saw another at Woodward's Cove during the noon of June 12, 1935. Allen saw nine flying southward August 14, 1929. Saunders noted the species in migration between August 29 and September 4, 1926.

154. *Chaetura pelagica* (Linnaeus). Chimney Swift.

Uncommon transient and summer resident; probably breeds. I saw my first and only Chimney Swift at Grand Manan on June 1, 1935. Saunders saw a few on August 14, 1929, but none afterwards. An individual was captured and banded at Kent's Island on August 23, 1936.

155. *Archilochus colubris* (Linnaeus). Ruby-throated Hummingbird.

Rare transient and summer resident. I took one male at North Head on June 14, 1935, and observed the bird three times during the summer of 1935. Saunders saw one at Grand Manan on August 27, 1926, and W. A. O. Gross and Favour saw one at Kent's Island on August 28, 1934.

⁶⁶ Townsend, *Auk*, 42, 131-132 (1925).

⁶⁷ Tufts, *Canad. Field-Nat.*, 39, 85-86 (1925).

156. *Megaceryle alcyon* (Linnaeus). Belted Kingfisher.

Transient and irregularly rare summer resident. One of the surprises of my work in the Grand Manan archipelago was that I did not observe the Kingfisher. Allen saw one at Dark Harbour on August 22, 1929, and Saunders saw another on August 31, 1926.

The only time Moses has ever known the Kingfisher to breed was when he found a nest at Nantucket Island. Joy once knew of several birds nesting along the banks at Deep Cove.

157. *Colaptes auratus* (Linnaeus). Flicker.

Very common summer resident. Joy saw six at Kent's Island on April 1, 1936.

Lincoln Harvey found one nest containing seven eggs at Deep Cove on June 1, 1935. The eggs hatched two days later.

158. *Melanerpes erythrocephalus* (Linnaeus). Red-headed Woodpecker.

Moses has a specimen taken at North Head in June, 1918.

159. *Sphyrapicus varius varius* (Linnaeus). Yellow-bellied Sapsucker.

Probably rare transient and summer resident. Moses has one specimen taken at Grand Manan in 1908. I noted what was unquestionably sapsucker's work on several trees along the Grand Harbour Brook.

160. *Dryobates villosus* (Linnaeus). Hairy Woodpecker.

Common resident.

I found a nest containing young nearly ready to leave on June 18, 1935. It was located fifteen feet from the ground in a large white birch stump along the Seal Cove Brook.

161. *Dryobates pubescens* (Linnaeus). Downy Woodpecker.

Very common resident.

At Deep Cove on June 16, 1935, I located one nest containing two eggs. When I visited the nest again on June 29 the eggs had hatched. Another nest, presumably with young, was pointed out to me in the yard of George Brown at Seal Cove on July 1, 1935. The hole had been drilled in a clothesline post only three feet from the ground.

162. *Picoides arcticus* (Swainson). Arctic Three-toed Woodpecker.

"Not rare in winter; may breed on the back of the island in heavy timber where few persons ever go" (Herrick¹¹, p. 35). Bryant⁷

(p. 118) noted a pair at Grand Manan. Moses has a male taken at North Head on March 23, 1908.

163. *Tyrannus tyrannus* (Linnaeus). Eastern Kingbird.

Common summer resident. Although I found no nests, I invariably found individuals and pairs in cultivated areas and in the extensive open heaths. Norton saw one flying over the Yellow Murr Ledge on August 26, 1936.

164. *Tyrannus verticalis* Say. Arkansas Kingbird.

On July 7, 1937, I picked up a freshly killed male specimen at Machias Seal Island.

165. *Muscivora forficata* (Gmelin). Scissor-tailed Flycatcher.

Moses has a specimen taken at North Head on October 26, 1924.

166. *Myriarchus crinitus boreus* Bangs. Northern Crested Flycatcher.

Apparently rare visitant or transient. I heard what I believed to be a Crested Flycatcher along the Dark Harbour road on June 11, 1935. Moses (Whitman, MS) observed an individual which stayed around the fields at Kent's Island during the month of June, 1933. He has a female collected at North Head on December 7, 1928.

167. *Sayornis phoebe* (Latham). Eastern Phoebe.

Rare transient and apparently rare summer resident. Moses took one male on April 11, 1922.

On June 18, 1935, I discovered one Phoebe in back of a barn at Seal Cove, and continued to find it there on successive visits until the middle of July. Undoubtedly the bird was nesting somewhere in the vicinity.

168. *Empidonax flaviventris* (Baird and Baird). Yellow-bellied Flycatcher.

Common summer resident in the heavily wooded areas.

I found a nest in the process of construction near the Dark Harbour road on June 8, 1935. Six days later one egg was noted in the nest while a broken egg was observed nearby. My next visit on June 21 found four eggs present. I watched three young leave this nest on July 13. In the woods bordering Watt Pond I found another nest with four fresh eggs on June 28, 1935. Other nesting records for Grand Manan are as follows: One nest with four eggs found on June 10, 1878 (Osborne⁶⁸, p. 187); two nests with four fresh eggs found on June 19, 1878 and June 20, 1878, respectively

⁶⁸ Osborne, *Bull. Nuttall Ornithol. Club*, 3, 187-188 (1878).

(Pearsall¹², p. 524). Brewer (cf. Baird, Brewer, and Ridgway⁴ p. 379) found a nest at Grand Manan "about two feet from the ground, placed in the fork of the bush [alder], and bearing a close resemblance to the nest of *Cyanospiza cyanea*." It seems very likely, in view of our present knowledge of the Yellow-bellied Flycatcher's habitus, that the nest which Brewer described was that of the Alder Flycatcher. I know of no instance of the Yellow-bellied Flycatcher placing its nest off the ground in this manner.

169. *Empidonax trailli trailli* (Audubon). Alder Flycatcher.

Common summer resident in the bushy marshes. At Machias Seal Island Norton saw one on August 27, 1936.

I found one nest containing three eggs on June 28, 1935. The eggs hatched on July 10. Mayr found two pairs at Kent's Island in July, 1933.

170. *Empidonax minimus* (Baird and Baird). Least Flycatcher.

Apparently rare summer resident. Moses collected a male at North Head on June 13, 1935, the first and only individual he has ever observed in the archipelago. I saw one at Castalia on July 2, 1935. Allen heard one at Grand Manan on August 24, 1929.

171. *Myiochanes virens* (Linnaeus). Wood Pewee.

Rare transient, possibly rare summer resident. I heard two along the Dark Harbour road on June 6, 1935. Bent and Durfee noted one at Nantucket Island on June 8, 1891.

172. *Nuttallornis mesoleucus* (Lichtenstein). Olive-sided Flycatcher.

Fairly common transient. I observed the Olive-sided Flycatcher on several occasions from June 5 to 17, 1935, but did not note it later in the season. I have the following additional records: one at Kent's Island, June 6, 1936 (Joy); one at Woodward's Cove, June 11, 1891 (Bent); one at Grand Manan, August 28, 1926 (Saunders).

I have no evidence of the species breeding in the archipelago.

173. *Otocoris alpestris* (Linnaeus). Horned Lark.

Transient.

Moses has two specimens taken on March 22 and 26, 1908, which seem, on superficial examination, to be definitely referable to *O. a. alpestris*, the so-called Northern Horned Lark. Two others taken on March 16, 1908, appear to be *O. a. praticola*, the so-called Prairie Horned Lark. Moses considers the former to be a rare transient at Grand Manan, the latter a fairly common transient.

174. *Iridoprocne bicolor* (Vieillot). Tree Swallow.

Abundant summer resident. Joy's earliest record for Kent's Island is that of two birds seen on April 1, 1936.

The Tree Swallow takes good advantage of the many nesting boxes provided by the human residents of the archipelago. Nine out of sixteen boxes were occupied in one door-yard at Seal Cove. Two pairs nested at Machias Seal Island in 1935. They took possession of their boxes as early as June 1. Several years ago 69 swallow houses were erected on Kent's Island by J. Sterling Rockefeller. In 1933 Mayr estimated that 48 of these houses were occupied by pairs of swallows; in 1934 Whitman estimated that 56 of these houses were similarly occupied. My earliest nesting date is that of three young nearly ready to leave the nest on June 21, 1935. These birds were located in an old woodpecker hole in a dead birch tree about ten feet from the ground. In 1856 Bryant⁷ (p. 115) found it nesting abundantly in hollow stumps.

175. *Riparia riparia riparia* (Linnaeus). Bank Swallow.

Fairly common summer resident.

At Red Head Point on June 18, 1935, I located one small colony of five pairs. For some undetermined reason the Bank Swallows have decreased markedly at Grand Manan during the last few years. Five years ago nearly a hundred pairs nested in the gravel banks bordering the coast at Deep Cove as well as at Red Head Point. In 1935 the Red Head colony was the only one noted at Grand Manan. Even the large Kent's Island colony which Mayr estimated as containing slightly less than thirty-one pairs in 1933 diminished by 1935 and 1936 to a number estimated as only twenty-five pairs.

176. *Hirundo erythrogaster* Boddaert. Barn Swallow.

Abundant summer resident. Joy's earliest date for Kent's Island is May 3, 1937; his latest is November 9, 1935.

The peculiar structure of many of the smokehouses in different parts of the archipelago seems to have encouraged large numbers of Barn Swallows to nest. In these buildings the apices of the roofs are open and covered with superimposed roofs. Through these openings the birds gain admittance to the otherwise closed building and place their nests on the roof supports and the fish racks. In one smokehouse I noted six occupied nests. Mayr estimated forty-one pairs nesting in the deserted smokehouses and sheds at Kent's Island in 1933 and Whitman counted twenty-six pairs there in 1934. At Machias Seal Island in 1937 I found one pair nesting under a high porch floor, another in a hencoop, and eight others in the boathouse. At this same island on June 24, 1931, Norton

found the nest of a Barn Swallow in a "playhouse" made of a large wooden crate. The nest was on a shelf for doll's dishes, four feet from the floor of the "house".

177. *Petrochelidon albifrons* (Rafinesque). Cliff Swallow.

Abundant summer resident.

Unfortunately the eaves of the smokehouses do not run over the sides of the buildings sufficiently to provide suitable nesting sites. Nevertheless the bird makes use of the generous eaves on barns and dwelling houses. Mayr estimated twenty-one pairs nesting on Kent's Island in 1933 while Whitman estimated twenty-five pairs in 1934. In 1856 Bryant⁷ (p. 115) found the Cliff Swallow the most abundant swallow at Grand Manan.

178. *Progne subis subis* (Linnaeus). Purple Martin.

Rare transient and irregular summer resident. Moses took one at North Head on April 10, 1909, and saw another, probably a straggler, on July 5, 1935. Bent recorded one at North Head on June 14, 1891.

Brownson⁴⁴ (p. 77) reported a colony flourishing at North Head in August, 1908. I knew of no colony on Grand Manan in 1935.

Perisoreus canadensis (Linnaeus). Canada Jay.

"Not rare in winter: it may breed in the thick woods and swamps, but was not noted." This statement by Herrick¹¹ (p. 34) has not been confirmed by any other authority. While a few individuals of this typically Canadian species might be expected as residents, it should be considered hypothetical until definite records are obtained.

179. *Cyanocitta cristata cristata* (Linnaeus). Northern Blue Jay.

Rare transient and resident. "Common, breeds" (Herrick¹¹, p. 34). Joy saw one at Kent's Island on May 19, 1936, and May 23, 1937. Moses has seen the Blue Jay but rarely. He has a male taken at North Head on September 16, 1908. I heard one while walking along the Dark Harbour road,—my only personal record of its occurrence.

180. *Corvus corax principalis* Ridgway. Northern Raven.

Uncommon resident.

At Kent's Island Joy has the following nesting records: A nest with four eggs high up in a spruce tree, March 24, 1936; a nest with five eggs located on a ledge, April 7, 1937; a nest with three well-grown young located on a ledge, May 30, 1935. Herrick¹¹ (p. 33) found a nest on Outer Wood Island on June 12, 1872. In

it were "four fully fledged young". Edward Kniffe gave me a young bird which he shot while it was flying past his home at Deep Cove on June 20, 1935.

Andros³⁸ (p. 151) indicated that the Raven bred on the cliffs at North Head and along the western coast. While there are many ideal localities for the nests of this form, no records have ever been obtained in recent years. It is unlikely that the Raven now nests anywhere on Grand Manan.

181. *Corvus brachyrhynchos brachyrhynchos* Brehm. Eastern Crow.

Very common resident.

My earliest breeding record is that of a nest which I found at Deep Cove on June 1, 1935, with three young approximately eight or nine days of age.

182. *Penthestes atricapillus atricapillus* (Linnaeus). Black-capped Chickadee.

Common resident.

An early nesting record is that of three eggs which I found in a knot hole of a telephone pole at Seal Cove on June 4, 1935.

183. *Penthestes hudsonicus littoralis* (Bryant). Acadian Chickadee.

Common resident. I found the Acadian Chickadee to occur as commonly in the archipelago as the Black-capped; in certain of the more heavily wooded areas the Acadian seemed even commoner.

On June 22, 1935, Mrs. Pettingill⁵⁹ (p. 279) found a nest at Deep Cove containing seven newly hatched young. I located another nest with young at Castalia on June 21, 1935. I collected one young bird well able to fly at Grand Harbour on July 15, 1935.

184. *Sitta carolinensis carolinensis* Latham. White-breasted Nuthatch.

Rare to irregularly common transient, rare summer resident. Sweet and Floyd (Whitman, MS) found one of these birds on Kent's Island during July, 1933, and W. A. O. Gross observed a pair there on July 27, 1934. Allen found White-breasted Nuthatches "abundant" on Grand Manan between August 14 and 27, 1929.

185. *Sitta canadensis* Linnaeus. Red-breasted Nuthatch.

Fairly common transient and summer resident. I saw this species a number of times during my trips through the wooded sections

⁵⁹ Pettingill, E. R., *Bird-Lore*. 39, 277-282 (1937).

of Grand Manan in 1935. I captured and banded two individuals that had wandered to Machias Seal Island on July 7, 1937.

Pearsall¹² (p. 524) found "young, fully fledged".

186. *Certhia familiaris americana* Bonaparte. Brown Creeper.

Rare to irregularly common transient and winter resident; apparently quite common as a winter resident. Moses has two specimens taken at Grand Manan in 1908, one on April 18 and the other on April 20. Joy recorded Brown Creepers at Kent's Island during the winter of 1935-36, seeing as many as six in one day.

In 1933 Mayr found three pairs nesting at Kent's Island and the same number was recorded by Whitman in 1934. Oddly enough this species was not even noted at Kent's Island in 1935 nor did I observe the species anywhere in the archipelago that same year.

187. *Troglodytes aedon* Vieillot. House Wren.

Apparently very rare transient or visitant. Moses saw one at Nantucket Island in April, 1935. This constitutes his only record for the archipelago.

188. *Nannus hiemalis hiemalis* (Vieillot). Eastern Winter Wren.

Common summer resident.

On July 18, 1935, I came upon a family of Winter Wrens at Little Pond. I found only three young. From their behavior I judged that they had very recently left the nest.

189. *Telmatodytes palustris* (Wilson). Long-billed Marsh Wren.

On October 8, 1930, Moses and Brooks collected two Long-billed Marsh Wrens at Castalia. Brooks¹⁷ (p. 71) has written concerning this interesting find as follows: "Two Marsh Wrens taken at a marsh on the shore near Castalia, Grand Manan, by Moses and me on October 8th are unlike anything I have seen of this species. They are very black and white birds most nearly resembling the form recently named *waynei* from North Carolina by Sprunt and Dingle. They are even darker than this form of which I have two September birds taken by A. T. Wayne. Compared with them my Grand Manan bird has a black crown with no lighter coronal stripe, a black dorsal area and a snow white lower surface and supercilium. Female in fresh post-juvenal plumage, wing 45, tail 38, tarsus 18, exposed culmen 13.5. These birds were migrant; frequenting marsh grass and not cat-tails and were the only ones of their kind seen. In a cat-tail swamp not far away a Long-billed Marsh Wren of the ordinary brown type as in Ontario birds was

seen but not secured. Mr. Moses has never seen Marsh Wrens on Grand Manan previously and certainly none breed there."

190. *Mimus polyglottos polyglottos* (Linnaeus). Eastern Mockingbird.

Moses has three male specimens taken at Grand Manan, one at North Head on October 15, 1911, another at Seal Cove on November 2, 1926, and another at North Head on January 19, 1928.

191. *Dumetella carolinensis* (Linnaeus). Catbird.

Rare summer resident. One bird was noted several times by Moses in the vicinity of Whale Cove Marsh during the summer of 1935. Another was recorded by Whitman at Kent's Island on July 20, 1934.

192. *Toxostoma rufum* (Linnaeus). Brown Thrasher.

Very rare summer resident or visitant. Moses has seen the Brown Thrasher but twice in the archipelago, once at Kent's Island in June and once at North Head.

193. *Turdus migratorius migratorius* Linnaeus. Eastern Robin.

Very common to abundant summer resident; occasional winter resident. Joy's earliest spring date for Kent's Island is March 3, 1936. Moses¹⁹ (p. 13) observed two individuals at Grand Manan on December 22, 1908.

A nest containing newly hatched young which Ronald Russell and I found at Deep Cove on June 1, 1935, appears to be the earliest breeding record.

194. *Hylocichla guttata faxoni* Bangs and Penard. Eastern Hermit Thrush.

Fairly common summer resident. The earliest record for Grand Manan is that of a specimen in Moses' collection taken on April 15, 1908, while the latest is that of an individual positively identified by Moses¹⁹ (p. 13) on December 22, 1908.

Breeding records for the archipelago are as follows: Eggs, Grand Manan, May 26 (Chapman⁶⁰, p. 414); one nest with three eggs found by Lincoln Harvey and Ronald Russell at Deep Cove, June 8, 1935; one nest with three eggs found by Bent at Ross Island, June 10, 1891; one nest with four eggs found by Sirdar Ingalls along the Seal Cove Stream, June 17, 1935; a set of eggs received by Pearsall¹² (p. 524) taken August 3, 1877.

⁶⁰Chapman, *Handbook of Birds of Eastern North America*, D. Appleton-Century Co., New York, 1934, 2nd rev. ed., xxxvi + 581 pp.

195. *Hylocichla ustulata swainsoni* (Tschudi). Olive-backed Thrush.

Common summer resident.

The following breeding records have come to my attention: A nest with four fresh eggs found by Durfee at Grand Manan, June 11, 1891; a nest reported under construction by Brewer⁸ (p. 305) on "Duck Island", June 15, 1850, one egg later found in it on June 18; one nest with four eggs found by Bent at Woodward's Cove, June 20, 1891; one nest with three eggs reported by Herriek¹¹ (p. 29) as being taken on June 21, 1872.

196. *Hylocichla minima aliciae* (Baird). Gray-cheeked Thrush.

Probably a fairly common transient. A female specimen in Moses' collection taken at Swallow Tail lighthouse on May 26, 1908, appears referable to this subspecies. Several years ago Moses sent this particular individual to the Portland Society of Natural History where its identification was verified by Norton.

197. *Hylocichla fuscescens fuscescens* (Stephens). Veery.

Apparently a rare visitant. Moses has seen the Veery but three times in the archipelago. He has a specimen taken at Gannet Rock on June 10, 1910.

198. *Sialia sialis sialis* (Linnaeus). Eastern Bluebird.

Apparently the Bluebird has never been a common summer resident of Grand Manan. Herriek¹¹ (p. 29) considered it rare and its status is the same at the present time. Moses believes that it was once slightly more numerous, especially during the first part of the century, but it has never been common. Joy saw a Bluebird at Kent's Island on March 29, 1936.

During the breeding seasons of 1934, 1935, and 1936 Moses observed a pair nesting at North Head. This was the first breeding record he had obtained in the archipelago in nearly eighteen years.

199. *Oenanthe oenanthe leucorhoa* (Gmelin). Greenland Wheat-ear.

George A. Boardman (cf. S. L. Boardman¹⁴, p. 300) wrote of two specimens being taken in the vicinity of the St. Croix River Valley. One of these birds, so he informed Knight³⁶ (p. 141), was actually secured at Grand Manan.

200. *Regulus satrapa satrapa* Lichtenstein. Eastern Golden-crowned Kinglet.

Common to very common summer resident.

Mayr estimated twenty-five pairs nesting at Kent's Island in

June, 1933. At Grand Manan Cheney (cf. Andros⁶¹, p. 204) found a nest "on or about" June 1, 1887; it contained ten eggs. Bent examined a nest on June 12, 1891, that had been pulled down and the eggs, which were nearly ready to hatch, were broken. Pear-sall¹² (p. 524) reported the finding of a nest containing three fresh eggs on June 15, 1878. At Dark Harbour on July 1, 1935, I saw an adult carrying food.

201. *Corthylio calendula calendula* (Linnaeus). Eastern Ruby-crowned Kinglet.

Common transient and apparently rare summer resident; not definitely known to breed. From the time of my arrival at Grand Manan until June 5, 1935, I found the species to be quite common; thereafter I did not observe it again. Sweet and Floyd (Whitman, MS) saw two at Kent's Island during the summer of 1933 while Favour found one there on June 30, 1934.

202. *Anthus spinoletta rubescens* (Tunstall). American Pipit.

Irregularly common transient. Moses has seen numbers of birds at various times during the spring and fall but his only definite record (cf. Legge³⁶, p. 56) is that of an individual seen on May 11, 1909.

203. *Bombycilla garrula pallidiceps* Reichenow. Bohemian Waxwing.

Apparently an irregularly rare winter visitant. Moses¹⁹ (p. 13) saw one December 22, 1908, and reported that he had seen three birds this same winter and had two of them in his collection. Another bird, he said, was taken by his father "about fifteen years ago". At the present time Moses has one specimen in his collection, a male taken at North Head on December 5, 1908.

204. *Bombycilla cedrorum* Vieillot. Cedar Waxwing.

Common summer resident. I saw as many as a dozen feeding at one time in a spruce tree at North Head on June 14, 1935.

On June 28, 1935, I watched a pair busily constructing a nest in a willow tree at North Head.

205. *Lanius borealis borealis* Vieillot. Northern Shrike.

Irregularly rare to common transient; apparently rare winter resident. Joy saw one at Kent's Island on March 4, 1936. Moses collected one specimen at Grand Manan on November 13, 1908, and saw another¹⁹ (p. 14) on December 29, 1908.

⁶¹ Andros, *Ornithol. and Ool.*, 12, 203-204 (1887).

206. *Lanius ludovicianus migrans* Palmer. Migrant Shrike.

Apparently rare transient. Moses collected one at North Head in 1908 and has it in his collection.

207. *Sturnus vulgaris vulgaris* Linnaeus. Starling.

Rare to fairly common resident. Moses observed the first Starling on Grand Manan in the fall of 1924. He has one in his collection which he secured two years later on March 29.

I noticed one pair nesting in a small opening between the clapboards of the United Baptist Church at Seal Cove on June 4, 1935.

208. *Vireo solitarius solitarius* (Wilson). Blue-headed Vireo.

Very rare transient and summer visitant; may breed. Moses first saw a member of this species in the Grand Manan archipelago early in June, 1935. Later on June 29 I collected a singing male in the woods near North Head.

209. *Vireo olivaceus* (Linnaeus). Red-eyed Vireo.

Common summer resident; undoubtedly breeds. Hickey and others observed a transient individual at Machias Island on June 17, 1934.

210. *Mniotilta varia* (Linnaeus). Black and White Warbler.

Fairly common transient but rare summer resident. Moses took two at North Head on May 13, 1925, and has them mounted. I saw one in the woods along the Dark Harbour road on July 1, 1935.

Vermivora peregrina (Wilson). Tennessee Warbler.

Hypothetical. "Not rare; breeds" (Herrick¹¹, p. 30). Probably the Tennessee Warbler is a rare transient and summer resident at the present time. Although it should be seen at least during migration, Moses and Joy have never observed this warbler and know of no person who has.

211. *Vermivora ruficapilla ruficapilla* (Wilson). Nashville Warbler.

Fairly common transient and summer resident. I took one male at Castalia on June 5, 1935, and observed a number of other individuals in the many alder swales throughout Grand Manan. I heard one at Kent's Island on July 11, 1935.

212. *Compsothlypis americana pusilla* (Wilson). Northern Parula Warbler.

Fairly common transient and summer resident. I collected one at Deep Cove on June 10, 1935. This individual was seemingly migrating as I found it in a small spruce tree in open pasture coun-

try, an area entirely unlike the heavily wooded, boggy areas where I found them later in the summer. Moses has a specimen which he collected at Grand Manan on September 22, 1908.

213. *Dendroica aestiva aestiva* (Gmelin). Eastern Yellow Warbler.

Common transient and summer resident. On treeless and shrubless Machias Seal Island I saw four of these birds on June 3, 1935. Two were entrapped in a shed and easily caught. The migration of this bird as well as that of several other kinds of warblers noted here was still underway.

A nest which Moses kept under observation at North Head during the breeding season of 1935 contained a full clutch of eggs by June 4. Durfee found a set of four eggs at North Head on June 14, 1891.

214. *Dendroica magnolia* (Wilson). Magnolia Warbler.

Common transient and summer resident. Two males and one female were observed during migration on June 3, 1935, at Machias Seal Island. One of these birds was seen to take off over the water toward Grand Manan.

The following breeding records have been obtained in the archipelago: Nest under construction at North Head, June 5, 1877 (Andros⁶², p. 183); new nest ready for eggs at Ross Island, June 10, 1891, and another new nest at Grand Manan ready for eggs two days later (Bent); nest with four fresh eggs, June 12, 1878 (Pearsall¹², p. 524); two nests containing four eggs each, one nest containing three, and one nest with one egg, June 13, 1891 (Bent and Durfee); one nest with four eggs at Nantucket Island, June 18, 1891, and another nest with four eggs at Grand Manan, June 20, 1891 (Durfee); one nest with four eggs "with advanced embryos", June 27, 1872 (Herrick¹¹, p. 31). Norris⁶³ (pp. 177-178) described in detail twenty-four sets of eggs collected at Grand Manan.

215. *Dendroica tigrina* (Gmelin). Cape May Warbler.

Rare transient and apparently very rare summer resident. Moses has a male specimen taken at North Head on May 13, 1925, and another male taken at Nantucket Island on May 19, 1917. In the collection of the Philadelphia Academy of Sciences is a specimen taken at Grand Manan on June 29, 1872, by Herrick (Bond *in litt.*, 1936).

⁶² Andros, *Ornithol. and Ool.*, 12, 182-183 (1887).

⁶³ Norris ("J. P. N."), *Ornithol and Ool.*, 12, 177-178 (1887).

216. *Dendroica caerulescens caerulescens* (Gmelin). Black-throated Blue Warbler.

Probably rare to fairly common transient but rare summer resident. Bent and Durfee saw one at Nantucket Island on June 8, 1891.

On June 6, 1935, I observed two singing males in the deep woods along the Dark Harbour road. Two days later I found both birds still present and discovered a female. I collected one of these males which proved to have greatly enlarged gonads. On later visits made on June 14 and July 1, one singing male was still present and it seemed apparent to me that the species was breeding here.

217. *Dendroica coronata* (Linnaeus). Myrtle Warbler.

Common transient but only fairly common summer resident.

Pearsall¹² (p. 524) found young "fully fledged" on July 7, 1878.

218. *Dendroica virens virens* (Gmelin). Black-throated Green Warbler.

Very common transient and summer resident.

Bent and Durfee each found a nest containing four eggs on June 11 and 12, 1891, respectively. Capen⁴ (p. 59) discovered a nest at Seal Cove with one egg on June 17, 1887, and two days later he found it to contain four. I came upon a nest with partially grown young near North Head on June 21, 1935, and found another nest with four eggs at Deep Cove on June 23, 1935. Norris⁵ (pp. 52-53) describes the eggs from seven sets taken at Grand Manan, the earliest being two sets of four eggs each secured on June 14, 1885 and 1888, respectively.

219. *Dendroica fusca* (Müller). Blackburnian Warbler.

Rare transient; probably rare summer resident. Moses has a male specimen taken at Grand Manan on May 26, 1908.

220. *Dendroica pensylvanica* (Linnaeus). Chestnut-sided Warbler.

Rare transient and apparently very rare summer resident. In an extensive alder swale along the Dark Harbour road I observed one singing male on June 12 and July 16, 1935. Bryant⁷ (p. 116) reported seeing only one pair at Grand Manan.

221. *Dendroica castanea* (Wilson). Bay-breasted Warbler.

Fairly common transient and summer resident.

On July 3, 1935, I found a nest containing six partially grown young. This was located eight feet up in a spruce tree beside the Grand Harbour Brook.

⁴ Capen, *Ornithol. and Ool.*, 13, 59-60 (1888).

⁵ Norris ("J. P. N."), *Ornithol. and Ool.*, 16, 52-53 (1891).

222. *Dendroica striata* (Forster). Black-poll Warbler.

Common transient and summer resident. Joy noted the bird's arrival at Kent's Island in 1937 on May 17.

The Black-poll is a common breeding warbler in the areas on Grand Manan and on the outlying islands where stunted conifers predominate. In 1933 Sweet estimated 134 pairs nesting on Kent's Island. As early as June 8, 1935, Joy found a nest with one egg at Kent's Island. Later on June 12 five eggs were noted in it. On Hay and Sheep Islands Andros⁶⁶ (p. 179) reported five nests found in an hour's search. Durfee secured a set of four eggs on Nantucket Island on June 10, 1891. Norris⁶⁷ (pp. 41-43) describes the eggs in seventeen sets collected on Grand Manan, the earliest set, containing five eggs, being taken on June 11, 1885.

223. *Dendroica pinus pinus* (Wilson). Northern Pine Warbler.

Rare to fairly common transient, but apparently only a very rare visitant in the summer. Whitman observed a male at Kent's Island on August 2, 1934. Saunders saw one at Grand Manan on September 3, 1926.

224. *Dendroica palmarum hypochrysea* Ridgway. Yellow Palm Warbler.

Common spring transient and probably less common in fall; not known as a summer resident. Moses (cf. Legge⁶⁶, p. 56) reported Yellow Palm Warblers common at Grand Manan after April 14, 1909. He has a specimen in his collection taken there on April 22, 1909.

225. *Seiurus aurocapillus* (Linnaeus). Oven-bird.

Common transient and summer resident.

On July 18, 1935, I found a nest containing four well-incubated eggs in a deep woods near the Dark Harbour road.

226. *Seiurus noveboracensis* (Gmelin). Northern Water-thrush.

Apparently rare transient and very rare summer visitant. On July 31, 1936, I examined an individual captured by members of the Bowdoin Scientific Station after it had entered a wharf house at Kent's Island. The bird was banded and liberated. For two days thereafter it was seen from time to time feeding in the Basin. Saunders saw an individual at Grand Manan on August 22, 1926.

The specimen captured at Kent's Island was clearly *S. n. noveboracensis*, being very yellowish below and having an unmistakable buffy line over the eye. Two specimens in Moses' collection, a

⁶⁶ Andros, *Ornithol and Ool.*, 12, 179-180 (1887).

⁶⁷ Norris ("J. P. N."), *Ornithol and Ool.*, 13, 41-43 (1890).

female taken at Whale Cove on May 30, 1908, and a male taken at Grand Manan on September 9, 1908, are of a questionably yellowish hue and should be critically examined and compared with a large collection.

227. *Oporornis agilis* (Wilson). Connecticut Warbler.

During his visit to Grand Manan Brooks²⁷ (p. 71) "called up" a young bird in the woods at North Head and viewed it within ten feet.

228. *Oporornis philadelphia* (Wilson). Mourning Warbler.

Apparently a rare transient; not known to occur as a summer resident. Moses states that he has observed this species in recent years, once in the Whale Cove Marsh and five times on Kent's Island. These birds were observed during the migration period.

229. *Geothlypis trichas brachidactyla* (Swainson). Northern Yellow-throat.

Common transient and summer resident.

Carol Wilcox showed me a nest by the side of the road at Deep Cove on June 14, 1935. The nest contained three eggs and on the following day a fourth egg appeared. The eggs hatched on June 27.

230. *Wilsonia pusilla pusilla* (Wilson). Wilson's Warbler.

Rare, perhaps a fairly common transient at times; unknown as a summer resident. Moses has a male taken at Grand Manan on May 18, 1908. I observed one singing bird along the road to Dark Harbour on June 6, 1935.

231. *Wilsonia canadensis* (Linnaeus). Canada Warbler.

Apparently a very rare transient; unknown as a summer resident. Moses has seen but two migrating individuals in the archipelago.

232. *Setophaga ruticilla* (Linnaeus). American Redstart.

Common transient and summer resident.

I watched a female constructing a nest at Castalia on June 5, 1935. Andros⁶⁶ (p. 179) found a nest at Hay Island on June 11, 1887. It contained three eggs. Mrs. Pettingill discovered a nest at North Head on June 29, 1935, with three young about ready to leave.

233. *Passer domesticus domesticus* (Linnaeus). English Sparrow.

Once a common resident on Grand Manan and some of the larger outlying islands where dwellings occur, but now relatively scarce. I did not observe the English Sparrow in 1935.

234. *Dolichonyx oryzivorus* (Linnaeus). Bobolink.

Rare to fairly common transient but rare summer resident. Joy saw one at Kent's Island on May 23, 1937, and May 27, 1935. A single bird loitered for several hours in the grass at Machias Seal Island on July 7, 1937. Allen reported two seen at Grand Manan on August 19, 1929. Moses declares that the Bobolink was once a fairly common summer resident. He, as well as several other natives of Grand Manan, told of seeing the Bobolink occasionally in the open fields throughout the entire summer.

235. *Sturnella magna magna* (Linnaeus). Eastern Meadowlark.

Rare transient but not known to remain as a summer resident. Joy saw one at Kent's Island on March 26, 1937. Moses has two specimens in his collection at the present time. One was taken at North Head on April 26, 1926, and the other was taken at Grand Manan on October 23, 1908. Moses has seen two others, one in January several years ago and one in the spring of 1935.

236. *Agelaius phoeniceus* (Linnaeus). Redwing.

Joy saw one at Kent's Island on March 27, 1936. On June 29, 1935, I observed an individual in the Whale Cove Marsh. This bird was undoubtedly a straggler as I did not see it there before or after that date. A. O. Gross identified one at Machias Seal Island on August 27, 1936.

237. *Icterus spurius* (Linnaeus). Orchard Oriole.

Accidental visitant. Joy collected one specimen at Kent's Island in the late summer of 1929.

238. *Icterus galbula* (Linnaeus). Baltimore Oriole.

Rare transient and probably rare summer resident. Moses took a male at North Head on June 1, 1908. He has seen as many as three birds at one time on Three Islands and has known the species to remain all summer at North Head.

239. *Euphagus carolinus* (Müller). Rusty Blackbird.

Apparently rare to fairly common transient but not known to remain as a summer resident. Saunders saw one at Grand Manan on August 23, 1926. Joy recorded 300 at Kent's Island on October 21, 1935. The last one of that year was seen on October 30.

240. *Quiscalus quiscula quiscula* (Linnaeus). Purple Grackle.

On November 20, 1931, an adult male was collected at Kent's Island by R. Griffin and mounted by Moses who now has it in his collection. The specimen was temporarily loaned to Taverner⁴⁶

(p. 142) who corroborated the identification. This is not only the first definite record of the subspecies in the archipelago but, according to Taverner, the first definite record of the subspecies in Canada.

241. *Quiscalus quiscula aeneus* Ridgway. Bronzed Grackle.

Common transient but rare summer resident. At Kent's Island Joy recorded the first bird seen in 1936 on March 19. Moses has two specimens taken at North Head on April 20, 1908. He observed a pair frequently back of his house at North Head during June, 1935. A wandering female specimen was taken at Machias Seal Island on July 13, 1937. Joy saw 75 at Kent's Island on November 1, 1925 and three more two days later.

Several years ago Moses found a pair nesting high up in a spruce at North Head.

242. *Molothrus ater ater* (Boddaert). Eastern Cowbird.

Fairly common transient, particularly in August; rare summer resident; no eggs have ever been noticed. Whitman saw one individual at Kent's Island on July 5, 1934, and collected one later on August 16. I saw two males at Machias Seal Island on July 7, 1937. Townsend⁴² (p. 143) observed one male at North Head on August 7, 1923. Allen saw another at Machias Seal Island on August 29, 1929.

243. *Piranga erythromelas* Vieillot. Scarlet Tanager.

Rare transient and probably very rare summer resident. On June 3, 1935, I watched a female Scarlet Tanager resting on a fence rail at Machias Seal Island. Its wings were drooping noticeably, thus indicating that it had just completed a rather lengthy flight in its migratory journey.

244. *Hedymeles ludovicianus* (Linnaeus). Rose-breasted Grosbeak.

Rare transient and summer resident. On May 16, 1871, Herrick¹¹ (p. 32) took a male specimen. Moses has an unlabelled male specimen in his collection which, so he assured me, was taken at Grand Manan in the spring. On June 12, 1935, I heard one bird singing near the Dark Harbour road.

245. *Guiraca caerulea* (Linnaeus). Blue Grosbeak.

Herrick¹¹ (p. 32) wrote: "In the spring of 1861, Mr. Cheney shot a fine ♂ specimen and sent it to G. A. Boardman, Esq., in whose cabinet it now is." Later Knight³⁵ (pp. 139-140) stated that two specimens had been taken at Grand Manan, another apparently having been taken since Herrick's list was published.

246. *Passerina cyanea* (Linnaeus). Indigo Bunting.

Apparently rare transient and summer resident. Moses has a male specimen in his collection taken at Grand Manan on April 18, 1912. Bent heard one singing at North Head on June 14, 1891.

247. *Hesperiphona vespertina* (Cooper). Evening Grosbeak.

Apparently irregularly to fairly common winter visitant. In Moses' collection there is a male taken at Grand Manan on February 26, 1913.

248. *Carpodacus purpureus purpureus* (Gmelin). Eastern Purple Finch.

Fairly common transient and summer resident. Moses has a specimen taken at Grand Manan on May 2, 1922. I observed the bird three times during 1935.

249. *Pinicola enucleator* (Linnaeus). Pine Grosbeak.

An irregularly common winter visitant. Three specimens in Moses' collection were taken on January 15, 1923. At Kent's Island during the winter of 1935-36 Joy saw Pine Grosbeaks nearly every day from December 28 to March 20. The greatest number seen on any one day was twenty on February 2.

250. *Acanthis linaria* (Linnaeus). Redpoll.

Usually a fairly common winter visitant. Moses (cf. Legge³⁶, p. 56) has seen them as late as April 22, 1909.

The majority of birds seen in the archipelago are undoubtedly of the common form, *A. l. linaria*. Two specimens in Moses' collection, however, are obviously referable to the larger races. One, a male collected on December 24, 1908, has been identified by Moses and verified by Brooks³⁷ (p. 72) as *A. l. holboelli*, Holboell's Redpoll. The other, a specimen taken on March 9, 1926, is probably *A. l. rostrata*, Greater Redpoll.

251. *Spinus pinus pinus* (Wilson). Northern Pine Siskin.

Apparently an irregularly common resident. Moses has one specimen taken at Grand Manan on November 17, 1925. At Kent's Island Joy estimated seeing more than two hundred birds on November 7, 1935, and from then on during the winter he saw Siskins regularly.

Tufts reports having seen several sets of Pine Siskin eggs taken at North Head some years ago.

252. *Spinus tristis* Linnaeus. American Goldfinch.

Common transient and summer resident; undoubtedly nests.

253. *Loxia curvirostra* Linnaeus. Red Crossbill.

Apparently rare to fairly common resident. Moses has specimens taken on the following dates: Two, March 9, 1926; one, March 28, 1926.

254. *Loxia leucoptera* Gmelin. White-winged Crossbill.

Fairly common resident. Pearsall¹² (p. 524) saw a flock of about a dozen individuals on June 15, 1878. Moses¹⁹ (p. 13) saw nineteen on December 22, 1908. During 1935 I did not see the species until July 15. From that date on I observed individuals frequently.

255. *Pipilo erythrophthalmus erythrophthalmus* (Linnaeus). Red-eyed Towhee.

A male taken at Gannet Rock and now in Moses' collection is the only record for the archipelago.

256. *Calamospiza melanocorys* Stejneger. Lark Bunting.

Moses has a young male specimen taken at Nantucket Island on August 15, 1910⁶⁵ (p. 490).

257. *Passercules princeps* Maynard. Ipswich Sparrow.

Apparently a rare transient. Moses (cf. Legge³⁶, p. 56) recorded one bird on March 26, 1909. Moses has collected two specimens at Kent's Island, one of which was presented to Brooks³⁷ (p. 72). Joy saw one at Kent's Island on May 7, 1936.

258. *Passerculus sandwichensis* (Gmelin). Savannah Sparrow.

Very common transient and summer resident.

The earliest breeding record that has come to my attention is that of four eggs in a nest found by Joy at Kent's Island on May 29, 1935. The latest breeding record has been obtained by Carol Wilcox. He found five fresh eggs in a nest at Deep Cove on July 18, 1935.

Breeding birds in the archipelago are undoubtedly of the eastern race, *P. s. savanna*. During migration, however, both the eastern race and the dark-colored Labrador Savannah Sparrow, *P. s. labradorius*, should be expected.

259. *Ammodramus savannarum australis* Maynard. Eastern Grasshopper Sparrow.

Brooks³⁷ (p. 71) took a young male at North Head on October 1, 1930.

⁶⁵ Dunham. *Auk*, 28, 490 (1911)

260. *Ammospiza caudacuta* (Gmelin). Sharp-tailed Sparrow.

Fairly common transient; summer resident in the Castalia Marshes. Moses has one male taken on October 6 (year not stated).

On July 10, 1935, I found a nest in the Castalia Marshes containing three newly hatched young, and one sterile egg. Earlier in the year on June 22 I came upon two nests which had been flooded by a recent high tide. These I determined to be of this form, having observed one pair at the nest with the use of a blind.

Birds breeding in the Castalia Marshes are *A. c. subvirgata*, the so-called Acadian Sparrows. Whether some of the birds seen in the archipelago during migration are *A. c. nelsoni*, has never been determined.

261. *Pooecetes gramineus* (Gmelin). Vesper Sparrow.

A rare to fairly common transient; not known as a summer resident. Joy reported small flocks of Vesper Sparrows at Kent's Island the last of September and the early part of October, 1935. Moses¹⁹ (pp. 13-14) saw one bird at Grand Manan on December 21, 24 and 29, 1908.

262. *Chondestes grammacus* (Say). Lark Sparrow.

Of casual occurrence during the late summer and fall. Moses has two specimens in his collection taken at North Head on August 24, 1925. One is an adult female and the other is a young bird. Townsend⁴² (p. 143) saw and collected one juvenile male at North Head on August 13, 1923. Three days later he saw two of these sparrows near Whale Cove and believed both of them to be immature. Brooks²⁷ (p. 71) took another at North Head on October 3, 1930.

While it is logical to assume that birds occurring in the archipelago are of the more easterly race, *C. g. grammacus*, Brooks (ibid.) states that the bird which he secured appears to be of the more westerly race, *C. g. strigatus*. He believes, too, that the two birds in Moses' collection are likewise referable to this race.

263. *Junco hyemalis hyemalis* (Linnaeus). Slate-colored Junco.

Common transient and summer resident; rare to fairly common winter resident. Moses¹⁹ (p. 13) saw eleven birds at North Head on December 21, 1908.

My earliest breeding record is that of a young female well able to fly which I collected near Dark Harbour on June 12, 1935. On this same date a nest containing four eggs was found by Lincoln Harvey at Deep Cove. On July 18, 1935, I found a nest beside the Dark Harbour road with four newly hatched young.

264. *Spizella arborea arborea* (Wilson). Eastern Tree Sparrow.

Common transient and winter resident.

265. *Spizella passerina passerina* (Bechstein). Eastern Chipping Sparrow.

Rather rare transient and summer resident. I saw the Chipping Sparrow on two occasions only, once at North Head on June 14, 1935, and once at Castalia on June 30, 1935.

266. *Spizella pusilla* (Wilson). Field Sparrow.

Apparently fairly common transient but very rare summer resident. Joy recorded twenty at Kent's Island on October 14, 1935. On July 3 and 5, 1935, I observed one individual in a pasture at Grand Harbour. I found no evidence of its nesting.

267. *Zonotrichia leucophrys* (Forster). White-crowned Sparrow.

Fairly common transient.

The vast majority of transient birds are undoubtedly *Z. l. leucophrys*. Moses has a specimen taken at North Head on October 5, 1911. Brooks³⁷ (p. 72) believes that it shows more traces of *Z. l. gambeli* and he has, therefore, listed it as such.

268. *Zonotrichia albicollis* (Gmelin). White-throated Sparrow.

Common transient and summer resident.

On June 10, 1935, I found a nest at Deep Cove containing four fresh eggs. I observed two other nests later on June 14 and 18 at Dark Harbour and Seal Cove respectively.

269. *Passerella iliaca iliaca* (Merrem). Eastern Fox Sparrow.

Common transient. Joy saw ten at Kent's Island on March 24, 1936. Bent and Durfee found a body of a Fox Sparrow at the Yellow Murr Ledge on June 19, 1891. Moses¹⁹ (p. 13) has observed one at North Head as late as December 20, 1908.

270. *Melospiza lincolni lincolni* (Audubon). Lincoln's Sparrow.

Rare transient and summer resident. Moses has two specimens taken at Grand Manan, one on May 2, 1922, and the other on May 26, 1908.

On June 28, 1935, Moses and I watched a pair along the shore of Watt Pond. Though both birds protested our presence vociferously, we were unable to find their nests or young. Bond⁶⁹ (p. 96) found at least two pairs in an open bog [=Castalia Marshes] during the latter part of June, 1933.

271. *Melospiza georgiana* (Latham). Swamp Sparrow.

Fairly common transient and summer resident.

On June 28, 1935, I observed a young bird well able to fly. This was at Watt Pond where several pairs of this species were probably nesting.

⁶⁹ Bond, *Auk*, 52, 95-96 (1935).

272. *Melospiza melodia* (Wilson). Song Sparrow.

Common transient and summer resident; an occasional winter resident.

Breeding birds are *M. m. melodia*. Whether other races occur during migration and the winter months is a matter for further study.

273. *Calcarius lapponicus lapponicus* (Linnaeus). Lapland Longspur.

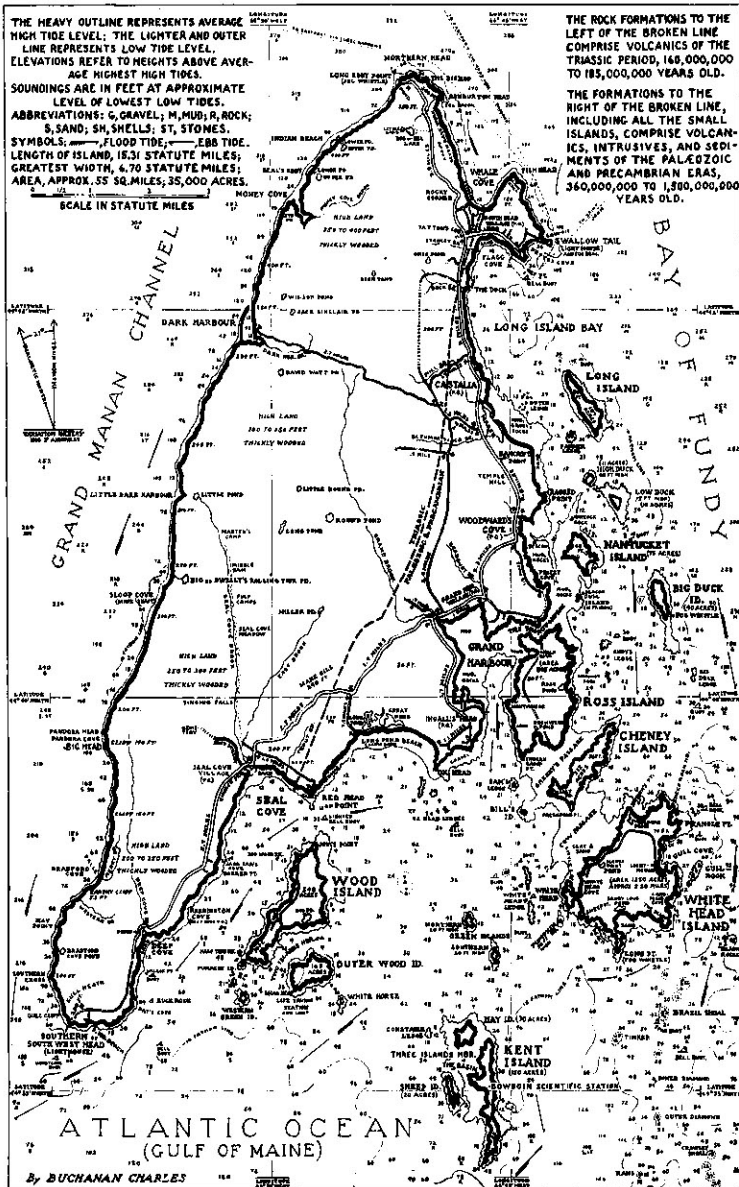
Apparently rare transient. Moses tells me that he has observed the Lapland Longspur several times among migrating flocks of larks and pipits but he has never succeeded in collecting it.

274. *Calcarius ornatus* (Townsend). Chestnut-collared Longspur.

Moses has a male specimen taken at Nantucket Island on June 2, 1914.

275. *Plectrophenax nivalis nivalis* (Linnaeus). Eastern Snow Bunting.

Common transient and winter resident. Moses has a specimen collected at North Head on November 17, 1935. In the winter of 1935-36 Joy recorded the first Snow Buntings at Kent's Island on December 28 and the last ones on March 11.



GRAND MANAN ARCHIPELAGO

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