Migratory Game Bird Hunting Regulations in Canada

July 2001

Canadian Wildlife Service
Waterfowl Committee

CWS Migratory Birds Regulatory Report Number 3

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Editor:

This report was prepared by the Canadian Wildlife Service Waterfowl Committee, and edited by Kathryn M. Dickson (CWS, National Office).

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Comments:

Comments regarding this report, the regulation-setting process or other items relating to national migratory game bird concerns should be sent to: Director General, Canadian Wildlife Service, Ottawa, Ontario, K1A 0H3.

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Background

Canadian hunting regulations for migratory game birds are reviewed annually by Environment Canada, with input from the provinces and territories, and a range of other interested stakeholders. As part of this process, the Canadian Wildlife Service (CWS) produces three reports each year. The November report *Population Status of Migratory Game Birds in Canada* contains population and other biological information on migratory game birds, and thus provides the scientific basis for management. The December report *Proposals to Amend the Canadian Migratory Birds Regulations* outlines the proposed changes to the annual hunting regulations, as well as other proposed amendments to the *Migratory Birds Regulations*. Proposals for hunting regulations are developed in accordance with the *Objectives and Guidelines for the Establishment of National Regulations for Migratory Game Bird Hunting*. These two reports are distributed to organizations and individuals with an interest in migratory game bird conservation, to provide an opportunity for input to the development of hunting regulations in this country. The third report *Migratory Game Bird Hunting Regulations in Canada*, issued in July, summarizes the hunting regulations for the upcoming hunting season.

The process for development of regulations in Canada requires that any changes be as final proposals by early March each year. That means that regulations must be set without the benefit of knowledge about the breeding conditions and production forecasts of the current year. This does not usually present difficulties because the hunting regulations are based on trends over several years, but in some cases the results from recent harvest surveys or breeding population surveys conducted in May and June will indicate that changes in the national approach are needed to ensure conservation of migratory game birds. **In this case, the Canadian Wildlife Service would issue a bulletin updating these regulations.**

<u>Revised</u> Annual Schedule for the Development of Hunting Regulations

The annual schedule is based on the requirement to have the annual hunting regulations made into law by early June each year:

- Early November – The November report, containing biological information, is distributed by CWS-HQ.
- November and December – Jurisdictions develop proposals for hunting regulations in coordination with CWS Regional Directors.
- December 15 – CWS Regions provide to CWS-HQ proposed changes to hunting regulations (with justification) for the upcoming year, as well as any other information that should be included in the December report, including advance notice on items for future years. Descriptions of zone changes are sent by CWS Regions to the Surveyor General, for review, approval and translation.
- Early January – CWS-HQ distributes the December report, containing regulation proposals, to allow for public, inter-regional and international consultation.
- February 26 – Replies from consultation are due at CWS Regional Directors' offices, who ensure distribution to the provinces and territories.
- Mid-January through early March – CWS Regions work with the provinces and territories to finalize regulation proposals.
- March 12 – Final proposals, as well as the final text of the regulations and regulation summaries, are sent by CWS Regional Directors to CWS-HQ.
- April through May – CWS-HQ undertakes the process to prepare legal documents and obtain approvals of regulatory proposals.
- June – Final hunting regulations, adjusted if necessary to account for public comment, become law.
- July 15 – Hunting regulation summaries are available at Canada Post Outlets.
- End of July – CWS-HQ finalizes the July report containing the final proposals for hunting regulations and the hunting regulation summaries.
- End of August – Regulation consolidations are available to CWS Regions.

Note to United States Readers

The annual cycle of regulation development in Canada is earlier than that in the United States. To meet the requirements of the Canadian regulatory process, proposals for hunting regulations must be finalized no later than early March each year. Canadian representatives at the summer Flyway Council meetings and other hearings are not reporting on what is being considered, but on what has been passed into law.

2001 BREEDING POPULATION SURVEYS - Preliminary Information

Information from field programs undertaken in the spring of 2001 is provided for areas from which new data was available at the time of writing. It should be considered to be preliminary. The results of these, and other, 2001 breeding population surveys will be described in detail and compared to historical data sets in the November 2001 report, Status of Migratory Game Birds in Canada.

DUCKS

British Columbia *(Breault and Watts, 2001)*

The Cooperative Wetland Survey is an inter-agency project initiated in 1987 that aims to characterize abundance of breeding and migrating waterfowl in wetlands of the Interior of British Columbia. The survey involves six replicated counts of waterbirds on each of approximately 400 wetlands located on private property, native, provincial and federal lands. Approximately 290 of these wetlands have been monitored consistently since 1988. For analytical purposes, those wetlands are referred to as "Trend Wetlands", as they allow long-term comparisons of waterfowl abundance over a fixed amount of habitat.

The winter of 2000/2001 was characterised by low snowpacks (30-50% below average) throughout the southern part of British Columbia. The spring was dry and cold and May water levels were generally down from last year (which was also a dry year). Breeding habitat conditions were below average this year and worse than in the previous 3 years. The cold spring conditions were associated with a late arrival of early migrants and to an early arrival of late migrants. This migration pattern likely resulted in lower counts for early breeders (due to delayed arrival and/or reduced breeding effort) and higher counts for late breeders (due to early arrival and/or earlier breeding effort).

The total number of ducks observed on Trend Wetlands in 2001 was 5% lower than in 2000, and 2% below the (1988-2000) Long-Term Average (LTA). Total diving ducks were <1% above 2000 levels and 4% above the LTA. Total dabbling ducks were 15% lower than in 2000 and 13% lower than the LTA. The total number of breeding pairs was 1% higher than in 2000 and 17% lower than the LTA. For diving ducks, the number of breeding pairs was 12% higher than in 2000 and 14% lower than the LTA. The total number of dabbling duck pairs was 7% lower than in 2000 and 19% lower than the LTA. Canada Geese total numbers were 4% higher than in 2000 and 52% above the LTA. The number of breeding pairs

of Canada Geese was 25% lower than in 1999 and 36% lower than the LTA.

The counts are believed to reflect the second consecutive year with dry conditions in Central BC. As the current survey primarily targets a fixed number of mostly permanent wetlands, it is not suited to track habitat increases (e.g., additional wetlands) resulting from greater abundance of water. Survey results are not adjusted to an annual index of pond availability, and therefore the results do not discriminate between stable populations that have dispersed over new wetlands and truly declining populations. Work is currently under way to present the current data in terms of waterfowl density for wetlands of different sizes and for various ecological regions of the province. This information will be linked to a provincial estimate of wetland abundance (by size class) to produce province-wide breeding population estimates.

Prairie Canada *(Caswell and Schuster, 2001; Wilkins et al., 2001)*

May pond numbers in Prairie Canada increased by 13% in 2001 compared to last year, with most of the increase occurring in southern Manitoba. The number of ponds declined by 23% in southern Alberta. There were 8% fewer ponds compared to the long term average (LTA) (1961-00). In 2001, the number of May ponds in Prairie Canada and Prairie USA combined for a total of 4.6 million, an increase of 18% compared to last year. The number of ponds was 6% below the LTA.

Preliminary estimates indicate that total duck numbers in May 2001 in Prairie Canada and Prairie USA combined were 13% below last year, but 5% above the 10-year average, and well above the LTA (+14%). Of the major duck species, most declined in comparison to last year, but remain near or above the LTA. Northern pintails remain of serious concern, being 43% below the LTA.

Western Northwest Territories *(Caswell and Schuster, 2001)*

Total duck numbers in the surveyed part of the Northwest Territories were lower in 2001 than in 2000 (-17%). They were below the 10-year average (-8%) and the LTA (1955-2000) (-35%). Increases were observed only for blue-winged teal (+19%), redhead (+4%) and bufflehead (+92%) compared to last year. Mallards were below the 10-year average, and the LTA. The estimate for scaup was 12% lower than last year, 19% below the 10-year average and 46% below the LTA.

Northwestern Ontario *(Caswell and Schuster, 2001)*

Total duck numbers in northwestern Ontario were significantly lower (-66%) in 2001 compared to 2000. They are also below the 10-year average (-62%) and the LTA (-47%). In general, there were decreases in most dabbling and diving duck species compared to last year, the 10-year and LTA.

Eastern Canada

The boreal region of eastern Canada has been surveyed by helicopters since 1990 as part of the Black Duck Joint Venture (BDJV) of the North American Waterfowl Management Plan (NAWMP). From 1990-2000, trend analysis of breeding ground survey results showed significant increases range-wide for pairs of black ducks, mallards, wood ducks, ring-necked ducks and Canada geese. The increase for black ducks was seen in strata 1, 2 and 3 (Atlantic Highlands, eastern and central Boreal Shield respectively), while there was no change in stratum 4 (western Boreal Shield). Mallard trends showed significant increases in strata 1 and 4. In the Atlantic Highlands, pairs of hooded mergansers, wood ducks, ring-necked ducks and green-winged teal also increased significantly. There were no significant declines for any species over the period in any strata (Canadian Wildlife Service Waterfowl Committee, 2000).

The helicopter survey was carried out once again in 2001, in Newfoundland and Labrador, Nova Scotia, New Brunswick, Quebec and Ontario. Ice-out and snow-melt were late in the Maritime Provinces in 2001with cold temperatures and snow storms in March and early April. Warm temperatures in late April and May produced a quick snow-melt and vegetation phenology was near normal during the breeding pair surveys. However, the late and constricted snow-melt may have resulted in the earlier breeding phenology observed for Black Ducks during the survey. A higher proportion of pairs compared to single male Black Ducks was recorded in 2001.

In Quebec, March and April were cold, but the temperature rapidly warmed up in May. Very dry conditions were recorded in April and May and all lakes were free of ice during the survey. Weather conditions were good throughout the nesting period and the beginning of brood-rearing, but the low water level on lakes, rivers and wetlands could have a negative effect on reproduction. Nevertheless, if the weather remains fair for the rest of the summer, duck production should be better than average (Bordage, pers. comm.).

In Ontario, spring started with generally cool conditions throughout March and most of April although snow cover still declined uniformly over this period; conditions were slightly warmer than normal in the northwestern part. In late April, there was a marked shift to warmer temperatures that continued throughout May. There was also little precipitation during the spring, and water levels on lakes, rivers, and wetlands appeared slightly lower than usual, similar to last year. Vegetation phenology advanced very rapidly with the warm weather, and moved much ahead of normal, approaching that encountered in 1998 even though April was mostly cooler than average. The slightly lower than normal water levels on the smaller breeding wetlands are expected to have little impact on waterfowl productivity in the survey area that is dominated by permanent water bodies. The warm weather which started in late April and continued into June, could have a positive effect on nesting success, and brood rearing. Production may be better than normal unlike last year's poor effort (Ross, 2001).

Preliminary analyses of the 2001 survey counts have been completed. Black Duck numbers were similar to those of recent years in Nova Scotia, and lower in New Brunswick. The mean density on Nova Scotia plots in 2001 was 37.9 indicated pairs per 100km^2 compared to the 1999 and 2000 average of 36.5 and 1990-2000 average of 23.3. In New Brunswick the mean density was 26.8 indicated pairs per 100 km^2 compared to the 1999 and 2000 average of 35.3 and 1992-2000 average of 21.2. (Bateman, pers. comm.). Preliminary estimates for 2001 are now being calculated for Newfoundland and Labrador.

In Quebec, the data is now being analyzed. Preliminary estimates indicate that Black Duck numbers appear to be lower than last year's record high but should be above the long-term average (Bordage, pers. comm.). The same situation was observed for most duck species.

In Ontario, black ducks declined about 10% from last year, which was the highest so far recorded. This may reflect the poor production evidenced in last year's banding and harvest age ratios. Mallards declined to a more normal level from the anomalously high count in 2000. Counts generally declined for the other dabbler species, particularly for the Wood Duck which, like the Mallard, returned to more normal levels from those recorded during the last two years. Most of the diving ducks and the Common Loon increased in breeding density. Most notable was the Common Goldeneye which reached record levels. Total density for all waterfowl was within the middle of the range of those recorded during the last six years although higher than the average for the first half of the 1990s. (Ross, 2001).

GEESE

Greater Snow Geese *(Hughes, pers. comm., Gauthier pers. comm.)*

The preliminary estimate of the size of the 2001 spring population was 690,302 ± 72,871 (95% C.I.). Including 3,555 geese not photographed, the total population size is initially estimated at 693,857 geese. This is the result from the first of two photographic surveys conducted on April 25 and May 8 respectively.

There will be no "corrected estimate" for 2001 as there was an insufficient sample of radio-marked geese. However, the coverage by the spring photographic survey was excellent, with multiple aircraft used and good timing. Thus the population estimate for 2001 should be fairly good. The estimate is approximately 117,000 geese greater than the uncorrected estimate of last year (577,000) and about 120,000 fewer than the corrected estimate in 2000.

At Bylot Island preliminary results from the intensive study of snow goose reproduction indicated that nest initiation was about 2-3 days later than average, but that nesting effort now seems to be average, and probably better than in 2000. Overall it is expected that production will be about average.

Geese in the eastern Canadian Arctic *(Mallory, pers. comm.)*

In contrast to 2000, the spring of 2001 arrived early on southern Baffin Island and on Southampton Island. Sea ice and snow cover on the land departed about two weeks earlier than normal. Canada geese were reported as "abundant" by local hunters in Frobisher Bay and on the southern and eastern coast of Baffin Island. Reports from Southampton Island indicate that goose reproduction is approximately 2 weeks ahead of its normal schedule, and is at normal to above normal levels. At this time it is not known how representative these conditions are of those throughout the eastern arctic, particularly for the major goose colony at the Great Plain of the Koukdjuak on southwestern Baffin Island.

Geese in the western Canadian Arctic *(Caswell and Hines, pers. comm.)*

More than 95% of snow geese in the western Canadian Arctic nest at Banks Island. The number of snow geese nesting on Banks Island has increased tremendously since the 1960s, to the point where it may be necessary to stabilize its growth to prevent habitat problems associated with grubbing and grazing. The remaining birds nest at small colonies on the mainland at the Anderson River and Kendall Island migratory bird sanctuaries. In June 2001, CWS staff conducted ground counts on Banks Island for comparison to the air photo survey carried out this year. Snow goose nesting was delayed and a larger than normal proportion of the birds were non-breeders. Spring was very late coming on Banks Island. On the mainland CWS carried out aerial counts of the small snow goose colonies at Kendall Island, in the Mackenzie River Delta, and at the Anderson River Delta. Because of the late spring that occurred throughout the Western Arctic, nesting effort by these two species seems somewhat delayed and reduced.

During the mainland surveys, flocks of non-breeding groups of white-fronted geese seemed more numerous than usual. This suggests that production by white-fronted geese will be reduced in 2001.

The late snow melt occurred south and east of the Mackenzie Delta - Anderson River, as well as in the areas where more SGPP Canada Geese nest. It seems probable that Canada Geese will also experience low reproductive success.

Overall, because of the exceptionally late spring, lower than average production of geese and swans can be expected from the Western Arctic in 2001.

Wrangel Island Lesser Snow Geese *(Kraege, pers. comm.)*

The present colony of lesser snow geese on Wrangel Island is all that remains of the large colonies in Siberia a century ago. Russian biologists monitoring the population have documented a decline from 120,000 nesting birds in 1970 to fewer than half that number in the 1990s (Kerbes, 1999). This population is of great interest to Canada because all of these birds migrate through western Canada in fall and spring and more than half the population winters in the Fraser Delta (B.C.) and the nearby Skagit Delta (Washington). V. Baranyuk reported a good year in 2001 for snow geese on the island. He estimated the spring population at 105,000 (compared to 95,000 last year). The main colony has 25,000 nests (similar to last year) with an average clutch size of 3.6 (also similar to last year).

Breeding Conditions for Geese nesting in Hudson-James Bay Lowlands (*Abraham, Leafloor and Walton, 2001*)

Snow fall and accumulations were relatively light during the winter of 2000-2001. Snow melt and river break-up were earlier than normal. Study areas on Akimiski Island and at Burntpoint Creek on the mainland were snow free and the water bodies were open and free of ice in early May. James Bay had far less ice cover in early May than observed in most years. Conditions have been wet across the Hudson Bay Lowlands since early June.

Lesser Snow Geese in Hudson Bay *(Abraham and Rockwell, pers. comm.)*

On arrival at La Perouse Bay, a reconnaissance flight was undertaken from the Whale River to the Broad River. Nesting snow geese were found at low densities over the region, using areas that have not been used for the past few years. Based on the ratios of blue:white geese the birds are thought to represent a re-distribution of individuals from the local area. At the La Perouse Bay nesting colony the phenology was described as average, with a bi-modal distribution of hatch dates, where the peaks were separated by 8-12 days. Clutch sizes were

large. Production at hatch was good, but the subsequent cold and snowy weather may have had an effect on gosling survival.

North Atlantic Canada Geese ***(Bateman, 2000; Bidwell, pers. comm.)***

In 1998 and 1999, the Canada Geese of this population were surveyed using two methods: 1) a CWS survey designed for comparison with surveys conducted in 1980, 1993 and 1994, and 2) the spring USFWS transect survey that has been expanded to include Newfoundland and Labrador (Strata 66 and 67 respectively). The survey indicated that, in 1999, the estimated density of Canada goose pairs was 8.1 per 100 km^2. This was considerably higher than the densities from comparable surveys conducted in 1980, 1993 and 1994, which ranged from 5.5 to 5.7 pairs per 100 km^2 (Bateman, 2000).

Initial comparisons of the two surveys indicated that the results were comparable, so beginning in 2000, only the latter survey was conducted. Subsequent comparisons of the results from the two surveys demonstrated that they were less similar than first thought. The trend in the size of the breeding population of NAP Canada Geese remains an important data gap hindering management decisions for this population.

In 2001, the number of pairs of Canada geese estimated in Newfoundland and Labrador (strata 66 and 67) was 57,797 pairs compared to the 53,292 estimated last year. The total number of geese was estimated at 129,258, compared to 170,848 in 2000 (Bidwell, pers. comm.).

Atlantic Canada Geese *(Harvey, Rodrigue, Bordage, Hughes, pers. comm.)*

The ninth consecutive annual survey of Canada geese in northern Quebec was conducted in June 2001. The 2001 survey covered the three regions shown previously to include the highest densities of nesting geese (interior Ungava, coastal Ungava Bay and Hudson Bay, and the tundra-forest transition zone south of the peninsula). A fourth region in the boreal forest at the latitude of James Bay was last included in this survey in 1996, but the area was covered as part of the eastern Canada transect survey by the USFWS beginning in 2000.

In contrast to last year, conditions in 2001 appeared to be excellent; spring was early, as the snow cover was lighter than during the past two years and the weather in late May was warmer than usual. There was almost no snow or ice at the time of the survey (June 11-23). A high proportion of the indicated pairs was observed as single geese, especially along the Hudson Bay coast. In 2001, the number of Canada geese observed as pairs or as single birds increased by 57% compared to 2000 indicating 146,662 pairs (SE = 16,185), compared to the 93,230 pairs estimated last year. While the number of breeding pairs on the Ungava Bay coast is anticipated to be lower than last year, the number on the Hudson Bay coast is much higher than last year. The estimated number of non-breeding geese is similar to last year, however, the significance of that estimate is difficult to interpret because it includes moult migrants of other goose populations.

In the boreal forest, where Canada geese are counted as part of an annual helicopter survey program supported by the Black Duck Joint Venture, the number of breeding pairs observed in 2001 appeared to be the highest recorded since the beginning of the survey in 1990 (Bordage, pers. comm.). However, this result must be confirmed through completion of the analyses. It also appeared that most nests contained more eggs than usual, which could indicate good production in that part of the range. The region covered by the BDJV surveys is at the southern limit of the nesting range of AP Canada geese.

Hughes (2001) reported that nest densities increased by nearly 50% across the Hudson Bay portion of the breeding range and were also considerably higher than previously in the Ungava Bay area. At the main study area near Puvirnituq, peak hatch was on about 24 June, one day earlier than the mean of the 4 previous years. Overall, at secondary sites in Hudson and Ungava Bays, mean clutch size was about average and with some exceptions, predation was relatively low. The final figures are not yet available, but nest success should be above average at most of the sites visited. A large fall flight of Canada geese from Ungava is predicted.

Southern James Bay Canada Geese *(Leafloor and Ross 2001; Abraham et al. 2001; Leafloor pers. comm.)*

The 2001 surveys were flown on 23 - 25 May under good weather conditions, and most geese were judged to be in the 3rd week of incubation. The spring population estimate for SJBP Canada geese was 102,671, an increase from the 89,064 estimated last year Compared with 2000, the number of breeding pairs on Akimiski Island increased by about 8%, and the estimate of non-breeders increased by 39%. On the mainland, breeding pairs decreased by 22% from last year, while the estimate of non-breeders increased by more than 500%. Few moult migrants were present during the survey, and are not considered to be a confounding factor in the 2001 results. Conditions during arrival, pre-laying and nest site selection were excellent. Hatch was synchronous and clutch sizes were high because of lack of constraints on site selection and laying. With favourable conditions during brood-rearing, there should be large numbers of juveniles present in the fall flight, except perhaps from Akimiski Island, where low *per capita* food availability continues to be problematic for gosling growth and survival.

Mississippi Valley Canada Geese *(Leafloor and Ross 2001, Leafloor pers. comm.)*

The spring population estimate was 468,584, a 56% decrease from 2000. However, the estimated number of nests (176,584) was only 5% lower than in 2000, indicating that most of the decline was in the estimate of non-breeding birds. The fall flight forecast is 697,142 birds, 46% down from last year. Flocks of moult migrants were observed at Moosonee beginning on 24 May, but major movements did not occur until early June. Surveys along the coast for non-breeding birds were not conducted this year. Instead, the mean number of coastal non-breeding birds during 1991-2000 was used. Nesting began early, and production is expected to be good to excellent based on ground studies at Burntpoint Creek along the Hudson Bay coast.

Eastern Prairie Canada Geese *(Humburg, Telander,Foster and Lubinski, 2001)*

EPP breeding phenology in 2001 was earlier than in 2000 and similar to 1998 and 1999. Despite cold weather during winter, limited snow cover and a period of very mild conditions during May prompted rapid spring breakup and an early nesting season. The 2001 EPP estimate of 215,400 (± 28,400) was lower than the estimate in 2000 (275,100 ± 38,700) but similar to most years since the mid-1980s. This estimate exceeds the EPP Plan objective of 200,000. The number of geese observed in pairs or as single birds did not change from last year and was lower than during most of the last 20 years. However, it remained within the 2000 EPP Plan range for geese in singles and pairs (120,000-170,000) that is the threshold criterion for "average" hunting seasons for the EPP. Large numbers of geese in groups (93,100 ± 23,500) accounted for much of the total population estimate and were the second highest since the EPP survey was initiated. Despite the decline in the EPP population estimate, production likely will be greater than in 2000 because of the early nesting season, higher clutch size, and local increases in nesting densities. The fall flight, although containing a larger proportion of immatures, should be no higher than in 2000.

Black Duck Harvest Strategy

A Canada / United States Black Duck Harvest Strategy Committee was established to make recommendations on how the two countries should approach future regulations for hunting of American Black Ducks. The group is co-chaired by the Chief of the Migratory Birds Conservation Division, Canadian Wildlife Service, and the Chief of the Surveys and Assessment Branch, Office of Migratory Bird Management, U.S. Fish and Wildlife Service. An adaptive management methodology is currently being explored through the Black Duck Adaptive Harvest Management Working Group (BDAHM).

Adaptive management infers an approach in which systems whose workings are not completely understood are managed under a strategy that includes learning as an explicit objective, and uses feedback from any given management cycle to improve models and decision processes for future cycles. In the case of black ducks, the working group study will involve the construction of several models of black duck populations and a mathematical optimization process to help guide regulatory decisions. The output of this process would be general recommendations for hunting regulations, in categories such as restrictive, moderate or liberal.

A scientific team based in the Georgia Cooperative Wildlife Research Unit is developing the population models. Preliminary results suggested that harvest rates and the influence of mallards are the most important factors that should be included. However, none of the variables, when taken alone, had a determining influence on black duck populations.

Among the key components the working group believes are important are the division of the black duck population into breeding, wintering, and harvest area-based management units, the combination of several data sources such as square helicopter survey plots with linear fixed-wing aircraft survey transects, devising the best ways to integrate habitat information, and the integration of data relative to the eastern Mallard population. The solution of these technical issues will require extension of the existing methodologies for adaptive resource management.

The Black Duck Harvest Strategy Committee intends to keep the appropriate regulatory consultation bodies in Canada and United Sates informed of progress as the adaptive management study continues. These bodies will also be informed if alternate strategic frameworks for black duck hunting regulations come under consideration.

Progress on the adaptive management study can be found on the following Web site:
http://fisher.forestry.uga.edu/blackduck/index.html

Management of Overabundant Snow Geese

Issue

The rapid growth of most Snow Goose populations continues to be of great concern. Assessments of the environmental effects of the rapidly growing populations of Mid-continent Lesser Snow Geese and of Greater Snow Geese were completed by working groups of Canadian and American scientists. Their analyses are contained in the reports entitled "*Arctic Ecosystems in*

Peril – Report of the Arctic Goose Habitat Working Group" (Abraham and Jefferies 1997) and "*The Greater Snow Goose – Report of the Arctic Goose Habitat Working Group*" (Batt 1998). The working groups concluded that the primary causes of the increase of Snow Goose populations were human induced. Improved nutrition from agricultural practices and safety in refuges have resulted in increased survival and reproductive rates of Snow Geese. These populations have become so large that they are affecting the vegetation communities on which they and other species rely at staging areas and on the breeding grounds. Grazing and grubbing by geese not only permanently removes vegetation, but also changes soil salinity and moisture levels. The result is the alteration or elimination of the plant communities, which in all likelihood will not be restored. Although the Arctic is vast, the areas that support breeding geese and other companion species are limited in extent and some areas are likely to become permanently inhospitable. Increasing crop damage is also an important consequence of the growing populations.

Regulation

Several management actions are being undertaken concurrently to curtail the rapid population growth and reduce population size to a level consistent with the carrying capacity of the habitat. One action involves increasing the mortality rate of Snow Geese by two to three times the rate achieved prior to the introduction of conservation measures. Beginning in 1999 an amendment to the *Migratory Birds Regulations* created special conservation measures during which hunters were encouraged to take overabundant species for conservation reasons and, in some cases and subject to specific controls, to use special methods and equipment such as electronic calls and bait. The 1999 and 2000 regulations applied in selected areas of Quebec and Manitoba, and were extended to include Saskatchewan and Nunavut beginning in spring 2001. The dates and locations where special conservation measures were implemented were determined through consultation with the provincial governments, other organizations and local communities.

Evaluation

Evaluation plans have been developed which will track progress toward the goals of reduced population growth and, ultimately, recovery by plant communities. For example, across the Arctic last year, close to 6,500 Lesser Snow Geese and 3,300 Ross' Geese were marked with neck bands, bringing the total number of birds banded to 14,500 Lesser Snow Geese and 10,300 Ross' Geese since 1997 (D. Caswell, CWS, pers. comm.). The main objectives are to obtain colony specific estimates of harvest and survival rates, document timing and pattern of fall and spring migration, and obtain population and production estimates. Investigations of the condition of staging and breeding habitats continued in 2000 along the west coast of Hudson Bay, where the effects of geese on habitats are well documented. Assessments were also carried out at other major Snow Goose colonies. This work will be continued in 2001.

The special conservation measures of 1999 and 2000 were successful in increasing harvest rates for Snow Geese. For Greater Snow Geese, the estimated harvest rates of adults (based on regular-season harvest in Canada and the U.S., and including the special conservation seasons in effect in Canada only) were 14 and 18%, respectively, for the 1998-1999 and 1999-2000 seasons. These rates are much higher than during 1985-1997 (average harvest rate of 6%), a period of rapid population growth, and higher than harvest rates during 1975-1984 (11%) when the population was relatively small and stable. When the special conservation seasons are excluded, the harvest rate of adults was 10% in both years (G. Gauthier, unpubl.). For Lesser Snow Geese, the harvest rate in Canada was much less than that achieved for Greater Snow Geese. About 1,200 additional birds were taken by sport hunters in each of the first two years of the conservation measures. The continental program, however, has been successful in increasing harvest rates to about double that achieved prior to the implementation of special measures (J. Kelley, USFWS, pers. comm.).

Future Steps

The analyses indicate that progress is being made to control the growth of Greater and Lesser Snow Goose populations through use of the special conservation measures, but that continuation of these measures may be necessary in the short term to help achieve desired population and habitat goals. Over the next few months the progress made to-date will be evaluated. Following that, recommendations about future steps will be proposed for consultation.

Hunting Regulations for the 2001-2002 Season

The regulations in effect for 2001/2002 are shown in Appendix A. These regulations were approved by the Governor in Council on June 14, 2001.

Newfoundland and Labrador

No changes to the annual hunting regulations. .

Murre Regulations for 2001-2002

Because this is only the second year the traditional murre hunt in Newfoundland and Labrador is being managed through the annual process amending the Schedules to the *Migratory Birds Regulations*, we present

here the regulations for the upcoming hunting season. The daily bag and the possession limits for murres throughout Newfoundland and Labrador will be: 20 birds per hunter per day and 40 birds per hunter in possession. Murre hunting seasons for each zone in 2001-2002 are (note that these zones are different from those for other game birds):

- Zone 1: September 1 to December 15
- Zone 2: October 9 to January 23
- Zone 3: November 24 to March 9
  Zone 4: November 2 to January 7, and January 29 to March 9.

Prince Edward Island

No changes to the annual hunting regulations.

Nova Scotia

No changes to the annual hunting regulations. This is the first year that Waterfowler Heritage Day will be held in Nova Scotia. It will take place throughout the province on September 22, 2001.

New Brunswick

No changes to the annual hunting regulations.

Quebec

Canada Goose

As the status of Atlantic Population Canada Geese continues to improve, American and Canadian managers are implementing an increased harvest in 2001-2002. In Quebec, an increase in the length of the hunting season and of the daily bag limit is being implemented. However, it is agreed to continue to protect the peak migratory period for these geese, hence the season remains closed for a time in October.

American Black Duck

Inventories of waterfowl associated with the Black Duck Joint Venture revealed that the Black Duck population continues to increase in boreal Quebec, as it has since 1996. A regulatory amendment was made to allow for a greater number of birds to be harvested after November 1, in Districts G, H, and I, east of the Gatineau River only. This additional harvest is aimed at ducks from the boreal forest of Quebec, and must not affect the local population of southern Québec.

Barrow's Goldeneye

In November 2000, the Barrow's Goldeneye was designated a species of special concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Consequently, regulatory amendments are being implemented that will ensure better protection of the species during the hunting season. After discussion and consultation, it was decided to shorten the season for all goldeneyes (Barrow's and Common), so that it now closes October 21 in the part of District E where most of these birds are found.

Hunting Season Opening Dates

Modifications were made to the opening dates in all districts except District A. These changes harmonize the opening dates with those of districts along the Ontario border and allow the seasons to open on a Saturday. For the Northern Districts (B, C, D and E), the hunting seasons will begin on the third Saturday in September, while in the Southern Districts (F, G, H, I and J), they will begin on the fourth Saturday of that month. Some groups, while pleased that the seasons will open on Saturdays, wanted the season to open earlier in September. The Canadian Wildlife Service concluded that advanced openings could increase the hunting pressure to unacceptable levels for locally produced birds and moulting adult females. In particular there is concern for Blue-winged Teal, which are not abundant and migrate early, as well as the local Black Duck population.

Waterfowler Heritage Days

For the second year, Waterfowler Heritage Days will take place one week before the official opening of the hunting season in the district:

- In Districts B to E: September 8
- In Districts F to J: September 15

In addition, this year the maximum daily bag for new hunters will be a total of three birds. Within this limit of three birds, the specific limit for each species must be respected. For example, the harvest of Blue-winged Teal is limited to one bird in those districts where the daily limit for this species is one bird only. As always, hunting during Waterfowler Heritage Days is allowed only in those areas where hunting is permitted by law, and it is not allowed near waterfowl banding stations; these areas are clearly marked.

Ontario

Southern James Bay Population Canada Goose

To address the problem of declining Canada Geese in the Southern James Bay Population (SJBP), various restrictive regulations have been imposed since 1991. These have included temporary season closures in southwestern Ontario, delays in opening dates, and reductions in daily bag limits. Recent banding information has suggested that the SJBP breeding range, and thus the

size of the population, is larger than previously believed, extending north toward Lake River. Further, the Giant Canada Goose population has greatly expanded since the implementation of the present restrictions, thereby reducing harvest rate of SJBP Canada Geese.

In Wildlife Management Units (WMUs) 82 to 86 in southern Ontario, and WMUs 23 to 32 and 37 to 41 in northern Ontario, the daily bag limit and possession limit were increased to 3 and 10 respectively (from 2 and 4). In addition, in most of the southern areas where major restrictions have been in place, the season will open earlier. However, the main restrictions involving a late opening on November 1and a reduced bag limit remain in effect in WMU 94, which is the key staging area. It is hoped that these measures will improve the opportunities to harvest Giant Canada Geese whose numbers greatly exceed those of the migrants. It will also allow for the collection of data from more recent banding and neck-collaring efforts where the SJBP Canada Geese were correctly identified, giving a more accurate calculation of harvest contribution.

Atlantic Population Canada Goose

As the status of Atlantic Population Canada Geese continues to improve, American and Canadian managers are implementing an increased harvest in 2001-2002. In Ontario, an increase in the length of the hunting season is being implemented. However, it is agreed to continue to protect the peak migratory period for these geese, hence the season remains closed for a time in October.

Giant Canada Goose

Populations of Giant Canada Geese have been expanding dramatically throughout southern Ontario. Further, northern Ontario has growing populations of Giant Canada geese plus large numbers of moult-migrants from the south. Early and late seasons for Canada Geese have been established in most WMUs throughout southern Ontario to help reduce the nuisance and crop depredation problems associated with Canada Geese from introduced flocks. These special seasons have generally been successful in increasing the numbers of Giant Canada geese harvested and minimizing conflicts with other users.

Late goose seasons are being implemented in WMUs 76 to 78 and 81 from January 15 to 22 and from February 22 to 28. In addition, a special early season is being implemented throughout the Northern District from September 1 to 9 to increase harvest and to provide more opportunities for northern hunters who, because of weather, have a very short season. A bag and possession limit of five and ten birds respectively will be in effect.

Season Opening - Fixed Date or Saturday

In response to requests from hunters who prefer that seasons open on Saturdays, the opening dates for the regular migratory game bird hunting seasons have been moved to the third and fourth Saturdays in September for the Central and Southern Districts, respectively.

Many hunters only participate on opening day, and if they cannot hunt because of work or school, they may not bother. Particularly important is the opportunity this will give to younger hunters. Implications for a substantial change in harvest are minimal. The Southern District will experience no change in average opening date, while in the Central District the opening day will be advanced by approximately 2.5 days.

Special Season for Falconry

There will be a special season to allow hunting by falconry, for ducks only, on Sundays in those areas of the Southern District where Sunday hunting of migratory game birds is otherwise prohibited by federal regulation. The Sundays will count toward the total number of days available for hunting ducks in the Southern District (no more than 107 days are allowed). The earliest Sunday of the falconry season would be held on the first Sunday following the opening of the regular duck season.

Manitoba

Migratory Game Bird Season

The opening of the general migratory game bird season for residents will begin on September 8 in Game Bird Hunting Zones (GBHZs) 2, 3, and 4, and continue to the end of the general season for residents (November 30). For non-residents, the opening of the general migratory game bird season will begin on September 24 and continue to the end of the general season for non-residents (November 30).

Snow Goose Season

The opening of the snow goose season for non-residents is scheduled to begin on September 17 and continue to the end of the season for non-residents (November 30). Also, morning-only hunting of geese for residents for the entire season has been eliminated. On the other hand, morning-only hunting of geese for non-residents is maintained for the period from September 17 to October 7. Beginning October 8, non-residents would be allowed to hunt geese all day until the end of the hunting season (November 30).

Waterfowler Heritage Days

Waterfowler Heritage Days will take place prior to the opening of the general waterfowl season in Game Bird

Hunting Zones (GBHZ) 2, 3 and 4 during the period from September 1 to 7.

Saskatchewan

No changes to the annual hunting regulations.

Alberta

The white goose (Snow and Ross' geese) daily bag and possession limits are being increased from 10 and 30, to 20 and 60 respectively, to be consistent with limits in Saskatchewan and more in line with those in Manitoba.

British Columbia

Canvasback

The current restrictive regulations on Canvasback are being relaxed, by increasing the daily bag and possession limits from 1 to 4 and 2 to 8 birds, respectively. The continental population of Canvasback has been above the NAWMP population objective for 7 years, and the special restrictions implemented elsewhere in Canada in the early 1990's have been relaxed in recent years. In 2001 the continental population declined to approximately its long term average size, after several years at higher levels.

"Resident" Canada Goose

Over the last few years, a number of strategies including the introduction of multiple hunting seasons ("split seasons") have been implemented in the southern part of the province to increase the harvest of resident Canada Geese. Adjustments of the opening and closing dates for each split season are being implemented Management Districts No. 1, 2 and 8, while in Management District No. 3 multiple seasons are being introduced to address local problems with resident Canada Geese.

Waterfowler Heritage Days

Waterfowler Heritage Days are established in Management Districts No. 3 and 8, and maintained in Districts No. 1, 2, and 4 to 6.

Nunavut

No changes to the annual hunting regulations.

Northwest Territories

No changes to the annual hunting regulations.

Yukon Territory

No changes to the annual hunting regulations.

Review of the Migratory Birds Regulations

Although the *Migratory Birds Regulations* are reviewed annually with regard to hunting seasons and bag limits, there are a number of other changes needed to accommodate relationships with other legislation, amendments to the *Migratory Birds Convention*, and other issues that have arisen. CWS undertook a review of these regulations in 1989 and again in 1991. In each case, some problems were resolved, but others remain. It is hoped that through the comprehensive review now being conducted major improvements can be made.

The following table summarizes the main topics now under consideration in the regulation review. Numerous smaller changes will also be proposed. Documentation concerning this review, including information on how the public may have input into the process, will be made available.

Regulation topic	Changes under consideration	Reasons
Permit Simplification - Salvage	• Remove permit requirements for people who temporarily possess birds for compassionate, sanitary, and similar reasons as long as the birds are delivered to designated authorities	• More practical
New Permits	• New permits for educational, rehabilitation, and zoo purposes	• Conformity to provisions of revised *Migratory Birds Convention*

Layout of regulations	• Combine *Migratory Birds Regulations* with *Migratory Bird Sanctuary Regulations* • List species covered by the regulations in a schedule	• Use a common approach in similar areas, such as permits • Clarity about which species are protected, and resolve the status of introduced species such as the mute swan
Environmental Assessment	• Revise list of *Migratory Birds Regulations* triggers for environmental assessment dependent on the *Canadian Environmental Assessment Act* (CEAA) amendment process	• To be consistent with CEAA once it is amended
Baiting	• Define conditions when migratory game birds may be fed, consistent with the conservation principles of the *Migratory Birds Convention*	• Tighten prohibition against baiting for hunting, while avoiding excessive permit issuance in areas where hunting is not permitted
Wastage	• Prohibit the wastage of migratory birds	• Recognition of the intrinsic value of wildlife
Aboriginal co-management	• Make regulations consistent with Land Claim Agreements and amendments to the *Migratory Birds Convention*	• Enable adoption of regulatory capacity in co-management while preserving federal objectives
Aviculture	• Establish 2-level aviculture permit: commercial and hobby	• Simplify common aviculture permits while increasing control over the keeping of rare species and the taking of birds from the wild

Other Amendments to the Migratory Birds Regulations

Management of the Murre Hunt in Newfoundland and Labrador

The *Migratory Birds Convention* was signed by Great Britain (on behalf of Canada) and the United States of America in 1916. The purpose in concluding the *Convention* was to prohibit in the two countries the indiscriminate taking of birds, their nests and eggs. Particular problems that were curbed by this agreement were large scale commercial and sport hunts, as well as the taking of birds for the millinery trade.

The *Convention* protected most bird species, controlled the harvest of others, and prohibited the commercial sale of all species. The *Convention* created three categories of migratory birds: game birds (such as ducks, geese, cranes), insectivorous birds (perching birds such as robins, sparrows, wrens, and woodpeckers), and non-game birds (such as loons and seabirds, including murres). The *Convention* also established a closed season, with limited exceptions, on the hunting of migratory game birds from March 10 to September 1 throughout Canada and the United States.

The hunting of murres is a long established tradition in Newfoundland and Labrador, where the birds have been taken for subsistence purposes for hundreds of years. However, because murres are considered non-game species under the *Migratory Birds Convention*, the murre hunt became inconsistent with the *Convention* when Newfoundland joined Confederation in 1949. Beginning in 1993, murre hunt seasons and bag limits were established for conservation purposes through a special Administrative Order under the *Migratory Bird Convention Act*.

In order to address the gap in the *Convention* with respect to the murre hunt, as well as to resolve other issues, Canada negotiated amendments to the *Migratory Birds Convention*, known as the Parksville Protocol, in 1995. Under the terms of the Protocol, the harvest of murres by residents of Newfoundland and Labrador is authorized and will be controlled at sustainable levels in much the same manner as waterfowl harvesting is currently regulated. However, there are some differences. Under the new regulations, which came into effect for the 2000-2001 hunting season, murres may be hunted from a boat under power. At the current time, there is no plan to require the use of non-toxic shot for murre hunting. If there are demonstrated valid concerns about public health or the effects of secondary ingestion, the mandatory non-toxic shot requirement would be considered in future.

Finally, CWS reviewed the need to require all murre hunters to purchase a Migratory Game Bird Hunting Permit. Without the Permit there is no direct way of knowing how many people hunt murres or how many birds are taken, elements that are important to any game management program to provide assurance against over-harvest and to ensure the continuation of the hunt into the future. Recognizing the importance of harvest data gathered from permit holders, CWS introduced a requirement for murre hunters to purchase a Migratory Game Bird Hunting Permit beginning in either the 2001 hunting season. The total cost of the Permit is $17.00, which includes the mandatory Canadian Wildlife Habitat

Conservation Stamp ($8.50). As this is the same Permit that is presently required to hunt ducks, geese and snipe, a large percentage of murre hunters would not be affected. Wildlife Habitat Canada has agreed that additional funds derived from the sale of the Stamp to murre hunters will be earmarked for management and applied research activities related to murre conservation.

If you have any comments, please contact the Canadian Wildlife Service, 6 Bruce St., Mount Pearl, NF A1N 4T3 (709-772-5585 or 709-535-0601; E-mail: cws.nfandlab@ec.gc.ca).

Non-Toxic Shot

The *Migratory Birds Hunting Regulations* have been amended to require the use of non-toxic shot for hunting most migratory game birds (including ducks, geese, brant, cranes, rails, gallinules, coots, and snipe) in all areas of Canada beginning September 1, 1999. However, three species of migratory game birds – woodcock, band-tailed pigeons and mourning doves – are exempted from the ban, except in National Wildlife Areas where possession of lead shot is prohibited for all hunting, including migratory birds and upland game.

The following non-toxic shot types have been approved for use in Canada: bismuth shot, steel shot, tin shot, tungsten-iron shot, tungsten-matrix shot, and tungsten-polymer shot. It is also proposed that tungsten-nickel-iron shot be added to the list of acceptable non-toxic shot types. ***This proposal was published in Canada Gazette Part I on June 16, for a 30-day period of additional public consultation.***

Baiting Restriction

Currently there is a difference between baiting regulations in Quebec and those that apply in the other provinces and territories of Canada. Except in Quebec, the regulations prohibit the depositing of bait 14 days before the opening of the hunting season; the site must be free of all bait by 7 days prior to this date. The prohibition in Quebec is currently 21 days, with specification that the site be free of bait by 14 days prior to the season opening.

In 2000, a study was conducted to determine the conditioning duration for ducks at baited sites; i.e., the average period of time for ducks to become habituated to finding bait (usually grains). The results indicated that the regulations used elsewhere in Canada are adequate. Hence, it is proposed that the baiting regulations in Quebec be changed to match those in place elsewhere in the country. ***This proposal was published in Canada Gazette Part I on June 16, for a 30-day period of additional public consultation.***

Amendments to Other Regulations

Wildlife Area Regulations

It is proposed that the *Wildlife Area Regulations* be amended in the coming year to extend the boundaries of the following National Wildlife Areas (NWAs) to conserve important habitat for migratory birds and other species: Alaksen, Qualicum and Columbia NWAs in British Columbia; St. Clair, Long Point and Prince Edward Point NWAs in Ontario; Isles de l'Estuaire NWA in Quebec; and Chignecto NWA in Nova Scotia.

Migratory Bird Sanctuary Regulations

It is proposed that the *Migratory Bird Sanctuary Regulations* be amended in the coming year to establish Grindstone Island Migratory Bird Sanctuary (MBS) in New Brunswick, enlarge Isles-aux-Hérons MBS in Quebec, de-list Wascana Lakes MBS in Saskatchewan, and adjust the legal boundaries of the Anderson River MBS in the Northwest Territories.

Literature Cited

Abraham, K. F. and R. L. Jefferies. 1997. High goose populations: causes, impacts and implications. Pages 7-72 in B. D. J. Batt (ed.), Arctic ecosystems in peril: report of the Arctic Goose Habitat Working Group. AGJV Special Publication, U.S. Fish and Wildlife Service, Washington, D.C., and Canadian Wildlife Service, Ottawa, Ontario.

Abraham, K. F., J. O Leafloor and L. R. Walton. 2001. Reproductive monitoring of Southern James Bay Population and Mississippi Valley Population Canada Geese, 2001. Unpubl. Rep. of the Ontario Ministry of Natural Resources.

Bateman, M. C. 2000. Breeding ground surveys for the North Atlantic Population of Canada geese in Labrador, 1993 and 1994. In K. M. Dickson (Ed.). Towards Conservation of the Diversity of Canada geese (Branta canadensis). Can.Wildl. Serv. Occas. Paper No. 103.

Breault, A. and P. Watts. 2001. 2001Cooperative Wetland Survey Results for the Interior of British Columbia- Preliminary analyses of waterfowl use of trend wetlands. Unpubl. Rep. of the Can. Wildl. Serv. (Pacific and Yukon Region).

Canadian Wildlife Service Waterfowl Committee. 2001. Population Status of Migratory Game Birds in Canada: November 2000. CWS Migr. Birds Regul. Rep. No. 1.

Caswell, F. D. and M. M. Schuster. 2001. 2001 Waterfowl Status Report: Executive Summary - June 2001. Unpubl. rep. of the Can. Wildl. Serv. (Prairie and Northern Region).

Humburg, D. D., P. Telander, R. Foster and B. Lubinski. 2001. 2001 EPP Breeding Population Survey. Unpubl. Rep. of the Mississippi Flyway Council Technical Section.

Kerbes, R. H., K. M. Meeres and J. E. Hines. 1999. Distribution, survival, and numbers of Lesser Snow Geese of the Western Canadian Arctic and Wrangel Island, Russia. Can. Wildl. Serv. Occas. Paper No. 98.

Leafloor, J. and R. K. Ross. 2001. 2001 Spring Population Estimates for SJBP Canada geese. Unpubl. Rep. of the Ontario Ministry of Natural Resources and the Can. Wildl. Serv. (Ontario Region).

Leafloor, J. and R. K. Ross. 2001. Preliminary Spring Survey Results for MVP Canada Geese - 2001. Unpubl. Rep. of the Ontario Ministry of Natural Resources and the Can. Wildl. Serv. (Ontario Region).

Ross, K. 2001. 2001 Black Duck survey of Northeastern Ontario. Unpubl. Rep. of the Can. Wildl. Serv. (Ontario Region).

Wilkins, K. A., M. C. Otto and P. R. Garretson. 2001. Trends in duck breeding populations, 1955-2001. U.S. Fish & Wildlife Service, Administrative Report, Laurel, MD, USA.

Appendix A.

2001 Migratory Birds Hunting Regulations Summaries by Province and Territory

are available on the CWS national Web site at:

http://www.cws-scf.ec.gc.ca/pub/summ/index.html