

Toronto Field Naturalists' Club

February Meeting

Important - Please note change of date.

Monday, February 11, 1957 at 8:15 p.m.
at the
ROYAL ONTARIO MUSEUM

Due to the fact that our regular meeting night conflicts with the Audubon Screen Tours, our meeting will be held one week later,

Speaker: Bristol Foster

Subject: "The Seasonal Change of Life in the Arctic"
Illustrated with a colour film.

Mr. Foster has spent the past three summers at Churchill, Manitoba, as a biologist, making a study of the genus phenacomys (a rare vole) on a Royal Ontario Museum sponsored research project, financed by a grant from the National Research Council. He is at present working towards his M.A.

The film shows many members of the tree line community, highlighting the life of phenacomys, golden plovers, curlews, semi-palmated sandpipers, lemmings, Arctic flowers, etc. Many of our members are familiar with Mr. Foster's skill and artistry as a photographer and his scientific and interesting presentation of his material.

OUTING

Saturday, February 9, 9.00 a.m. Birds - owls in particular at York Downs. Meet at the corner of Bathurst Street and York Downs Drive. Leader - Mr. W. Wasserfall.

BOTANY GROUP

The February meeting of the Botany Group will be held on Thursday, February 21 at Eglinton Public School, at 8.00 p.m. Speakers - Dr. Fletcher Sharp "Poisonous Plants of Ontario"; Mr. Bristol Foster, Miss Madeline Nourse and Mr. Jim Mackintosh "Edible Wild Plants of Ontario". Chairman Mr. George Myland.

JUNIOR FIELD NATURALISTS

The February meeting will be held in the Museum Theatre on Saturday, February 2, at 10.00 a.m. The Fish, Reptiles and Amphibians Group will be in charge. A film on Marine Life and one on Reptiles will be shown.

Fees - \$2.00 per year.

John Mitchele - President

Mrs. J.B. Stewart,
21 Millwood Rd., Secretary.



Number 145

January 1957

CHANGES IN ONTARIO'S BIRDLIFE IN THE PAST 35 YEARS *

By Jim Baillie

One of the interesting undertakings that has fallen to the lot of the Royal Ontario Museum's Department of Ornithology has been the collecting of data on the birdlife of Canada, particularly as they have concerned Ontario. And about the most surprising conclusion Mr. L.L. Snyder, the Department's Curator, and I, have reached, after studying this mass of accumulated records, is that the distribution of a great many birds in this province, and even the very presence here of certain species, is anything but fixed or predictable.

Since I am now in my 35th year as a member of the Department's staff, perhaps I may be permitted a few observations on this interesting subject.

During the period since I joined the Museum staff in 1922, some Ontario bird species have declined in numbers. Others have increased noticeably. Some, unknown here 35 years ago as breeding birds, have moved into our more easterly and southerly

* Ed. Note: Originally read at Audubon Night in the Royal Ontario Museum on October 12, 1956 by its author, J.L. Baillie, Research Assistant of the Department of Ornithology, Royal Ontario Museum, this paper was of such clear interest to the readers of the Newsletter that the Editor asked Jim if he would be willing to have it printed therein. As you see, he has very graciously consented to do so.

areas from the west. Others, of more southern distribution, have moved up into our lower counties as nesting species, or strengthened footholds gained earlier, during the same period. One or two have even come into this province in increased numbers from the east, while still others have been added to our fauna as the direct result of Man's own interference. In fact, it seems that about the only major compass point that has not contributed at least one new species to southern Ontario's breeding birds since 1922 is the north.

First of all, let us dispose of a couple of birds which have become part and parcel of Ontario's avifauna in comparatively recent years, as a result of Man's efforts.

The Pheasant for instance, was first successfully introduced into this province at Niagara-on-the-Lake as long ago as 1897 but did not enter the Toronto region until 1922, the very year I joined the Museum staff. The Toronto Pheasants may have been the result of separate introductions made that year in various parts of Ontario by the then Department of Game and Fisheries, rather than birds that had reached this region from the Niagara introduction. Pheasants, of course, are familiar birds now in southern Ontario, north to about the Goderich-Kingston line, but such has not always been the case. Beyond Ontario, they occur widely, in a belt across the middle of the continent from Prince Edward Island to the Pacific coast, in the United States and in Canada.

The Starling, which has become one of the most common birds in southern Ontario and now occurs commonly all through eastern North America and, at least rarely, to the Pacific coast, Hudson Bay, and Mexico, was first successfully introduced into this continent at New York City in 1890. It first entered Ontario at Niagara Falls in 1914 and the Toronto region in 1920. The birds apparently followed the Hydro transmission-tower line from Niagara to Toronto, nesting in the hollow crossarms.

Birds which have decreased, within my own recollection, include the Bluebird. The trend towards metal fences, eliminating the wooden fenceposts in which these birds like to nest (in old woodpecker holes, etc.) competition with the Starlings for nesting cavities (Starlings select their sites before the Bluebirds return from their wintering grounds, and probably even eject Bluebirds, if necessary), mortality along the roads caused by increasing motor-car traffic, and the general expansion of urban conditions in southern Ontario have all contributed to the reduction in the Bluebird's numbers. Man-made birdboxes, placed atop fenceposts, will assist Bluebirds. The Toronto Field Biologists' Club, at Purpleville, had 15 of their 25 boxes occupied by these birds in 1953, 12 of 20 in 1954, 9 of 30 in 1955, and 5 of 10 in 1956.

The Red-headed Woodpecker's numbers have also suffered serious depletion in southern Ontario during the past 35 years.

One likely cause of its decrease has been its well-known habit of swooping low across roadways and being killed by motor-cars. Years ago, in Iowa, when the birds were more common, one ornithologist counted 39 bodies of these woodpeckers along 211 miles of gravelled roads. Some of these had been eating grasshoppers on the roads when overtaken by cars. Another suggested factor in the Red-headed Woodpecker's decline has been the rapid disappearance of oak and beech in urban places, where building booms have been in progress. Acorns and beechnuts are favourite items in the diet of these handsome birds.

Another bird which has been disappearing rapidly, due in this case to the encroachment of its beach habitat by Man, is the Piping Plover. It last nested on Toronto shorelines in 1934. It was once fairly common also at Wasaga Beach, but had been reduced to a few pairs by 1943 because of the building of summer cottages along the waterfront.

The Bluebirds, Red-headed Woodpeckers and Piping Plover are good examples of birds which have been unable to adjust themselves to the changing conditions in southern Ontario.

Some birds have increased since I came onto the Museum staff in 1922.

One is the Blue Jay. Less than 25 years ago, in the fall of 1933, ornithologists L.L. Snyder and T.M. Shortt, of the Museum's staff, thought a mid-September migration of these birds south-westward through the Toronto region of sufficient interest to publish. Nowadays, such flights are annual phenomena, unworthy of special comment.

Another bird which has made a spectacular comeback throughout southern Ontario is the Pileated Woodpecker. From the early 1890s to the early 1930s there was scarcely an individual anywhere within the Toronto region's 30-mile radius but, beginning in 1932, the species has gradually reestablished itself here and elsewhere throughout southern Ontario where it had become almost, if not quite, extirpated. Locally, it now frequents such places as Glendon Hall, Donalds Woods, Hogg's Hollow, the Old Belt Line ravine in Moore Park, and, in even larger numbers outlying places like the wooded height of land along the latitude of Vaudorf, Bond Lake, King Township and the Caledon Hills.

There is no doubt in my mind that the Provincial Government was perfectly justified in declaring an open season on Mourning Doves in the fall of 1955, for these birds (game in many parts of the United States) have increased tremendously along our southern border within my recollection. Only about 300 doves were shot by hunters, according to figures gathered by the Department of Lands and Forests, and they were just as prevalent

as ever in 1956 along our southern counties, which is their center of abundance in this province.

Wood Ducks, like Pileated Woodpeckers, have made a real recovery from a low point in the 1920s. Now, helped by interested persons and organizations, they are frequent again in all suitable marshy-woody situations. Like Bluebirds, they will utilize Man-made nesting structures. The Hamilton Nature Club and the Kingston Nature Club, Major James H. Rattray of Lorne Park, Dr. Alan Secord of Goodwood, the Carling Conservation Club, and the Toronto Anglers' and Hunters' Association are some of the agencies and individuals who have spent energy and money on Wood Duck rehabilitation in southern Ontario.

Western birds which have moved into southern Ontario as breeding birds within my memory include several species, some of which have become quite prevalent all through the lower part of the province.

The Western Meadowlark is a case in point. This bird first appeared in the Port Arthur area at the Lakehead about 1917, around the Soo about five years later, and in southern Ontario first at London in 1936. During the twenty years since it has become increasingly frequent right across southern Ontario to the Ottawa River, mostly in the spring (because then singing) but summering birds are not at all uncommon, and a pair nested one summer at Hamilton.

Prairie Chickens, once found in the flatlands of Essex and Kent Counties, but extirpated there half a century or more ago, reappeared in this province on St. Joseph's Island, south of the Soo, and on the western end of Manitoulin Island, in the north end of Lake Huron, about 1925, from colonies located in the southern peninsula of Michigan. They have increased and spread in these two areas, the sheep ranches on Manitoulin apparently affording them suitable habitat. On Manitoulin they are hybridizing with Sharp-tailed Grouse, apparently left over there following a southward migration of these birds from the James Bay region during the winter of 1932-3.

One of the most spectacular developments among western birds that have come into Ontario as breeding species during the past four decades has been the eastward shift in the breeding range of the Evening Grosbeak. Formerly confined to the Northwest in summer, and making only occasional winter forays to the east, this bird now nests regularly in a rather narrow belt right across the province and on, actually, to the Atlantic coast in New England. First Ontario nesting was at Lake of the Woods in 1920, first in Muskoka in 1927, and first in Algonquin Park, 1932.

Another species which has invaded Ontario from the west as a nesting bird, within my own recollection, is the Double-crested Cormorant. It is found along the Atlantic coast as well as in the southern Prairie Provinces but there was no record of it nesting in Ontario until 1920. And it is important to note that the initial colonies became established on Lake Superior, indicating that our populations came from the west, rather than from the Atlantic. Their subsequent spread eastward and southward confirms this supposition. At any rate, in 1932 they nested for the first time on Lake Huron, in 1936 on Georgian Bay, in 1938 on Lake Ontario and in 1945 along the upper reaches of the St. Lawrence River, around Gananoque.

Holboell's Grebe is another westerner which has moved over into Ontario as a breeding bird during the period I have been at the Museum. It nested first at the Lakehead in 1933, Burlington at the western end of Lake Ontario in 1942, and Cochrane in the eastern part of northern Ontario in 1955.

The Ring-necked Duck, another westerner currently in the process of extending its breeding range eastward, first bred in this province in 1919 at Lac Seul, between Lake of the Woods and Lake Nipigon. In 1931 it first nested at Port Arthur and in 1943 in Muskoka and north Hastings Counties. Like the Evening Grosbeak, it now nests in a belt extending eastward to the Atlantic seaboard.

Yet another western bird which has come to occupy southern Ontario as a breeding species during the past few years is the Clay-coloured Sparrow. It first nested in old Ontario in 1950 at Glenorchy, Halton County, then in 1952 in Grey and Simcoe Counties, and in 1955 in Waterloo and Wentworth Counties. Its summering range extends eastward at least as far as the Ottawa River.

Most recent of all the western species to come into this province as nesting birds is the Brewer's Blackbird. It first nested here at Port Arthur in 1945, and in 1954 nested as far east as the Soo, which is to date its most easterly penetration.

Two other western birds which have been occurring with increasing regularity in the southern parts of Ontario, and which may some day stay to nest within the borders of this province, are the Oregon Junco and the Little Gull. Oregon Juncos belong in the more westerly states and provinces; Little Gulls nest in eastern Siberia. The former associates in southern Ontario with Slate-coloured Juncos in migration and in winter; the latter is almost invariably with Bonaparte's Gulls, during migration. Both have come to be rare but regular annual visitors to lower Ontario points within the past three decades, but how or where the Ontario birds meet

up with their more common companions are matters that have yet to be determined. The Bonaparte's Gulls nest northwestward into Alaska; the Oregon Juncos breed eastward to Alberta. First Ontario Oregon Junco was collected at Strathroy in 1929, with additional specimens from Barrie and Streetsville in 1943. The Little Gull was first detected in this province at Port Stanley in 1930; first at Toronto in 1938.

At least nine species, (which are of more southerly affinities), may be prominently mentioned among birds which have been noticeably increasing here in the lower part of Ontario, within the period covered by this paper.

The Cardinal, which first nested in Ontario at Point Pelee in 1901, first did so at Toronto in 1922, the very summer I joined the Museum staff. The expansion of its breeding range beyond the local area - helped along by a big influx in the fall of 1938 from the Buffalo area - is shown by these initial nestings, Orillia and Port Hope (1939), Owen Sound (1942) and Tweed (1953).

Chats are also on the move northward. They first nested in this province at Port Burwell in 1924. Chats have summered in the Toronto area but no nesting has been reported yet that far east or north.

Another southerner we are glad to welcome is the Prothonotary Warbler. Its first Ontario nesting was at Rondeau Provincial Park as recently as 1929. This was followed by first nestings at the Cove (west of Port Rowan) in 1940, Turkey Point in 1949, Owell and Hamilton in 1954, and Point Abino in 1956, clearly indicating substantial range expansion here.

Mockingbirds were long thought to be confined to the area south of the Sarnia-Toronto line. In 1954 and 1955, however, pairs nested at Manitoulin Island, many miles to the north.

The Carolina Wren first nested in Ontario at Point Pelee in 1905 and at Toronto in 1930, taking 25 years to expand its breeding range the 200 miles northeastward, where it only took the Cardinal 21 years to effect the same expansion.

First Ontario nesting of the Bewick's Wren was at Point Pelee in 1950, and that most southerly part of the Canadian mainland remains its only nesting-place north of the International border in eastern Canada. At Toronto it is still just a rare straggler.

Turkey Vultures have been expanding their range in southern Ontario annually. Up to 1928 they had nested only in Essex, Lambton and Middlesex Counties. In 1928 they

nested for the first time in south Bruce, in 1932 in Grey, in 1938 in Norfolk, in 1943 in the Bruce Peninsula and at Georgetown, and in 1946 at Credit Forks.

More than welcome as a part of our breeding avifauna is the American Egret, a newcomer as a nesting bird in Ontario in 1953, when it nested at East Sister Island, in the western end of Lake Erie. Its increase and spread will be watched with interest.

And lastly, the Blue-winged Warbler - hitherto a rare migrant only in southern Ontario - first nested in this province this past summer (1956) at Hamilton and Milton Heights.

Two birds of more easterly affinities have increased here in southern Ontario of recent years, and certainly well within my own recollection. One is the Brant. Beginning in 1938, these small geese have been regular and increasingly prevalent late spring visitors along the north shore of Lake Ontario. In 1954 a pair even nested at Copper Cliff, hundreds of miles south of their Arctic summer range.

Second is the Great Black-backed Gull, formerly a winter visitor only to Lake Ontario, from the Atlantic. Their stay here has become longer each year, they have occurred with increasing frequency in Lake Erie and southern Lake Huron and in 1954 a pair even nested among other gulls on an island off the Bruce Peninsula in Lake Huron.

Last bird to be mentioned is the Hudsonian Chickadee. I have already said that about the only area that has not provided new birds to southern Ontario's breeding-list has been the north. That is true, but we do experience unexpected irruptions of birds from that quarter some autumns, and expected invasions even more frequently at that season and in winter. But these northerners have not established themselves in the south as nesting species. One of the most unexpected irruptions of this nature was the spectacular migration of hundreds upon hundreds of Hudsonian Chickadees in the winter of 1951-2. They streamed through the Toronto area with Black-capped Chickadees that autumn, coming from the east, and the flight carried at least some of them as far as Chicago! That flight was not only unexpected but unprecedented on such a scale, and since there was no evident return flight, the impression was left that it was a suicide flight of surplus population, much after the fashion of the storied Lemming migrations, in Scandinavia.

Practically nothing is static in nature. Bird ranges are continually changing, some expanding, some contracting, some extending eastward, some westward, some northward. And to further confuse the student, there are at times completely unexplained movements such as that notable chickadee flight of a few autumns ago.

Letter to the Editor

The secretary of the Ontario Bird Banders Association, Mr. Bill Wasserfall, wrote to the Editor of the Newsletter on December 6, 1956, to explain the position of that organization with respect to the broadcast given by Mr. J.A. Livingston, on the subject of bird banding, which was printed in a previous issue of the Newsletter. Mr. Wasserfall's letter reads as follows:

"It was with some astonishment that I read in the October Newsletter a partial reprint of a radio talk given on August 26 by John Livingston. Possibly this was a hastily written broadcast, and though no doubt delivered with the best of intentions, the speaker jumped to a conclusion which is quite unwarranted. The matter was immediately investigated by the Canadian Wildlife Service, and I quote from their report: '... we cannot agree with the inference in Mr. Livingston's broadcast of August 26 that banding operations led to the deaths of excessive numbers of gulls and terns. Mr. Livingston has been informed of our views.'"

The Ontario Bird Banders Association is gravely concerned that this serious charge has been introduced into the Newsletter, a publication normally based upon fact, not conjecture.

Naturally, it is alarming for inexperienced birders to find dead young in a colony of gulls and terns, but the experienced person is aware of the extremely high mortality among the young of colony-nesting birds, a mortality estimated at 70%. Now during the past summer, fewer than 150 bands have been turned in from the Presqui'Ile operations. These included those gathered during repeated visits to the island by Mr. Davidson, Parks Superintendent, who incidentally, accompanied the "amateur banders" during one of their banding operations. Since 6,536 birds were banded of a colony estimated at from 14,000 to 18,000 birds, this would mean a recovery of approximately 2.3% of the total banded, which is exceptionally low. Some of these bands have been recovered from the Hudson River, St. Clair River and Lake Scugog, so not even all this number was recovered from Presqui'Ile. On the basis of returns so far, there is no significant difference between the relative number of returns from birds banded by banders with experience ranging from 1 to 15 years.

Those who are interested in the Presqui'Ile colony will be pleased to know that it is more densely populated than it has been for many years. Mr. Herbert Southam, who has banded there for over 15 years, tells us that 4 or 5 years ago a red fox, living on the island for 2 seasons, seriously reduced the colony, but it has since made a fine recovery.

The O.B.B.A. is concerned over the fate of these colonies which are too easily accessible to the casual

visitor. Usually these persons know nothing about birds, and have no idea of the harm they are doing. For example, in June of this year, a family was having a picnic at Wellers Bay, while before their eyes their dog destroyed 20 or 30 young terns. Only the intervention of a bander who happened to be there saved many more young. Adult terns are sometimes shot by youths practising marksmanship. Yet these people are not deliberately cruel - they are thoughtless, and there are many, many more like them. Last year the O.B.B.A. suggested to the authorities that some of these colonies be placed under protection during the breeding season, and we expect that some action will be taken soon. Here is a project which might interest the T.F.N.

Mr. Livingston spoke about a 'stampede' towards bird banding. In fact, there are at present only 69 holders of banding permits for Ontario, and many of these are inactive. We think it likely that this impression may have been gained through the actions of the recently formed O.B.B.A. in co-ordinating and channelling the activities of its members. During the very successful banding operation at Point Pelee last May many people who had been rather dubious about seeing birds caught, became enthusiastic boosters of the project when they saw how carefully the birds were handled, and others were grateful for the opportunity of seeing living, healthy birds at close range. As a group we are rather proud of the fact that we are gathering valuable information about many thousands of birds without the necessity of their becoming 'specimens'."

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BOOK REVIEW:

TRAVELS AND TRADITIONS OF WATERFOWL. By H. Albert Hochbaum. (University of Minnesota Press. In Canada Thomas Allen, Ltd., Toronto, 1956) Pp. x, 301. Price \$5.50.

Basically this book is a technical discussion, the fifty-first such discussion and the third book, the author tells us, to have come out of the co-operative studies carried on at the Delta Waterfowl Research Station in Delta, Manitoba. Yet, if the technical and scientific character of the work is paramount the book is nonetheless written in a charming style, in many places lyrically poetic, always clear and forthright, a style that, along with the pleasing black and white illustrations, gives Dr. Hochbaum's work a definitely popular appeal.

The several problems of bird migration are here treated chiefly on the basis of many years' study of waterfowl at the

great research station of which the author is director. These findings are, however, measured against all existing knowledge and the theories of all the leading authorities. The result is a highly challenging and creative piece of work.

The author's main thesis is that in each bird on a basis of automatic or instinctive urges there is built up a structure of "traditions" or "learned responses". Hence, a large part of what observers have in the past attributed to "instinct" must really be accounted "tradition". Some of these traditions are learned independently but more are learned from the "actions of experienced companions"; they are thus passed on, though not inherited in any genetic sense, from generation to generation. Included among the traditions are the routes, the landmarks, and the techniques of migration. In support of his ideas Dr. Hochbaum makes a stimulating and very intelligent use of human analogies, always avoiding any anthropomorphic implications in such reasoning. No less apt and thought-provoking are his incorporation of modern ideas of time-space and relativity, and of up-to-date meteorological and aeronautical knowledge. This is clearly the work of an earnest and thoughtful scholar, a valuable contribution to ornithology, a stimulus and guide to further thinking and research. A thorough bibliography at the end of the book will facilitate such research.

This is the sort of work that every naturalists' club might well use as the basis of discussion in a meeting. No serious student of bird life should be without it.

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Interesting birds to look for:

A brant goose that is wintering near the mouth of Coatsworth Cut, usually to be seen along the rocks there, or near the break-wall in front of the Sewage Plant (Ashbridge's Bay).

Two American 3-toes woodpeckers, male and female in a wood on Finch Avenue, just east of Midland Avenue (Agincourt), may be found on either side of the road, the southern section being the more likely.

A female surf scoter, a canvasback, two ring-necked ducks, a lesser scaup, a female ruddy duck - unusual wintering waterfowl - are likely to be in the harbor towards the western end.

A king eider, discovered on Hamilton Christmas census. To be found usually in vicinity of Burlington Harbour.

CORRECTION: In reporting the incursion of American 3-toed woodpeckers in the last issue, the statement was made that this was the first such occurrence since 1901. At that time we were unaware of the fact that Mr. Roy Ivor saw one of this species on November 17, 1942. Hence the present occurrence is the third in fifty-six years. Still a very rare bird!

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In previous seasons many readers of the Newsletter have been glad to aid the continental study of bird migration which is being conducted from headquarters established at the Patuxent Research Refuge, Laurel, Maryland. In order that they may continue to do so, we are publishing the regular form for the return of records for the past fall. All returns will be gratefully received. They should be sent in as directed on the form.

R.M. Saunders,
Editor.

COOPERATIVE MIGRATION STUDY - FALL OF 1956

We are most grateful for your generous response to our search for still more cooperators. In 1956, the third year of this fall migration study, more observers than ever before will be on the watch for migrants, from the Gulf to Hudson's Bay. We look forward with increasing interest to your continued reports.

As before, let us emphasize that a valuable report need include the arrival or departure dates of only a few of the species listed below. Counts or estimates of the number of birds noted, and the dates of peak numbers are very helpful, but not essential. There can never be too many reports, even from one locality, as long as they are not duplicate reports on the same individual birds. Additional cooperators are always welcome. We ask only that you report just the birds which are believed to have actually arrived (or departed) on the date when seen or heard; but if in doubt, report them anyway.

The present list contains both nocturnal and diurnal migrants, early and late ones, solitary and flocking species, each one included for a specific purpose. In some cases the data will be used by research workers who are studying the movements of a particular species; in other cases they will be used to correlate bird migration with weather conditions.

Please send your fall 1956 report, through your regional editor of Audubon Field Notes, or to Chandler S. Robbins, Patuxent Research Refuge, Laurel, Maryland.

STATE: _____ COUNTY: _____ LOCALITY: _____ LAT: _____ LONG _____

OBSERVER: _____ ADDRESS: _____

Species	Code		First Migrant		Peak		Peak		Peak		Last Noted	
	No.	Date	No.	Date	No.	Date	No.	Date	No.	Date	No.	Date
Canada Goose	172	56										
Mallard	132	56										
Broad-winged Hawk	343	56										
Wilson's Snipe	230	56										
Mourning Dove	316	56										
Common Nighthawk	420	56										
Chimney Swift	423	56										
Crested Flycatcher	452	56										
Catbird	704	56										
Hermit Thrush	759	56										
Golden-cr. Kinglet	748	56										
Myrtle Warbler	655	56										
Red-wing	498	56										
Baltimore Oriole	507	56										
Purple Crackle	511	56										
Rose-br. Grosbeak	595	56										
Evening Grosbeak	514	56										
Slate-col. Junco	567	56										
Am. Tree Sparrow	559	56										
White-crown. Spar.	554	56										
White-thrtd. Spar.	558	56										
Fox Sparrow	585	56										

John V. Dennis, Chandler S. Robbins, James H. Zimmerman