EIDER DUCK NESTING, MOULTING AND WINTERING AREAS

by D.I. Gillespie

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Introduction

Although the eider duck Somateria mollissima is described as a colonial nester relatively little information is available in the literature concerning major nesting sites in eastern Canada. This report attempts to draw together the information on nesting already abstracted from the literature in the course of the Newfoundland eider duck work and to present an outline for future reconnaissance.

Material Used

Only records of nest observations have been used, since such records as "eiders breeding" or "downy young seen" fail to confirm the area described as an actual nesting site. Relatively few of the papers reviewed to date provide the quantitative or qualitative detail necessary to establish major nesting concentrations or the chronology of nesting. The dates provided can only indicate, at best, when incubation was underway and when the author was in the area. Freeman (1970), Cooch (1965) and Reid (in corres.) probably present the best descriptions of major colonies.

One of the aims of this report is to provide optimum surveillance times for future Argus Arctic surveillance flights in order that we may expand our knowledge of the eider duck nesting distribution. Within the nesting cycle

there are critical periods when optimum opportunity for observations occur. These periods occur when the adult drakes, which are the more conspicuous sex, are in the company of breeding females. The data presented by Cooch (1965) suggests that adult drakes are present and paired with females at the nesting site for about one month before leaving to moult. Dement'ev et.al. (1952), Cooch (1965) and Freeman (1970) suggest that partial pairing may occur during migration, although most authors indicate that the majority of the early migrants are males. It may be necessary therefore to select times for reconnaissance about one week after the first date of the suggested optimum surveillance period to avoid recording migrants. Ideally, two flights over the same route a week to ten days apart would be more definitive.

Historical Nesting Sites and Critical Surveillance Periods

1. Quebec North Shore - St. Lawrence River

Reid (in corres.) suggests that the St. Lawrence River population, which for the purpose of this report will be called, the Ile Verte site, extends from 70°30'W long. to 68°30'W long. and numbers c 30,000 breeding pairs.

Table 1 shows the location of the St. Lawrence River sites.

The largest number of nesting records are available for the Quebec North Shore. These appear in Table 2.

The literature indicates that the critical surveillance period for this area is late April to the end of May.

2. Labrador Coast

The Labrador Coast has been broken down into two areas because of the racial distribution of the American and northern eider and because of the phenology of the nesting. Hamilton Inlet serves as the separation point according to Godfrey (1966). S. m. dresseri, the American eider, nests south of Hamilton Inlet, while the northern eider S. m. borealis nests north of the inlet. The critical surveillance period is about one week earlier south of Hamilton Inlet (May 17-June 17) than it is north of the inlet to Cape Chidley (May 24-June 24).

The largest reported nesting colony along the Labrador Coast is on the Metic Islands (59°55'N lat; 63°55'W long). Although it has been reliably reported, no detailed assessment of breeding density has been made. Navigational charts and reports from Newfoundland Wildlife Service personnel suggest that the portion of the coast between 55°N lat and 57°N lat is probably the most productive breeding area along the inhabited portion of the coast. South of Hamilton Inlet human interference and a lack of suitable nesting sites reduces the potential of the coastline.

Table 3 shows the locations of the Labrador Coast historical nesting sites while Table 4 shows the location of sites discovered since 1968. The latter are insignificant in terms of breeding pairs (less than 50 pairs per island) however the location of the Green Island colony in Lake Melville (53°55'N lat; 59°00'W long) is unique as being non-coastal.

3. Labrador Ungava in Ungava Bay and Hudson Strait

The critical surveillance period for this stretch of coastline appears to be the month of June. There are no reliable numbers of breeding pairs per colony that would suggest major concentrations although Cooch (1954) provides data that would suggest a major colony could be found between Hopes Advance Bay and the Gyrfalcon Islands. Similarly the charts suggest the coast between Cape Hopes Advance and Payne Bay may have a high potential.

Table 5 provides the historical nesting sites for this area.

4. James Bay ; Hudson Bay

The eider ducks of James and Hudson Bays may provide an additional problem of surveillance because of their sedentary nature. If there is not a definite segregation of adult birds from subadults, observers will have a problem in attempt-

ing to separate the two groups. Freeman (1970) who has provided the most detailed account of Hudson Bay eiders, yet reviewed, makes no mention of subadults. Perhaps the problem suggested does not exist.

The critical period for surveillance in James Bay should be May 17 to June 17 while in Hudson Bay, because of the extremes in latitude involved it should be May 24 to June 30.

Navigational charts suggest that most of the east coast of James Bay provides optimum nesting sites, while the east coast of Hudson Bay from Cape Dufferin north to Cape Anderson appears the best.

Table 6 provides the historical sites for James and Hudson Bays.

5. Arctic Islands

Cooch (1965) indicates the month of June is the critical period of surveillance and during his survey of pre-nesting eiders in 1954 (Cooch, 1954) he used the period June 20 to 28 for observation.

The eider duck appears to be one of the most abundant species of breeding waterfowl along the south coast of Baffin Island, Cooch (1965), Cooch (1954) and Macpherson and McLaren (1959). The area between Cape Dorset and Amadjuak (76°30'W -

72°30'W) and between Balcon Inlet and Pretzler Harbour (69°00'W - 67°30'W) appear to be the areas of major concentrations.

The northernmost record of nesting eiders is Olsen Island (76°10'N lat 89°00'W long) Duvall and Handley (1948). However, the veracity of this record is subject to question as it was a second-hand record.

Table 5, which includes the Labrador Ungava - Ungava Bay, Hudson Strait location also shows the Arctic Island records.

6. The Island of Newfoundland

Although the island exhibits several potential nesting sites only three are reported in the literature and a fourth was found during our eider duck investigations. It is quite probable that interference by fishermen has discouraged nesting. Peters (unpublished notes) states that on the south coast of the island between Barachois Bay and Connoire Bay eiders nested on several rocky islets and several females were noted with young unable to fly. He also suggested a group of small islets east of La Poile Bay as potential nesting sites. Cameron (1967) states the common eider is not known to breed on St. Pierre et Miquelon.

7. Nova Scotia - New Brunswick

Several references are available on the eider duck nesting

site on Three Islands (44°35'N lat 66°48'W long) particularly Kent Island, one of the group. Brownson (1908) reports a dozen breeding pairs in 1908 while Gross (1938) describes the increase during the thirty year interval to 300 pairs. No references have been discovered, to date, regarding Nova Scotian colonies. However, James Stoner (in corres.) has provided considerable detail covering the islands used for nesting in 1969. These locations appear in Table 7. None of the Nova Scotia - New Brunswick locations appear on Map 1.

Map 1 shows the historical eider duck nesting sites and recent locations.

Moulting Areas

The literature provides relatively little information on the description of post-nuptial moulting areas. Cooch (1965) states that although some of the moulting males remained in the vicinity of the nesting area, many of them migrated far out to sea and probably did not return to the area until the following year. Russian workers, Dement'ev (1952) and Gerasinova and Baranova (1960) suggest a similar moult migration. Boyer (1966) describes a large moulting concentration of eiders off the shores of Prince Edward Island, although there is not a recognized nesting concentration in the vicinity. He did not indicate if the birds recorded were adult drakes or

non-breeding birds. Our work at Hare Bay, Newfoundland, St. Peter's Bay and Hamilton Inlet, Labrador did not suggest major movements of post-breeding drakes. In all areas adult males were found within five to ten miles of the nesting sites.

With the exception of the observation by Boyer (1966) there is very little reported on moulting areas or the number of birds involved at the areas. Hamilton Inlet appears to support a fairly large number of moulting birds as well as nesting birds and reports from Newfoundland Wildlife Service personnel suggest that between 55°N lat and 57° N lat there may be several thousand to be found.

Wintering Areas

Freeman (1970) reports the Hudson Bay eider winter principally west and north of the Belcher Islands. Cooch (1965) records an observation of wintering eiders off Port Burwell (60°20'N lat 64°55'W long) in 1922-33 by Mr. P.A.C. Nichols of the Hudson Bay Company. However, this may be the exception rather than the rule as McLelan Strait is noted for its tidal rip. Eiders do not normally winter off the coast of Labrador and those that do occupy the open leads in the pack ice over traditional feeding shoals. The seal patrol (pers. comm.) in 1969 and 1970 failed to record any observations of eiders as far north as Saglek. In 1957, a relatively mild winter,

Wm. Anderson of the Newfoundland Wildlife Service (in corres.) reported a kill of c 2,000 eiders when pack ice closed off the open water in the vicinity of Makkovik in February. His monthly diaries dating back to 1950 do not record any similar occurrence nor do they make note of the presence of eiders in any other winter.

The major wintering area of S. m. borealis and S. m. dresseri to a far lesser degree appears to be around the shores of the island of Newfoundland. Incomplete coastal surveys since 1968 indicate the major area of concentration is southeast of Fogo Island (49°30'N lat). The harvest data of 1959-1965, Gillespie and Inder (in prep.) suggests that a major wintering area exists along the south coast of the island between the Burin Peninsula and Port aux Basques. However, this may be biased by better hunting conditions viz. better protection from winds and seas.

Map 2 shows the major areas for wintering eiders as determined from aerial surveys and navigational charts. No attempt has been made to express the numbers wintering, as at the present time an adequate technique for estimation does not seem to be available.

It should be noted that the west coast of the island is not an outstanding wintering area. It appears the physiography of this coast is probably related to its history of marine submergence and the resultant bottom is not a suitable

habitat for the eiders' major food species Mytilis edulis.

Migration to the wintering areas may begin as soon as the young leave the nest. Cooch (1965) noted that broods left the nesting area soon after hatching. In normal years eiders begin to appear in substantial numbers along the northern shores of the Great Northern Peninsula of Newfoundland late in September. The first arrivals usually consist of adult males and non-breeding birds with the former being conspicuously more abundant. By mid-October large flocks begin to appear along the north shore in the vicinity of Fogo Island and it is generally early November before juveniles in the company of adult females arrive. The movement down the east coast of the Avalon Peninsula begins late in November, normally reaching a peak about mid-December. It is not known if there is also a counter-clockwise migration down the Strait of Belle Isle through the Gulf of St. Lawrence and east along on the south coast of Newfoundland. It is my opinion that such a migration does not take place as the west coast, already described, provides what is apparently a poor littoral zone for feeding eider ducks and the likelihood of eiders following the Labrador-Quebec shore south to 50°N lat before migrating east to Newfoundland over the Gulf does not seem reasonable. Arrival dates are not known for the south coast although discussions with R.C.M. Police personnel and local residents

suggest eiders are absent or in small numbers in mid-December.

Specimens collected along the north shore of Newfoundland, the east coast of the Avalon Peninsula and the south coast of the island as far west as Fortune Bay during the past three winters were largely the northern race S. m. borealis. Cooch's data (Cooch, 1965) suggest that a portion of the Cape Dorset eiders winter along the island's north-shore in the vicinity of Fogo Island. Seven (7/8 of the recoveries) of twenty-six females banded at Cape Dorset in 1955 were recovered off Fogo. Since the American eider S. m. dresseri breeds along the Labrador coast as far north as Hamilton Inlet, it is unusual that this race has not been more conspicuous in the large sample we have examined.

The movement of birds north begins about mid-March and extends through to early May depending on ice conditions. Non-breeding birds have been observed, but not in large numbers, as late as early June. Summer observations, except in the areas of nesting, are few. It appears that the majority of the eiders that winter along the shores of the island is absent during the period May - mid-October and could be found along the coast of Labrador or in Arctic waters.

Discussion

Cooch (1954) has already provided a basis for the compilation of information on eider duck nesting sites. His surveys covered the east coast of Hudson Bay, and the shores of Hudson Strait and Ungava Bay. This survey of the literature, incomplete though it is, should assist in developing a reconnaissance scheme for future Argus Arctic surveillance flights and the recording of nesting observations by anyone in the field.

It is quite evident from the material presented here that there are obvious gaps in our knowledge of many phases in the eider ducks' annual cycle. This may be a result of the incomplete literature review, although I am more inclined to believe the information is not available. We need more information on the stages at which these birds are particularly vulnerable to oil, namely the flightless period of moulting birds and unfledged juveniles. It appears that relatively little is known or recorded on the wintering distribution of some Arctic populations that may be sedentary. Similarly there is little or no reference to the wintering areas of the American eider. Increased detail on the chronology of spring migration would be useful as ice conditions often result in build-ups of eiders rendering them particularly vulnerable to oil spills, Gillespie and Inder (in prep.). It might also be beneficial to investigate the possibility of separating populations according to

certain morphological characters such as culmen measurements as Dr. Brown (pers. comm.) has attempted with fulmars Fulmarus glacialis. A preliminary examination of a series of measurements taken from specimens collected along the coast of Newfoundland and from museum skins suggests this might be a valid technique.

Table 1

Historical Eider Duck Nesting Sites

St. Lawrence River

Place Name	N.Lat. degree-min	W.Long. degree-min	Authority
Iles Bicquettes	4820	6850	Reed, A. 1969 (in corres.).
Ile aux Fraises	4755	6950	" "
Ile Blanche	4755	6941	" "
Ile aux Pommes	4806	6920	" "
Ile aux Basques	4808	6915	" "
Ilets d'Amours	4808	6910	" "
S.W. Razade	4810	6910	" "
N.E. Razade	4812	6907	" "
Brandy Pot	*		" "
Bic Island	*		" "
Pilgrims Islands	*		" "
Ile aux Lievres	*		" "
Iles Kamourask	*		St. Pierre, J. 1969 (in corres.).
Iles Perlerins	*		St. Pierre, J. 1969 (in corres.).

* exact location unknown

Table 2

Historical Eider Duck Nesting Sites

Quebec North Shore - St. Lawrence River

Place Name	N.Lat. degree-min	W.Long. degree-min	Authority
Ile Blanche	4752	6941	Reed, A. and J. Guy Cousineau. 1967.
Carrousel I.	5005	6623	Gabrielson, J.N. 1952.
Perroquet I.	5013	6412	Todd, W.E. Clyde. 1963.
Mingan I.	5013	6408	Verrill, A.E. 1862.
Birch I.	5013	6400	Gabrielson, J.N. 1952.
Eskimo Pt.	5014	6337	Couper, Wm. 1881.
Hunting I.	5013	6310	Todd, W.E. Clyde, 1963.
Anchor I.	5015	6306	" "
St. Genevieve I.	5014	6304	" "
Iles Corneilles	5026	6253	Townsend, C.W. 1910.
Baie Johan Beetz	5016	6250	Townsend, C.W. 1918.
Natashguan R.	5007	6149	Todd, W.E. Clyde. 1963.
American Hrb.	5011	6148	Audubon, M.R. 1897.
Kegashka R.	5010	6122	Todd, W.E. Clyde. 1963.
Musguaro	5010	6105	Frazar, M.A. 1887.
Washikuti	5012	6053	Todd, W.E. Clyde. 1963.
Washikuti R.	5012	6052	Gabrielson, J.N. 1952.
Romaine	5013	6040	Todd, W.E. Clyde. 1963.
Old Bluff I.	5026	6013	" "
Derby Bay	5025	5949	Townsend, C.W. 1917.
Nazair Hrb.	5017	5948	Lewis, H.F. 1925.
Yankee Hrb.	5018	5947	" "
Cliff I.	5018	5942	Gabrielson, J.N. 1952.
Aylmer Sound	5033	5923	Lewis, H.F. 1925.
St. Augustin	5114	5825	Stearns, W.A. 1884.
Eskimo I.	5123	5743	Townsend, C.W. 1910.
Greenly I.	5123	5711	Bryant, Henry. 1861.

Table 3

Historical Eider Duck Nesting Sites

Labrador Coast

Place Name	N.Lat. degree-min	W.Long. degree-min	Authority
St. Peter's Bay	5204	5545	Peters, Harold S. 1945.
Halfway I.	5342	5612	Tuck, L.M. 1953.
Gannet I.	5357	5635	Orr, Virginia. 1948.
Mason I.	5413	5748	" "
Double I.	5425	5713	Tuck, L.M. 1953.
Red I.	5513	5916	Gross, Alfred O. 1937.
Turnavik West	5517	5921	" "
Nanuktok	5523	5938	Austin, O.L.Jr. 1932.
Hopedale	5527	6000	Gross, Alfred O. 1937.
Kikkertaksoak	5610	6047	Wheeler, E.P. 1930.
Kikkertarak I.	5622	6140	Todd, W.E. Clyde. 1963.
Sandy I.	5627	6107	Austin, O.L. Jr. 1932.
Red I.	5631	6115	" "
Port Manvers Run	5657	6120	Gross, Alfred O. 1937.
Louse Hrb.	5920	6342	" "
Eclipse Hrb.	5952	6408	" "
Metik Isles	5955	6355	Todd, W.E. Clyde. 1963.
Grenfell Tickle	6018	6425	Gross, Alfred O. 1937.
Bowdoin Hrb.	6020	6425	" "
Cape Chidley	6023	6428	" "
Button I.	6038	6440	" "

Island of Newfoundland

St. Brendan's I.	4853	5338	Peters, Harold S. 1945.
St. John's Bay	5050	5710	" "
Hare Bay	5115	5555	" "

Table 4

Recent Eider Duck Nesting Sites

Labrador Coast

Place Name	N.Lat. degree-min	W.Long. degree-min	Authority
Green I.	5355	5900	Gillespie & Wetmore
South Duck I.	5413	5722	"
Watchand Chain	5417	5752	"
Catos I.	5422	5754	"
Gull I.	5424	5754	"
Alliuk Bight	5433	5722	"
Jeanette Bay	5444	5805	Wetmore
Jeanette Bay	5445	5809	"
Kayaksuatilikvic	5520	6006	"

Island of Newfoundland

Stag I.	4940	5540	Gillespie

Table 5

Historical Eider Duck Nesting Sites

Labrador-Ungava in Ungava Bay and Hudson Strait

Place Name	N.Lat. degree-min	W.Long. degree-min	Authority
Charles I.	6215	7415	Eifrig, C.Wm. 1905.
Gyrfalcon Isles	5905	6955	Todd, W.E. Clyde. 1963.
Hope Advance Bay	5920	6935	" "
Eider Isles	6052	6930	Low, Albert P. 1899.
Kasiagiaksiovik R.	5854	6903	Todd, W.E. Clyde. 1963.
Koksoak R.	5832	6810	Phillips, John C. 1926.
Whale R.	5850	6735	Macoun, John. 1900.

Arctic Islands

Chesterfield Inlet	6345	9050	Hohn, E. Otto. 1968.
Okolli I.	6410	7640	Macpherson, Andrew H. and Ian A. McLaren. 1959.
West Foxe Isles	6417	7545	Cooch, F.G. 1965.
Port Leopold	7355	9000	Duvall, Allen J. and Charles O. Handley Jr. 1948.
Olsen I.	7610	8900	Duvall, Allen J. and Charles O. Handley Jr. 1948.
Bowman Bay	6530	7350	Soper, J. Dewey. 1946.
Middle Savage I.	6210	6800	" "
Brewster Point	6304	6550	Wynne-Edwards, V.C. 1952.

Table 6

Historical Eider Duck Nesting Sites

James Bay

Place Name	N.Lat. degree-min	W.Long. degree-min	Authority
Scoter I.	5210	7857	Todd, W.E. Clyde. 1963.
Gasket Shoal	5227	8025	Manning, T.H. and D.F. Coates. 1952.
Long Pt.	5245	7928	Todd, W.E. Clyde. 1963.
Moar Bay	5248	7850	" "
Walrus I.	5256	7908	" "
Paint Hills I.	5258	7856	" "
Comb I.	5317	7850	" "
Aquatuk Bay	5340	7905	" "
Fort George R.	5349	7906	Macoun, J. 1900.

Hudson Bay

Faherty I.	5600	7940	Twomey, Arthur C. 1942
Richmond Gulf	5609	7650	Macoun, J. 1900.
Tukarak I.	5616	7847	Twomey, Arthur C. 1942.
Gushie Pt.	5627	7855	" "
Taylor I.	5645	7640	Todd, W.E. Clyde. 1963.
Nicholson I.	5715	7642	" "
Cotter I.	5746	7700	" "
Kitterteluk R.	5801	7715	" "
Hopewell Sound	5824	7830	" "
Elsie I.	5851	7857	" "
Kogaluk R.	5940	7725	" "
Cape Anderson	6004	7740	" "
Magnet Pt.	6024	7745	" "
Mosquito B.	6045	7750	" "
Smith I. (vic.)	6045	7829	" "

Table 7

Historical Eider Duck Nesting Sites

Nova Scotia (Halifax-Canso Hrb)

Place Name	Location	Authority
Roger I.	between	Stoner, J.A. 1969.
Barren I.	6230W and	" "
Duck I.	6302W	" "
Long I.		" "
Guilfords	between	" "
Salisbury	6222W and	" "
Mink	6230W	" "
Round		" "
Horse I.	between	" "
Sutherland I	6213W and	" "
Harbour I.	6222W	" "
Bird I.		" "
High I.		" "
Flag I.		" "
Long I.		" "
Black Duck I.		" "
Brokenback		" "
Gold Island		" "
Tuffin I.	between	" "
Little Goose	6130W and	" "
Turner I.	6213W	" "
Goose		" "
Tobacco I.		" "
Harbour I.		" "
Goose I.		" "
Tickle	between 6100W and 6130W	" "

Map 2 Major Eider Duck Wintering Areas

References

Audubon, Maria R.

1897. Audubon and his journals. New York 1, 1897. Pp xiv + 532.

Austin, Oliver L. Jr.

1932. The birds of Newfoundland Labrador. Mem. Nuttall Ornithological Club. No. 7:1-229.

Boyer, George F.

1966. Birds of the Nova Scotia-New Brunswick border region. Canadian Wildlife Service Occasional Papers No. 8. Natural and Historic Resources Branch, Department of Northern Affairs and National Resources.

Brownson, W.H.

1908. A visit to Grand Manan Island. J. Maine Ornith. Soc. 10:72-77.

Bryant, Henry

1861. Remarks on some of the birds that breed in the Gulf of St. Lawrence. Proc. Boston Society of Natural History, 8, May 1861, 65-75 (Reprinted Zoologist 19:7742-7753 (1861).

Cameron, Austin W.

1967. Birds of the St. Pierre et Miquelon Archipellago. Naturaliste Canadien 94(4):389-420.

Cooch, F.G.

1954. Eider duck survey, Eastern Arctic. C.W.S. report n.p.

_____.

1965. The breeding biology and management of the northern eider (Somateria mollissima borealis) in the Cape Dorset area Northwest Territories. Canadian Wildlife Service. Wildlife Management Bulletin Series 2, No. 10.

Couper, William

1881. Rare birds in Canada. Canadian Sportsman and Naturalist, 1, Sept. 15, 1881, 68.

Dement'ev, G.P., N.A. Gladkov, Yu. A. Isakov, N.N. Kawtashev, S.V. Kirikov, A.V. Mikheev and E.S. Ptushenko.

1952. Birds of the Soviet Union (Ptitsy Sovetskogo Soyuza) Volume IV. G.P. Dement'ev and N.A. Gladkov, editors. Gosudarstvennoe Izdatel-stvo "Suvetskoya Nauka" Moska 1952.

Duvall, Allen J. and Charles O. Handley, Jr.

1948. Special report second wildlife reconnaissance of the Eastern Canadian Arctic. U.S.Fish and Wildlife and Smithsonian Institution. Washington, D.C. Pp 168 typed n.p.

Eifrig, Charles William Gustave

1906. Notes on some northern birds. Auk 23:313-318.

Frazar, M. Abbott

1887. An ornithologist's summer in Labrador. Ornithologist and Oologist 12, January 1887, 1-3; February, 17-20; March, 33-35.

Freeman, Milton M.R.

1970. Observations on the seasonal behaviour of the Hudson Bay eider (Somateria mollissima sedentaria). Can.Field Nat. 84:145-153.

Gabrielson, Ira N.

1952. Notes on the birds of the North Shore of the Gulf of St. Lawrence. Can.Field Nat. 66(2):44-59.

Gerasimova, T.D. and Z.M. Baranova

1960. Ecology of the commer eider (Somateria mollissima L.) in the Kandalaksha Sanctuary. Proceedings of Kandalaksha Sanctuary, 1960. Issue III (Translation).

Gillespie, Douglas I. and James G. Inder

____. Estimates of the kill of migratory game birds in the Province of Newfoundland and Labrador 1959-1965. An analysis of small game license returns (in prep.).

Godfrey, W. Earl

1966. The birds of Canada. National Museum of Canada. Bulletin 203.

Gross, Alfred O.

1937. Birds of the Boudoin-MacMillan Arctic Expedition, 1934. Auk 54:12-42.

_____.

1938. Eider ducks of Kent's Island. Auk 55(3):387-400.

Hohn, E. Otto

1968. The birds of the Chesterfield Inlet, District of Keewatin, N.W.T. Canada. Can.Field Nat. 82(4): 244-262.

Lewis, Harrison F.

1925. Notes on birds of the Labrador Peninsula in 1924. Auk 42:278-281.

Low, Albert P.

1899. Report on an exploration of part of the south shore of Hudson Strait and of Ungava Bay. Geological Survey of Canada. Annual report for 1898 (n.s.), 11, pp 147.

Macoun, John

1900. Catalogue of Canadian birds Pt. I. Geographical Survey of Canada, Ottawa, 1900, pp vii + 218.

Macpherson, Andrew H. and Ian A. McLaren

1959. Notes on the birds of southern Foxe Peninsula, Baffin Island, Northwest Territories. Can.Field Nat. 73(2):63-81.

Manning, Thomas H. and D.F. Coates

1952. Notes on the birds of some James Bay Islands. Nat. Mus. Can. Bull. 126, 1952:195-197.

Orr, Virginia

1948. Notes on the birds of Sandwich Bay and vicinity, Newfoundland Labrador. Auk 65:220-225.

Peters, Harold S.

1945. Ornithological investigations in Newfoundland. 1942-1943-1944-1945. Fish and Wildlife Service, U.S. Dept. of the Interior, Charleston, S.C. 1945. n.p.

Phillips, John C.

1926. A natural history of the ducks. London: Vol. 4, ix + 489 pp.

Reed, A. and J.-Guy Cousineau

1967. Epidemics involving the common eider (Somateria mollissima) at Ile Blanche, Que. Naturaliste Can. 94:327-334.

Soper, J. Dewey

1946. Ornithological results of the Baffin Island expeditions of 1928-1929 and 1930-1931 together with more recent records. Auk 63:1-24,223-239 and 418-427.

Stearns, Winifred A.

1884. Stearn's natural history of Labrador. Forest and Stream 22, April 17, 1884, 223-224.

Todd, W.E. Clyde

1963. Birds of the Labrador Peninsula and adjacent areas. University of Toronto Press, Toronto. P 1-819.

Townsend, Charles W.

1910. A Labrador spring. Boston, 1910, pp. xi + 262 (review in Auk 28:129-130).

_____.

1917. In Audubon's Labrador. Auk 34:133-146.

_____.

1918. In Audubon's Labrador. Boston and New York, 1918, pp xii + 316, appendix 319-337.

Twomey, Arthur C.

1942. Needle to the North. Houghton Mifflin Company, 1942, pp viii + 360.

Tuck, L.M.

1953. Field notes 1952-53. n.p. (handwritten).

Wheeler, Everett, Pepperrell

1930. Journeys about Nain. Geographical Review 20(3): 454-468.

Verrill, Addison E.

1862. Catalogue of the birds observed at Anticosti and vicinity. Proceedings Boston Society of Natural History, 9, September 1862: 137-143.

Wynne-Edwards, V.C.

1952. Zoology of the Baird expedition (1950) I. The birds observed in Central and Southern Baffin Island. Auk 69:353-391.