Controlling Conflicts with Urban Canada Geese in Missouri

CONSERVATION DEPARTMENT
MISSOURI

USDA

Maury Bedford photo

Use the information in this booklet to manage the giant Canada geese populations in your area so you won't have to put up signs like this.

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Jim Rathert photo

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Giant Canada Goose Facts

Although Missouri may host several sub-species of Canada geese in the course of each year, the giant Canada goose *(Branta canadenis maxima),* is the one that causes the most problems for homeowners.

Once thought extinct, these geese have made a phenomenal recovery. Presently, their numbers are approximately 3.5 million birds in the United States. In Missouri, the breeding population has ranged from 50,000 to 75,000 during recent years.

Although most people enjoy having Canada geese around, they cause hundreds of thousands of dollars in damage each year. Problems include:

- accumulation of droppings on lawns, ball fields, golf courses and sidewalks
- erosion on lawns and golf greens when geese overgraze the area
- personal injuries from attacks when geese defend their nests
- threats to aviation safety and aircraft
- destruction of newly sprouted field crops.

Damage caused by geese in Missouri has become significant, requiring new management strategies by state and federal agencies to provide assistance in resolving the problems. Although Canada geese are protected by state and federal laws, many effective control methods can be used to minimize or eliminate damage.

Note: Some methods, such as egg oiling and addling, require permits, but many do not. If a permit is needed, *see page 23 for information on how to apply.*

Ed Hartin photo

Although most people enjoy having giant Canada geese around, these waterfowl can cause hundreds of thousands of dollars in damage each year.

General Biology

The average adult giant Canada goose weighs 11 to 12 1/2 pounds, but some reach as much as 16 pounds. They have a wingspan of approximately 6 feet, making them one of the largest flying birds in Missouri. Giant Canada geese generally winter close to their breeding grounds as compared to other subspecies of Canada geese that migrate between nesting and wintering grounds.

Giant Canada geese may become sexually mature as early as 2 years of age, while other subspecies mature at 3 or 4. They generally mate for life with a single partner, but will find another if the first one dies.

In Missouri, geese begin establishing nesting territories as early as February where they remain throughout the nesting season, which lasts into May. Usually, they establish nests on islands or near water, but occasionally choose rooftops, parking lot islands and large plant pots near building entrances, where they can become a hazard or a nuisance. Each pair produces a single clutch of eggs during the season, but if the nest is destroyed early in incubation, they may produce a second.

Generally, a female Canada goose lays one egg every 1 to 1 1/2 days until she has a full clutch of 5 to 6 eggs. She remains on the nest, incubating the eggs for a period of 28 days. The adult geese lead their young from the nest to a lake or pond within two days of hatching.

Young Canada geese grow quickly

Generally, a female Canada goose lays one egg every 1 to 1 1/2 days until she has a full clutch of 5 to 6 eggs. She remains on the nest for 28 days. The adult geese lead their young to a lake or pond within two days of hatching.

Jim Rathert photo

and can usually fly within 70 days of hatching. They imprint on the area where they learn to fly, and are likely to return there to produce young of their own.

Approximately one third of the young survive to adulthood. In urban areas, where they are protected from predators and hunting, their survival rate is likely to be higher. Geese sometimes live for 20 years or more.

Canada geese are primarily grazers, feeding on grass and crops. During the summer months when most damage occurs, they are attracted to the succulent new shoots of grass growing on lawns and golf courses, as well as to sprouting crops.

Fecal contamination is the most common Canada goose damage complaint in Missouri. Some studies have shown that geese can leave droppings every seven minutes while feeding. In addition to the unsightly aspects of fecal matter on public walkways and in children's play areas, the accumulation of feces may cause increased levels of fecal coliform bacteria in the water, which could result in closure of public swimming areas.

Canada geese are attracted to areas that have sources of food and water. They prefer bodies of water that have gentle sloping shorelines with manicured lawns as this habitat provides easy access to food and offers quick escape from predators. The area becomes even more attractive if other waterfowl are present.

Another major attractant is people who feed geese, thus providing an artificial food supply that concentrates the geese in unnatural numbers. Well-meaning, but misguided people typically feed bread, which does not provide geese with the proper nutrients they require. This artificial feeding, if not supplied regularly, may cause the birds to inflict greater damage to vegetation and ornamental plants. When large numbers of geese congregate due to artificial feeding, diseases such as avian botulism or avian cholera can develop and could potentially effect the entire local goose population.

Legal Status

The Migratory Bird Treaty Act (16 USC 703-711) protects Canada geese, their nests and eggs. This federal law prohibits capturing or killing Canada geese outside of legal hunting seasons. Presently, the U.S. Fish and Wildlife Service allows the Missouri Department of Conservation to issue permits to property owners to help control nuisance geese.

Most permits are issued to oil and addle eggs; but in some cases, kill permits may be given to landowners suffering damage. At qualifying sites, communities are issued permits for goose roundups; and the meat is processed and donated to food pantries.

Note: To apply for permits, see addresses on page 23.

Damage Prevention: A Community Effort

Reducing damage caused by Canada geese takes the cooperation of the entire community. It may surprise you, but the first steps do not involve geese.

Step 1: Decide if you are truly dedicated.

It is easy to talk about controlling Canada goose damage, but mounting the necessary efforts on a long-term basis is not easy. If a community makes only a minimal, short-term effort, no reduction in damage will likely occur; and the time and money spent will be wasted.

The ultimate goal is to solve conflicts humanely with minimal controversy. Each landowner and community will have their own tolerance for and relationship with Canada geese. The challenge is to balance the need for nuisance relief with appropriate respect for wildlife. Because Canada geese may fly from lake to lake within an area, the plan also should include working with neighboring communities and property owners to reduce goose damage and population growth in their areas as well.

If your community decides to commit resources to control goose damage according to the methods provided in this booklet, go to Step 2.

Step 2: Set up an infrastructure.

Although it is important to have a committee for support, one person should be in charge. This person, whether elected or appointed, should:

- have the desire and ability to lead other community members in measures to control geese.
- have the authority and the support of the community to modify the surrounding habitat as needed.
- be well educated on goose management issues.
- be willing to communicate regularly with a qualified wildlife biologist about the latest goose abatement methods.

Once this person is chosen, go to Step 3.

Step 3: Assess and document the problem.

Arrange for a Conservation Department or USDA Wildlife Services biologist to visit with the community leader selected in the previous step to document damage and past attempts to solve goose damage problems. Before the meeting, fill out as completely as possible the "History of Goose Conflicts and Management Efforts" worksheet on pages 16-18. The wildlife biologist will discuss all control methods that can be used to reduce goose damage.

The wildlife biologist and community leader should then meet with other community members to answer questions and explain any abatement methods or habitat modifications being considered. After this meeting, the wildlife biologist will suggest an integrated pest management approach, which will use many control methods to solve the problem rather than relying on a single method.

Although the wildlife biologist will help develop a plan, it is up to the community to adopt and use it.

Ed Hartin photo

An adult Canada goose produces up to 1/4 pound of feces daily. The accumulation of feces may cause increased levels of fecal coliform bacteria in the water, which could result in closure of public swimming areas.

Types of Control Methods

Five different classes of methods are available to reduce goose damage:

- habitat modification
- exclusion
- harassment
- chemical sprays
- lethal control.

To effectively reduce goose damage, the community leader selected to manage geese, with the guidance of the wildlife biologist, needs to use as many methods as possible.

Note: Typically, Canada geese cannot fly from mid June to early July when they molt their primary flight feathers. Because it is illegal to harm Canada geese, harassment may not be an option during the flightless period.

If there is a question about the legality of a technique in your area, contact the USDA Wildlife Services or Conservation Department office near you. See page 23 for addresses and phone numbers.

Ed Hartin photo

Artificially feeding geese should not be allowed because the birds become too concentrated and more aggressive. Also, most handouts do not provide the proper nutrients that geese require. A no-feeding ordinance is one of the first steps that should be taken to control concentrations of Canada geese.

Habitat Modification

Habitat modification involves physically altering property to make it less attractive to Canada geese. Modifications made to your property should focus on eliminating or reducing nesting sites and food sources, as well as the access between these items and your pond or lake.

Remove nesting tubs

When Canada goose populations were low in the 1960s, nesting tubs were a popular management tool used to augment available nesting sites, compensate for a lack of nesting materials and provide a nearly predator-free environment for the hen to incubate the clutch. Needless to say, Canada geese have made a phenomenal recovery and nesting tubs are no longer necessary. Every community that is serious about reducing Canada goose damage should remove all nesting tubs as soon as possible.

Eliminate artificial feeding

All artificial feeding should be stopped immediately. In public areas, signs should be posted that read, "Do Not Feed Waterfowl." People who feed the geese need to be educated about the problems they are creating. When fed by hand, geese become concentrated, making them more aggressive toward people because they are expecting to be fed.

Hand feeding also makes geese more susceptible to diseases, such as avian botulism and avian cholera. Moreover, artificial feeding, especially with bread, rarely provides the proper nutrients that geese require. Thus, artificially fed geese often develop wing deformities, which hamper their ability to fly. In situations where city officials are trying to disperse large concentrations, a no-feeding ordinance may need to be passed and enforced.

See page 24 and the inside back cover for examples of signs that you can copy and use for your community's no-feeding campaign.

Remove domestic waterfowl

Domestic waterfowl, including mute swans, act as decoys for Canada geese when they are flying over an area. If you allow these birds to remain, they often attract geese into areas where they are not wanted.

Steepen banks of ponds and creeks

Canada geese prefer a gentle, grassy slope coming out of the water that enables them to easily walk into and out of the water to feed or rest. If access to the water is poor, the adult geese may leave that area to raise their young elsewhere.

To steepen the shoreline, build a vertical seawall 3 feet above the surface of the water or create a 63 degree angle from the water's edge. Allowing vegetation to grow tall along this slope will help protect it from erosion and keep the geese from walking up. Rip-rap, while ineffective on gentle slopes, is often effective on steeper ones.

Manage grass and plants

Canada geese prefer to eat grass, especially young succulent shoots, found in abundance on mowed, fertilized lawns. The techniques listed below can reduce this goose smorgasbord in your community.

Eliminate mowing: Geese like short, succulent grass to feed upon because taller grass isn't as palatable to them. Mowed lawns also provide loafing areas where predators can be seen from a distance. By eliminating mowing at least 20 feet from pond shorelines or in even larger tracks of land, geese will be encouraged to shy away from these areas and look for safer spots with better food sources.

Plant prairie grasses: Planting tall, lush native prairie grass stands along shorelines provides the same benefits as eliminating mowing because geese cannot see over the grass while they walk through it. Also prairie grass species are not as palatable to the geese as turf grass. Effectiveness is improved by widening the stand.

Note: Sometimes giant Canada geese adapt to plant barriers and walk through them with little concern.

Plant less palatable plants and grass: Above is a list of plant and grass species that geese generally prefer and do not prefer to eat. By planting the ones they do not prefer and eliminating the ones they do, you can make your property less inviting to Canada geese.

Using Plants as Management Tools

Replacing plants that geese like to eat with ones they do not typically bother may discourage them from remaining in an area.

Geese prefer:	Geese do not prefer:
Kentucky bluegrass	Mature tall fescue
Brome grass	Periwinkle
Canary grass	Myrtle
Colonial bentgrass	Pachysandra
Perennial ryegrass	English ivy
Quackgrass	Hosta or plantain lily
Red fescue	Ground juniper
	Switch grass

Allow water to freeze

Aerating ponds is one of the reasons Canada geese have become year-round residents in this northern climate. Allowing a pond to freeze over will force the geese to seek alternative water sources and may encourage them to migrate. Concentrations of geese will maintain open water even in below freezing temperatures. Harassment may be necessary to force the birds to leave long enough for the ice to form.

Exclusion

Exclusion methods are used to keep Canada geese from entering a specific area. Some methods listed below are inexpensive and simple, while others are more complex and expensive. When used correctly, especially in conjunction with other management tools, exclusion can be effective.

Overhead grid systems

One of the most effective methods of exclusion is the installation of a grid system over the water surface. Grids work on a simple principle: Canada geese are large birds, requiring a long glide-slope to land, much like an airplane. A grid system above

Jim Rathert photo

Allowing ponds to freeze forces geese to seek alternative water sources and may encourage them to migrate.

the water surface will be seen by the geese as a barrier between them and the water.

Grids work best on bodies of water less than 150 feet across, but can be used on larger bodies up to 300 feet across. Nearly any type of cord can be used to construct the grid, from cotton kite string to plastic-coated Kevlar cord. Anchor points for the grid lines can be trees, wooden stakes or "U" channel fence posts.

Grid system specifications are variable, but spacing the grid lines 20 feet apart and suspending them at least 3 feet above the water's surface should be sufficient to exclude geese, while allowing ducks, gulls or other smaller birds access to the water.

Modifications can be made if water levels change or if geese penetrate the system. For example, geese may land on the shore and walk into the water under the grid.

The solution would be to place a barrier around the water to keep them from entering under the grid. For example, place two strands of cord 6 inches and 12 inches above the ground running the length of the shore and attached to the anchor points. For a more permanent solution, plant a hedge row or install a fence.

Fencing

Because geese can fly, fencing alone may not exclude them from an area. Fencing can successfully barricade geese from pedestrian traffic during the nesting season. They also are effective during the flightless period.

Be sure the fence is a physical barrier, as well as an opaque visual barrier, so the geese can't see the people passing by. This will allow the geese to incubate their eggs in peace while keeping people safe from aggressive birds.

Fencing also can be used next to a lake to keep geese from walking from the water to shore. These short fences, even though geese can still fly over them, often work well when combined with harassment techniques.

Fences to consider include: conventional woven wire, snow, chain link, picket, single or dual strands of cord or wire, or chicken wire.

One popular fence that seems to be effective, especially for private yards, is a triple-strand electric fence. The wire should be strung 5, 10 and 15 inches above the ground. The amperage required to exclude Canada geese is minimal and will not harm them.

Note: To avoid accidentally shocking pedestrians, electric fences should be well marked with signs and not used in public-use areas.

Vegetation and rock

Canada geese typically prefer to use a route from a body of water that allows them a clear view of predators. By planting large, dense shrubs or placing large rocks (2 feet in diameter or more) along a shoreline, you may create a barrier that geese will be reluctant to penetrate.

Note: Sometimes giant Canada geese adapt to rocks and vegetation barriers. If so, fencing may need to be added.

Mylar tape

Mylar tape is a visual barrier that can be used in conjunction with other exclusion methods. Mylar tape is 1/2 inch wide, red on one side and shiny on the other. To use as a fence, string one or two strands between two posts and twist the tape two or three times. When the wind blows, the tape rotates, creating a flash between the red and shiny sides. This unfamiliar flash acts as a visual barrier and makes the geese shy away from the area.

Harassment

Canada geese seek areas where they can go about their daily activities with minimum disturbance. If someone or something bothers them enough, they usually will find another area where they will not be disturbed. However, they sometimes get use to some harassment techniques when they learn they won't be harmed.

Harassment techniques usually will not stop damage once it has started. They are, however, useful in preventing damage before it begins. If Canada geese were raised on an area or have become accustomed to using it for feeding, they will be more difficult to move.

Dogs

Using dogs to harass geese from an area has become one of the most popular and successful methods. While some nuisance animal businesses use highly trained border collies, just about any athletic, medium-large dog capable of obeying commands can be used.

Control of the dog is vital because dogs used in this manner are legally considered an extension of your hand and must not be allowed to catch, injure or kill a Canada goose.

Dan McMurtry photo

Using dogs to harass geese from an area has become one of the most popular and successfully methods. While some nuisance animal businesses use highly trained border collies, just about any athletic, medium-large dog capable of obeying commands can be used.

Typically, a handler and a dog enter an area occupied by unwanted geese. On command, the dog is allowed to chase after the geese. Geese will likely seek refuge from the dog in a nearby body of water. If this is the case, the dog can be allowed to enter the water. To make this method more effective, use a boat or pyrotechnics to further harass the geese. Harassment should continue and be repeated until the geese leave the area permanently.

Lasers

Relatively low-power, long-wave length lasers (630-650 nanometers with red beams) can effectively disperse some problem bird species under low-light conditions. Canada geese have shown extreme avoidance of laser beams.

Although they should never be pointed directly at people, roads or aircraft, lasers are safe and effective-species specific alternatives to pyrotechnics, shotguns and other traditional harassment tools. They can be expensive, costing $1,000 and up, and are only effective in low light from sunset through dawn.

Remember: Treat lasers like a long-range firearm by considering the background; range of the beam, which is like the projectile; and the reflection, which is like a ricochet. Always consult the owner's manual for safety information before using.

Pyrotechnics

Although not all geese react to pyrotechnics, most do. Pyrotechnics are specially designed Class C fireworks that are used to frighten wildlife. The types of pyrotechnics in this class include:

- **Screamers and bangers** —large bottle rocket-type devices fired from a 15-mm starter's pistol that whistle loudly or explode
- **Shellcrackers,**—firecrackers fired from a 12-gauge shotgun.

The distance a particular pyrotechnic device will travel varies from 50 to several hundred yards depending on manufacturer and type. Check with the manufacturer to be sure a particular device fits your needs.

Individuals using pyrotechnics should be trained in their use, and should wear eye and ear protection. Be cautious when using them in populated areas.

Note: Check with local authorities for possible ordinances restricting the use of pyrotechnics before purchasing these devices.

Dan McMurtry photo

Harassment devices can be effective to keep geese from overgrazing in urban lawns. Check with local authorities for restrictions on using pyrotechnics and and other devices. Some may be restricted or banned in urban areas.

Propane Cannons

Propane cannons are popular tools in use at hundreds of airports around the country. Many farmers also have used them with some success. They operate from the gas in a standard propane tank. On a timed basis, a small amount of propane is ignited, producing a loud report that can be heard more than a mile away.

The simplest models explode every 30 seconds to 30 minutes, based on the setting. More sophisticated models use computer chips to control the detonation more randomly, on a particular schedule or by remote control. Canada geese, like many other animals, have the ability to quickly adapt to the report of propane cannons and sometimes quit responding without additional aversive conditioning.

Their effectiveness can be greatly increased if the timing of the detonations and locations of the cannons are frequently changed and when they are supplemented with other harassment techniques.

Propane cannons may not be suitable for large communities because the devices are loud and may be more of a nuisance than the geese.

Chasing

Chasing geese on foot or in a golf cart is labor intensive; but in conjunction with other harassment methods, it can be successful if people are persistent. The idea is to chase geese long enough to cause them to go elsewhere, where they can live without being chased.

Other Techniques

Other techniques that can be used to harass Canada geese include:

- high pressure water sprayers
- air horns
- beating pots and pans together.

When coupled with techniques mentioned previously in this book-

Jim Rathert photo

When Canada goose populations were low, nesting tubs provided a nearly predator-free environment for the hen to incubate the clutch. Now that the geese have made a phenomenal recovery, nesting tubs should be removed.

let, they encourage Canada geese to move from an area. The key is to be more persistent than the geese. As long as the geese are not physically harmed, these harassment techniques are legal.

Chemical Repellents

A common request of people experiencing damage is for a chemical spray to repel the geese from an area. Although there are many home remedies, of which few are legal, over-the-counter products are few because of the strict registration requirements.

Chemical sprays registered for these specific applications, can be somewhat expensive and are, therefore, not suitable for all situations. To be registered, a product must be shown to have little or no adverse environmental impact while demonstrating it can do what the manufacturer claims. Even so, the use of these products, like any other control technique, do not guarantee success and should be used as part of an integrated management plan. Some of the products currently registered are listed below. See "Supply Sources" on page 22 for addresses.

Methyl Anthranilate

There are three new products using the active ingredient methyl anthranilate (artificial grape flavoring): ReJeX-It Migrate, GooseChase and Goose-B-Gone. These products help change the birds' behavior. When applied to grass where geese feed, methyl anthranilate makes the grass unpalatable. Geese may still frequent the treated area, but they will not feed there.

Methyl anthranilate will not wash off after a rain if allowed to dry first, but must be reapplied after mowing.

Anthraquinone

Flight Control, a relatively new product containing anthraquinone, repels geese in two ways. First, geese experience a strong, harmless "gut reaction" after eating the grass. Secondly, the grass appears unnatural and uninviting because the anthraquinone brings out the ultraviolet spectrum when applied to turf. Combining the strange look of the grass with the intestinal reaction they experience, geese will look else where to loaf and feed.

Flight Control will not wash off after a rain, but needs to be reapplied after mowing. Adding a growth regulator can keep the grass from growing as rapidly. This product is considered to be environmentally safe and does not produce long-term physical effects on the birds that ingest it. Although results may vary, several studies have indicated this product to be very effective.

Lethal Control

Currently there are three methods of legal, lethal control. All of which require permits, however, some may not be legal in your area.

Hunting

Where feasible, hunting is an important tool for managing problems caused by Canada geese. Hunting

Cliff White photo

Hunting helps to reduce the number of geese even if only a few are harvested. Check federal, state and local regulations for the area you want to hunt before the season begins.

helps to reduce the number of birds in an area, provides a strong repellent effect for the geese not taken and reinforces the use of non-lethal techniques, such as pyrotechnics. In Missouri, early goose hunting opportunities are designed to harvest local giant Canada geese before the migrants arrive.

Many areas with resident Canada geese prohibit the use of firearms. Check federal, state and local regulations before hunting.

Nest & Egg Destruction

Egg addling or oiling prevents the embryo from developing. This popular damage abatement method slows the rapid growth of local goose populations and eliminates the aggression of adult geese protecting their young.

A pair of Canada geese can increase to more than 50 birds in as little as five years. With sufficient sustained effort, you can reduce the number of geese produced on your property using the methods described on pages 13-14.

Because geese are federally protected, permits are required for egg and nest destruction activities. The U.S. Fish and Wildlife Service allows the Conservation Department to issue egg addling and oiling permits if the reasons are justified. See page 23 for the address of the Department's regional office in your area, which can help you obtain these permits.

Capture & Euthanization

In 2001, The Conservation Department began issuing permits with approval of the U.S. Fish and Wildlife Service to remove Canada geese from sites that have made substantial control efforts.

In some instances, localized populations may be captured during the molting season and processed for human consumption through charitable organizations. This step may be taken when other techniques have not been successful and where local communities formally support and pay for removal and processing.

Methods that aren't recommended

The methods listed below are often asked about, but are not recommended.

Plastic Scare Devices

Plastic swans, alligators, owls, snakes and dead goose decoys, as a rule, have not proven to be effective in repelling Canada geese. There have been some reports of dead goose decoys floating in small ponds keeping migrant geese at bay. But in general, the effectiveness of these devices is short lived, and they are not recommended.

Capture & Relocation

Capture and relocation of geese that cause a particular conflict is commonly requested. This is not a viable solution for adult geese because the birds imprint on the area where they learn to fly and most will return to the capture site or a similar setting.

Since giant Canada geese already occupy virtually all suitable habitat, there is limited opportunity to relocate juvenile geese without creating similar problems at release sites.

Relocation is effective for young juveniles because they imprint on the release area where they learn to fly rather than returning to the area where they were captured.

Toxicants

There are no toxicants registered with the Environmental Protection Agency for controlling Canada geese in the United States.

Swans

Some communities have attempted to use swans to harass geese. The premise is that these aggressive birds will defend their territory, especially during the breeding season, and will exclude other waterfowl from the area.

Because native swans are difficult to acquire, non-native mute swans are commonly used instead. These birds are much more tolerant of other waterfowl and may only defend the immediate area around their nests. It is not uncommon to find situations where mute swans and Canada geese peacefully share a site, adding to any fecal concerns that may already exist.

Mute swans can even attract Canada geese to bodies of water and also may negatively impact other native wildlife and plant species. Sometimes the swans are even more aggressive than the geese toward people. Use of mute swans can compound a difficult situation and, therefore, is not recommended.

Dan McMurtry photo

Addling or oiling eggs, which requires a permit, slows the rapid growth of local goose populations and eliminates the aggression of adult geese protecting their young. A dog or another person can help keep the geese away from the nest so the eggs can be addled quickly and safely. Careful record keeping is important so you will know when to remove the eggs from the nest. If you don't, the goose may remain on the nest too long, deplete her food reserves and suffer needlessly.

Maury Bedford photo

How to Addle and Oil Eggs

Egg addling and oiling are effective ways to manage goose populations, but they require a commitment of time and are not always easy to do. As a result, some communities enlist volunteers or hire companies that specialize in nuisance wildlife problems.

Apply for egg oiling and addling permits in January or February so you can be ready when the nesting season begins in March and April. Before applying, consider how many nests you usually have every year on your property. You can do this by estimating the number of goslings produced in previous years on your property and on that of your neighbors and divide by five.

Besides a permit, you will also need the following:

- Pail of water
- Data sheets to record information (Make enough copies of the form on page 15 so you can record all your nests.)
- Egg flotation chart (see page 14)
- A small spray bottle filled with corn oil if you plan to oil eggs (Only corn oil can be used because other types of oil are not registered for this use.)

Next, locate all the nests. This is usually fairly easy, although some Canada geese may hide their nests on islands, beneath shrubbery, in high grass or on roof tops. Simply walking around the perimeter of the lake will usually allow you to locate 90 percent of all nests.

Because Canada geese tenaciously defend their nests, you should be accompanied by another person or a dog to help fend off goose attacks while you addle or oil the eggs.

Hint: Geese may be easily repelled by stiff-arming them and gently pushing them back to the ground. This will help reduce chances of injury as most injuries associated with goose attacks are related to falling rather than being struck by a wing or being bitten.

After fending off the geese, check the incubation stage of the eggs. If they are cool to the touch, the female has not finished laying her entire clutch and incubation has not begun. Record this information, on your data sheet and return in one week.

If the eggs are warm, take one or two eggs and place them in a pail of water. By looking at the egg flotation chart on page 14, note how the egg is floating in the water and record the incubation stage number.

If the eggs are in stage 5 or 6, they can be removed and disposed of by burying. When eggs are at these stages, it means that the geese have nested for at least three weeks and the egg follicles in the female have dried up so no new eggs can be laid.

Warning: If any of the eggs are pipping, leave the nest alone. The eggs are about ready to hatch, and your permit does not allow you to destroy eggs in this stage.

If the egg is in stages 1 through 4, you can oil the entire clutch. It is not necessary to pick up any of the remaining eggs. Apply the oil to the top two-thirds of each egg. When the top of a round object is sprayed

Dan McMurtry photo

When addling eggs to help manage geese populations, keep accurate records on a data sheet. See page 15. Be sure to apply for a permit in January or February before undertaking this management program.

Scott Beckerman photo

The geese may become aggressive when you approach the nest to oil the eggs. Bring along a dog or another person to help you.

well, excess oil will cover the remaining one third of the egg. It only takes a small amount of oil to prevent the gases from diffusing through the pores of the egg, which cause the embryo to die of asphyxiation.

If shaking eggs, be sure you check and shake each one separately. It is almost impossible to successfully shake an egg in stage 1. Wait until the egg is in stage 2 or 3, when it can be successfully shaken in a few seconds. Vigorously shake each egg until you hear sloshing sounds inside the egg.

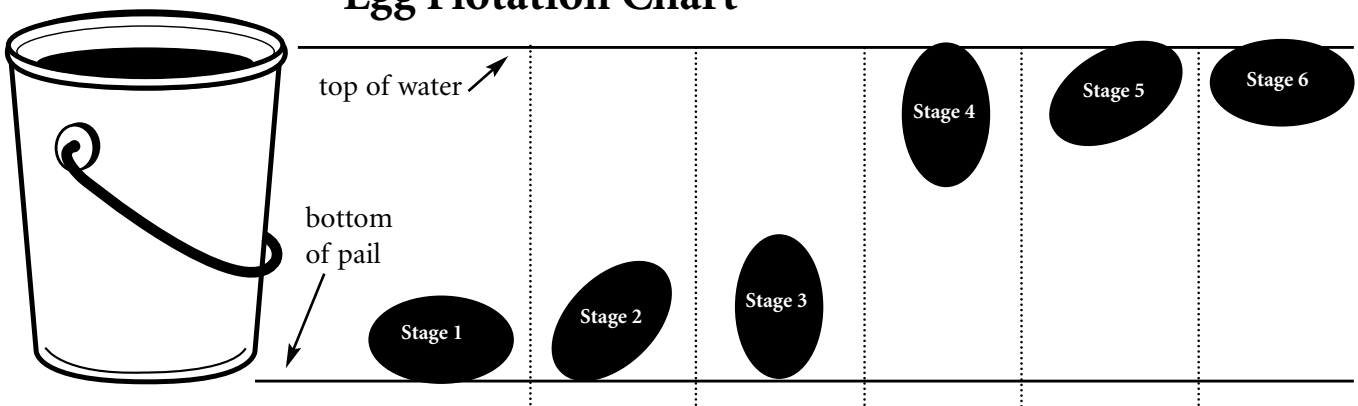
After you have either shaken or oiled all eggs, refer to the egg floatation chart below and record the nest stage so you will know when to remove the eggs.

Geese must be allowed to nest for at least three weeks. A nest treated in stage 2 has been incubating for four to eight days; so the waiting period to pick up the eggs is 15 days, which would total three weeks.

You must return to the nest after the waiting period and remove the eggs. If you don't, the female goose will remain on the nest too long, deplete her food reserves and suffer needlessly.

Warning: Take extreme care when removing eggs from the nest after the waiting period. Because spoiled eggs may explode if dropped, do not toss them. Gently place them in a hole, and bury them as soon as possible.

Egg Flotation Chart



Approximate embryo age	0-3 days	4-8 days	9-13 days	14-18 days	19-23 days	24-27 days
Days to wait before removing eggs and destroying nest	20	15	10	5	0	0

Egg/Nest Destruction Data Sheet

Property Name _____ Year _____

Nest # _____ Neck bands numbers (if any) _____

Date of visit	# of eggs in nest	# of eggs treated	# of new eggs in nest	Embryo stage	Comments

Nest # _____ Neck bands numbers (if any) _____

Date of visit	# of eggs in nest	# of eggs treated	# of new eggs in nest	Embryo stage	Comments

Nest # _____ Neck bands numbers (if any) _____

Date of visit	# of eggs in nest	# of eggs treated	# of new eggs in nest	Embryo stage	Comments

Nest # _____ Neck bands numbers (if any) _____

Date of visit	No. of eggs in nest	No. of eggs treated	No. of new eggs in nest	Embryo stage	Comments

Make as many copies as you need of this form to record all your nests.

History of Goose Conflicts and Management Efforts

Name of landowner or community: _____

Owned by: _____ Individual _____ Subdivision _____ Municipality

Contact person: _____

Location of property or address: _____

_____

County: _____

Total acreage of property: _____ (Include map or aerial photo if possible.)

Bodies of water present: _____ Type (pond, lake, stream, etc.)_____ Acreage _____

Briefly describe: _____

_____

Number geese present: _____ summer _____ winter

Number of nests present: _____

Types of problems/damage: _____

Length of time problems have been occurring: _____

When are problems the worst: _____ summer _____ winter

Solutions used to date:

Stopped artificial feeding: Yes/No _____Dates used: _____Cost _____

Results and comments: _____

_____

_____

Human harassment: Yes/No _____ Dates used: _____ Cost _____

Results and comments: _____

_____

_____

**Requires special permits that can be obtained through the Missouri Department of Conservation.*

Solutions used to date (continued):

Dog harassment: Yes/No _____ Dates used: _____ Cost _____

Results and comments: _____

_____

_____

Pyrotechnics: Yes/No _____ Dates used: _____ Cost _____

Results and comments: _____

_____

_____

Fencing: Yes/No _____ Dates used: _____ Cost _____

Results and comments: _____

_____

_____

Repellents: Yes/No _____ Dates used: _____ Cost _____

Results and comments: _____

_____

_____

Habitat Modifications: Yes/No _____ Dates used: _____ Cost _____

Results and comments: _____

_____

_____

Nest Destruction: Yes/No _____ Dates used: _____ Cost _____

Results and comments: _____

_____

_____

Egg Oiling/Addling*: Yes/No _____ Dates used: _____ Cost _____

Results and comments: _____

Hunting**: Yes/No _____ Dates used: _____ Cost _____

Results and comments: _____

Roundup and Removal*: Yes/No _____ Dates used: _____ Cost _____

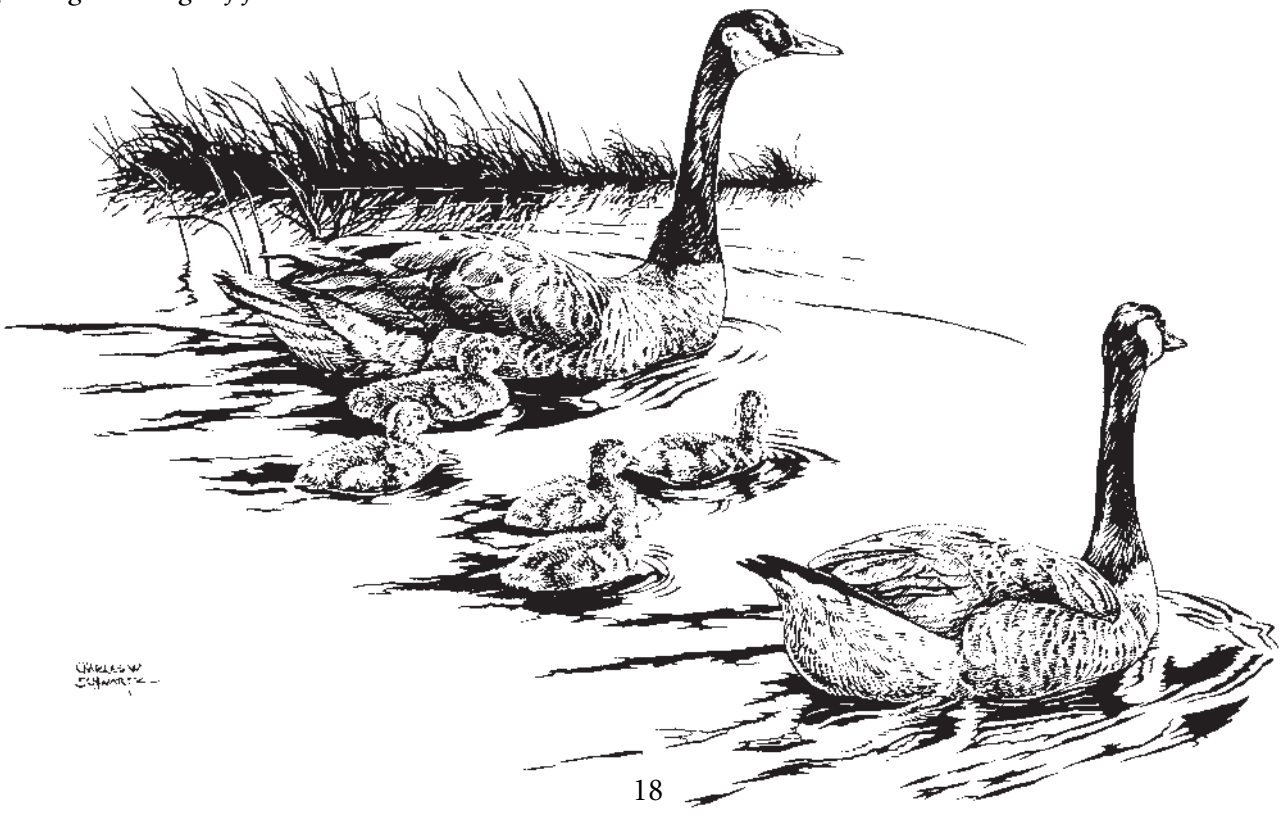
Results and comments: _____

Other: _____ Dates used: _____ Cost _____

Results and comments: _____

**Requires special permits that can be obtained through the Missouri Department of Conservation.*

***Permitted only during the regular waterfowl season or by special permit through the Missouri Department of Conservation. Hunting may be prohibited within municipal boundaries. Be sure to check local ordinances regarding discharge of firearms.*



Management Objectives

Goose Population Stabilization:

1. What population level is acceptable (i.e., how many geese)?_____

2. Do geese need to be removed to reach this level? Yes/No _____ If so, how many?_____

3. List all landscape modifications that can be used effectively on this property and the date they will be implemented (see pages 5-8 for examples):

Type of habitat modification	*Location*	*Date*

4. Egg oiling/addling permit obtained from the Conservation Department (date): _____

Number of nests: _____ Number of eggs in nests: _____ Dates treated: _____

5. Other Strategies:

Type of strategy	*Location*	*Date*

Goose Nuisance Abatement:

"No Artificial Feeding" signs/ordinance put in place (date): _____

Harassment methods to be used (see pages 8-10):

Type of harassment	*Dates of use*	*Projected cost*

Goose Removal:

Number of geese to be removed _____

Removal method (roundup, hunting, etc) _____

Removal date(s) _____

Community authority requesting removal _____

Removal agent _____

Assisting Neighbors (check the ones used):

_____ Education efforts within community and surrounding communities

_____ Home owner association meeting

_____ Local town hall meeting

_____ Flyers and other print media

_____ Other resources that can be shared _____

Follow-up Monitoring:

Was there a reduction of geese/human conflict reports? Yes/No _____

Was the goose population effectively reduced? Yes/No _____

Number of geese after the plan was implemented: _____

Did the habitat recover from the goose damage? Yes/No _____

Date of Plan Initiation: _____

Date of Plan Completion: _____

Supply Sources

This is a directory of known businesses as of May 2002 that distribute products or provide services for controlling Canada goose damage. Inclusion of businesses on this list does not imply endorsement or recommendation by USDA/APHIS/Wildlife Services or the Missouri Department of Conservation. Omission of businesses from this list is not intentional. No discrimination is intended against businesses not listed. Product names are mentioned solely to report factually on available data and to provide specific information.

Lasers

Sea Technology Inc.
P.O. Box 31151
Albuquerque, MN 87190
Phone: 800-732-2246

Reed-Joseph International Co.
P.O. Box 894
Greenville, MS 38701
Phone: 800-647-5554
Fax: 775-703-2074

Plastic Coated Kevlar Grid Line

Phillystran Inc.
151 Commerce Drive
Montgomeryville, PA 18936-9628
Phone: 215/368-6611
Fax: 215/362-7956

Pyrotechnics and Propane Cannons

Margo Supplies Ltd.
Site 20, Box 11, R.R. #6
Calgary, Alberta, Canada T2M 4L5
Phone: 403/285-9731
Fax: 403/280-1252

Kirk Gustad photo

This residential lake with mowed lawns up to the shoreline, along with a fountain to keep the water from freezing in the winter, provides excellent habitat for geese to live year round and to raise their young.

Reed-Joseph International
232 Main Street
P.O. Box 894
Greenville, MS 38701
Phone: 800/647-5554

Sutton Ag Enterprises
746 Vertin
Salinas, CA 93901
Phone: 408/422-9693

Repellents

Product: GooseChase
Bird-X Inc.
300 North Elizabeth Street
Chicago, IL 60607
Phone: 312/226-2473
Fax: 312/226-2480
Web address: www.bird-x.com

Product: Flight Control
Environmental Biocontrol International
3521 Silverside Road
Wilmington, DE 19810
Phone: 800/468-6324
Web address: www.flightcontrol.com

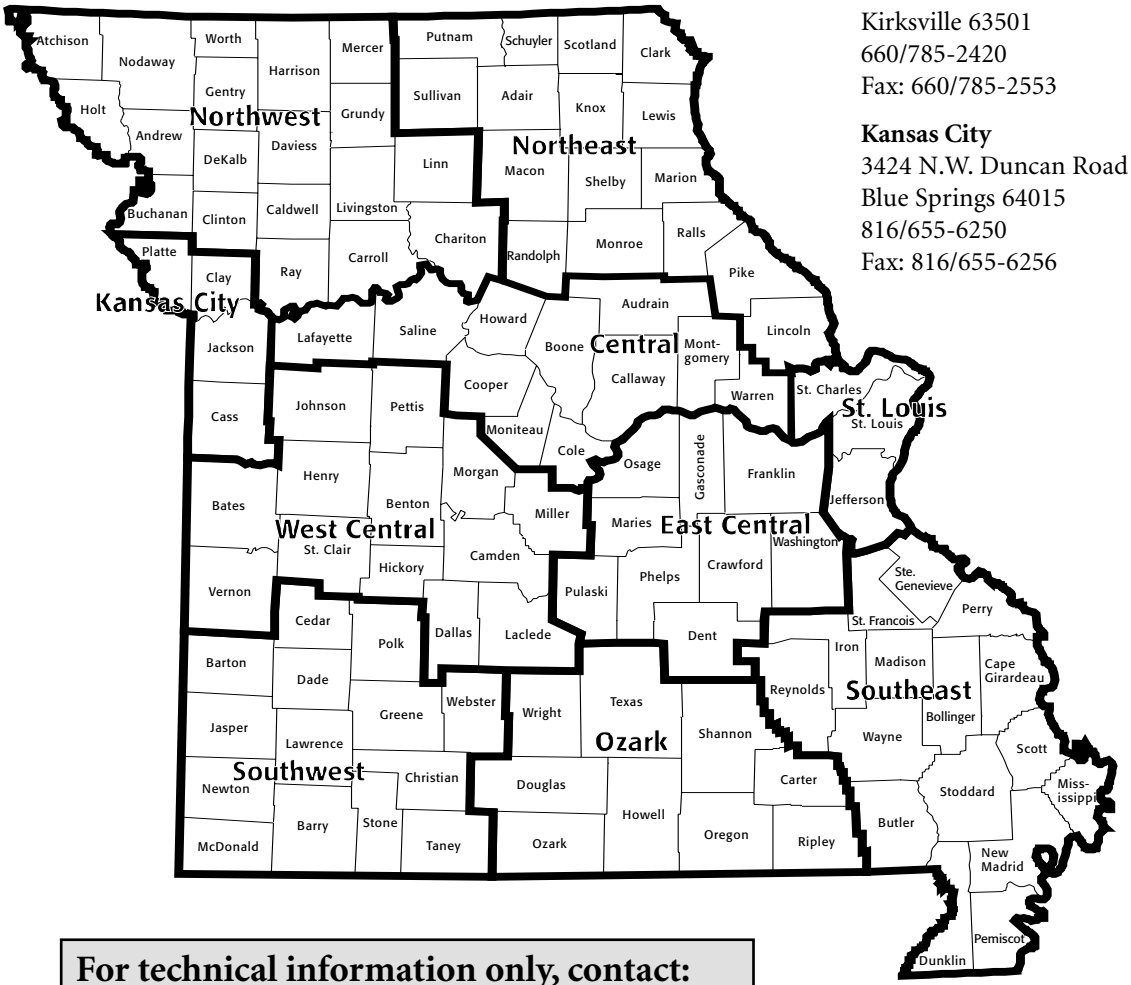
Product: Goose-B-Gone
Bird-Be-Gone Inc.
23918 Skyline
Mission Viejo, CA 92692
Phone: 800/392-6915
Web address: www.birdbgone.com

Product: ReJeX-It Migrate
Becker Underwood Inc.
801 Dayton Ave.
Ames, OH 50010
Phone: 800/232-5907
Web address: www.bucolor.com

Contacts for Permits and Additional Information

A state permit must be obtained before any activity is conducted that involves the handling of Canada geese or their eggs. To apply for a permit or for technical information, contact a Missouri Department of Conservation office near you.

Conservation Department Administrative Office
P.O. Box 180 (ZIP 65102)
2901 W. Truman Blvd.
Jefferson City 65109
Phone: 573/751-4115
Fax: 573/751-4467
Web address: www.conservation.state.mo.us



For technical information only, contact:

USDA/APHIS/Wildlife Services
1714 Commerce Court, Suite C
Columbia, MO 65202
Phone: 573/449-3033
Web address: www.aphis.usda.gov/ws/

Conservation Department Regional Offices

Contact the appropriate regional office below if you have questions about permits or need further information about Canada geese.

Northwest
701 N.E. College Drive
St. Joseph 64507
816/271-3100
Fax: 816/271-3107

Northeast
2500 S. Halliburton
Kirksville 63501
660/785-2420
Fax: 660/785-2553

Kansas City
3424 N.W. Duncan Road
Blue Springs 64015
816/655-6250
Fax: 816/655-6256

Central
1907 Hillcrest Drive
Columbia 65201
573/884-6861
Fax: 573/882-9807

St. Louis
2360 Highway D
St. Charles 63304
636/441-4554
Fax: 636/926-9125

West Central
2010 S. 2nd St.
P.O. Box 368
Clinton 64735
660/885-6981
Fax: 660/885-5038

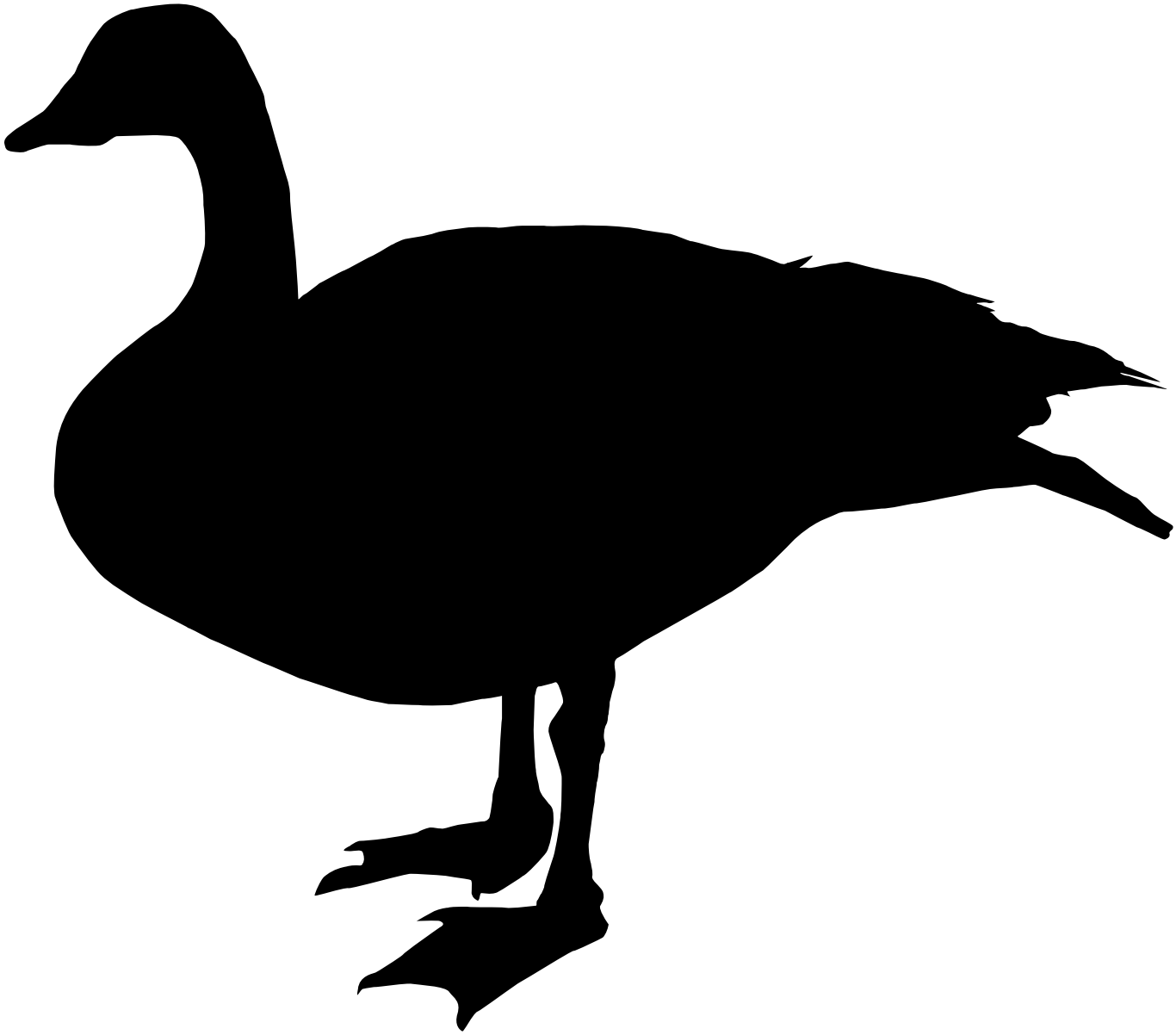
East Central
375 S. Highway 185
P.O. Box 248
Sullivan 63080
573/468-3335
Fax: 573/468-5434

Southwest
2630 N. Mayfair
Springfield 65803
417/895-6880
Fax: 417/895-6910

Ozark
551 Joe Jones Blvd.
P.O. Box 138
West Plains 65775
417/256-7161
Fax: 417/256-0429

Southeast
2302 County Park Dr.
Cape Girardeau 63701
573/290-5730
Fax: 573/290-5736

Help Keep
Our Geese Wild

Please,
Do Not Feed Them

Don’t Feed the Geese