WATERFOWL BANDING

in the

UNGAVA DISTRICT of NORTHERN QUEBEC

1 9 5 6

by

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One of the hazards to navigation in the north. Beautiful to look at, fine for mixing drinks, quantities of ice like this delayed arrival of supplies and equipment and the beginning of the summer's work.

SUMMER BANDING - UNGAVA BAY - 1956

Introduction

During the summer of 1956 the author, together with Mr. Louis Lemieux, Wildlife Biologist with the Canadian Wildlife Service, spent about two months in the Ungava section of northern Quebec on a waterfowl banding project.

Planning for this operation was essentially continuous throughout the period November 1955 to the end of May 1956. The first problem was personnel. After this matter had been settled it was necessary to decide what supplies and equipment would be needed and to arrange for their purchase and shipment. It was also necessary to obtain banding and collecting permits, arrange shipping schedules to coincide with arrival of personnel in the area, and many other details. To facilitate these and other matters it was decided that Mr. Lemieux would be in charge of logistics and transportation. To somewhat balance responsibilities, Chamberlain was charged with keeping records, preparing banding schedules and writing the final report.

Financial support for the project was derived from several sources. Ducks Unlimited and the State of New Hampshire made substantial cash contributions. The Canadian Wildlife Service provided a man and also paid the most of the charges for transportation of supplies and equipment. The State of Delaware furnished both a man and a sizable amount of cash. In addition, the U. S. Fish and Wildlife Service plane used on the northern brood transects was made available for a reconnaissance flight in the Payne Bay area.

Valuable assistance and information were received from many other agencies and individuals, both in the Fort Chimo and the Payne Bay areas. Among those who gave both help and information were the following:

Mr. J. G. Walton, Northern Services Officer, Fort Chimo, Quebec.

Mr. Bob May, Arctic Anglers, Fort Chimo, Quebec.

Mr. Rube Ploughman, Hudson's Bay Co., Fort Chimo, Quebec.

Mr. James Ford, Hudson's Bay Co., Payne Bay, Quebec.

Messrs. William Larmour and Robert Williamson, Eider Duck Project, Payne Bay, Quebec.

Location of work areas

The areas chosen for the summer's work were on the shores of Ungava Bay in northern Quebec. It was decided that two principal areas would be examined. The first, where the major objective was to band Canada geese, was at Payne Bay. Payne Bay is at the mouth of the Payne River, on the western shore of Ungava Bay, and is almost exactly at 60 degrees North latitude. The second area, not definitely determined until the personnel were in the area, was in the vicinity of Fort Chimo, which is on the Koksoak River, about 25 miles upstream from the head of Ungava Bay. The actual location of this work area was on the False River, which also empties into the head of Ungava Bay, about 15 miles upstream and about the same distance northeast of Fort Chimo. (See maps, pp. 23 and 24 for location of work areas).

General description of the area

The following description of the area covers such features of physiography, climate, etc. as are necessary to an understanding of the conditions encountered. It is in the form of an extended quotation and was taken from a book entitled Naturalist's Guide to the Americas, published in 1929 by The Ecological Society of America and edited by Victor E. Shelford. The section on Ungava and Labrador was written by W. Elmer Ekblaw.

".....the great peninsula of Labrador and Ungava offers to the naturalist one of the most promising fields for exploration and study.....

"It comprises a great triangular, peninsular territory forming the major northeastern portion of the North American Continent. This triangle, broken only by Ungava Bay, is bounded roughly on the west by James Bay and Hudson Bay; on the northeast by Ungava Bay, Hudson Strait, and the Atlantic Ocean; on the south by the Rupert River and its tributaries to Lake Mistassini, the Saguenay and its tributaries to the St. Lawrence, the St. Lawrence River and Gulf, and the straits of Belle Isle.....

"The Labrador* peninsula is a gently undulating plateau which rises abruptly within a short distance from the coast to a general elevation of about 2,000 ft., and which slopes rather gently westward, northward, and eastward to the rim of the plateau.....

"As a consequence of the damming of the valleys and basins of the streams .....by the masses of glacial tills and moraines, the whole area is dotted with myriads of lakes and pools, that occupy at least a fourth of the entire area. They vary in size from small narrow ponds to large extensive lakes hundreds of square miles in area, most of them relatively shallow, some deep. In addition to the great lake areas, large portions of the plateau are occupied by damp, boggy, tundra with defective drainage, almost lakelike in character.....

"The climate of the plateau of Labrador is generally and distinctly Artic....

"Though situated in the same latitude as some of the most pleasant and most productive lands of Europe, Labrador is chilled by the cold waters of the Greenland current along its eastern shore, and by the prevailing westerly winds which come

*"The Labrador", as referred to here, includes the area north of about 52° and from Hudson Bay east to the Atlantic Ocean.

off the cold expanses of Hudson Bay, and the frigid, ice-bound islands of the Arctic Archipelago, instead of being warmed by balmy winds that blow off the temperate Gulf Stream, as in northwestern Europe.

"The temperature in the interior, even in the southern part of the area, rarely rises about 80°..... The lowest winter temperatures.....are - 55° .....

"The interior plateau has but two seasons, winter from mid-September to mid-June, and summer - rather spring - from mid-June to mid-September. Until the first of July frosts are likely to occur every night and flurries of snow may come even later. Summer ends about the middle of September when the first snow falls and the ice forms on the small lakes. From early in October the snow remains permanently, and all of the small lakes are solidly frozen.

"The interior plateau as a whole is quite different from the coastal belt, though large areas within the limit of the plateau are composed of similar tundra and tundra-moor vegetation.

"The forest is practically continuous over the southermost edge of the area ..... In latitude 55°N. more than half the surface is without trees..... The northern limit of trees extends from the mouth of the Nastapoka River on Hudson Bay, to the mouth of Leaf River on Ungava Bay, thence along the south shore of Ungava Bay to the mouth of the George River, thence along the foothills of the Atlantic coast range to Hebron, just north of Cape Mugford and south of Saglek Bay.

"The arborescent flora comprises the following species:

1. Black spruce (Picea mariana).....
2. Balsam fir (Abies balsamea).....
3. White spruce (Picea alba).....
4. Tamarack (Larix laricina).....

5. Banksian pine (Pinus divaricata).....

6. Canoe birch (Betula papyrifera).....

7. Aspen (Populus tremuloides).....

8. Balsam poplar (Populus balsamifera).....

"Throughout the forest belt, the lowlands fringing the streams are covered over with low willows and alders.....northward these fringes of shrubbery become wider, and with dwarf birch occupy much of the open glades.....North of the tree-limit similar thickets of Arctic willow, birch, and alder grow over the lower reaches, but on the hills they attain only a carpet-like form. Ledum and Kalmia in tangled masses form the undergrowth of the southern forest region, but die out in the semi-barrens. Sphagnum is the ground carpet of the southern regions, being replaced by Cladonia to the north, a rich growth everywhere throughout the semi-barren and barren regions.

".....Over 450 species of vascular plants have been reported.....

"During the short summer season the open places of the peninsula become dotted with the blossoms of berry-bearing shrubs and flowering plants.....and they hasten through their vegetative and reproductive processes in a rapid, continuous succession by which the aspect of the landscape seems often to change over night....."

The book from which the above material was quoted also contains a rather lengthy section on mammals, covering both distribution and abundance, which will not be further mentioned here. However, brief quotes have been taken from the sections on birds and insects and these appear below.

"The bird life of Labrador, both inland and coastal, is numerous and varied,

the number of species of the seabirds being relatively small, though the number of individuals in many cases is incredibly large; while of the land birds the number of species is relatively large, the number of individuals relatively small.

"Of the sea-birds, two species once common, the great auk and the Labrador duck, have been quite exterminated.....

"About 300 species of insects are known from Labrador. The diptera, many circumpolar in distribution, and an almost intolerable feature of the short Labrador summer, include two species of botfly that infest the caribou; deerflies and horseflies of 10 or 12 species..... mosquitoes, beyond credible enumeration, that rise in cloudlike swarms from the moors and tundra and hover about the woodlands equally densely; the minute midges, that help to make human existence during summer almost worthless in the woods; and a few other species "that do not bite"."

After spending two summers in the area under discussion the writer feels qualified to say that the above is no exaggeration. He would add that it is not only in the woods that insects "help to make human existence during summer almost worthless." Mosquitoes and black flies along the Atlantic coast and on the shores of Ungava Bay are indeed "beyond credible enumeration" and, at times, make it almost impossible to work, even when using insect repellent and head nets.

Several sentences of Mr. Ekblaw's concluding paragraph are worthy of note. The final sentence, in particular, is as true today as when it was written. There are still vast areas in the interior of the peninsula that remain unmapped. The coastal areas, too, are unsafe for inexperienced persons, because of tremendous tides, ranging from 35 to 45 feet, strong currents, and uncharted shoals and rocks. A few pertinent sentences of the concluding paragraph are quoted below.

"The Labrador is relatively unexplored. It offers one of the most promising fields for the explorer and pioneer naturalist..... The interior may be traversed only by well-organized and well-equipped expeditions with experienced guides and leaders."

A report by Eklund and Cool of the U. S. Fish and Wildlife Service entitled Waterfowl Breeding Ground Survey in the Ungava Peninsula, Quebec, 1949 gives more detailed information on waterfowl than was found in the Naturalists Guide to the Americas. A paragraph from that report appears below.

"The Canada goose (Branta c. canadensis and B. c. interior) and the Old-squaw are the most common nesting species in the tundra of the Ungava Peninsula interior. In addition, the American goldeneye, Red-breasted merganser, and possibly the Black duck, probably nest there occasionally. The American Scoter and the Pintail were also observed within this region. The Common Eider (subspecies unidentified) is very common along the west side of Ungava Bay northward to the Hudson Straits, while the King Eider also probably nests along the straits in limited numbers. In the taiga* region studied, the Canada goose and the Black duck were the most important nesting species. Next in importance were the Goldeneye and the Merganser, together with an occasional Old-squaw, Pintail, Scaup, Ring-necked duck and other, unidentified species.

The summer's work

By the first of July all, or nearly all, preparations and arrangements had been made. Activation of the project was, however, somewhat delayed because of

* (forest-tundra)

ice conditions in the work area. By the end of the first week in July reports from the north indicated that it might soon become possible to commence work; therefore on Sunday, July 8, Chamberlain left Delaware for Quebec.

July 10 - Chamberlain arrived in Quebec and met Lemieux for the first time.

July 11 - Spent the day assembling personal gear and last minute items of equipment that were not being shipped separately.

July 12 - Left Quebec and drove to Roberval on Lake St. John. This is the base for Mont-Laurier Aviation, with whom arrangements had been previously made to fly to Fort Chimo.

July 13 - Waiting. (This entry will appear again!)

July 14 - Left Roberval. Flew to Fort Chimo. The air, communications, and hotel facilities at Fort Chimo are on the west side of the Koksoak River. They are remnants of a USAF base constructed during World War II. The original settlement of Fort Chimo is across the river and about five miles downstream.

After getting settled in the hotel ($15/day, $3 for bed and $4 for each meal) we made inquiries as to ice conditions and found that Ungava Bay was still full of pack ice and most of the ponds in the Payne Bay area were still frozen.

July 15 - Went across Koksoak River to Fort Chimo to talk with Mr. Walton, Northern Service Officer for the Department of Northern Affairs, concerning the possibility of renting a Peterhead boat for the trip from Fort Chimo to Payne Bay. It was felt that if this were at all feasible it would provide an excellent opportunity for us to become familiar with the country and possibly obtain some information as to waterfowl nesting and/or moulting areas. Eskimo hunters at the village reported that Ungava Bay was filled with pack ice to such an extent that even a small boat could not get through to Payne Bay.

July 16 - Went back across river to hotel to await air transportation to Payne Bay. Met Bob May, who suggested that certain areas and rivers between the Koksoak and the George rivers might be good places to find waterfowl (black ducks and Canada geese).

July 17 - Waiting.

July 18 - Waiting.

July 19 - Finally got flight to Payne Bay. Ungava Bay still full of pack ice. Upon arrival at Payne Bay we found that M/V Algerine, which was carrying part of our supplies, was stuck in the ice somewhere in Ungava Bay.

July 20 - Short walk into the interior; saw nothing.

July 21 - Waiting.

July 22 - Waiting.

July 23 - Waiting.

During the above waiting period we had ample time to make inquiries concerning breeding and moulting geese in the vicinity of Payne Bay. Mr. James Ford Manager, Hudson Bay Company, was very helpful in this. He has been in the Ungava district for over thirty years and the territory from Payne Bay to Fort Chimo is his back yard. He says that there are no local concentrations of moulting or breeding geese along the shores of Ungava Bay or in the rivers running into the bay. He also said that geese would be found in small numbers in the smaller ponds inland from the coast and that the only place in the vicinity of Payne Bay where a concentration of geese might possibly be found is Roberts Lake. This is a very large lake, inland from the coast, about 40 miles northwest of the mouth of the Payne River. Mr. Ford also gave us information as to where we would be likely to find black ducks, later in the summer, in the vicinity of Fort Chimo. Later events proved him essentially correct in all of the things he told us regard -

ing wildlife, both at Payne Bay and in the Fort Chimo area.

July 24 - M/V Rupertsland, carrying our food, arrived today. M/V Algerine, with our cooking gear and some other equipment, is still caught in the ice somewhere in Ungava Bay.

July 25 - Larmour and Williamson, Department of Northern Affairs, Eider Duck Project, came in today from their camp on Kyak Bay. They have been in the area since early in May and have covered the shore of Ungava Bay from the mouth of the Payne River to Cape Hopes Advance. They report seeing many geese during the spring migration, but no concentrations of moulting or breeding geese. They have several Eskimos working for them and these Eskimos say that they have never seen any large numbers of geese along the shores of Ungava Bay during the breeding and moulting season.

July 26 - Went out with Larmour and Williamson to their camp. Walked inland to the top of "Upside Down Mountain" (about four miles from camp) to see if we could see any geese. This is the highest peak in the area and commands a good view of several ponds and drainage areas. We did not see any geese, but did see two female oldsquaws, one of which had a brood.

July 27 - Heavy fog all day. Could not get inland because of the possibility of getting lost in the fog. Walked the shore-line looking for signs of geese with very little success. Eskimos say that moulting geese are far inland. If this is true, and it seems to be, we cannot work them this year because we are set up for a coastal operation.

July 28 - Back to Payne Bay. Wind very strong, some fog and quite cold.

July 29 - Still windy and cold. Had supper and spent the evening with Jimmy Ford.

July 30 - M/V Algerine arrived. Purchased boat for summer work.

July 31 - Waiting. Received our equipment from Algerine.

August 1 - Waiting. During this time and the previous waiting period we spent some time fishing. Had very good luck catching Arctic charr, some over 30 inches long. Also spent considerable time here and at Fort Chimo collecting flowering plants and insects. During this time we had planned to make a trip up the Payne River, as far as we could go with our boat, but strong winds, rain and high tides prevented this. We did make some short trips, returning to camp at Payne Bay at night, on before low tide. With over 40 feet of tide to contend with it was necessary to time the work to the tides rather than having a fixed schedule. Since it was light enough to work from around three o'clock in the morning until after ten o'clock at night darkness was not a problem, but the extreme tidal fluctuations created a situation whereby there were only two periods of about one hour each during each tidal cycle when it was possible to launch and/or retrieve a small boat. One of these periods usually came during the hours of darkness and for that reason there were many days during the summer when it was possible to work with the boat for only about four hours.

August 2 - Saw a pair of ospreys nesting on an island about three miles down the river from the post. Also saw several female eiders with broods.

August 3 - Chuck Evans and Al Noltemeier arrived today in U. S. Fish and Wildlife Service Widgeon. They have just completed aerial brood transects on the northern breeding grounds. After learning of our difficulties in trying to locate moulting geese they agreed to stay overnight and take us for an aerial reconnaisance of the area to the north of Payne Bay, particularly around Roberts Lake.

August 4 - Evans took us on a flight to Roberts Lake and vicinity. We saw over 600 moulting and young geese in Roberts Lake and several smaller adjacent lakes. We also saw several broods of geese that appeared to be about half

grown. (See map p. 24)

Landed back at Payne Bay about 10:30 a. m. The tide was going out and we had to wait until mid-afternoon to refuel the airplane, after which Evans and Noltemeier took off for Fort Chimo.

August 5 - The moulting period for waterfowl was now nearly over. Our time was growing short and we had to find some black ducks. Our plan was to move back to the Fort Chimo area for this phase of the operation. We had hoped that it might be possible to get a Peterhead boat and Eskimo crew for this trip but all available boats and crews were working for the mining and exploration parties that infest the north country during the short summer. All the aircraft were engaged in carrying supplies from ships that had recently arrived in Payne Bay and consequently were not available for charter.

August 6 - No transportation. Went fishing.

August 7 - With the help of Mr. Ford we made arrangements for transportation to Fort Chimo aboard the S. S. Wahcondah.

August 8 - Left Payne Bay for Fort Chimo.

August 9 - At sea.

August 10 - Arrived at Fort Chimo. Because of the cargo aboard the Wahcondah we were put ashore on the airstrip side of the river. We wanted to be on the other side. After getting equipment and bait unloaded and covered we went across the river to Mr. Walton's place.

August 11 - Spent the day trying to make arrangements for transportation to False River. Everything in confusion, with three ships now in the harbor and all trying to discharge cargo at the same time.

August 12 - Finally got transportation arranged with Mr. Ploughman, Hudson Bay Company Manager for Fort Chimo. He agreed to rent us the Hudson

Bay Company Peterhead boat and crew for the trip to False River. Because of the distance and tides it was to be an overnight trip.

August 13 - Left Fort Chimo en route to False River. This turned out to be quite a memorable trip. The boat's crew was made up entirely of Eskimos who could speak no English. Since we could not speak or understand the Eskimo language communications between passengers and crew were somewhat limited!

August 14 - Arrived at camp site about noon. Tide was low so we had to wait for high water to unload supplies and camping gear. Shortly after noon the wind came up and it started to rain. Got tents and other things ashore about three p.m. Saw quite a few black ducks at the mouth of the False River.

August 15 - Woke up to find rain and wind continuing. Cook tent had blown down during night. Got it set up and more securely anchored. Spent the day in camp.

August 16 - No rain, but still very windy. Too much wind to venture out in small boat. We walked in opposite directions from camp several miles along the river shore. Saw a few small bunches of geese and fair numbers of ducks - mergansers, eiders and blacks.

August 17 - Clear and calm. Went up the river 8 - 10 miles to a rapids that prevented further travel. Saw many ducks, most of them blacks. Also saw three broods of geese and one brood of red-breasted mergansers, two duck hawks, one pigeon hawk, and one bunch of black ducks (50-60) still moulting. There were several greater yellow-legs on the tidal flats near the rapids.

August 18 - Took a couple of bags of grain and went back up the river to where we had seen ducks on the previous day looking for suitable locations for bait trapping. Put out bait at several places. Found a pond downstream from camp that looked like an excellent trapping site. Several ducks were in the pond, some

of them still moulting. One of these flightless birds was caught and banded. Set up mist nets at camp.

August 19 - Visited bait spots. Found slight use on a couple of them.

August 20 - One bait spot being heavily used. Built trap at this spot. More rain.

August 21 - Weather clear. Ducks in pond south of camp, but not enough use of bait to warrant building trap here at this time. There was a rough-legged hawk's nest on the cliff near camp with four young hawks in the nest. These birds were nearly full grown, but the parents screamed defiance at us every time we came in sight. Tried to take pictures of them today.

August 22 - Two black ducks in trap.

August 23 - Ducks getting smart. They had been in and out of traps between tides.

August 24 - Had an immature female pintail in one of the traps.

August 25 - One black duck in trap. Spring tides now overtopping traps twice daily. Traps were set as far back as possible when they were put in place, so all we could do was to wait until the tides were lower. Went fishing in afternoon. No fish. Saw many robins in tamarack thickets along stream. Apparently they were either migrating or getting ready to migrate.

August 26 - Visited traps. Tides still going over them. Saw a brood of seven mergansers north of camp and a female with 16 young (possibly remnants of two broods) south of camp. Banded a few birds from mist nets. "Kygolik", Hudson Bay boat from Fort Chimo, stopped at camp in late afternoon. They will be back at the end of the month to move us out.

August 27 - Nothing in traps. Ducks still going in and out. Banded a few birds from mist nets.

August 28 - Wind, rain, cold. Ducks were in and out of traps since previous day. None caught.

August 29 - Two black ducks in trap today.

August 30 - Nothing in traps. Since the end of the month was upon us we started packing gear and getting ready to break camp.

August 31 - This was a perfect day - best weather since we left Payne Bay. Finished packing. "Kygolik" arrived about 3 p.m. Struck tents and loaded gear. Left for Fort Chimo about 5 o'clock.

September 1 - Arrived Fort Chimo 5:45 a.m. Paid for boat hire and labor, stored things to be left, and moved across river to await air transportation back to Roberval.

September 2 - Waiting.

September 3 - Waiting.

September 4 - Waiting.

September 5 - Waiting. Aircraft finally arrived in late afternoon. Left Fort Chimo about 6 p.m. Arrived Roberval at midnight.

September 6 - Up at 5 a.m. Drove to Quebec. In spite of two flat tires we arrived in Quebec about noon. Thus ended the Ungava Bay banding expedition.

Results and conclusions

Tabulated below are the banding results for the summer:

Birds Banded, False River, Ungava District, Quebec - Summer 1956

Species	Adult Male	Adult Female	Immature Male	Immature Female	Age and/or Sex Unknown	Total
Black	5	1				6
Pintail			1			1
Robin					2	2
Am. Pipit					3	3
Least Sandpiper					4	4
Semi-Palmated Sandpiper					5	5
Tree Sparrow					5	5
White-crowned Sparrow					31	31
Total	5	1	1		50	57

The section on the summer's work was written in diary form in order to show as briefly as possible the difficulties encountered in this type of operation. It was felt that this form of presentation would show these difficulties in a convincing manner and at the same time obviate the necessity of a lengthy discussion of the many problems with which we were confronted.

The tabulation of birds banded needs no special explanation. It shows only too well the results obtained; results that were brought about by a combination of circumstances over which we had no control and which could hardly have been predicted in advance of our arrival in the work area. There were many factors involved in the failure to attain our objective, but the most critical, and the one which in one way or another affected all of the others was weather.

Springtime was three to five weeks late this year. Geese came into the Payne Bay area at the usual time and, finding deep snow and ice throughout the region, disappeared. From our standpoint conjecture as to where they went would be rather pointless. The only sure thing seems to be that the geese arrived at

about the usual time, left because of snow and ice, and returned when the area had thawed out to some extent. They could have moved to somewhere in the interior south of Fort Chimo or eastward to the coast of Labrador. Many of the larger ponds and lakes between Fort Chimo and Payne Bay were icebound until after the middle of July. This resulted in a late breeding season in these far northern areas Pack ice in Ungava Bay resulted in late arrival of food and equipment.

Inadequate information on where concentrations of Canada geese and black ducks would be found was another factor contributing to the lack of success. While there is a possibility that weather was also involved here, information obtained from Eskimo and white hunters make it seem more likely that the reported concentrations of geese were accidental, or at best occasional concentrations, and do not occur with any degree of regularity regardless of weather conditions. As was noted above, geese were on ponds and lakes several miles inland. It was not possible to get our supplies and equipment into these areas and still have time and money left to try for black ducks after the moulting period was over.

We had been told that we could expect to find large flocks of black ducks at the mouths of the Koksoak, the False, and the Whale Rivers. While this may be true in some years, information from natives of the area indicated that the False River was the only one that consistently has large numbers of black ducks. Failure to band blacks there this year was probably due mostly to the lateness of the breeding season. Although there was no appreciable build-up of blacks on the False River during our stay there we saw many moulting birds and enough other evidence (feathers and droppings) to indicate that this is an area of black duck concentration. There is an indication, both here and along the coast of Labrador, that adult male black ducks congregate along the larger rivers and bays to moult and that the females and young join them after the moult is completed and spend some

time in these areas before starting the fall migration. It seemed reasonably certain to us that if we had been able to spend another month on the False River we could have banded a substantial number of black ducks.

A longer time in the area would have been desirable for several reasons. Because of the extremely steep and rocky shores it was only with difficulty that a trap site could be found. Most of the places where traps could be set were gently sloping areas that were only exposed at low tide. Places that were not inundated by tide were usually bare rock too steep to set a trap on. More time would have allowed a more thorough search for favorable trap sites. Also, if our observations were correct, there would have been a larger number of birds in the area later in the season.

Recommendations

This section contains our thoughts regarding waterfowl banding in the vicinity of Ungava Bay.

The experience gained by the operation of a waterfowl banding project in the Ungava district in the summer of 1956, plus similar experience from the same type of operation on the coast of Labrador in the summers of 1954 and 1955, makes one fact painfully obvious to the personnel directly concerned with such operations. The immense size of the work areas, the fact that the only surface transportation in the summer is by boat and the almost unlimited amount of potential waterfowl habitat make it physically impossible for a single crew to do more than survey a given area in one summer.

Much more detailed information is needed to obtain good results. Present knowledge of areas of waterfowl concentration does not permit crews in the field to make the best use of the time available to them. On the map one spot looks

as good as another, and there are literally hundreds of places that should have waterfowl. This means that field crews have no alternative but to explore as many as possible of these areas, hoping that one of them will produce enough birds to make setting up traps worthwhile. When a number of waterfowl are found in a given place there is often no way of knowing if this is an accidental situation or if birds are to be found in this place each year. Information from local sources, either white or Eskimo, can be of great help in such cases. However, it is not uncommon to find birds in places that these people do not normally visit, in which case it becomes necessary to visit the area another year to find out if it is still being used by waterfowl.

The foregoing paragraphs were written in partial explanation of the following recommendations:

1. The fact that one summer's work did not produce the desired results is not a valid reason for discontinuing the operation. However, in areas such as were worked in 1956, a preliminary survey should be made. Before a crew is charged with the responsibility of trying to band large numbers of waterfowl they should have better information as to where the waterfowl are to be found. It seems likely that better results would be obtained if the first year of such an operation were planned from the beginning to be a survey, with emphasis being placed on locating areas where banding could be done. The crew doing the survey work should be aware of all of the difficulties involved in banding operations such as finding suitable trap locations, working under adverse conditions of wind, tide, etc., and keep these things in mind while surveying. Actual banding, during this phase of the work, would be of secondary importance, and would be done only when it did not interfere with the survey.

2. In the Ungava district, at least, the areas where black ducks and

geese are found are usually widely separated. In such a situation it would be best to have two field crews, one to work on black ducks and one for Canada geese. If this is not feasible, and only one crew is available, this crew should go north with the intention of staying at least three months. If two crews are used each crew could expect to spend about two months in the area. Our experience this summer tends to indicate that prospects of banding appear much brighter for black ducks than for Canada geese, unless the procedure indicated in No. 3 below (or something similar) is initiated.

3. Geese in the Ungava area are relatively inaccessible. In order to band them in substantial numbers the use of air transportation is a must. The ideal situation would be to have a two-man crew, both of them pilots, each with a light plane on floats. This would permit much more extensive coverage of the area and would allow them to do both survey work and banding. This could not be done if they had to depend on such air transportation as is available during the period when geese are moulting. Except for the more or less regularly scheduled flights all suitable aircraft are busy with the large mining and exploration projects and are available only to a very limited extent. When these aircraft are available the cost is such that, for the amount of flying time needed, the two-man crew with their own aircraft would be less expensive. Having two planes would provide both a maximum of mobility and a maximum of safety. Such an operation would cost little, if any, more than the type of operation carried out in the summer of 1956.

For black ducks ground operations would probably be the most efficient. It seems likely that a survey of the area between the False and George Rivers (including the George) would discover several locations where trapping could be done. Our work on the False River led us to believe that if we had been able to spend the months of August and September working in this area we could have band-

ed a substantial number of black ducks. Since there are several rivers entering Ungava Bay in the area mentioned above, there should be good opportunities for banding black ducks there. However, it is first necessary to locate these areas. This would be done by the survey work recommended above. After banding sites have been located the operation of banding stations can be planned much more effectively and carried out at considerably less expense.

Summary

For those who read reports from back to front, or who are too busy to read them in their entirety, the following summary is provided.

Waterfowl banding in the Ungava district of Northern Quebec during the summer of 1956 was not a successful operation. This lack of success can be attributed to a variety of reasons.

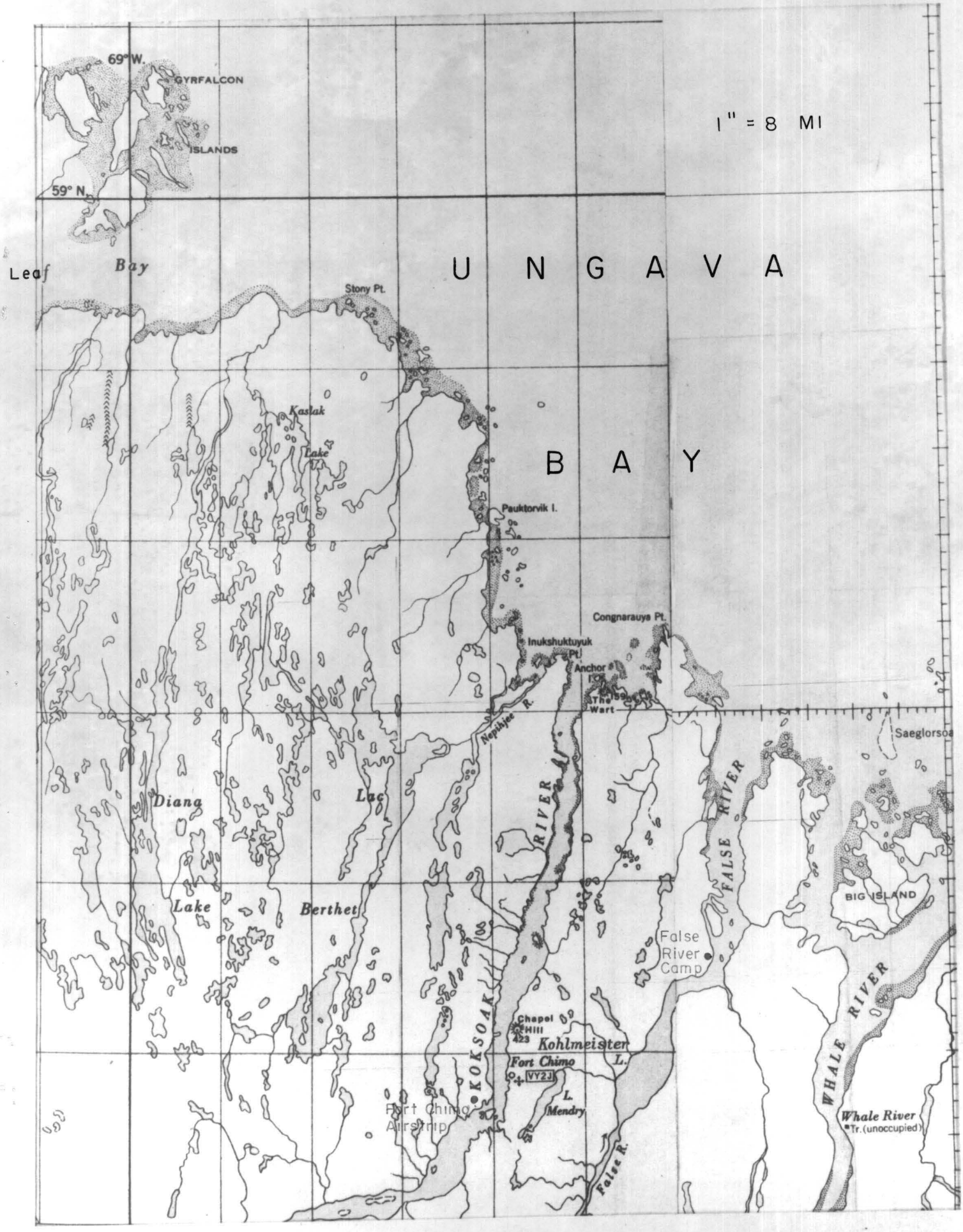
This is an extremely large area, with much water and potential waterfowl habitat. It is impossible for one crew in one summer to explore all of the possible areas of waterfowl concentration.

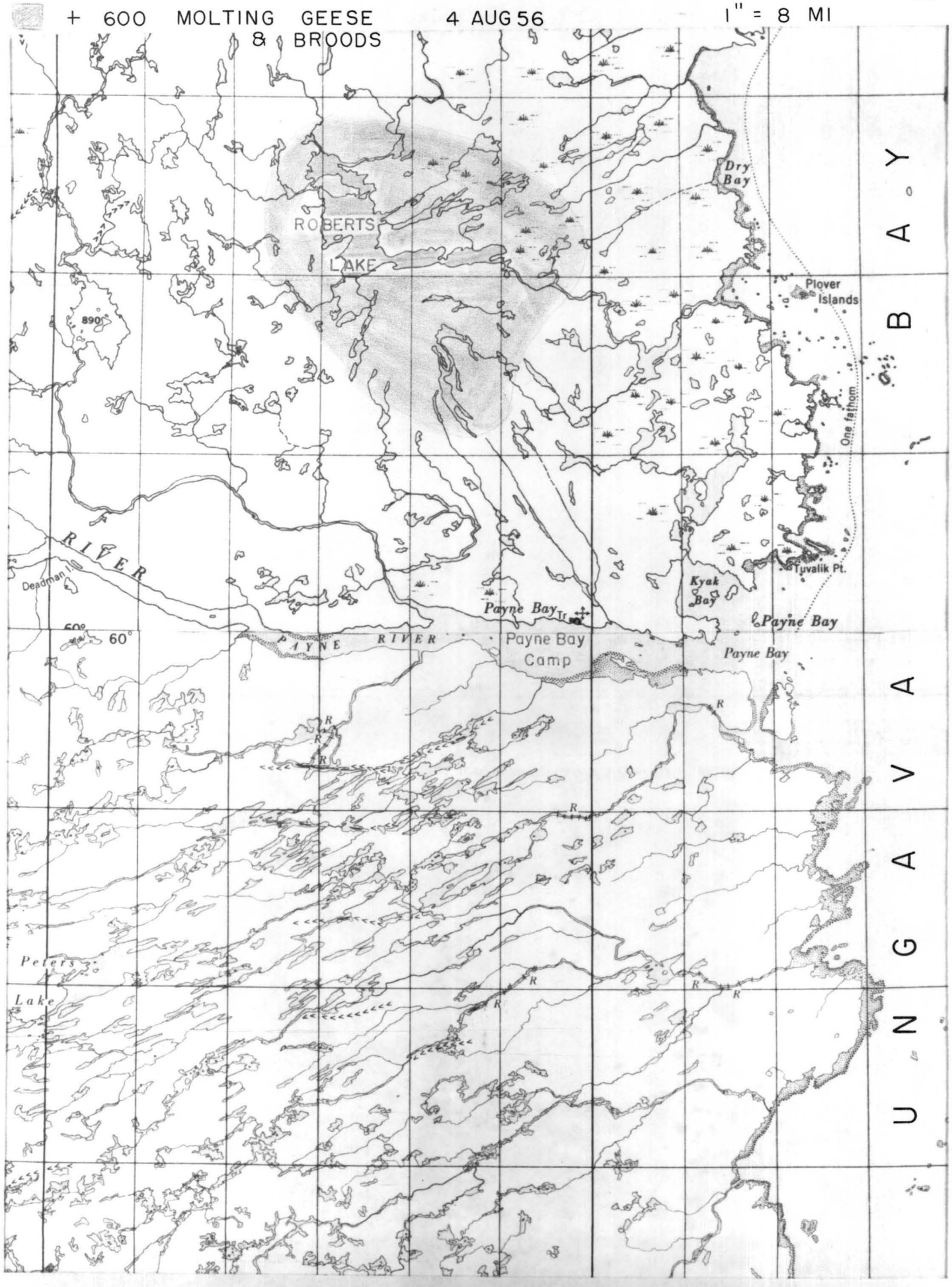
It is quite certain that, because of the type of habitat and the species involved, there are no areas of waterfowl concentration such as are known in other sections of the continent. However, much more detailed information is needed.

To obtain the desired numbers of banded waterfowl it will probably be necessary to use separate crews for geese and black ducks. The alternative is to use a single crew for a longer period of time.

To get a significant number of geese banded it seems probable that the banding crew will have to be furnished with aircraft. This will allow complete mobility and also enable them to carry out survey work in conjunction with banding activities.

Activities of this nature are, or will soon become, of vital importance in providing information necessary to the intelligent management of the waterfowl resource. The failure of a single crew to furnish the desired information in a single summer should not be the signal to abandon the project. It will take many crews many summers to gather the required information from the vast Arctic and sub-Arctic breeding grounds.


69° W.
GYRFALCON
ISLANDS
59° N.
1" = 8 MI
Leaf Bay
U N G A V A
B A Y
Stony Pt.
Kaslak
Lake
Pauktorvik I.
Congnarauya Pt.
Inukshuktuyuk Pt.
Anchor I.
The Wart
Nepihjee R.
Saeglorsoa
Diana
Lac
Lake
Berthet
KOKSOAK RIVER
FALSE RIVER
BIG ISLAND
False River Camp
WHALE RIVER
Chapel Hill 423
Kohlmeister L.
Fort Chimo
VY2J
L. Mendry
Fort Chimo Airstrip
False R.
Whale River
Tr. (unoccupied)


+ 600 MOLTING GEESE & BROODS
4 AUG 56
1" = 8 MI
ROBERTS LAKE
Dry Bay
Plover Islands
890'
One fathom
RIVER
Deadman I.
Payne Bay
Kyak Bay
Tuvalik Pt.
60°
PAYNE RIVER
Payne Bay Camp
Peters Lake
UNGAVA BAY