



# A Perception OF ABUNDANCE

written by Jim Wilson

F. EUGENE HESTER

*Its numbers once were like thick smoke in the winter skies of North Carolina. Now the migratory Canada goose faces an uncertain future here, while its resident cousin continues to thrive.*

Nearly 60 years ago, conservationist Aldo Leopold posed the question “What is a wild goose worth?” As North Carolina’s winter population of migratory Canada geese lingers at only a fraction of the size it once was, Leopold’s question may take on an added urgency.

The considerable financial resources and man-hours allocated throughout the

United States and Canada to understanding the migratory Canada goose are but a small indication of its value. The bird’s ultimate worth lies in the link it provides each of us to that which is wild. When we hear its ha-ronking calls on a cold, gray morning, the sound stirs an ancient sense of wildness that humans lost a myriad of generations ago. Migratory Canada geese

inspire an indefinable longing, perhaps even evoke a sense of kinship. Little wonder, then, that the sight and sound of wild geese are drama enough to make the hairs on the back of a hunter’s neck bristle.

The return of migratory Canada geese to North Carolina each autumn is a pageant that has played out since the end of the last ice age. With flocks of migratory Canadas that at times numbered 100,000 or more from the 1940s and into the 1960s, Hyde County’s Lake Mattamuskeet was called the Canada goose capital of the world. In fact, the birds were abundant all along the northern half of our coast, with nearly

200,000 geese spending the winter here. The Canada became an integral part of North Carolina’s rich waterfowl lore.

The Canada goose not only made Mattamuskeet famous, it helped establish the Currituck Sound as one of the premier waterfowl hunting locations on the East Coast. For a time in the last century, if you wanted the best Canada goose hunting in the nation, you made tracks to eastern North Carolina. The Canada also was a factor in the rise of hunting clubs along the North Carolina coast, a tradition most identified with the Currituck region. The name Currituck is said to be derived from

“coratank,” an American Indian word for wild goose. For well over 150 years, this bird has been an important part of our state’s landscape and economy, providing sustenance, jobs and enjoyment.

Ironically, the areas of the state most associated with Canada goose hunting have been without a winter hunting season on the bird since 1992. Lake Mattamuskeet and Currituck and Roanoke sounds, plus portions of the Pamlico Sound, fall within the Northeast Hunt Zone, a management unit established by the N.C. Wildlife Resources Commission. Within that zone, hunters have been allowed to shoot resident

Canada geese during the September season but could not hunt geese the remainder of the winter.

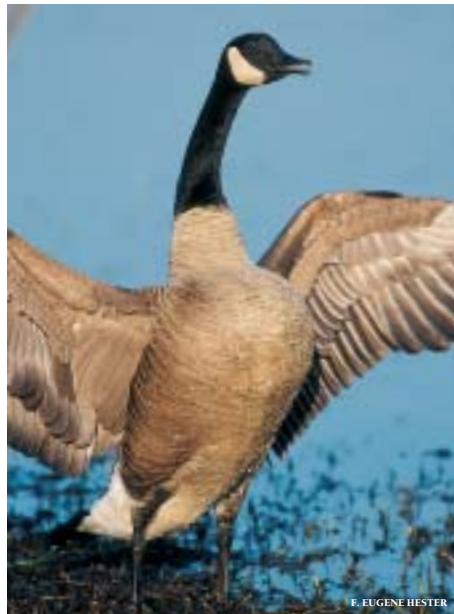
That will change in 2006. The commission, with the permission of the U.S. Fish and Wildlife Service, has approved a brief, permit-only hunt for the Northeast Hunt Zone during the last two weeks of January. Hunters will be required to send in feathers from any goose killed so that DNA tests may be conducted. The future of this season depends on whether too many migratory geese are killed.

Why has there been no traditional winter season in those areas, when Canada geese





Breeding grounds surveys conducted annually in remote regions of Canada have given biologists a more accurate estimate of Canada goose populations.



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NCWRC

seem to be everywhere? The answers lie in the long saga of the decline of the migratory Canada goose in North Carolina that played out as a year-round population grew and grew.

### Land of the Wild Goose

Canada geese and other waterfowl were on the menu not only of European colonists but also of American Indians, who baited the birds with corn and shot them with arrows. Naturalist John Lawson described the colony's Canada geese in "A New Voyage to Carolina" in 1709: "Of Geese we have three sorts, differing from each other only in size. Ours are not the common Geese that are in the Fens in England, but the other sorts, with black Heads and Necks."

Lawson related a story passed down by American Indians: "[T]hey say, there was so hard a Winter in Carolina, 105 Years ago, that the great Sound was frozen over, and the Wild Geese came into the Woods to eat Acorns, and that they were so tame, (I suppose, through Want) that they kill'd abundance in the Woods, by knocking them on the Head with Sticks."

By the mid-19th century, great flocks of ducks and geese attracted hunters for sport and market up and down the East Coast. By 1854, North Carolina had made it illegal for nonresidents to hunt "wildfowl" in Currituck County. Fifteen years later, the state prohibited the "firehunting" of waterfowl in Carteret, Craven, Hyde, Currituck, Tyrrell and Onslow counties. (The state already had outlawed hunting at night with firelight in 1777, prohibited hunting with a

gun and firelight in 1779 and banned the practice again in 1784 under penalty of 39 lashes. North Carolinians, it seems, were enamored of shooting by artificial lights, and the practice continued for waterfowl into the 20th century.)

Firehunting, or fire-lighting, for waterfowl was a deadly method often used by market hunters in which gunners would silently row close to floating rafts of ducks or geese. A light attached to the bow of the boat, usually a kerosene lantern, was amplified with a mirror or sheet of shiny metal behind it. Invisible behind the light, the gunners could approach within a few feet of the waterfowl before firing. The shooters could always douse their light to avoid officers, although arrests for the practice in North Carolina were few.

For almost 70 years, a thriving market for wild game employed hunters in North Carolina. Suppliers packed the waterfowl on ice in large barrels—about 100 birds per barrel—and shipped them by boat or train to Norfolk, Va., where the fowl were transported to New York, Philadelphia and other East Coast cities. When the Albemarle and Chesapeake Canal (now part of the Intracoastal Waterway) opened in 1859, boats could bypass the older, slower Great Dismal Swamp Canal.

H. H. Brimley, the first curator of the N.C. Museum of Natural Sciences, recorded the 1884 market prices for ducks and geese from the Currituck Sound (all prices paid to gunners and by the pair unless noted):

Canvasbacks	\$1.00
Redheads	\$.50
"Common" ducks	\$.30
Teal, ruddy, bufflehead	\$.25
(four ducks to the pair)	
Canada geese (each)	\$.50

About 20 years later, the price for a Canada goose remained the same, perhaps owing to the abundance of the bird and toughness of old geese. Canvasbacks, always the premier waterfowl of the Currituck Sound for sport and market hunters, at times fetched \$5 per pair. Ruddy ducks approached \$3 per pair when they became trendy table fare in New York.

Records show that from 1903 to 1909, 400 men in the Currituck area made a combined \$100,000 annually by market hunting. Using market prices from the period, game biologists estimate that a mind-numbing annual kill of 400,000 waterfowl was taken in the area.

William T. Hornaday, founder of the National Zoo in Washington, D.C., and strident advocate for reform of what he called the "slaughter-pen" of Currituck, wrote in his 1913 book, "Our Vanishing Wildlife":

The market gunners of Currituck Sound are a scourge and a pest to the wild-fowl life of the Atlantic Coast. For their own money profit, they slaughter by wholesale the birds that annually fly through twenty-two states. It is quite useless to suggest anything to North Carolina in modern game laws. As long as a killable bird remains, she will not stop the slaughter. Her standing reply is 'It brings a

lot of money into Currituck County; and the people want the money.' Hornaday either was unaware of or chose to ignore the laws North Carolina had passed to protect wildlife. Still, there were few officers to enforce those laws, and the money available for selling waterfowl for the table or wading birds to the feather trade was inducement enough for the illegal hunting practices to continue.

### The Demise of Market Hunting

Waterfowl hunting was an important livelihood for people on the Outer Banks, where thin, poor soil did not lend itself to farming. Men supported their families by fishing, hunting and guiding. As the 20th century dawned, however, the hunters' success alarmed lawmakers, goaded to action by Hornaday and others. Market hunting was on its last legs.

One of the first blows came in 1900, when the U.S. Congress passed the Lacey Act, which prohibited animals killed illegally in one state from being shipped across state boundaries. North Carolina passed a version of the American Ornithological Union's "model law" for the protection of both game and nongame birds in 1903. That bill, known as the Audubon Law, authorized the Audubon Society to hire wardens to enforce all the game laws of North Carolina. In 1911 New York State attempted to end the trade in waterfowl with passage of the Bayne Act, which banned the sale of native wild game in markets and restaurants. Finally, Congress ratified the Migratory Bird Treaty Act in 1918, which gave authority for the taking of all migratory birds to the

federal government, and market hunting effectively ended.

Gunners harvested unimaginable numbers of birds even as the market closed. Using sink boxes, corn for bait, and live Canada geese or mallards as decoys, market hunters could kill hundreds of geese and ducks in a day. The invention in 1900 and introduction three years later of John Browning's Auto-5, the first semi-automatic shotgun, only enhanced their effectiveness. In 1905, a pair of hunters, Russell and Van Griggs, shot 892 ruddy ducks in a single day on Currituck Sound.

Most market hunters were not intent on decimating wildlife for the thrill of killing. Many were Outer Banks natives who saw themselves as using a resource,

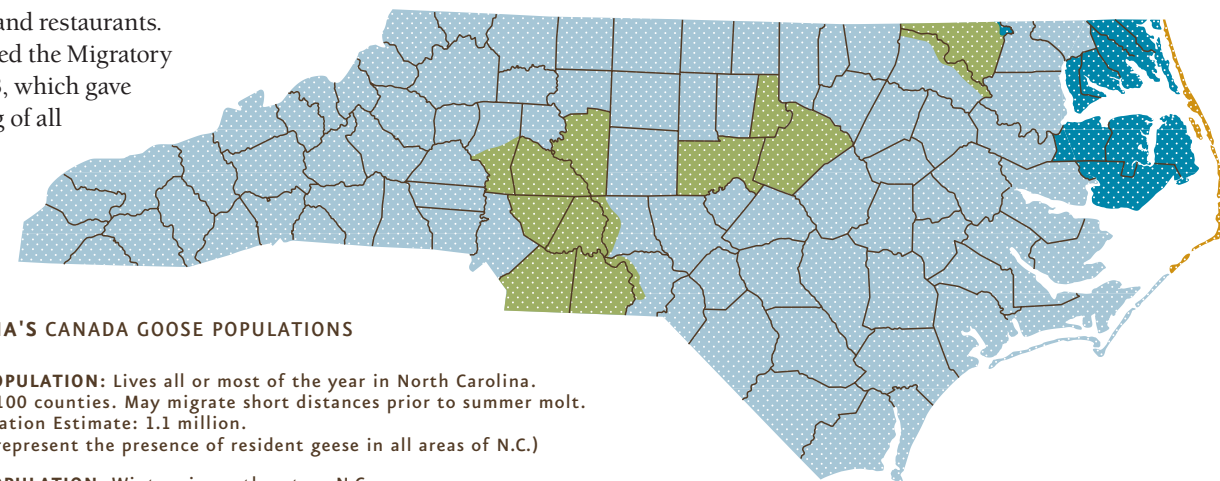


MIGRATION RANGE MAP

- ATLANTIC
- NORTH ATLANTIC
- SOUTHERN JAMES BAY

Lines outline areas of migration for each population.

Source: NCWRC & USFWS  
GRAPHICS BY KRISTIE RHODES



NORTH CAROLINA'S CANADA GOOSE POPULATIONS

- RESIDENT POPULATION:** Lives all or most of the year in North Carolina. Found in all 100 counties. May migrate short distances prior to summer molt. Flyway Population Estimate: 1.1 million. (White dots represent the presence of resident geese in all areas of N.C.)
- ATLANTIC POPULATION:** Winters in northeastern N.C.; breeds along Ungava Bay and Hudson Bay coasts. Flyway Population Estimate: 1.1 million.
- NORTH ATLANTIC POPULATION:** Winters mostly on Outer Banks; breeds in Newfoundland and Labrador. Flyway Population Estimate: 130,000.
- SOUTHERN JAMES BAY POPULATION:** Winters in small scattered flocks from upper Coastal Plain to western Piedmont; breeds on Akamiski Island, Nunavut and James Bay coastline. Flyway Population Estimate: 46,000.

Source: NCWRC





N.C. ARCHIVES AND HISTORY



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and with the abundance of ducks and geese in the state, that resource seemed without end.

Brimley, writing in 1943 for the precursor of *Wildlife in North Carolina*, recounted an 1884 trip to Currituck:

One afternoon I tried to roughly count the number of Canada geese in a straggling line of flocks that was crossing Church Island for their night's resting place on Coinjock Bay. My estimate was well above the 10,000 mark. From my viewpoint, that flight represented only a small part of the myriads frequenting the sound both north and south.

In 1981, longtime Currituck guide and decoy maker Blanton Saunders recalled for *WINC* the wealth of waterfowl in northeastern North Carolina when he was a boy in the 1910s:

I have seen the waterfowl darken the sky like you see a forest fire and the smoke darken the sun. Thousands and thousands and thousands of 'em. And there wouldn't be just this bunch. Up the sound, there'd be another bunch just like it, and another down the lower sound.

At that time, waterfowl had been gunned heavily for about 70 years. The num-

ber of ducks and geese that once existed on Currituck Sound must have been staggering. Throughout the 1920s, bag limits for the area under the Migratory Bird Treaty Act were a generous 25 ducks and eight geese per day.

Even into the 1930s, Julian Hamilton Jr., a hunter and well-known decoy maker from the Core Sound area, found thousands of geese while hunting with his father near Cedar Island. "There were so many geese around, when we'd go to sleep at night, it would sound like bees," Hamilton told *WINC*. "It was a steady roar of geese out there. That is how many there were."

Market hunters were not the only group that found a little piece of waterfowl heaven in the sounds of North Carolina. In the mid-19th century, wealthy sportsmen from Northern states discovered the state's sporting opportunities. Organized in 1857, the Currituck Shooting Club was the first of the Outer Banks hunt clubs. Others followed, along much of the North Carolina coast. The very names of the clubs—Whalehead, Currituck, Knapp's Lodge, Swan Island, Pine Island, Dews

**Although market hunting had been outlawed by the federal government in 1918, hunters in the 1920s and early 1930s, such as these on the Pamlico Sound, still enjoyed generous limits on geese and ducks.**

Island—to this day can make waterfowlers nostalgic, if not downright misty.

According to records of 10 hunt clubs on the Currituck Sound and Back Bay in Virginia, in the years from 1872 to 1963, the clubs' total kill was 517,229 ducks and 56,141 Canada geese from 51,668 man-days of effort. Although those figures are nowhere near those for market hunters, the numbers border on the fantastic for today's waterfowlers.

There were no clubs at North Carolina's prime goose-hunting destination, Lake Mattamuskeet, which had its own lodge, a few dozen blinds and an incredible number of Canada geese. Biologists estimate that the number of Canadas increased approximately tenfold in the post-Migratory Bird Treaty Act recovery period from 1930 to 1960. By the end of the period, more than 100,000 wintered at the 50,000-acre natural lake.

Part of the reason for the increase was the demise of the final attempt to drain Mattamuskeet and farm the rich land underneath. After spending \$17 million on a project that proved impractical, wealthy New Yorker August Heckscher sold the land to the federal government, which created a wildlife refuge in 1935.

But changes were in the wind. Dark days for migratory Canada geese in the South, and later throughout the Atlantic Flyway, were coming harder than a November nor'easter.

### Bird of Many Forms

■ ■ ■ ■ A key to understanding what has happened to Canada geese is that North Carolina has four separate populations of *Branta canadensis*, three of which—the Atlantic (AP), North Atlantic (NAP) and Southern James Bay (SJB)—are migratory (map, page 7). The geese that breed in North Carolina constitute the resident Canada goose population, an all-too-familiar sight in most of North Carolina. In North America, 19 distinct populations of Canada geese exist, six of which are resident.

"The four populations are pretty much managed independently," said Joe Fuller, the Wildlife Commission's migratory game bird biologist. "Their breeding origins are different; their wintering grounds are different. Most people think a goose is a goose, but it's not like that."

A key source of information for biologists is the Midwinter Waterfowl Survey, which is completed from the air each year in early January by the U.S. Fish and Wildlife Service and the states within the Atlantic Flyway. The survey provides an estimate of waterfowl numbers on key wintering areas. In North Carolina those areas are primarily, but not entirely, in the northeast. In 1964, biologists counted 161,173 Canada geese in North Carolina. That number dipped just below 100,000 the following year and has not approached six figures again (graph, page 12).

Other Southern states also began to detect problems. Canadas historically had migrated all the way to Florida, but populations there and in Georgia and South Carolina waned. Biologists attributed the decline to "short-stopping," which means that the birds were wintering farther north than they traditionally had done because they could readily find food (primarily grain crops) and open water.

Farther north there were no apparent problems. Chesapeake Bay and the Delmarva Peninsula seemed awash in Canada geese. At first, the only problem with Atlantic Flyway geese appeared to be that they were changing their migratory habits. The situation, however, would become more dismal before it began to improve.

"There were some really large-scale farming changes taking place back then," Fuller said. "That whole Delmarva Peninsula had been primarily vegetable farms, truck farms. Then the farmers began plant-

ing more grain and more corn, things that geese like to eat. And corn is very high-energy food for geese."

Wintering geese in the Southeast continued to decline through the 1970s. At the end of that decade, about 42,000 geese were counted in North Carolina. By the 1980s, the Chesapeake region also began to see population declines.

Jay Hestbeck, then with the Massachusetts Unit of the National Biological Service and currently the director of the Northern Prairie Wildlife Research Center, thought the reason for the Chesapeake decline was not short-stopping but an 11-percent decline in survival, a decrease that was related to a 36-percent increase in average harvest rate for the Atlantic Flyway from 1963–74 to 1984–88. "Changes in population numbers result from changes in production, survival and movement, acting singly or in combination," Hestbeck wrote.

Meanwhile, the Atlantic Flyway overall had a midwinter estimate of 955,000 AP geese in 1981, with an annual harvest exceeding 400,000 throughout most of the decade. By 1986, when a decline in most waterfowl populations the previous year had prompted Fish and Wildlife to coordinate its North American Waterfowl Management Plan with Canada (as it would do two years later with Mexico), the midwinter estimate had declined to 814,000. Fish and Wildlife reduced bag limits and shortened seasons in 1988 and again in 1992, when North Carolina closed its season on AP geese.

By 1993, AP geese fell to 569,200 and SJB birds to 104,400, from 129,300 in 1985. In 1995, the Atlantic Flyway Council closed the hunting of migratory Canada geese except for a brief season along Canada's Maritime coast. How could a bird go from relative abundance to such desperate straits in such a short time?

### Past as Future

■ ■ ■ ■ A couple of circumstances were involved. First, several years of very poor reproductive efforts and harsh winter weather in the late 1980s and early '90s hit Canada geese hard. Because Canadas don't become productive breeders until they reach about 3 years of age, reproductive failures would gradually become noticeable. A second problem stemmed from confusion about which types of geese wildlife managers had

## WATERFOWL IN N.C. 1854–2006

- 1854** Law prohibiting nonresidents from hunting wildfowl in waters of Currituck County.
- 1857** Currituck Shooting Club organized.
- 1869** Act prohibiting firehunting waterfowl in Carteret, Craven, Hyde, Currituck, Tyrell and Onslow counties.
- 1870** Law prohibiting punt guns on the waters of Currituck County, and use of blinds or batteries in the water away from the marshes or shores. Ratified Feb. 14; repealed Dec. 1870.
- 1891** Provision for appointment of gamekeepers in Currituck County, with power to arrest violators of the game laws of the county. Repealed 1895. Reenacted 1899.
- 1893** Provision prohibiting shooting with rifles on Core Sound, Carteret County from Nov. 1 to March 21.
- 1897** Comprehensive regulatory law for wildfowl hunting in Currituck County; nonresidents of the state prohibited from hunting from any box, battery or float not on land; rest days provided; all persons prohibited from rowing or sailing on Sunday to locate birds for future harvest; unlawful for any hired person to sail around or interfere with a citizen shooting.
- 1899** Reenactment of law of 1891, repealed in 1895, providing gamekeepers for Currituck County. Law prohibiting shooting wildfowl on Currituck Sound over decoys of any



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**1899** (continued) kind, March 31 to Nov. 10; putting decoys in water before sunrise; or ring-shooting boobies or ruddy ducks, Nov. 10 to Feb. 15.

**1900** Federal Lacey Act bans shipment across state lines of animals illegally killed.

**1903** N.C. Adoption of the AOU "model law" for the protection of birds and incorporation of the Audubon Society with the powers of a game commission.

Introduction of first semiautomatic shotgun.

**1905** Russell and Van Griggs shoot 892 ruddy ducks in one day on Currituck Sound.

**1913** Federal Weeks-McLean Act establishes waterfowl seasons, essentially ending spring hunting.

**1918** Migratory Bird Treaty Act ratified, giving authority to protect migratory birds to federal government.

**1934** First Migratory Bird Hunting Stamp (Dump Stamp) issued.

**1935** Use of live decoys banned.

Lake Mattamuskeet becomes national wildlife refuge.

**1952** Four North American Flyway Councils formed to help manage continent's waterfowl.

**1955** First midwinter survey of waterfowl conducted by federal and state agencies.

been counting during the midwinter surveys. This problem was rooted in the glory days of waterfowl hunting.

The use of live decoys was legal in the United States until 1935. Hunters, guides and clubs on the North Carolina coast kept small flocks of Canada geese for decoys. When the use of live decoys became illegal, most flocks were simply turned loose. Those birds were the seeds of our resident population. Most Canadas kept in captivity had clipped or pinioned wings and were incapable of flight and thus migration. Their offspring failed to learn to migrate from their parents and stayed put in North Carolina throughout the year (see Nature's Ways, page 39).

As Canada goose numbers fell in the 1980s, the Wildlife Resources Commission began importing birds from several Northern states and Ontario. By 1989, the commission had relocated nearly 5,000 Canadas and estimated the state's resident population at 6,000 to 7,000 birds. Today, that population is estimated at more than 100,000, about a 15-fold increase in 16 years. Such growth is not as surprising as it might at first seem. "You can take a localized area that has a couple or three pairs of geese and in a year to two there can be a lot of geese around," said David Cobb, chief of the Wildlife Commission's Wildlife Management division.

What made increasing numbers of resident geese such a problem for migratory geese, besides some competition for winter feeding areas, was that biologists counting geese for the midwinter surveys in the 1960s and 1970s did not distinguish residents from migrants. Banding studies have since shown that resident geese are indeed a different and distinct population, not geese that for some reason have stopped migrating. So while Canada goose populations appeared healthy, the mixing of residents into winter flocks masked the fact that migratory populations actually were declining. Hunters certainly could not tell one from the other on the wing. "Until you have the goose in your

hand and do some measuring, you can't tell the difference," Cobb said.

With seemingly healthy populations of migrating Canadas, Fish and Wildlife officials lengthened seasons and increased bag limits in the 1970s. That action, the result of skewed numbers, exacerbated the decline of migratory Canada geese. High harvests and low reproductive success sent the birds' numbers into the basement. Although Canadas can reproduce at age 3, they are more successful at ages 4, 5 and 6. Few geese were reaching those ages. When the season was closed in 1995, it was because the summer breeding ground survey (which gave a more accurate picture of migratory populations than the midwinter surveys) indicated only 29,000 breeding pairs for the AP. (Breeding pairs are counted as single birds and pairs. A lone bird, for the surveys, is considered a male guarding a nest.)

Unfortunately, the breeding ground surveys for AP geese had been conducted only once previously, in 1988. That survey reported 118,000 pairs. Not until 1993 were breeding ground surveys for AP geese conducted annually. The '93 survey showed 91,000 pairs, then 40,000 were counted the following year before the nadir of 1995—a 75 percent decline from 1988.

With hunting seasons closed, the AP began to rebound. Today, biologists estimate about 1.1 million birds in that population, the same as for the Atlantic Flyway resident population. According to Fish and Wildlife, most biologists believe the overall population of Canada geese in North America is greater than at any time in history.

### Rise of the Residents

Every state except Hawaii has resident Canada geese. The resident population is estimated at more than 3.5 million and growing. Fish and Wildlife estimates that if measures are not taken to reduce the resident population, its numbers could reach 5.5 million birds in the four flyways by 2010. The agency is considering a



With more than 100,000 resident Canada geese in North Carolina, the birds have become a common sight on golf courses, parks and city lakes. A special hunt season in September is designed to help keep the population under control.

rule change that would authorize each state to lengthen hunting seasons for resident geese, using the Aug. 1–31 period in addition to September. Fish and Wildlife also would allow the use of unplugged shotguns and electronic calls and would extend shooting hours until one-half hour after sunset.

Resident Canada geese have outpaced migrants for several reasons. Residents have stable breeding habitat and few pred-

ators, and they migrate short distances, if at all. On average, they begin nesting at an earlier age than migrants, lay more eggs and have a high annual reproductive success. In addition, residents often congregate in urban or suburban areas, where hunting is not allowed (chart, page 13).

Besides the physical stress of migration, migratory geese also face shorter nesting periods, reduced food resources and a more severe climate. The farther a migrant must fly, the greater the expenditure of energy. Resident Canadas, on the other hand, can allocate more energy into reproduction.

Most states would like to reduce their resident Canada goose populations, but Cobb thinks that could be a difficult task. "So many resident geese are in areas that can't be controlled by hunting," he said. "Can you control them in localized areas by hunting? Yes. But you have some areas like Charlotte, where there are birds in downtown areas, or Greensboro, where they have three city lakes and no hunting on them. These places serve as refuges for geese, and they're going to reproduce there and expand."

Cobb believes another difficulty with controlling resident geese by hunting is that the resident-only season is in September. Competing activities may mean a lower goose harvest. Dove season opens in September, as does bow season for white-tailed deer. And September traditionally is a very popular fishing month.

The novelty of this season may have worn off. In the 2003 season, North Carolina hunters killed an estimated 19,300 geese during September, compared to 29,500 in 2002. "I'm not so sure that folks in North Carolina are still as enamored of shooting resident Canada geese as they were when it was something new," Cobb said. "They're pretty difficult to hunt in a lot of places, like the Piedmont, for example. You either have to like to hunt them or like to eat them or both."

In addition to stripping the grass from parks, golf courses, pastures and lawns near bodies of water, resident Canadas can be a significant threat to aircraft, particularly on takeoffs and landings. Their droppings (when feeding, most geese defecate once every three or four minutes) can degrade drinking-water quality in

**1964** 160,000 geese reported in midwinter survey, the last year in which more than 100,000 geese were counted in N.C.

**1989** Wildlife Commission ends program that relocated 5,000 Canada geese from other states. Resident goose population estimated at 6,000 to 7,000.

**1990** First resident Canada goose season (by permit only) in N.C.

**1992** Migratory Canada goose seasons shortened and bag limits decreased in Atlantic Flyway. North Carolina season is closed.

**1995** U.S. Fish and Wildlife closes migratory Canada goose season in Atlantic Flyway after breeding grounds survey finds only 29,000 mated pairs among Atlantic Population (AP).

**1999** Limited AP goose season allowed in portions of Atlantic Flyway. N.C. season remains closed.

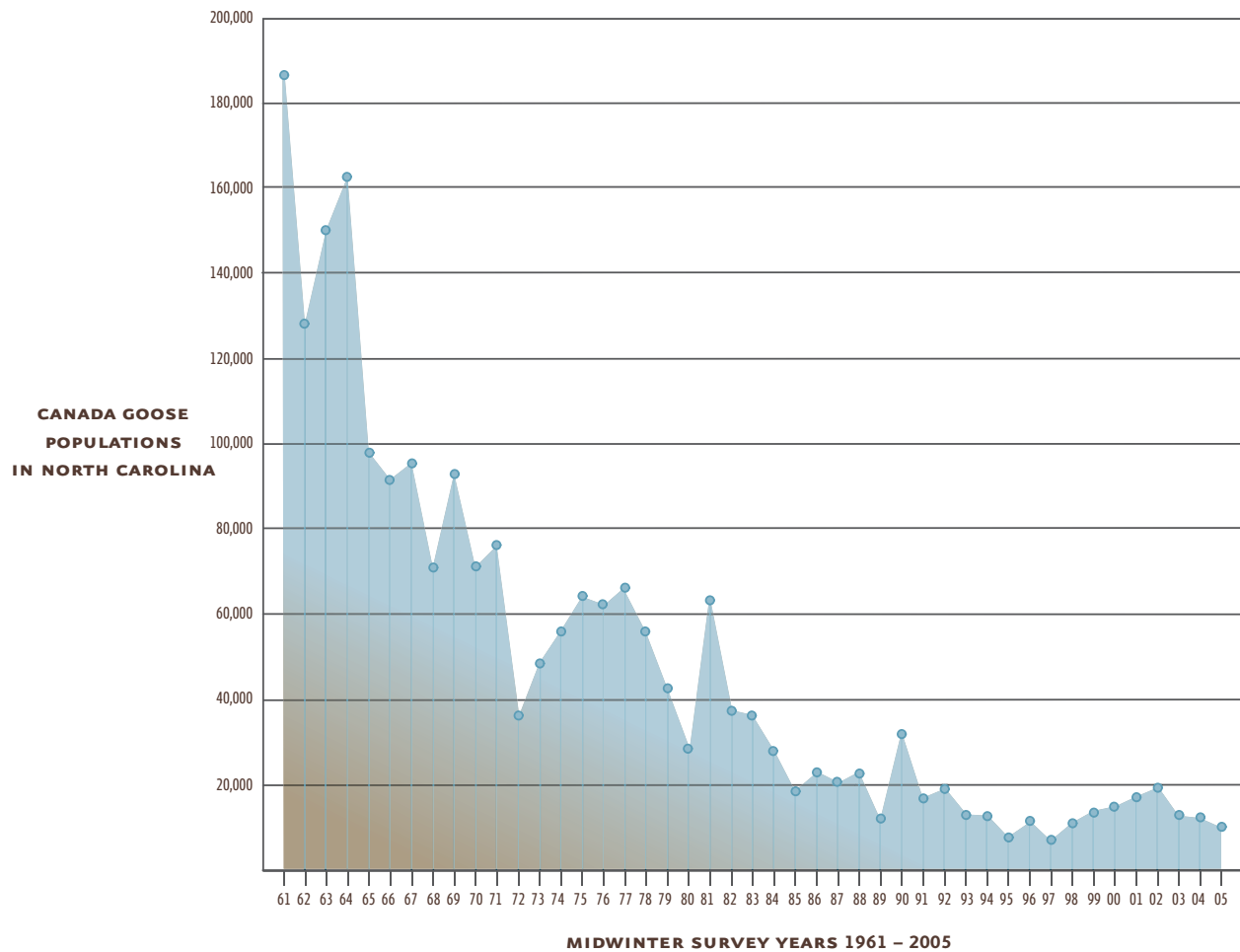
**2004** Estimated 1 million migratory geese and 1 million resident geese in Atlantic Flyway.

**2005** N.C. midwinter survey reveals 10,646 geese in key wintering areas, less than half of which are migrants. Resident goose population estimated at more than 100,000.

**2006** Limited winter season opens in Northeast Hunt Zone.







reservoirs by raising fecal coliform levels. A recent study reported in *Emerging Infectious Diseases* found that Canada geese can serve as carriers for a number of antibiotic-resistant bacteria—superbugs—including salmonella and *E. coli*. The study concluded that wild bird populations could amplify and eventually transmit disease to humans and wildlife by directly contaminating agricultural fields or surface waters used for drinking, recreation or crop irrigation.

One of the flocks of resident Canada geese in the study frequented a Craven County lagoon that held runoff from a hog farm. The scientists found that the geese were dropping antibiotic-resistant *E. coli*, even though the geese themselves had not been treated with antibiotics. Hog farms often use large quantities of antibiotics in treating their swine.

### The Migrating Few

Obviously, the plight of migratory Canada geese in the Atlantic Flyway has

greatly improved since the dark days of 1995. Why, then, does North Carolina continue to have low numbers of migrants? The answer may lie in overharvesting of the birds in states north of ours, and the difficult journey migratory geese must make to reach North Carolina.

A phenomenon called “differential survival” comes into play. For migratory Canada geese, this means that birds with shorter migrations will be more successful than those that make longer migrations. A goose with the instinct to migrate all the way to Florida, for example, passes through more hunting seasons, thus increasing the chance it will not survive the journey. Little wonder that Florida, Georgia and South Carolina have but remnant populations of migratory geese. And geese that migrate to New Jersey, using less energy and passing through fewer hunting seasons, eventually are going to build larger populations than those that fly to North Carolina.

“Intuitively that makes sense,” Cobb said. “The farther a hunted species has to fly, the higher the probability that it’s going to encounter a hunter. Physiologically it makes sense that if geese can fly a shorter distance from nesting area to wintering area and still be in an energetically neutral environment—a temperature-food source situation that allows them to maintain body fat—then it would make sense that they wouldn’t fly as far. But that changes, I think, from year to year and location to location.”

And short-stopping, too, has played a role in the decline of North Carolina’s migratory Canada geese. “I think it has always been a factor,” Cobb said. “It has varied a lot by year and by location, depending on agricultural commodities, crop rotations and to some degree weather. I think there’s enough evidence over the years to suggest that some short-stopping has taken place.”

In 2005, the midwinter survey in North Carolina resulted in 10,646 geese being counted, both resident and migratory. Simple subtraction yields an estimate of how many of those geese are migratory. “We conduct separate surveys prior to the arrival of any migrant geese to establish the numbers of resident Canada geese in the Northeast Hunt Unit,” said Doug Howell, the commission’s waterfowl biologist. “We subtract that number from the midwinter Canada goose estimate. For the last few years, AP and NAP geese have numbered only around 5,000 to 6,000.”

Is North Carolina, like other Southern states, destined to keep only a remnant population of its wild geese? “There is the perception that this has been a continual and potentially inevitable evolution of the southern boundary of AP geese from south to north,” Cobb said. “There used to be AP goose hunting in South Carolina. It’s continually moved north.”

“It’s terribly sad what has happened to that segment of the migratory population,” Hestbeck said of the southern cohort of the AP. “But the data speaks for itself.”

In 1997, Hestbeck found that banded migrants that once wintered on Pea Island National Wildlife Refuge on the Outer Banks were showing up much farther north. “I can tell the North Carolina goose hunters that I

have good news and bad news,” Hestbeck said at the time. “The good news is that there still are Atlantic Canada geese. The bad news is they are going to have to go to southern New England to hunt them.”

Fuller stated the situation simply: “Geese only fly as far south as they have to. Why fly to Florida if you don’t need to? If they can get what they need farther north, that’s where they will stop. We contend that doesn’t mean that harvest farther north doesn’t contribute.”

The behavior of Canada geese, Hestbeck said, shows how well the birds are able to take advantage of habitat. “There was a group of birds banded on the western shore of Greenland, and they were found later feeding on a highway median in Connecticut with banded residents. It’s just an extremely adaptable bird,” he said.

Many people might say too adaptable. Canada geese have become such a common sight, particularly in urban and suburban settings, that they are derisively referred to as “lawn carp” and “walking fecal factories.” The music of their calls, though the same as the migrants’, hardly symbolizes the wild. The resident Canada goose seems to be everywhere in North Carolina but is increasingly less welcome. Migratory geese are increasingly less common but would be more than welcome

to return to a place where they have had such a rich history.

Jerry Wright, the owner of Dews Island Hunt Club and a former wildlife commissioner, grew up in the 1950s at Currituck Sound and knew first-hand the anticipation of the migrants’ return. “I remember as a child, the first week of October, you kept your eyes on the sky,” he said. “You might not see them come in, but one day the geese would be there, yipping and hollering, like they were saying, ‘We’re so glad to be back here.’ Three years ago, I saw a small flock in a ‘V’ heading back north. I can’t tell you I’ve seen one since then.”

Chances are the days of migratory geese darkening North Carolina skies like smoke are finished. “The residents, that’s your goose now,” Hestbeck said. “At least you’ve got some white-cheeked geese. And where they’ve been exposed to hunting pressure, you will still get a lot of the same behaviors of migratory geese in the resident population.”

At last we return to Leopold’s question: What is a wild goose worth? Some would ask in response: Who cares if we have migratory geese?

“Some people would say we shouldn’t care, that a goose is a goose is a goose,” Cobb said. “But biologists tend to be a little more tenacious about holding on to what we have. We should care about the migratory Canada goose because it’s part of our biotic diversity and our biotic heritage.”

Not to mention our cultural heritage and our hunting heritage. Perhaps for many people, their lives would be little altered if migratory Canadas stayed north of our state. But for those who have hunted the migrants or simply watched for their return to eastern North Carolina each year, the loss would be keen, like a year with no fall, no winter, no spring, only a tiresome, endless summer. ❖

IT PAYS TO BE LOCAL: Resident Canada Goose Advantages		
	RESIDENT GEESE	MEDIUM-SIZED MIGRANTS
Age at first nesting	2–3 years	4–5 years
Clutch size	5–7	3–5
Nest success	High	Variable
Renesting	Frequent	Rare to infrequent
Goslings time to fledge	85 days	63 days
Hunting exposure	50–100 days	120 days
Population trend	Long-term increase	Fluctuation
Annual reproductive success	High, constant	Medium, variable

The midwinter survey (opposite page) shows a decline of wintering Canada geese since the 1960s. Resident geese enjoy a number of advantages over migrating Canadas.

