BREEDING GROUND BANDING OF ATLANTIC POPULATION CANADA GEESE IN NORTHERN QUÉBEC - 1997

More than 3000 juvenile and adult Canada geese were rounded up and banded on the breeding grounds in northern Québec in 1997.

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This banding program is part of a larger project (AGJV Project # 59) whose overall objective is to generate new information that will allow managers to develop more effective management plans to arrest the decline of the migrant population of Atlantic Flyway Canada geese and promote its rapid recovery. The main objective of the banding program is to create a marked population of geese from representative portions of the breeding range for studies of adult and juvenile survival, harvest rate, timing and distribution of harvest and population delineation. Other benefits of capturing large numbers of breeding geese are to obtain pre-fledging immature:adult ratios, breeding ground recaptures of previously banded birds and body size measurements which may be useful in population delineation.

Work conducted in 1997

We captured groups of flightless geese in late July-early August in two areas of northern Québec, one near Povungnituk along the northern Hudson Bay coast and the other near Kuujjuaq in southern Ungava Bay (Figure 1). The two sites represent the western and eastern portions, respectively, of the Ungava breeding range of Atlantic Population Canada geese. A helicopter was used to round up and drive geese toward a funnel-shaped trap. Only flocks containing goslings were captured. Based on nesting dates (Hughes and Reed 1998), most of the goslings banded near Povungnituk were about 4-6 weeks old and those near Kuujjuaq, 5-6 weeks old. Geese were banded with USFWS 1-800 leg bands in the hopes of improving band reporting rates. We measured the skull, culmen, tarsus, 9th primary and mass of a large sample of adult and juvenile birds.

The Povungnituk banding crew consisted of Jack Hughes (CWS), assistants Joel Poirier and Eric Reed and Canadian Coast Guard helicopter pilot, Yvan Giroux. The Kuujjuaq crew included Austin Reed (CWS), Ted Nichols (NJFGW), Gérald Picard (Laval University, Québec) and Peter May and Chesley Mesher (Makivik Corp., Kuujjuaq). The helicopter pilot (Yvan Turcotte) and additional technicians from Makivik Corp. also assisted on some bandings.

Results

In 1997, a total of 3161 geese were banded, 1161 in the Povungnituk area and 2000 in the Kuujjuaq area (Table 1). At Povungnituk, we did not reach our goal of 2000-2500 geese banded, however at Kuujjuaq we exceeded our pre-set quota of 1500. In addition to the birds we banded, we also recaptured 49 previously banded birds, mostly in the Kuujjuaq area. A few of the birds captured were released unbanded and not all birds banded were measured because of frequent periods of rain which threatened the safety of young geese crowded together in the banding nets. Goose distribution at the time of banding was quite different at the two locations. Near Povungnituk, brood-rearing geese were highly scattered in small groups across the tundra, several kilometers inland from the coast, generally in the same areas where they nested. Although some small brood-rearing groups were encountered on inland tundra habitats near Kuujjuaq, most of the geese in this area had assembled in large flocks in a few coastal salt marshes on Big Island and at the mouth of the Mucalic River. Judging by the numbers of geese observed in those marshes and our knowledge of nesting densities in the area, the tidal marshes in Ungava Bay appear to be a gathering point for geese which nest over a huge inland area. This difference in goose distribution is largely responsible for differences in the number of geese caught per banding drive and the total number of geese banded in the two areas (Table 1). Although geese are abundant near Povungnituk, the lack of tidal marshes anywhere along the northern Hudson Bay coast results in wide dispersal and small flocks.

Ted Nichols of the New Jersey Division of Fish, Game and Wildlife holds an adult Canada goose banded near Kuujjuaq, Québec in 1997.

Coastal saltmarsh of southern Ungava Bay near Kuujjuaq. Large flocks of Canada geese assembled in these rich marshes during the brood-rearing period.

Three of the five previously marked geese recaptured near Povungnituk were banded in winter, two in Maryland and one in New Jersey. The two others were apparently from resident goose populations; they were juvenile birds banded in summer, one in Ohio (June 1996) and one in southern Ontario (June 1994). Most of the recaptures from the Kuujjuaq area (39/45) were banded near Kuujjuaq between 1986 and 1989 (one in 1996). Four of the remaining six were adults banded in winter, three in Maryland and one in New York. One was a juvenile male banded in Georgia in July 1985. At the time this report was prepared we had no information for one band.

In the Hudson Bay area, banding was coordinated with a study of reproductive success being conducted at a site 60 km south of Povungnituk on the Polemond River (Hughes and Reed 1998). Thus, many of the banding drives were conducted in the same area where we had studied nesting geese earlier in the year. This enabled us to recapture goslings which had been marked in the nest with individually numbered web tags. This part of the operation was highly successful as we recaptured 216 of 841 marked goslings (>25%), all of which we measured. The data from these recaptures permit us to evaluate juvenile survival and because we know the exact age of these birds, we can also evaluate their rate of growth. A large number of adult birds was also measured in each of the two areas. Adult geese captured near Kuujjuaq, in the eastern portion of the breeding range were larger, on average, than those captured near the Hudson Bay coast (Table 2, Figure 1).

We examined the immature:adult ratio of the geese we captured. For Ungava Bay captures, most adult female geese were identified as being breeders or non-breeders by the presence or absence of a brood patch. This was not done systematically in Hudson Bay captures. However, we believe that only a very few of the adults caught there were not breeding geese. Indeed, a few birds were identified as non-breeders by their well-developed primary feathers, a sign they had moulted early in the season. In some cases, at both Ungava Bay and Hudson Bay, groups of geese dispersed while being driven toward the trap resulting in catches where not all geese present in the original group were captured and occasionally, some of the geese in a catch were released unbanded (and therefore not examined for the presence of a brood patch). All of these groups were excluded from the following calculations. Based on our determination of the number of breeding females in

each of the catches, the mean ratio of the number of juveniles to breeding females appeared to be much higher in the Hudson Bay area (4.3:1 ± 0.4 SE, n=20 catches) than in the Ungava Bay area (2.3:1 ± 0.2 SE, n=17 catches). This suggests that reproductive success may have been substantially higher in the western portion of the breeding range than in the east in 1997, a result which is corroborated by the results of the study on reproductive success (Hughes and Reed 1998).

Discussion and Plans for 1998:

The 1997 breeding season appears to have been very productive for Canada geese in northern Québec, particularly in the Hudson Bay area which supports a much larger breeding population than does Ungava Bay (Harvey and Bourget 1997). In late July, we were able to locate large numbers of broods for banding in both the Povungnituk nesting area and in coastal marshes of southern Ungava Bay. The abundance of goslings several weeks post-hatch suggests that nest success and brood-rearing survival were good in both areas. After one year of breeding ground banding, it appears that a sufficient number of geese can be banded to provide useful data for studies of survival and harvest rates. Although our success was lower in the Polemond River area, geese were no less abundant there than at other areas we visited along the Hudson Bay coastline during brood surveys conducted immediately prior to banding (Hughes and Reed 1998). We will thus continue to band geese in and around the Polemond River study area in 1998 because the additional information acquired through the recapture of marked goslings is highly valuable to the study of reproductive success. In order to obtain a larger number of birds banded in the Hudson Bay area in 1998, we will examine the possibility of using two banding crews, operating simultaneously.

References:

Reed, A. and R.J. Hughes. 1998. Reproductive success of Atlantic Population Canada geese in northern Québec - 1997. Unpubl. Report. submitted to the Atlantic Flyway Council & Technical Section, 9pp.

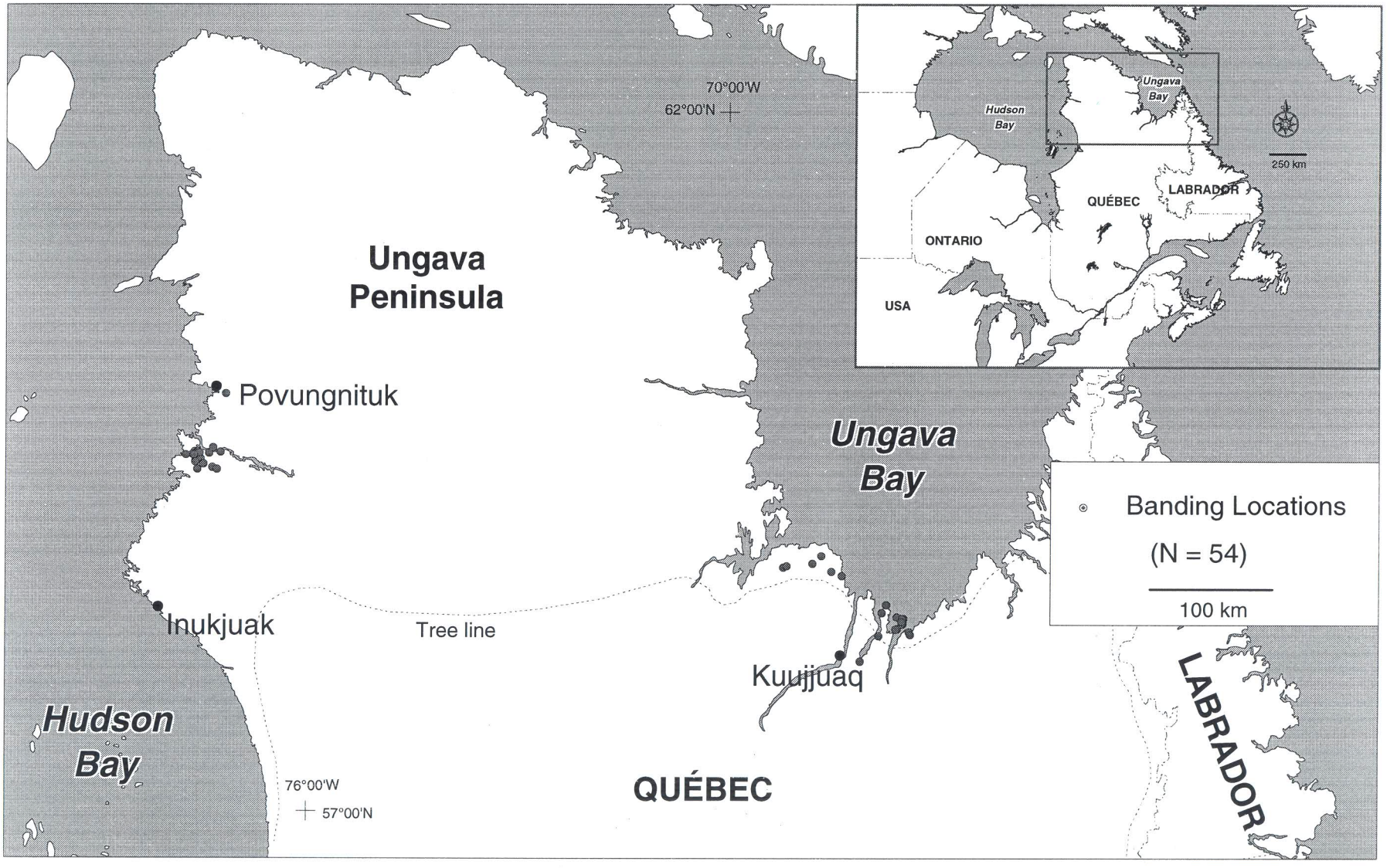

Figure 1. Ungava region of Quebec showing locations where breeding Atlantic Population Canada Geese were banded in 1997.

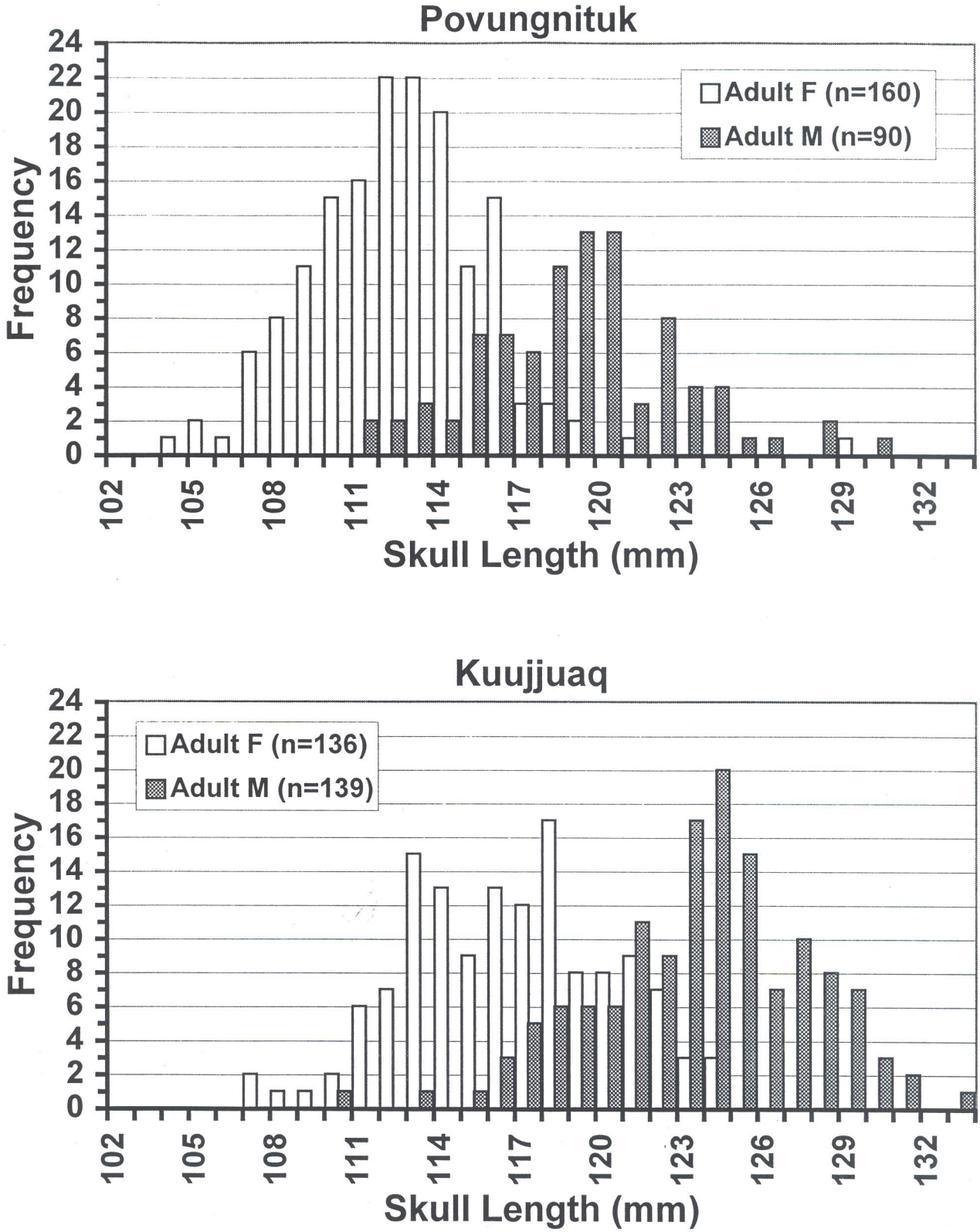

Figure 2. Comparison of the skull length of Atlantic Population Canada Geese captured on the breeding grounds at Povungnituk (northern Hudson Bay) and Kuujjuaq (southern Ungava Bay), 1997.

Table 1. Summary of the 1997 banding operations of Atlantic Population Canada Geese in northern Québec.

	Povungnituk	Kuujjuaq
Dates	28 July - 9 August	30 July - 5 August
Total Geese Caught	1225	2122
No. Catches	32	22
Mean No. of Geese/Catch	38	96
Helicopter Hours Required	28	22
Total Geese Banded	1161	2000
Adults Banded	355	916
Juveniles Banded	806	1084
Previously Banded Geese	5	44

Table 2. Body measurements of adult Canada Geese captured during banding operations at two sites in northern Québec, 1997.

	Povungnituk				Kuujjuaq			
	Females (n=160)		**Males** (n=90)		**Females** (n=136)		**Males** (n=139)	
	mean	se	mean	se	mean	se	mean	se
Skull Length (mm)	111.9	0.3	118.5	0.4	115.9	0.3	122.9	0.3
Culmen Length (mm)	48.7	0.2	51.8	0.3	52.8	0.2	55.4	0.2
Tarsus Length (mm)	78.9	0.3	84.9	0.3	82.2	0.3	88.9	0.3
Mass (g)	2931	19	3504	31	3515	31	4175	42