

# NEW YORK'S WILDLIFE RESOURCES

AN EXTENSION PUBLICATION OF THE  
DEPARTMENT OF NATURAL RESOURCES  
NEW YORK STATE COLLEGE OF AGRICULTURE AND LIFE SCIENCES  
A STATUTORY COLLEGE OF THE STATE UNIVERSITY  
AT CORNELL UNIVERSITY, ITHACA, NEW YORK

Number 20, 1984

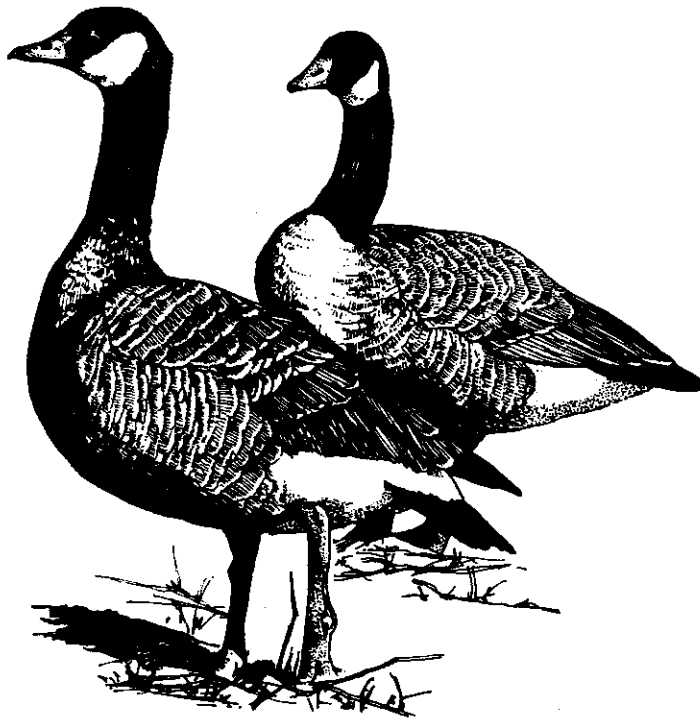
## Canada Goose (*Branta canadensis*)

### Description

Ranking among the grandest of wildfowl and one of the most well recognized on the North American continent is the Canada goose. A member of the waterfowl family (Anatidae), the Canada goose is one of six species of geese common to North America. The brent goose or brant (*Branta bernicla*) is a closely related species often seen in marine environments along the East and West Coasts. Snow geese, Ross' geese, white-fronted geese, and emperor geese, all belonging to the genus, Anser, are generally lighter colored geese (white or gray) more commonly found in the western and midwestern portions of the continent.

Canada geese are readily distinguished from other forms of geese by the presence of a black neck and head with a prominent white cheek patch. The bill, legs, and feet are a uniform black, while the body feathers are gray-brown to dark brown in color (the underparts being lighter in contrast to the back and sides). The wings are gray-brown, the belly white, and a black tail and rump is separated by a white V-bar formed by white upper tail coverts. Both male and female Canada geese are similar in appearance.

There are about 11 recognized subspecies or races of Canada geese. These range in size from the little cackling Canada goose (*B. c. minima*) of



Alaska, weighing 3-4 pounds (1.3-1.8 kg), to the giant Canada goose (B. c. maxima) of the Midwest, that may weigh as much as 20 pounds (9.0 kg). Those found in New York and the Atlantic coastal states are mainly intermediate forms (average weight 7-9 lbs. [3.1-4.0 kg]), belonging to the subspecies, interior (interior or Todd's Canada goose) and canadensis (Atlantic Canada goose).

Many eastern states, including New York, have recently established resident

flocks of Canada geese. The races used in these management programs are generally giant Canada geese and western Canada geese (B. c. moffitti), both of which adapt to nesting in more temperate areas and have more restricted migrational tendencies in contrast to the majority of geese that pass through these states in the spring and fall.

The sexing and aging of Canada geese is accomplished by the identification of a variety of characters relating to differences in their anatomy and plumage. Sex is most easily distinguished by examination of the cloaca (vent). With experience, a goose in hand can be easily examined by tucking its head under one wing and positioning the bird upside-down in the examiner's lap. Everting the cloaca with a probe or one's thumb allows inspection of this region for the presence of a penis (male) or absence of one (female).

The aging of geese is most reliable during the first 6-8 months after the birds hatch. This is the period when plumage characters are most definitive. The downy feathers of Canada goose goslings are a grayish-yellow color at birth. This progressively changes to a dull gray over the next 2-3 weeks as the birds grow and juvenile feathers start to develop. At about 2 months of age, adult feathers are prevalent and young

Canadas are much like their parents in size and coloration. It is at this stage that their wing feathers are sufficiently developed to allow flight.

Although young geese may look like adult birds at an early age, some areas of their bodies may retain juvenile feathers well into winter and spring. One such area is the tail. Juvenile tail feathers, when present, are conspicuous because of a notch present at the tip of the feather. This notch is a result of the feather shaft being slightly deformed as it replaces the original downy tail feather. A single notched tail feather is sufficient to identify a young-of-the-year bird positively. Juvenile wing feathers are retained until molted the following year. However, it takes a very discerning eye to detect differences confidently in these feathers.

### **Distribution and Abundance**

The range of the Canada goose extends from coast to coast over most of the U.S. and Canadian portions of the continent. Within this range there are about 10 major population units that have been identified primarily for management purposes. Each population consists of 1 or more subspecies sharing the same nesting, migration, and wintering areas. Nationwide, these populations contain over 2.5 million birds based on mid-winter inventories conducted by state and federal biologists.

The Atlantic population, common to New York and the eastern coastal states, is one of the largest populations of Canada geese in the country. Winter estimates average around 840,000 birds or about 35 percent of the nationwide total. Difficulty in censusing geese in this population, because of their broad wintering distribution, has led many biologists to believe that these estimates are low, and that the actual wintering population may be in excess of 1.5 million birds.

The distribution of Canada geese in the Atlantic Flyway extends throughout much of the eastern portion of North America (Figure 1). The breeding range of geese in this flyway covers a broad expanse of eastern Canada extending from the James Bay lowlands and the east coast of Hudson Bay to Newfoundland. Their wintering range extends from New York to South Carolina, with the majority of wintering geese concentrated in the peninsular region of Chesapeake Bay in the states of Delaware, Maryland, and Virginia. Movement between the breeding and wintering areas occurs

along two major migration corridors. The most prominent of these extends along the east shore of Hudson and James Bays, south across central New York and eastern Pennsylvania to the east shore of Maryland. The other passes down the Labrador coast to the Maritimes, where it picks up birds from Newfoundland and continues along the coast of New England, across Long Island and down the New Jersey shore.

Typical of other goose populations throughout the country, the Atlantic population has experienced dramatic

changes in the past 30 years. In the late 1940's, winter estimates were below 300,000 birds. The upsurge in numbers of geese that has occurred since that time is believed related to: (1) an increase in the numbers of state and federal refuge areas situated along migration corridors and on wintering areas; (2) an increase in the available food supply for migrating and wintering geese resulting from more intensive agricultural practices; and (3) the remoteness of their breeding grounds, leaving birds essentially undisturbed by humans, machines, drought, and predators.

While numbers of geese have been increasing, there has also occurred a shift in the distribution of wintering birds. Traditionally, geese in the Atlantic population migrated as far south as Florida. States such as North Carolina and South Carolina were once the "capitols" for wintering geese. Now, these areas contain but a few remnant wintering populations. At the other end of the wintering range states such as New York and Pennsylvania, which were once thought to be too far north to winter any large numbers of

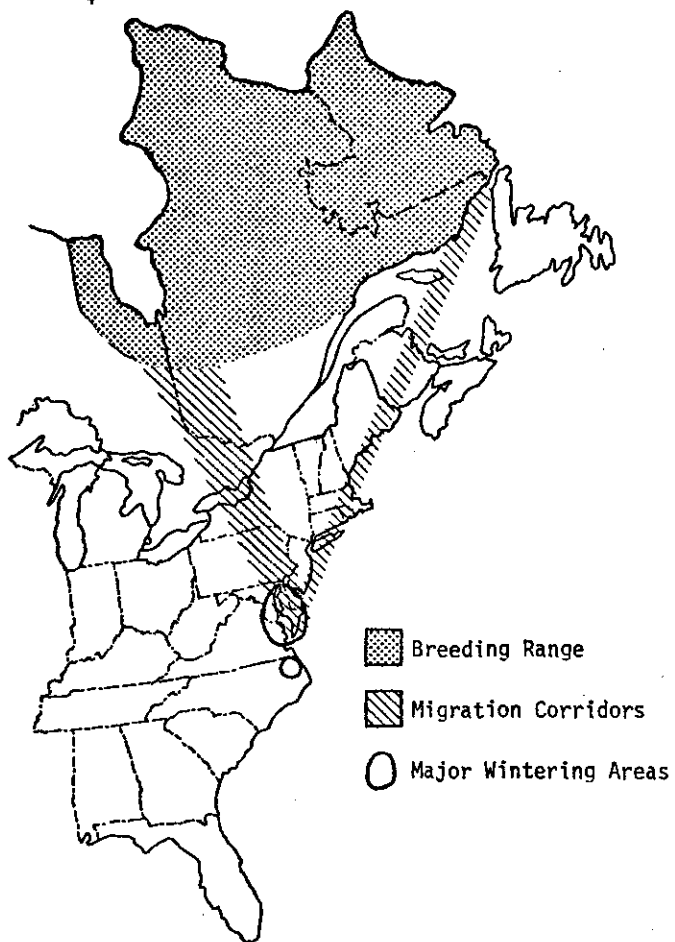


Figure 1. Distribution of Canada geese in the Atlantic Flyway.

birds, are now finding more geese staying for longer periods within their boundaries. A prime example of this in New York is the Finger Lakes region, where wintering numbers of geese have increased substantially in recent years.

The reasons behind the northerly shift of wintering geese are not entirely understood. A major factor appears related to the increase in food availability and refuge areas in more northerly areas. This may have lessened the need for birds to travel as far south to find suitable wintering conditions. A second potential factor influencing this change may be related to hunter harvest. Birds migrating farther south are subject to greater hunting pressure and may therefore be experiencing lower survival rates. Over the years, those birds genetically inclined to travel greater distances south have been steadily removed from the population, resulting in geese with tendencies to remain in northern areas. Finally, there is reason to suspect that the increase in the numbers of state-reared resident goose flocks may influence the migration patterns of more northerly nesting geese. Areas in New York, such as the Wilson Hill, Howland Island, and Oak Orchard Wildlife Management Areas, where such flocks exist, may act to decoy early migrants and delay their movement southward.

## **Life History**

Beginning in early March, the first vanguards of geese are often seen moving toward northern breeding areas in their characteristic flights of V-formation flocks. These are not direct flights to the breeding grounds since areas in the Far North may not become free of snow and ice until some time in May. Rather, their movements are intermittent, stopping in agricultural areas along the migration route to feed on waste grains, grasses, and forbes in final preparation for the breeding season.

Flocks of geese moving north in spring consist of paired adults, young from the previous breeding season, and subadults. Many of the birds classified as subadults may be paired and preparing to nest for the first time. Mate selection in geese does not occur until their second or third year of life. Once a male and female are paired, a strong bond is formed that often lasts for the life of the two birds. Should a pair be separated

by the death of a mate, the survivor will attempt to find another mate by the following nesting season.

Upon arrival at the breeding grounds, birds that have nested in previous years will often reoccupy their former nesting territories. Attachment to such sites allows these older, more experienced pairs to establish themselves early in the nesting season and to defend these areas successfully from intrusion by other pairs. This is especially important in years when the number of available nest sites may be limited and competition for them keen.

Nest sites are usually selected by the female. Preferred locations are those that allow good visibility in all directions. In the North, such elevated areas are found on islands, hummocks, or raised perimeters of lake and pond shorelines. In more southerly areas, such as New York, commonly used nest sites include muskrat houses, beaver lodges, gravel bars, pond dikes, and occasionally artificial structures, such as elevated platforms or washtubs mounted in trees or on poles above the water. The number of nests located in an area is dependent upon the number of suitable sites and on the aggressiveness of individual pairs toward other geese competing for these sites.

The goose begins preparation of a nest site by making a scrape or using a depression in the ground. Materials in the immediate vicinity of the nest, such as mosses, lichens, twigs, and leaves, are pulled in to construct a nest bowl. Down is plucked from the breast of the goose to add to the lining of the nest. Eggs are laid at a rate of about 1 every 1.5 days and laying culminates in a clutch consisting of 5-6 eggs. The incubation of eggs takes about 28 days. During this period, both members of the pair stay in close proximity to the nest unless disturbed; the female attending the eggs and the male keeping a vigilant guard nearby.

A successful nest is one in which at least one egg is hatched. With Canada geese, about 70 percent of the nests are successful. Many early nest losses are often attributed to young, inexperienced geese who lack strongly developed nesting instincts and therefore offer little resistance to predators or are simply more prone to desert the nest. In years of very low nest success, severe weather conditions such as snowstorms, flooding, etc. that impair the goose's ability to maintain incubation are often at

fault. If such conditions continue through the hatching period, a bird's ability to brood her young successfully may be similarly affected.

Young geese are generally brooded at the nest site for several hours to a day following their hatch. Soon after, they are taken by the goose and gander to brood rearing areas where they are joined by other family groups. Brood flocks consisting of two or more family groups are termed "creches". These rearing flocks remain together about 2 months until the young attain flight.

Well beyond the brood rearing period, the family group remains an integral part of the social structure of the species. Within any flock, larger families are dominant over smaller ones, and any family is dominant over paired or unpaired birds without families.

During the brood-rearing period, Canada geese undergo a complete molt in which old, worn feathers are replaced by new. At this time, birds are flightless for 3 to 4 weeks. This flightless period of the adult geese with young has evolved to coincide with the growth of new flight feathers by the young, thereby allowing both parents and offspring to attain flight at about the same time. Nonproductive birds differ in that their molt usually occurs a few weeks earlier.

Early in the fall, geese become restless on the breeding grounds as colder weather signals the approach of winter. They begin to gather at favorite "staging" areas, where flocks of adults with young are joined by subadults and nonproductive birds. Triggered by the onset of cold, and with northerly winds to help speed them on their way, they begin their exodus south. For the geese that pass through New York State, departure from the breeding grounds is usually in early October. Most flocks have traveled through the state and arrived at the principal wintering areas around Chesapeake Bay by mid-November. However, many birds remain behind as long as open water and food remain available.

The diet of Canada geese is predominately composed of vegetable matter, such as grasses, sedges, seeds, berries, aquatic plants, and cultivated grains. Less frequently, insects and crustaceans are ingested. Agricultural crops are most important during migration and on the wintering grounds, while natural foods become increasingly important during the time spent on the summer breeding areas. Important grains in the diet include

foxtail millets, corn, oats, soybeans, and grain sorghums. Preferred browse plants include barley, wheat, rye, alfalfa, and clover. Grit is consumed in all seasons as it is necessary to assist the breakdown of food materials in the bird's gizzard.

Largely due to their size and aggressiveness, Canada geese are less subject to predation than most waterfowl. Their average life expectancy is about 7-9 years, although it is not uncommon to find banded birds in the wild that have lived 12 to 18 years. At the present time, hunting pressure within the flyways is the largest factor moderating Canada goose populations. Another significant source of mortality comes from occasional outbreaks of viral and bacterial diseases resulting from crowded conditions on the wintering grounds. Two of the most potentially devastating are avian cholera and duck plague. Occasional outbreaks of these diseases have caused large losses of birds in some localities. Considering all sources, annual mortality usually is estimated at between 30 to 50 percent.

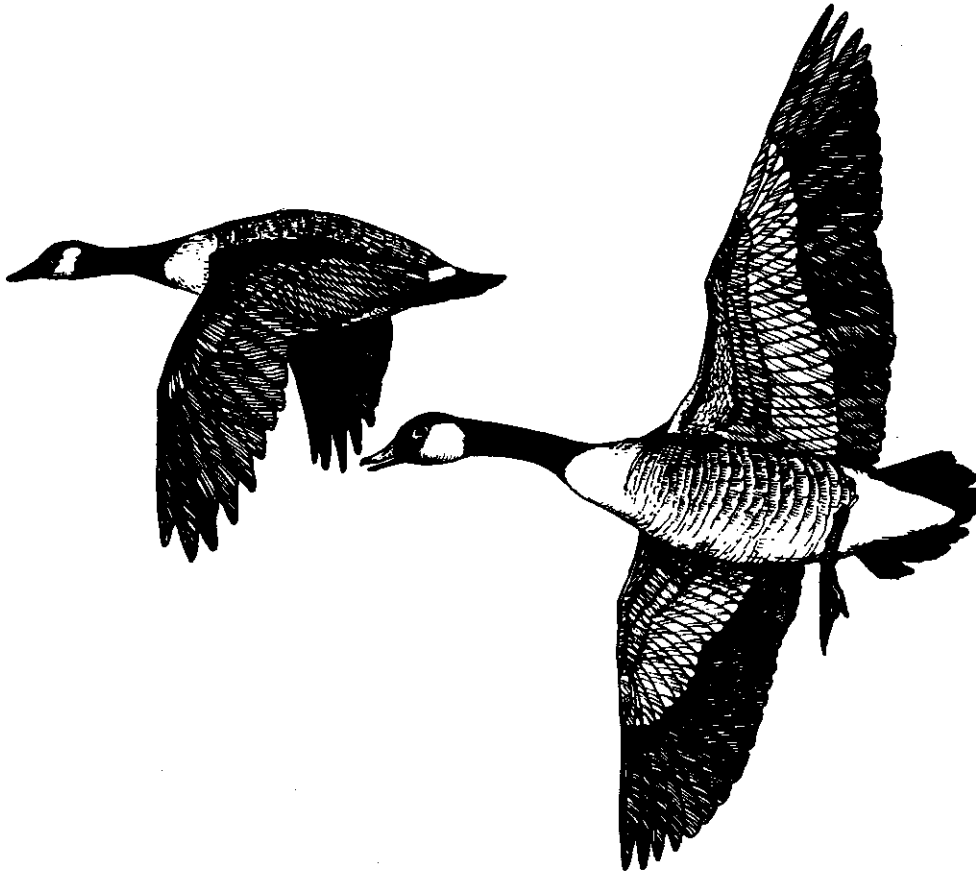
### **Economic and Social Values**

For generations, the sights and sounds of migratory Canada geese have led people to think of the far-away places from which the birds come and go. Sometimes called the aristocrat of wildfowl, the Canada is seen by millions of spectators at some season of the year--flying high in the air, over hill and valley, river and lake, forest and plain, country, town, and city. Our admiration of the goose is evident by its symbolic presence in our every-day lives as seen on items such as postage stamps, letterheads, paintings, and even on commercial aircraft.

Obviously, the Canada goose is held in high esteem by many people. There is a general admiration even among those who might be least tolerant--farmers whose crops are occasionally subject to goose depredation. Additionally, farmers are increasingly recognizing the economic value of Canada geese through the leasing of croplands for hunting.

Canadas also have a dedicated following among the approximately 75,000 waterfowl hunters in New York. It is estimated that each of these hunters annually spend a total of about 6 days afield; collectively contributing millions of dollars to local economies while pursuing ducks and geese in the State.





In other parts of the Nation, some refuges have observed that scores of people come to see geese for every one who comes to hunt them and that at one refuge alone, the annual net benefit of the flock was estimated at over 20 million dollars! It is evident that in all aspects of the word, the Canada goose is truly a "valuable" resource.

## **Management**

The comeback of the Canada goose in the last 30 years is one of the more spectacular success stories in wildlife management. There are perhaps more Canadas currently in North America and New York State than have existed for centuries. However, associated with this comeback have been increasingly complex problems faced by managers attempting to provide maximum populations and quality recreation opportunities from this resource.

### Habitat Management

Because of their distribution and migratory movements, Canada geese use a wide range of habitats in different seasons. However, their basic requirements are fairly simple--adequate food, water, and undisturbed areas for sanctuary. Improvement of these habitat conditions has resulted from such wide-scale changes as the advent of agricultural practices that have increased the amount of available crops, the development of human-made impoundments, and the establishment of a system of waterfowl refuges. Canada geese have thus found conditions favorable for population growth. Both state and federal conservation agencies and private organizations such as Ducks Unlimited have been instrumental in acquiring waterfowl areas that have been so important to the increases in Canada goose populations.

Conservation agencies within the Atlantic Flyway currently manage over 3 million acres of waterfowl habitat. In New York State, major concentrations of Canadas can be found at both of the federal management areas--the U.S. Fish and Wildlife Service's Iroquois and Montezuma National Wildlife Refuges. Also, the New York State Department of Environmental Conservation manages areas of importance to Canada geese. These include the Howland Island, Wilson Hill, Perch River, and Oak Orchard Wildlife Management Areas.

Although public resource agencies have done much to increase the quality of Canada goose habitat, farmers continue to play a vital role through crop production and management. In New York, farmers harvest over 1.5 million acres (0.6 million ha) of grain crops annually. However, only a small fraction of these acres are actually used to any extent by Canada geese. To be attractive to and used by Canadas, grain fields need to be large and open with substantial amounts of waste grain left in the unplowed fields. A relatively large body of open water providing undisturbed sanctuary nearby is also preferred. Limiting any of these factors generally results in less use of these habitats by Canada geese.

### Population Management

Management of flyway populations to maintain maximum numbers of birds, while permitting quality recreation opportunities is a complex task in light of the Canada's wide-ranging habits. Like other migratory waterfowl,

jurisdiction of Canada goose management lies with the federal government's U.S. Fish and Wildlife Service, a part of the Department of Interior. Working in cooperation with state agencies, management objectives for individual flyways are established. Within this framework, annual regulations are set for specific states, regions of the state, and sometimes for particular locations such as management areas where hunting pressure is concentrated.

Full use has been made of this system in New York. Five zones (Western, Northeastern, Lake Champlain, Southeastern, and Long Island) have been established to provide a controlled statewide harvest and to equitably distribute opportunities among hunters. Present regulations allow the hunting of Canada geese for a 90-day period over most of the state with a daily bag limit of 3 birds. Certain special areas, such as specific state wildlife management areas or federal refuges where birds may be particularly susceptible to harvest are closed to goose hunting or have more restrictive regulations. Other areas, such as the Long Island and Lake Champlain zones, have special season dates that conform to the movement patterns and harvest of birds within these areas.

Canada goose numbers may fluctuate annually with changes in reproduction, mortality, and habitat conditions. Establishing annual harvest regulations that help compensate for these fluctuations is a big part of the biologist's responsibility for management of this resource. There are also many other facets of management that are required to meet the biological needs of the birds, while at the same time satisfying user demands and the many socioeconomic problems that arise from extensive contact between geese and people.

To date, these management efforts have been rewarded. As judged by the present status of our Canada goose population, the overall management program for this resource has been one that reflects a large degree of both foresight and success.

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(Illustrations drawn by Donna Curtain; preparation of the illustrations funded by the American Wildlife Research Foundation, Inc. The authors express their appreciation to Daniel J. Decker for his review of this paper.)