200 Years of Ornithology in Canada

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The topic, 200 years of ornithology in Canada, is a large one and in the time allotted, I can do no more than provide a few vignettes which reflect my personal biases on the topic. At the risk of offending both eastern and western Canadians, all my examples come from central Canada. At the outset I am going to cheat and stretch beyond the guidelines set by the symposium chairman. The reason for this is simple; the groundwork for Canadian ornithology was established in the 18th, not the 19th century, and therefore I will consider a time frame of slightly more than 200 years, rather than 100.

First, there is the discovery phase in which I consider the origins of Canadian ornithology. This is the period when virtually nothing comprehensive had been written about North American ornithology, nothing in fact until Wilson and Ord published their American ornithology in 1808. The most important figure in Canadian ornithology in this period was Andrew Graham, some of whose observations were quoted by Forster in 1772. Whatever writings in ornithology were available at that time came from Europe.

Second, in the 19th century there occurred what might be called the inventory stage. Tomes on North American ornithology were becoming available (for example, Audubon’s Birds of America published in 1826), and much of the descriptive inventory phase of Canadian ornithology was carried out by visitors to Canada, who collected and recorded, and filled in details of distribution and taxonomy. Henry Hadfield, who visited Kingston in the 1850s, was one such visitor with whom I am familiar through the researches of Helen Quilliam in her delightful book, History of the birds of Kingston, Ontario.

The third trend in the late 19th and early 20th century could be called the conservation phase. Soon after Canadians became aware of the wildlife and birdlife present in the country, they became aware that in many species bird numbers were declining at a dangerous rate. Although population size estimates were nothing more than guesses, it was clear that species such as the Passenger Pigeon, the Eskimo Curlew, and the Golden Plover were fast approaching extinction. Contrary to what is normal at the present time, many of the conservation initiatives in early days were not at the prompting of naturalist and conservationist organizations but by alert and effective civil servants, many of them from Ottawa, men like James Macoun, Percy Taverner, Gordon Hewitt, and James Harkin. One such initiative resulted in the establishment of the Migratory Birds Convention Act in 1917. The book, Working for wildlife, by Janet Foster, is the source of many of the facts.

It was this Act of Parliament and the recognition that to understand and protect birds in this country it was necessary to know more details of the population dynamics and overall biology of birds, which led to the fourth stage of Canadian ornithology which could be called the population studies phase. This is characterized by a need to know how many individuals of a species exist and whether the species is increasing or decreasing. Much of the activity of ornithologists, both professional and amateur, at the present time is related to this — Christmas counts, breeding bird surveys, aerial censuses of colonial birds, bird-banding programs, and the like.

My first vignette, then, is of Andrew Graham, who, but for a mysterious act of plagiarism, would be much more widely recognized as the father of Canadian ornithology than he is. It is good to remind ourselves that much of our country was discovered and settled from the north, and an understanding of the avian inhabitants of the country’s biomes, the taiga and the tundra, was in fact known earlier than that of more densely settled parts of the country. Andrew Graham was an employee of the Hudson’s Bay Company and was sent over from Scotland as a young man in 1741 to work in the three major trading posts on the west coast of Hudson Bay. He was a trader at Fort Severn, second-in-command at Fort York, 1762–1774, and Chief Factor at Fort Prince of Wales (Churchill) from 1774 to 1775. He then returned to Scotland where he died in 1815. During his years on the bay, he traveled extensively between the forts, often carrying the packet, and he kept notes of his observations, not only on the birds, but on other wildlife, people of the region, and fort life. These observations are now preserved in 10 separate books in the Hudson’s Bay Company archives in Winnipeg, all carefully handwritten. Each is slightly different as later copies were added to and subtracted from. Graham’s style is quaint at times and some of his birds are difficult to recognize from his descriptions. One must remember, however, that he had no scientific training and no companions except Thomas Hutchins with whom to discuss.

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1This paper was presented on 19 May 1979 at The Ottawa Field-Naturalists’ Club Centennial Symposium entitled 100 years of natural history in Canada.
his ideas. He had to rely on European texts such as Pennant's *British zoology*, used only his eyes and his gun, and worked in an extremely inhospitable environment particularly in the winter months. Here is an example of his work, a description presumably of a Boreal Owl:

Shipomish, the small owl. This is the smallest owl in the Hudson's Bay, nearly corresponding to the Small Owl of Pennant. It weighs four ounces and a quarter. The length is eight inches and a half; the breadth twenty. Irides bright yellow; the feet and legs are feathered and talons black. There is no material difference between the cock and hen birds, only the latter being smallest, which is a distinguishing mark of the owl genus. It lives amongst the pines in all seasons feeding on mice. It builds a nest half way up the pine tree in the month of May; lays two white eggs, and the young fly in the month of July. They are not plenty, and are the most solitary bird in Hudson's Bay, seldom moving in the daytime, but a brisk mouser in the night. They never change colour. It is sport for the Indian children to steal towards them in the daytime and seize them.

The description does not rule out Saw-whet Owl but by location is almost certainly the Boreal Owl. There are some errors of fact such as the observation that female owls are smaller than males, but, on the whole, the report suggests the interest of an active naturalist who has a personal knowledge of the bird in the field. Graham sent many specimens to Europe and many of these became the type specimens upon which the original descriptions were based. Forster in 1772 described for the first time Great Gray Owl, White-crowned Sparrow, Blackpoll Warbler, and Boreal Chickadee on the basis of specimens sent to Europe by Graham.

The fifth copy of Graham's *Observations* in the Hudson's Bay Company archives is ascribed not to Graham but to Hutchins. Hutchins was a surgeon who spent 16 years on the Bay. It is clear from researches carried out by Glyndwr Williams that Hutchins took Graham's work to Britain and presented it as his own. Whether he did this with Graham's knowledge has not been finally resolved, but even in his later life Graham always referred to "my friend, Mr. Hutchins."

The major consequence of Hutchins' plagiarism was that Pennant's *Arctic zoology*, the major work of this time, published in 1785, refers to Hutchins for all of Graham's observations, and to this day the small arctic race of the Canada Goose is referred to as the Hutchins Goose, not the Graham Goose.

Let us now turn the clock forward almost 100 years. At this point a number of important treatises on North American birds had been produced. Visitors to Canada could uncover the local patterns of distribution and sort out the problems of classification. Graham was confused about various types of sparrow; these had been clarified in Hadfield's day. Hadfield visited a Canada already modified by the agricultural activities of man. Let us take a field trip with him in mid-19th century, as quoted in Helen Quilliam's book from Hadfield's 1859 paper in *The Zoologist*.

Quitting the town of Kingston by the Upper Portsmouth road, leaving the Cathedral on the right and the splendid new Court-house on the left, you proceed for nearly a mile on the usual raised boarded foot-way, through level, half cultivated fields almost without a tree or even a stump, then leaving the high road, and striking off obliquely to the right for half a mile or more over a barren looking common, dotted here and there with clumps of everlasting fir, the first wood or enclosure is reached . . . there, being endless snake fences to be clambered over, no easy matter when encumbered by shot and gun, to say nothing of heavy boots . . . and ornithologists afflicted with obesity . . . should pause ere they trust themselves astride on the top most bars of suspicious looking snake fences, as they are in these old enclosures very apt to give way, when great is the fall thereof. I have in my mind's eye a vivid recollection of a scene of this sort, but the sufferer, fortunately, was of the leaner kind, or the fall of some five or six feet, gun in hand might have knocked out his own brains as well as those of the much prized specimens he held.

Birding in the 19th century could be a hazardous business, but less rugged than the life which Graham led, one feels. This rural scene is at the present day part of urban Kingston, as man continues to modify the environment. Scientific writing in Hadfield's day portrayed a more leisurely pace of life. What modern editor of *The Canadian Field-Naturalist* would tolerate Hadfield's rambling style?

It was through scientists and collectors like Hadfield that the basic knowledge of bird distribution in Canada was obtained, and it was from this base of knowledge that the concern for depleted wildlife resources arose. The depletions arose from three major sources: habitat destruction, market hunting, and the millinery trade. We are all familiar with the effects of habitat destruction particularly on woodland and marshland species. Market hunting is now a thing of the past and some of the species which were at that time threatened with extinction seem to be building up in numbers again now — species such as Hudsonian Godwits, Golden Plover, and Trumpeter Swans. Perhaps most remote from us at the present time are the depredations of the millinery trade. Janet Foster (1978) in her book *Working for wildlife* quotes a lady at the turn of the century as saying, "There is a great deal of sentiment wasted on birds. There are so many of them they will never be missed, any more than mosquitoes. I shall put birds on my bonnet." Herons and brightly colored birds were the most vulnerable.

The problem was finally recognized and seen to require for its solution agreement at least between Canada and the United States. In addition agreement between the Dominion government and the provinces was
necessary. Dedicated civil servants sensitive to the issues were needed to guide legislation through all the potential hazards. Fortunately there were such dedicated men available. Gordon Hewitt as Dominion Entomologist was concerned with the economic value of birds and their importance to agriculture. He came to Canada from England and brought with him the European as opposed to North American wildlife tradition. He also had a potentially important political advantage in that his wife was the niece of Prime Minister Robert Borden. She wrote about her husband on one occasion as follows: “Morning and evening he walked around the garden, bathing himself in greenness, and in the odour of lilacs, roses and new-mown grass. Then it was he spoke to every flower and bird, no matter how small or how shy, and held conversation with the chipmunks and squirrels, who held a safe tenure within the garden precincts.”

Perhaps it needed devotion like this to put the Migratory Birds Convention Act on the statute books. The act has now been in place for 62 years and has had a major effect on Canadian ornithology.

This takes us to our final stage, which I call the population phase. If we have the legislation to protect and preserve migratory bird species, then we need to be able to monitor population changes, to detect population declines, and to understand population dynamics. We need the facts to know when and how the laws should be applied.

Much of the energy of the Canadian Wildlife Service (CWS) has gone into the acquisition of population data through their own research, through contracts with Canadian universities and others, and by encouraging amateurs. I will give a few examples of this from my own experience.

The Lesser Snow Goose population which nests in the Hudson Bay region migrates through the prairies to the Gulf Coast. As such it is vulnerable to hunting and destruction of its feeding areas. In 1972 CWS attempted to make a total count of the nesting geese in this population. Aerial photographs were taken during June when the birds nest in large colonies. Each colony was visited and photographed. Each individual nesting female appeared on the photograph as a white dot, and each dot was counted. This was an enormous undertaking but from this it was determined that more than one million Snow Geese were nesting in the Hudson Bay – Foxe Basin regions. This seems to be the only Canadian species other than the extremely rare ones such as the Whooping Crane, for which a reasonably accurate census is available. Such censuses are essential if population changes are to be assessed.

I have been involved as a university researcher in another aspect of the population monitoring (see Cooke and Sulzbach 1978). Since 1968 we have been studying closely a self-contained Snow Goose colony at La Pérouse Bay in northern Manitoba. By collecting data on an annual basis it is possible to assess annual mortality and annual production. These are necessary measurements if population declines are to be detected. Unfortunately this information is known for too few species of Canadian birds.

Most of the monitoring of population changes comes, however, not from the professional ornithologist, but from the amateur: the weekend birdwatchers and birdfeeder watchers. The documentation of the spread of the Cardinal into Ontario or of the Evening Grosbeak from the West depended largely on the observations of dedicated amateurs. Christmas bird counts if analyzed cautiously can be used to document changes of status of some of our birds. More recently breeding-bird surveys have been introduced which give a certain standardization to amateur record keeping. This is an early example of government initiatives in harnessing the activities of amateur birdwatchers.

The assistance which the Federal Government has recently given to Canada’s two bird observatories, Long Point Bird Observatory and Prince Edward Point Observatory, points also to the importance of data collected systematically by amateurs. The increase in certain species of warblers at migration points in years of high Spruce Budworm outbreak has been reported. Most birdwatchers are happy to have their observations used for such a purpose, and the efforts of government agencies such as the Canadian Wildlife Service in coordinating the activities are welcomed.

There is much still to be done. Much of our inspiration still comes from Europe where more progress in this direction has been made. In The Atlas of British birds (1976) the distribution of every British breeding bird is recorded, and estimates of the numbers of each species plus indications of range expansions or declines are noted. Because of the geography of Canada and because we have fewer birdwatchers it will be several years before we can emulate the Atlas here, but there are beginnings. At the 1979 Ontario Ornithologists meeting, a small committee was set up to look into the feasibility of an atlas project at least for the settled parts of southern Ontario. I welcome these initiatives.

We have come a long way since the “Observations” of Andrew Graham. I am always overwhelmed, however, by how little we still know. The amateur birdwatcher can still find out new facts himself or become part of a team doing essential census work. Only by doing this can we ensure that the Migratory Birds Convention Act can be
effectively administered. Our hobby or research can be turned to good use for the protection of those species we enjoy observing.

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