ATLANTIC FLYWAY

CANADA GOOSE MANAGEMENT PLAN

SECTION III

NORTH ATLANTIC POPULATION

prepared by M.C. Bateman
August, 1996

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Preface

The original form of the 1989 Atlantic Flyway Canada Goose management plan (Canada Goose Subcommittee Atlantic Flyway Council Technical Section. 1989) did not separate the North Atlantic Population from the Atlantic Population. This became a concern of managers when Quebec-breeding migrants reached critically low levels but birds originating in Newfoundland-Labrador appeared to be maintaining a stable population. In addition. the Canadian Wildlife Service continued to manage the North Atlantic Population as a population distinct from the Atlantic Population. In 1994 the Canada Goose Committee was charged with compiling and evaluating data relavent to the separation of this group of geese from the remainder of the Atlantic Population. The compilation and evaluation of available data were completed in May 1996 (North Atlantic Population Canada Goose Working Group of the Atlantic Flyway Technical Section, 1996). This section III of the Management Plan was prepared from that document.

III. North Atlantic Population

Subspecies Composition

The original description of the Canada Goose *Anser canadensis* Linnaeus described geese from the area of Quebec City and it is unknown if the birds were breeding birds or transients (Todd, 1938). Taverner (1931) described *Branta canadensis canadensis* as breeding across the continent rather than trying to sort out subspecies and populations with the information at hand. Todd (1938) described *Branta canadensis interior* based on his extensive travels in eastern North America and the difference between the geese on the east coast of Hudson Bay and those in Newfoundland-Labrador (*B.c.canadensis*). The two subspecies were thought to intergrade in the region of Ungava Bay south. Low (1935) reported banding evidence supporting a distinct group of geese migrating along the North Atlantic coast. Hanson and Smith (1950) described a North Atlantic population which breeds in Newfoundland-Labrador and eastern Quebec and winters from Nova Scotia to Massachusetts and possibly as far south as New Jersey and North Carolina. Palmer (1976) describes *B.c.canadensis* as limited to a North Atlantic population, but *B.c.interior* makes up four sub-populations (Eastern Prairie Population, Mississippi Valley Population, Southern James Bay Population, Mid-Atlantic Population) as described by Hanson and Smith (1950). There has never been a definitive and convincing demarcation between the breeding grounds of *interior* and *canadensis* and most probably, they intergrade.

Breeding Distribution

The North Atlantic Population of Canada Geese breeds primarily in Newfoundland-Labrador (Figure 1). Several hundred pairs of geese may breed in the Maritime Provinces. Breeding population estimates for Insular Newfoundland are in the range of 4 000 pairs (Goudie 1987; Erskine 1987; Gillespie and Roberts unpubl.). Goudie (1987) concluded that this is a minimal figure because high densities (1.5 pairs per km^2) were recorded on patterned fen sites, notably the Swift Current Barrens. The number of breeding geese in Labrador is estimated to be in the order of 25 000 pairs (Goudie and Whitman 1987; Bateman 1993; 1994). Breeding densities in Labrador range from 0 in mountainous habitat to 20 pairs per 100 km^2 in some of the most productive ecoregions (Bateman 1993; 1994). Recent work in Greenland has indicated an increase in the numbers of breeding Canada Geese and suggested affiliations with eastern North America (Fox *et.al* 1996).

The Ungava-breeding population of Canada Geese was estimated to be in the order of 118 000 pairs in 1988 and 29 000 in 1995 (Harvey and Bourget, 1995). The Newfoundland-Labrador breeding geese (the North Atlantic Population) may now make up 30 percent of the total Atlantic Flyway migrants (allowing for additional breeding geese in boreal Quebec).

Migration

Bellrose (1976) described the migration of this (sub-) population "--- down the Labrador coast to the Maritimes, where it picks up birds from Newfoundland. It continues along the coast

of New England , across Long Island down the New Jersey shore, and along coastal Maryland to Pea Island National Wildlife Refuge, North Carolina." Analyses of recent neck-collar studies and an update of band recoveries (Bateman and Daury 1994) suggest that this description is still valid, although more precise information is available on timing and changes in the wintering distribution are indicated. Neck-collar sightings indicate that migrants are present in some numbers in New England in early October (Hestbeck and Bateman, *in press*). Records from New England occur up to mid-April. There are two observations of Maritime -collared geese in Maryland prior to 15 October, but none in New Jersey. In recent years Prince Edward Island has been an important migration stop in both spring and fall. Counts of fall staging birds on Prince Edward Island approximate 13 000 in recent years.

Wintering Distribution

The migrant Canada Geese in the Atlantic Flyway winter from Nova Scotia south to South Carolina (Figure 1). Birds wintering south of Nova Scotia may be from several different populations including the problematic resident birds. The more coastal orientation of the North Atlantic Population compared to the northern Quebec geese is less evident from neck-collar observations than from the band recoveries. Neck-collars from Maritime-affiliated geese were seen inland in southern New England and New Jersey (Erskine *in prep*). This is presumably the result of harvest patterns or, possibly, a result of change in distribution over time (band recoveries include many data from an early time period). However, geese neck-banded in the Maritimes during spring or fall were primarily associated with the Maritime Provinces during early fall and southern New England and Long Island during winter (Hestbeck and Bateman, *in press*). Fair numbers of these geese (16 percent of observations) were observed in winter in New Jersey, but only low numbers (6 percent of observations) south of New Jersey. Fewer birds were neck-banded in Labrador, but observations in winter were primarily (80 percent) in New England and secondarily in the Lower Hudson River Valley and New Jersey (20 percent). The only wintering areas where the NorthAtlantic birds can be reliably differentiated are in Nova Scotia. Approximately 10 000 birds winter in that province.

Pea Island National Wildlife Refuge, North Carolina has been considered a traditional wintering area for the North Atlantic Population. Records of the number of wintering geese in that refuge show a decrease from an average 4,370 geese in the 1966 to 1970 period to 503 geese in the 1990 to 1995 period.

Population Trends

A poll of the state biologists in the Atlantic Flyway indicated a decline in the "coastal " geese in recent years in Maryland and North Carolina. Recent neck-collar analyses suggest that "short stopping" of these geese may occur (Hestbeck and Bateman, *in press*). Other states with wintering or migrating geese were unable to speculate about the numbers of migrants vs the number of residents or the number of Ungava vs the number of North Atlantic birds (Rhode Island, New Jersey, Delaware). Pennsylvania has very few North Atlantic Population migrants, Maine and Massachussetts winters more geese now than in the past, New Hampshire indicated a decrease in migrant birds and Vermont has no evidence of a change in the number of migrant

geese. The response from Connecticut suggested that the coastal geese (thought to be North Atlantic Population birds based on neck-collar observations) number about half the peak numbers recorded in the mid-1980's.

There is no evidence that the number of geese wintering in the Maritime provinces has declined over time (since the 1950's) and it may even have increased in recent years (R.Milton, pers. com.). There is some evidence that geese winter farther north in Nova Scotia, probably due to milder winters since 1970 (Erskine *in prep*). The number of wintering birds here approaches 10 000.

Fifteen fixed-wing transects were flown in Labrador in 1980 (total of 4252 km). Those transects were surveyed again as part of the breeding pair surveys in 1993 and 1994. There was no difference in the number of breeding pairs of geese recorded on the surveys, but the total number of geese was lower in 1993 than in 1980 or 1994 (Bateman 1994).

Survival estimates calculated from birds neck-collared on Prince Edward Island between 1990 and 1993 were between 0.644 and 0.674 (1990-1991 = 0.644 SE=0.072; 1992-1993 = 0.674 SE=0.033) (Hestbeck pers.com.). These survival estimates are lower than expected for a stable Canada Goose population.

Harvest Trends

Canada Goose harvests in the Atlantic Provinces are believed to be from the Newfoundland-Labrador breeding population (see the discussion of breeding distribution and migration). Harvest south of Maine is made up of unknown proportions of other populations. Attempts to differentiate populations of Canada Geese in the Atlantic Flyway by measurements have been inconclusive, but measurements from birds in the Atlantic Provinces have not been collected.

The harvest in the Atlantic Provinces generally increased from 1974 (the earliest reliable estimate) until 1989 (Figure 2). Harvest in 1992 was low at 27 800, but harvests in 1990, 1991, 1993 and 1994 were not dramatically different from the previous years. Harvest per successful goose hunter might reasonably be considered a better index to the state of the population given the stable season lengths and bag limits. That index does not suggest a reduction in availability of geese to hunters, again with the exception of 1992. The low harvest per successful hunter in 1992 (and the low harvest estimate) corresponds to a known poor production year as indicated by the age ratio in the Species Composition Survey.

An index to the age composition of the harvest is calculated from tail fans collected by the Species Composition Survey each year. Age ratios from Quebec, primarily a sample of Quebec-breeding birds, are somewhat different from those calculated from the Atlantic Province harvest, as one would expect if the populations are separate. Because the harvest in the Atlantic Provinces is essentially a sample of the Newfoundland-Labrador breeding birds (small numbers of birds breed in the Maritimes as a result of releases), the proportion of immatures in that harvest is expected to be a consistent index to the age composition of the population. The relation of the index to the actual age composition of the population is unknown. Because there

has been no decline in the age ratio in the harvest in the Atlantic Provinces. it can be assumed that production has not changed in the population of birds being harvested.

Management

A. Management Objectives

1. To maintain a breeding population survey index 15,000 pairs in Labrador.
2. to provide equitable and reasonable opportunities for sustained recreational harvest

B. Operational Activities

1. Assess population levels of the NAP at regular intervals

Procedures

1. conduct breeding ground surveys (Newfoundland-Labrador)at regular intervals determined by the apparent status of the population.
2. conduct leg-banding on Prince Edward Island at intervals which will allow recovery rate monitoring (neck-banding when recovery rates can not be used due to changes in reporting rates).
3. conduct fall staging counts on Prince Edward Island.

Rationale

Attainment and maintenence of population goals and objectives depends on the ability to monitor the size of the population. Because this population mixes with other populations on wintering and staging areas south of Maine, monitoring the breeding population is essential. Although the number of birds staging on Prince Edward Island is affected by many factors, a fall count gives information on staging birds. Recovery rates can be monitored using a banded sample of staging birds on Prince Edward Island (after reporting rates stabilize). Neck-banding on Prince Edward Island can be used to monitor survival rates of the population. An adequate sample of birds for useful legbanding or neck-banding can not be captured on the breeding grounds.

2. Annually assess harvest and distribution of harvest.

Procedures

1. conduct analyses of band recovery data, neck-band observations
2. conduct harvest surveys

Rationale

Information on harvest and survival rates and harvest distribution is

necessary to evaluate the status of the population. Banding programs, band recovery data, and harvest parts collection surveys provide important information on population trends, age structure and breeding , migration, staging and wintering affiliations of geese.

C. Research and Information Needs

1. Determine the affiliation and numbers of geese breeding in the George River area (eastern Ungava) Quebec.

2. Determine the number of Canada Geese breeding in Greenland and the migration, wintering affiliations of these birds.

Rationale

The breeding population estimates for Newfoundland-Labrdor do not correspond with the harvest estimates for this population. The number and affiliation of the eastern Ungava-breeding birds are unknown. Recent reports suggest that Canada Geese breeding in Greenland and migrating to eastern North America may be an important factor in the NAP. Clarification is required to allow more accurate evaluation of the status of the NAP.

3. Conduct a recruitment study in Labrador and Newfoundland.

Rationale

Calculated survival rates for the NAP are relatively low, although breeding ground surveys indicate a stable population. The productivity (recruitment) of this population is unknown. An evaluation of recruitment and how it relates to age ratioes in the harvest will allow an annual index to recruitment.

4. Conduct genetic diversity studies of NAP birds and AP birds to determine if possible, the distribution of *canadensis* and *interior*.

Rationale

The distribution of *B.c.canadensis* is unknown. Where this subspecies intergrades with, or is distinct from *B.c.interior*, is of interest and possibly can be determined by current genetic analysis techniques. This information may provide insight into the population affiliations of geese at specicic breeding sites and possibly can be used to determine harvest derivation.

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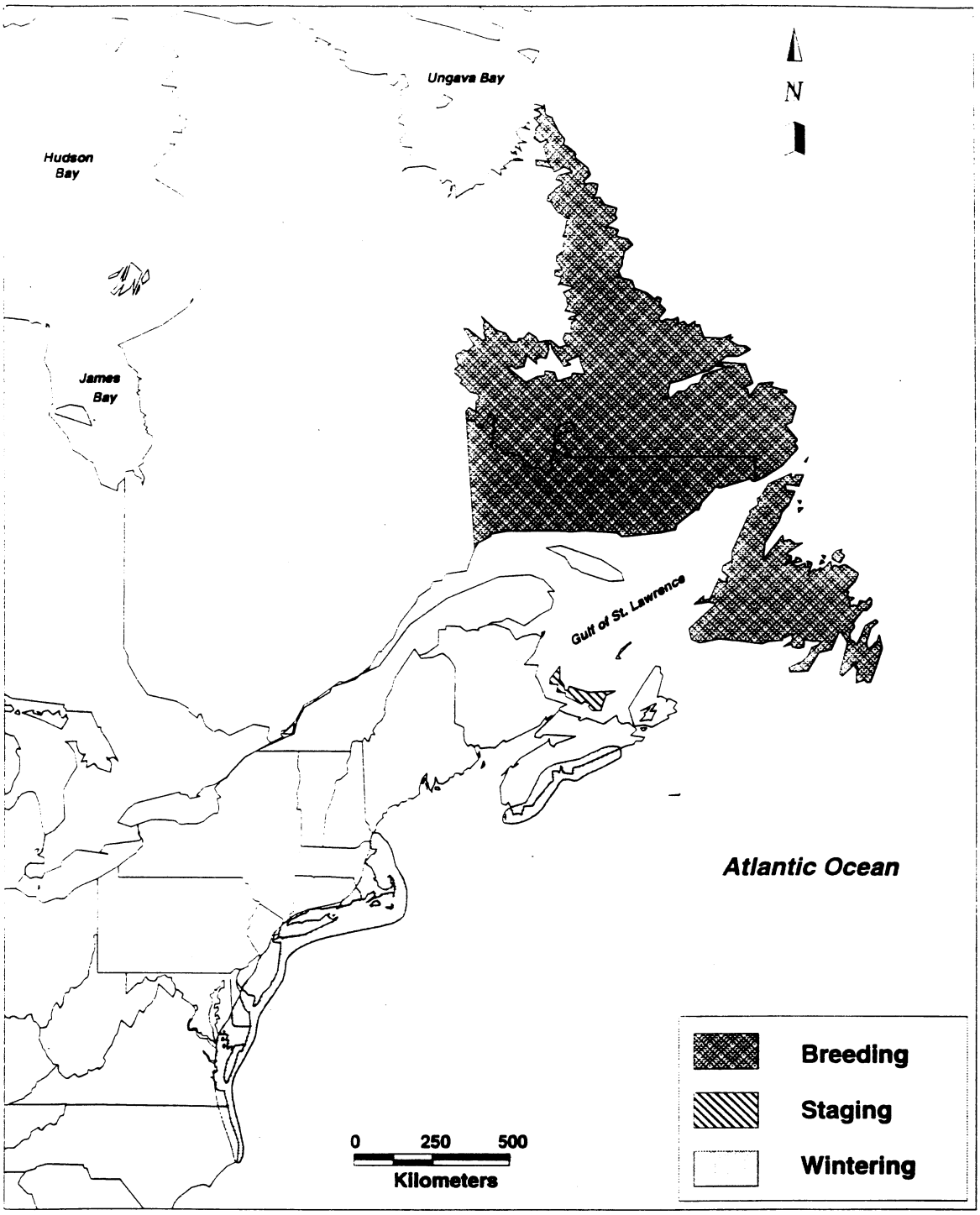

Figure 1. Approximate breeding and wintering ranges and a major migration staging area of the North Atlantic Population of Canada Geese.

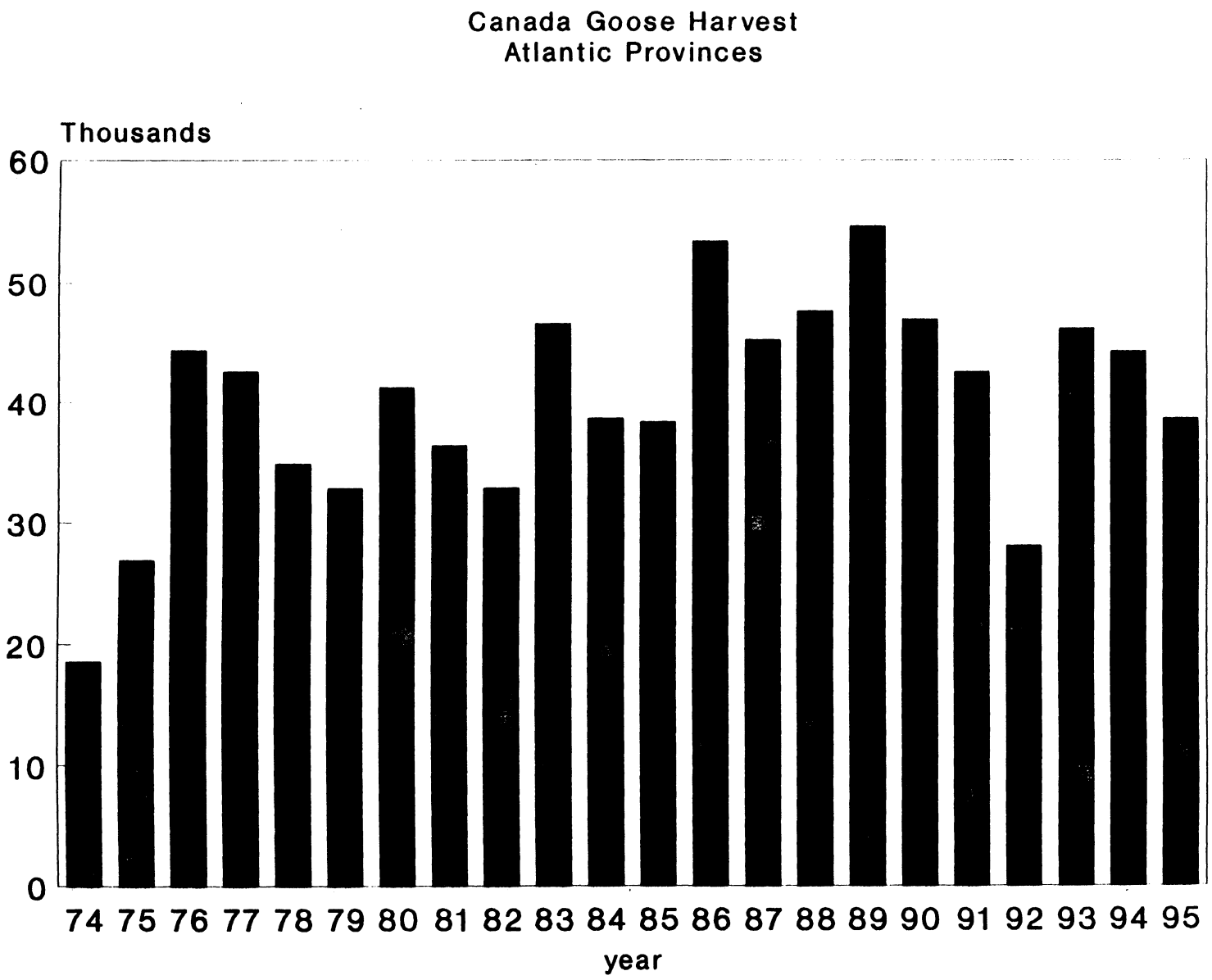

Figure 2. Canada Goose harvest estimates for the Atlantic Provinces 1974 to 1995 (from the National Harvest Survey data, CWS, Ottawa).