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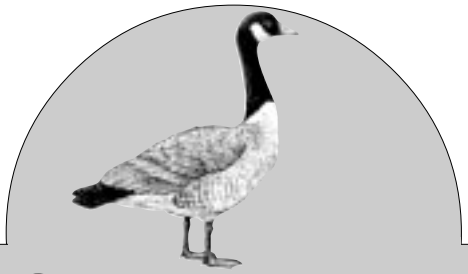

MANAGING WILDLIFE DAMAGE . . . .

Canada Goose

(*Branta canadensis*)

*Lisa French and Jim Parkhurst**

BIOLOGY AND BEHAVIOR

To most people, a Canada goose is a Canada goose. However, taxonomists recognize up to 11 subspecies (i.e., Giant, Lesser, Western, Atlantic, Interior, Richardson's, Dusky, Vancouver, Taverner's, Aleutian and Cackling Goose) that reside within the United States and Canada. Here in the mid-Atlantic region, the Giant Canada goose is most common.

The Canada goose has a grayish-brown body and wings, a white breast, black feet, bill, and neck, and a characteristic white patch on each cheek (Fig. 1). Although body size varies somewhat among the subspecies, most individuals range between 3-15 pounds. In our Giant Canada goose, males typically reach 8-14 pounds as adults, whereas females usually are slightly smaller, reaching about 7-12 pounds at maturity. Canada geese are relatively long-lived animals—it is not unusual for an individual bird to live up to 25 years.

Figure 1

Today, we recognize two distinct behavioral patterns in Canada geese: those birds that are truly migratory and those that are non-migratory (or resident). Migratory Canada geese spend the spring and summer on the breeding grounds in the northern parts of their range and then fly south during fall to their wintering range. In contrast, resident Canada geese spend much of the year in the same general area and fly only far enough to find food or open water (especially in winter when ice has covered their ponds). The Atlantic Flyway population of migratory Canada geese has been in decline for over a decade, whereas the population of resident geese has seen near exponential growth. Because they never leave their familiar year-round habitats, and due to this dramatic increase in population size, resident geese are responsible for most conflicts with farmers and home and business owners.

The range of migratory Canada geese along the Atlantic coast extends from northeastern and central Canada south to South Carolina. Their summer breeding range extends throughout the southern Canadian provinces from Ontario to the Maritimes, whereas their wintering range extends from as far north as western New York, through Delaware, Pennsylvania, and Maryland, south to Virginia, North Carolina, and South Carolina. The Delmarva Peninsula area in Delaware and Maryland, and the entire Chesapeake Bay region in general, are used extensively by geese during winter.

Juvenile Canada geese reach sexual maturity at age 2, but they usually don't breed before age 3. Males and females form pair bonds and remain together for life. However, should one member of the pair perish, the surviving individual will select a new mate. Pairs usually return to the same general nesting site year after year.

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Each pair constructs a bowl-shaped nest approximately 1½ feet in diameter, usually made from vegetation (e.g., reeds, grasses, leaves) and then lined with down feathers plucked from the female's breast. The pair will locate their nest beneath shrubs or small trees, in a raised patch of wetland vegetation, or on an elevated artificial nest platform, all typically within 150 feet of water. Although pairs of geese may nest within 10 feet of each other, they tend to stay in areas with low nest concentration. Both the male and female defend the nest site until all eggs are laid, at which point the male continues to defend the nest while the female incubates the eggs (Fig. 2). If predators or humans destroy the nest and eggs during egg-laying, the pair may produce a second clutch of eggs, often in the same general area. However, the pair will produce only one brood per year.

Egg laying begins shortly after nest construction. In Virginia, eggs may be laid as early as late February, but the peak of egg-laying occurs in early April. Females

Figure 2

lay one egg about every 1½ days and the average clutch size is about 5 eggs per nest (range: 1 - 15 eggs). The female ensures that all eggs will hatch around the same time by not beginning incubation until all eggs are laid. Incubation lasts about 25 - 30 days. The entire clutch may take between 8 and 36 hours to completely "hatch out;" goslings will be mobile within 24 hours of hatching (Fig. 3). Both parents will defend their brood for about 10 weeks, at which time goslings will be self-supporting and fully capable of sustained

Figure 3

flight. Goslings from several family broods may join together, forming "gang broods" of up to 100 goslings.

Canada geese primarily are grazers, which means that they forage on the tender new shoots and stems of grasses, clover, watercress, and aquatic plants. Agricultural grain crops, such as corn, soybeans, and wheat, also are consumed, often just as these plants first emerge after planting, and again when the seed head matures. However, early in their life, young Canada geese, like most other birds, require a high protein diet for development. Thus, they will consume insects, small crustaceans, and mollusks attached to aquatic vegetation. In suburban settings, geese are opportunistic and readily will accept supplemental foods offered by humans, even though much of it may have little nutritional value. Canada geese prefer to feed near water or in fields and pastures that lack obstructions that might conceal predators.

During late-June to mid-July, Canada geese, like all waterfowl, undergo a complete and simultaneous replacement of all their flight feathers. This entire process takes a bit less than a month to complete, but during this molting period, geese are unable to maintain sustained flight, which makes them vulnerable to predation. In anticipation of this event, geese will move prior to the onset of the molt to a "safe" area near water that will provide readily available food and an unobstructed view for predators or danger.

Average annual mortality rates for Canada geese range from 20 to 52%. Survival of first-year resident birds ranges between 70 to 90% whereas that of first-year migratory birds ranges between 25 to 80% (average = 59%). Male Canada geese usually suffer higher mortality than females, and much of that is due to greater hunting loss. Predators of Canada goose eggs include crows, ravens, magpies, seagulls, skunks, and raccoons; coyotes, red fox, mink, domestic and feral dogs, and snapping turtles are predators of juvenile geese.

Canada geese, like most other species of waterfowl, are subject to a number of diseases (bacterial, viral, fungal, parasitic) and toxic situations. Transmission and spread of disease among individuals is enhanced where large congregations of birds are in close contact with one another, which is common among today's resident goose populations. Some of the diseases and threats of concern for Canada geese include avian cholera, avian botulism, avian salmonellosis, chlamydiosis, duck plague (or duck virus enteritis, DVE), aspergillosis, gizzard worms, and lead poisoning.

ECONOMIC STATUS AND IMPORTANCE

Canada geese are a part of our ecological system, they contribute to natural biological diversity, and they provide a variety of potential benefits to humans. However, many of these values are being overshadowed today by the negative effects of the damage that resident geese cause and issues of public health and safety.

Nationwide, hunting of Canada geese is popular, both for recreational pursuit and for subsistence. In 1996, 3.1 million people reported being hunters of migratory birds, which includes waterfowl, and spending $1.3 billion in total hunting relating expenditures. The "trickle down effect" of dollars spent by these participants can contribute substantially to the economy of communities where waterfowl and goose hunting occurs.

In addition to the economic impact Canada geese provide via hunting, communities derive economic benefit from other recreational opportunities associated with geese. Nationally, over 62 billion people spent more than $25 billion dollars on birdwatching activities in 1996. Local residents and homeowners, as well as visiting tourists, enjoy viewing, photographing, and feeding geese, all activities that potentially can contribute to the local economy and tourism industry. This is especially true in places where people frequent parks and refuges to experience nature, reflect on their thoughts, relax, and simply be outdoors.

Canada geese can cause damage to personal property. Because geese often forage in large groups, they quickly can inflict serious physical and economic damage to agricultural crops, residential lawns, golf courses, and ornamental plants and gardens, particularly in areas where these birds have sought shelter during the molting period. In residential areas, feeding damage to grass, clover, and cover crops can leave large bare spots that will be subject to erosion. They also trample the vegetation and compact the soil, creating a "hard pan" that prevents new growth of vegetation. As a result, this denuded landscape provides little viable habitat for other wildlife species.

Public health and safety risks are a growing concern with Canada geese. A large population of geese that frequents a lawn, a golf course, or an agricultural field can leave behind an unpleasant mess. Studies have shown that a well-fed, healthy adult Canada goose can produce up to 1.5 pounds of fecal matter per day. Where resident goose populations are sizeable (>100 birds), the continuous influx of nutrients contained in Canada goose feces can contribute to the eutrophication of small water bodies, especially those that have restricted circulation and flow-through, which in turn may stimulate algae and weed growth. Bacteria and particulate matter contained in goose feces, when present in sufficient quantity, may lead to the need for special treatment of drinking water drawn from surface ponds or reservoirs where geese congregate. Additionally, beaches and other public areas littered with accumulated goose feces have been closed due to the contamination or the threat of personal injury resulting from falls as people lose footing on the slippery material.

Canada geese present a potentially significant problem at airports. Many of today's modern airplanes, but especially those driven by jet engines, are susceptible to catastrophic mechanical failure should the engine ingest a foreign object. Even a small songbird drawn into a jet engine easily can cause thousands of dollars in damage to the plane but, more importantly, also places passengers on that plane in serious risk. For example, in 1995, a US Air Force AWACS plane, worth $184 million dollars, taking off from Elmendorf Air Force Base in Alaska, ingested 13 Canada geese on take-off and crashed, killing all 24 people aboard. The Federal Aviation Administration (FAA) has estimated that 35% of all reported bird-aircraft strikes involve Canada geese (about 240 goose-aircraft collisions occur each year).

CONTROL AND MANAGEMENT TECHNIQUES

Techniques used to manage Canada goose conflicts are broken into 3 major categories: husbandry methods, non-lethal methods, and lethal methods. These categories are consistent with the hierarchical design that characterizes most integrated pest management (IPM) programs. Under an IPM program, you first must identify the conflict and evaluate its seriousness, then you review and evaluate the options that are available to relieve or permanently solve that conflict. Then, based on the outcome of that assessment, you select and apply the management strategies appropriate to the need, starting first with the simple, inexpensive, and less invasive techniques, but moving on to the more complex, expensive, or time demanding options where need dictates. A general rule of thumb of an IPM approach: lethal options generally are viewed as methods of last resort, ones used only when all other methods prove ineffective. Therefore, in this section, we present a review of options that follow the IPM hierarchical approach.

Husbandry Methods

Because Canada geese often congregate near bodies of water where easy access to adjacent foraging areas exists, the number of geese at such sites may be reduced simply by minimizing the amount and/or attractiveness of forage that exists near the pond. Reducing the amount of fertilizer that you apply to vegetation surrounding a pond also may decrease the nutritional quality of that forage and make the site less attractive to geese. Other techniques to consider include reducing or eliminating all mowing of vegetation within 50-75 feet of the water's edge (Fig. 4),

Figure 4

reducing the total amount of lawn area, planting the area between the water's edge and the foraging area (i.e., the lawn) with plants that are less palatable to geese, and refraining from watering of lawns (which will make them less productive). Examples of commonly used landscape plant species that generally are not preferred foods of Canada geese include mature tall fescue, periwinkle, myrtle, pachysandra, English ivy, hosta (or plantain lily), and ground junipers. However, you should be aware that most of these plant species are non-native, exotic plants, which may outcompete native vegetation and become invasive on the landscape—exercise caution in selecting plants to avoid creating another problem. Simply remember that the more tangled the pattern of growth in that zone, the more difficult it is for geese to pass through it on their way toward other food sources.

Canada geese often congregate in an area because they are being fed. Although supplemental feeding of wildlife is popular, it can attract large numbers of animals that eventually lead to site degradation. Eliminating all supplemental feeding of geese is the first step that should be taken to minimize conflicts with Canada geese. When geese are attracted to farms that produce grain crops, some managers have recommended use of bait stations or lure crops as potential deterrents. Bait stations are structures strategically located to provide loose grain to geese as an alternative to them consuming the planted crops. Clearly, feeding stations must be placed where large numbers of geese can be tolerated. Lure crops, on the other hand, are fields of grain that have been planted and purposefully left for geese or other waterfowl to consume. However, both bait stations and lure crops actually may lead to an increase in bird density locally as these birds are attracted to the abundance of food. Additionally, it is illegal to use either bait stations or lure crops during the regular hunting season as this constitutes "baiting." If depredation to crops has been attributed to migratory geese, farmers might consider altering the planting and/or harvest schedule so that the timing of plant emergence or peak ripeness does not coincide with the anticipated time of migration.

Water levels can be manipulated to either eliminate the water source or to flood an area and eliminate nesting opportunity. However, purposefully flooding an area to drown eggs in existing goose nests is not legal.

Recreational facilities and corporate properties where decorative ponds are present often are favorite "hangouts" for geese. During the design of such facilities, it is best to keep all recreational fields or other pedestrian traffic and use areas at least 450 feet from a water source. Also, every attempt should be made to build into the design numerous natural obstructions (e.g., trees, shrubs, rocks) that will serve as potential hiding spots for predators of geese so that the wariness in geese can be maximized.

Non-Lethal Methods

Non-lethal deterrents can be grouped into two main categories: scare devices or strategies and physical deterrents. Scare devices or strategies, by design, are intended to frighten or chase birds away from an area whereas physical barriers are intended to prevent birds from gaining access to an area.

Scare Strategies – Scaring Canada geese is a way to discourage them from congregating in an area. However, use of scare techniques must be prompt and persistent to be effective. Ideally, for maximum effectiveness, scare devices should be in place prior to the onset of damage. There are three broad categories of scare devices or strategies: auditory, visual, and physical (or hazing).

Auditory scare devices make loud or objectionable noises that frighten geese. One example is the

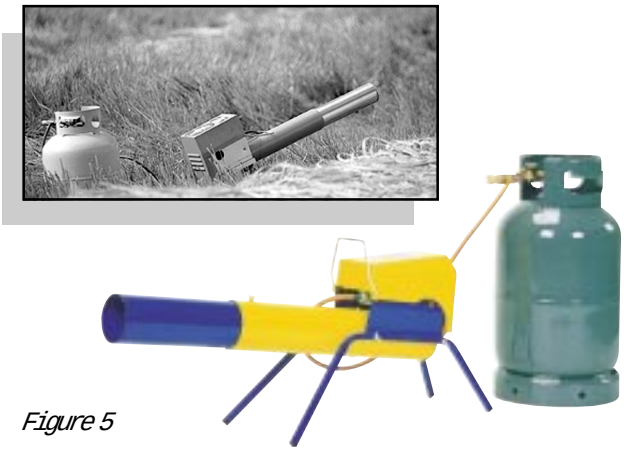

Figure 5

propane cannon (Fig. 5), a device that makes a loud blast, but does not fire a projectile. Under best conditions, 3 - 4 strategically placed cannons may protect up to 25 acres from goose depredation. Many of today's newer models of cannons come with variable timers and rotators that increase effectiveness. Stationary noisemakers, such as a cannon, should be moved every 2 - 3 days to prevent habituation by geese.

Another type of auditory approach is use of pyrotechnics, such as whistlers, noise bombs, shellcrackers, and screamer or banger rockets. These firecracker-like devices are shot from a hand-held pistol or 12-gauge shotgun out over a group of geese on land or water where the projectile then explodes. Some of these devices have a range of about 50 - 75 yards. Similarly, blanks can be fired from regular firearms to disturb a group of geese, but the zone of effectiveness is less than with other pyrotechnics. Before using any of these techniques, you first should check local regulations to be sure that discharge of a firearm is allowed in your locale. Even if you live in a community where discharge of a firearm is legal, you should notify your local police or sheriff's department in advance of your intention to use these materials so that they will be aware of the activity and avoid an unnecessary response to calls of "shots being fired."

Distress calls of Canada geese can be recorded and played back as a means to scare these birds. Recordings of distress calls are most effective when played back loud enough (at least 80 decibels) to be heard by geese at a distance. However, unless other deterrents are used concurrently to reinforce the effect of the distress calls, geese quickly will habituate to the distress stimulus and ignore it over a relatively short period of time (usually within 3 - 4 days of repeated use). Currently, pre-recorded tapes of the distress call may not be widely available commercially, but a tape recording can be made easily with a personal recorder.

Visual frightening devices work by having the goose see, recognize or interpret, and react to an image or object that represents a potential threat to the animal. Although these devices usually are quiet, inexpensive, and easy to implement, they often work best when used in combination with or to reinforce another deterrent. An example of a visual deterrent is a simple strobe light, which might be sufficient enough to startle geese and provide temporary relief from nighttime goose problems within a restricted area. Mylar reflective tape (red on one side, shiny silver on the other; Fig. 6), strung between posts to form a

Figure 6

Figure 7

fence or attached to a pole as streamers, captures and casts off glints of sunlight as it flickers in the breeze, startling nearby geese. Scarecrows, owl effigies, rubber snakes, and "eyespot" balloons (Fig. 7) have been touted as mechanisms that will stimulate the goose's innate fear response. However, with most of these inanimate devices, geese quickly will habituate to and ignore them, often in as little as only 3 - 4 days. Black plastic garbage bags, cut into 2 halves and stapled to 4-foot tall "tomato" stakes and placed in agricultural fields (about 6 -10 flags/acre), have been successful in reducing foraging damage caused by grazing geese. When using eye-spot balloons, 3 to 5 balloons/acre usually are needed and must be put in place before geese become acclimated to the site. As noted earlier, greatest effectiveness is attained when all of these devices are moved frequently (at least once every 2 - 3 days).

Hazing or harassment of geese often will provide more long-lasting results than will inanimate stationary objects. Several examples of hazing programs include use of radio-controlled toys, dogs, and water spray devices. Although more labor intensive and expensive to implement than simple visual or noise deterrents, use of radio-controlled toy aircraft or boats presents more of a real threat to geese. Model aircraft can be operated to fly over, buzz, or chase a group of geese on land or water, whereas a model boat skimming along the water's surface can herd geese away from an area. Care must be used to avoid hitting or injuring any birds.

Dogs, especially border collies, have been trained to chase and harass geese until the birds become uncomfortable using the site. However, because geese continue to monitor favorite sites, as soon as the dogs are removed from the area and the threat no longer exists, they likely will return. Thus, this form of harassment must be persistent and repeated to remain effective. Even the family dog may offer some protection to your yard as it roams the property, but local leash laws must be abided. Additionally, it should be noted that it is illegal to allow any dog to catch or harm a goose. Dogs also should be leashed or prevented from chasing geese during the early summer molt when these birds are flightless.

A number of new devices recently have entered the market that use pressurized water sprayers and motion detector technology to deter geese from entering a property. These devices are hooked to a garden hose and are triggered when the motion detector senses the approach of an animal, which then sends a spray of water over the approaching animal (Fig. 8 and 9). After a few moments where no further motion is detected, the device shuts off. Thus, when placed along the normal approach lines of geese (e.g., where they would walk up out of the pond toward their feeding area), a line of defense theoretically can be established.

Figure 8 and 9

Physical Deterrents – Physical structures can be put into place that will impede movement of geese from their resting or flocking areas toward feeding areas. Such barriers can be created using vegetation, fencing, or rocks. A shrubby hedge placed along the shoreline of a water body will block the pathways geese use to exit the water and also will prevent them from seeing potential predators that might lurk on the upland side of the barrier. Vegetated barriers are most effective where the shrub's branches are compact and begin right at ground level.

Fencing, installed just shoreward of the waterline, can be constructed from a variety of materials, including mylar tape, metal mesh (e.g., woven wire, chain link, chicken wire fencing), plastic or synthetic mesh (snow fencing, silt fencing, plastic netting), wood (corn cribbing, picket fencing), or strand (e.g., steel wire, monofilament or Kevlar® lines). Maximum mesh or opening size should be no larger than 3 inches and the structure should be at least 25 inches tall. Although certain designs of electric fences may be effective in deterring geese, you must check with local authorities to determine if regulations restrict their use in your area. Certainly, electric fencing should not be used where small children have access to the deterrent. Obvious warning signs must be posted on the fence wherever and whenever an electric fence is used. Additionally, utmost care must be exercised when using any form of electric fencing near water.

To prevent geese from landing on small water bodies, a wire grid can be constructed above the surface of the water. Individual wires or lines (e.g., Kevlar® string) making up the grid are staked to the ground about 12 inches above the water's surface and on 20-foot centers. Where need exists to allow human traffic or equipment to operate on or near the water, the grid can be elevated on larger posts to accommodate such uses, but access to geese entering from the sides and beneath the grid must be prevented.

Rock barriers, constructed of boulders approximately 2 feet in diameter, can be placed haphazardly around the perimeter of a body of water to again prevent geese from easily moving to and from the water to the grassy feeding areas. These strategically located obstacles also create additional potential predator hiding spots that increase a goose's wariness. When rock barriers are used in combination with a vegetated barrier, both deterrent effectiveness and aesthetic appeal of the landscape can be enhanced.

Chemical repellents may help keep geese from congregating in areas where their presence is not desired. Repellents typically have broad public acceptance because they do not harm the geese (when applied according to manufacturer's directions) and they easily can be applied directly to a problem site. However, as with most repellents, the effectiveness of a product likely will wane over time and frequent reapplication may be needed to achieve the desired deterrent effectiveness. One chemical, methyl anthranilate (the food additive used to create artificial "grape" flavoring), has been approved for use as a goose repellent by the US Environmental Protection Agency and is available under the name ReJeX-iT®. This product is formulated for application in four settings: on landfill refuse and the open pools or standing water on these sites, as an area fogging material, on open water bodies, and on turf. As is the case for any registered chemical, users must follow label instructions carefully and recognize potential cautions associated with its use (e.g., ReJeX-iT® may cause eye and skin irritation following prolonged or unprotected contact).

Lethal Methods

Where husbandry and non-lethal deterrents fail to achieve the desired reduction in goose damage or conflict, use of some form of population or reproductive control often is warranted and is aimed specifically at reducing the number of geese per unit area. Because the Canada goose is a regulated species, no one should implement any form of reproductive or population control techniques without prior review by the US Fish and Wildlife Service and the Virginia Department of Game and Inland Fisheries on the need for applicable federal and/or state permits.

Recreational hunting traditionally has been the preferred method of choice by state and federal wildlife agencies to manage Canada goose populations. Hunting has proven to be an effective and cost-efficient method to control goose populations in rural and agricultural areas. However, the opportunity to use hunters is limited in suburban/urban centers where many human-goose conflicts have arisen. Obviously, safety issues are of paramount concern. However, access to areas where geese have congregated also is problematic. Hunting regulations have been liberalized in recent years to accommodate special-early and/or late seasons on non-migratory populations. Yet, hunting alone likely will not be sufficient to keep goose populations in balance with human desires in urban areas. Special population reduction "round-ups" or hunts have been permitted by federal and state authorities for specific high need areas, such as on and around commercial airports and water supply reservoirs, as well as in other high human-goose contact areas, such as on golf courses, municipal parks, industrial sites.

According to state and federal laws, it is illegal to destroy the nest of any regulated or protected bird species once the nest has been completed and it contains either eggs or young birds—a permit from the US Fish and Wildlife Service is required before such activities can be implemented. However, as a means to deter a bird from placing a nest where it will be inconvenient or become a nuisance, you are allowed to remove nesting materials on a daily basis before it is completed and becomes occupied. Such frequent disturbance may be sufficient to encourage the pair to nest elsewhere.

Assuming that all proper permits have been obtained from authorities in advance, oiling, shaking, or puncturing goose eggs found in a nest are examples of methods used to prevent eggs from hatching. An egg that has been oiled (usually with benign mineral oil) will not allow air to pass through the shell to and from the embryo inside and prevents it from properly developing. Embryos also can be destroyed by shaking each egg vigorously until a sloshing sound is heard inside it. Thin, strong pins also can be used to puncture the eggshell, which will allow bacteria to enter the egg as well as desiccate its contents. These approaches work best if applied as soon as possible after the last egg is laid and before the embryo becomes more fully developed. Unless dummy eggs are used to replace those that are destroyed, do not remove eggs from a nest—a loss of an entire clutch of eggs will trigger the female's instinctive behavior to re-nest and produce another clutch, whereas a clutch of compromised eggs will hold the female on that nest as she tries to incubate them. Eventually, by the time the female realizes that her eggs are not going to hatch, it will be too late in the season to begin a new clutch and further breeding will have been prevented.

A much more invasive and costly approach to population control is that of sterilization, also referred to as surgical neutering. Here, a male goose is captured and, through use of surgical techniques, is prevented from successfully breeding again. Obviously, this is not a simple field technique and requires trained personnel and special conditions to assure the well-being of treated individuals.

Today, where need exists for an immediate reduction in a local goose population, several techniques are available. During the time of year when geese are flightless (i.e., during summer molt), large groups of geese can be herded using net panels and corralled into a holding pen. Individual flightless birds also can

be captured with long-handled nets or animal control capture poles. At times of the year when geese are not flightless, these birds can be captured using some form of propelled netting. Cannon nets, spring-powered nets, rocket nets, and hand-held net launchers all are devices that shoot a weighted net over a group of geese and allow one to catch multiple birds at one time. Most cannon or rocket nets are about 25 x 50 feet in dimension and come with 1.5 - 2.5 inch mesh. To be successful, netting must be conducted in a large, open area that is free of obstructions that could catch and tangle the net. Additionally, netting programs work best where geese have been attracted through a "pre-baiting" effort (i.e., grain or other food material has been provided to attract birds to the desired location). Any such capture work must be coordinated through and authorized by the Virginia Department of Game and Inland Fisheries.

Another way to capture smaller groups of Canada geese is through use of the immobilizing chemical Alpha-chloralose. When properly formulated and administered, alpha-chloralose is a slow acting, non-lethal chemical that is applied to bait and then fed to geese. Once a bird has eaten a sufficient amount of treated bait, the affected bird is unable to fly or escape and can be captured easily by hand. Alpha-chloralose is a Restricted Use Pesticide; only those individuals who have received special training through the US Department of Agriculture and possess the required federal permits are allowed to apply alpha-chloralose. Because of the means by which alpha-chloralose works, any birds that have been treated with alpha-chloralose are not suitable for consumption by humans.

In the past, geese that were captured in areas where they were causing problems often were transported by federal or state wildlife personnel to other locations where they would be less likely to cause problems. However, because adult Canada geese have strong homing instincts, many returned to their former nesting areas (generally speaking, resident geese must be relocated >200 miles away to prevent them from returning). However, few areas remain in Virginia today where Canada geese are not already plentiful and many communities are no longer willing to accept or tolerate additional birds. Thus, goose relocation efforts have all but ceased. Today, problem geese that are live-captured typically are sent to USDA-inspected processing plants for preparation for donation to local food banks for the needy. Here in Virginia, the US Department of Agriculture's Wildlife Services agency provides on-site technical assistance (on a contract/fee basis) to municipalities and residential communities confronted with resident Canada goose problems. In 2000, USDA's Wildlife Services goose management program donated approximately 2,100 Canada goose breast fillets through the Hunters for the Hungry program for distribution to food banks throughout Virginia.

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US Fish and Wildlife Service—http://migratorybirds.fws.gov/homepg.html

US Geologic Survey, Biological Resources Division—http://biology.usgs.gov/

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