Rural Development Service Technical Advice Note 51

The management of problems caused by Canada geese: a guide to best practice

The Canada goose population in southern Britain numbers over 80,000 birds and is still increasing. However, in recent years the overall rate of growth has slowed and in some areas numbers have stabilised or declined. The geese live in local populations, usually of up to a few hundred birds, which remain around one or two water bodies that offer suitable habitats for breeding, roosting etc. Because the geese have relatively few predators, and can produce four or five young per year, numbers at particular sites can grow very rapidly and significant problems may occur.

Any management techniques used to control the problems caused by Canada geese must be legal and should take account of the fact that Canada geese are a popular species with many members of the general public.

This guidance note aims to provide land managers with the information that they need to manage difficulties caused by Canada geese in a way that is effective, legal and sensitive to public opinion.

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The Protected Status of Wild Canada Geese

The Canada goose, like all wild birds in Britain, is protected under the EC Wild Birds Directive implemented in Great Britain through the Wildlife and Countryside Act (1981) as amended[1]. This Act makes it an offence to capture, kill or injure Canada geese , or to damage or take their nests or eggs. There are exceptions, the most important of which relate to the open season and to actions **licensed under Section 16 of the Act**.

Open season

Canada geese can be legally shot by authorised persons (i.e. persons acting with the authority of the landowners, occupiers and the owners of the shooting rights to the land involved) or trapped by approved methods during the open season (between September 1st and January 31st, or February 20th inclusive on the foreshore) except on Sundays. Care must be taken to ensure that other regulations concerning firearms safety, capture methods etc. are adhered to.

Licensed action

Defra issues a series of general licences under section 16 of the Wildlife and Countryside Act 1981. These allow Canada geese to be killed or taken, and their eggs and nests to be taken, damaged or destroyed for the following purposes (the reference number of the relevant licence is given in brackets):

- preserving public health or safety (WLF100088);
- preserving air safety (WLF100085);
- preventing the spread of disease and preventing serious damage to livestock, foodstuffs for livestock, crops, vegetables, fruit, growing timber, fisheries or inland waters (WLF18).

Action can be taken under these licences at any time by authorised persons (e.g. persons acting with the authority of the owners or occupier – see the general licences for a full definition).

Action under the authority of a general licence is only permitted if the person contemplating such action is satisfied that appropriate non-lethal methods of control are either ineffective or impracticable. Each general licence specifies a number of conditions that must be complied with. It is therefore essential that anyone considering taking action under a general licence reads the relevant licence before acting.

General licences are published on Defra's Wildlife Management website, and advice on their application is available from staff in the National Wildlife Management Team. The website address and contact details are given at the end of this leaflet.

Care must be taken to ensure that other regulations concerning firearms safety, capture methods, etc. are adhered to.

Prohibited methods

Certain methods of killing and taking birds are prohibited. These include the use of nets, automatic and semi-automatic weapons, and poisoned or stupefying substances. For full details see section 5 of the Wildlife and Countryside Act 1981. Anyone seeking to use a prohibited method must apply for a licence from either the Department for Environment, Food and Rural Affairs (Defra) or English Nature. English Nature issue licences for the control of Canada geese for conservation purposes (see Further Information section below).

The Biology and Behaviour of Canada Geese

In order to develop an effective management strategy for any nuisance wildlife, it is necessary to understand enough about the biology of the species and the local population involved to be able to predict the outcome of whichever management techniques are chosen. This section gives a brief point by point overview of the biology of Canada geese in Britain insofar as it affects the management of the species.

Breeding

- A single clutch of around 6 eggs is laid in early April each year.
- Incubation, solely by the female, takes 28-30 days.
- Nests are usually close to water bodies, often on islands which provide some protection from predators such as foxes and dogs.
- The adult goose defends a small territory around the nest, but is willing to tolerate other pairs nesting nearby, so large colonies can build up on sites with enough nesting territories and adequate food supplies.
- The geese are aggressive in defence of their nests and will attack other Canada geese, other waterfowl, and even humans who approach too closely.

Fledging and the moult

- The hatched young are flightless for 10 weeks and are protected by the adults on the water at the breeding site.
- Mortality rates are highest for very young fledglings, but become little different from adults once the bird is more than a few weeks old.
- The adult birds moult around the end of June and are unable to fly for a 3-4 week period.

- During the moult both adult and juvenile birds must feed from the water or walk to find food.
- The amount of suitable food available at a site during the moult period may be important in governing the number of birds that it can support.
- Some birds, which have either not attempted to breed or which have failed to raise a brood, undertake longer journeys to find the best sites to moult.
- Canada geese tend to moult on larger sites with easy access between open water and suitable feeding areas of short grass.

Dispersal

- The geese normally remain close to the site where they hatched, and once young birds mature they may wait several years for a breeding territory to become available.
- Large flocks of non-breeding adults may thus build up at certain sites.
- Some Canada geese remain faithful to their home area for life, even if apparently suitable water bodies with no Canada geese present are available nearby. Others may be resident at many sites, with certain sites used just for breeding, moulting or wintering.
- Small numbers abandon their home area either to join other groups or to establish new colonies.

Wintering

- Unlike their North American ancestors, Canada geese in Britain are mostly non-migratory, moving only short distances between breeding and wintering sites within their local area.
- Birds may fly out from the water bodies where they roost to regular winter feeding sites such as waterside grazing pasture, amenity grassland, etc. They may also move around their home range taking advantage of feeding opportunities such as sprouting winter cereals or root crops as they become available

Causes of mortality

- Adult Canada geese have few natural predators in Britain, and most of the known causes of recorded mortality are associated with man's activities. Annual mortality is estimated at between 10 and 20% of the whole population. Juvenile birds have the same level of mortality as adults once they reach their first moult.
- The causes of death are:
  - 67% shooting
  - 4% hitting power lines
  - 6% predation
  - 23% unknown.
- There is little evidence that natural factors (such as limited food availability), which could become more severe as numbers of birds increase, act to control Canada goose numbers.
- Low annual mortality, high reproductive rates and the availability of suitable habitat gives the population scope to increase in the absence of management measures.

Problems Caused by Canada Geese

Grazing and trampling

- Canada geese are herbivores, grazing on both land and water plants.
- Damage to amenity grassland in public parks, where the geese may occupy regular feeding and roosting sites all year round, can be severe.
- Unsightly and unhygienic areas of mud and droppings which are expensive to re-seed frequently occur.
- The geese may trample as well as graze pasture and crops.

Fouling with droppings

- Because of their inefficient digestive system and the low nutrient value of plant material, Canada geese may need to eat large quantities of vegetation.
- When grazing they may produce droppings at a rate of one every 6 minutes.
- The droppings contain bacteria that may be harmful if faecal matter is inadvertently swallowed and they also make grassed areas unattractive and paths slippery.
- If the droppings are passed into water bodies they may cause increased nutrient loadings leading to possible toxic algal blooms and low oxygen levels in the water.

Damage to wildlife habitat

- Canada geese can damage the habitat of other wildlife, for example by grazing or trampling nesting sites of other bird species.
- Destruction of waterside habitat, such as reed beds, by Canada geese can be a significant problem, leading to erosion of river banks in some cases.

Excluding other wildlife

- There is little hard evidence that Canada geese cause significant problems by competing directly with other wildlife.

- Aggressive confrontations do occur, and there is some evidence of other large waterfowl being excluded by, or excluding, Canada geese from a preferred breeding site.

Such interactions are rare, however, and are thought to have little effect on the overall populations of other native waterfowl.

Birdstrike hazards to aircraft

- The large size of Canada geese makes a collision with an aircraft a particularly hazardous event.
- Although no fatal incidents have occurred in the United Kingdom, serious collisions have occurred elsewhere. For example, following a collision with a flock of Canada geese, a United States Air Force AWACS aircraft (a large four-engined jet) crashed killing all on board.
- The aviation industry continues to express concern about the increasing numbers of Canada geese on water bodies near aerodromes.
- Planning applications involving the creation of water bodies suitable for Canada geese close to aerodromes may be refused on the grounds of flight safety.

Management Techniques

Integrated Management Strategies (IMS) for Canada Geese

Experience has shown that it is unlikely that a single management technique will be fully effective in controlling a problem caused by Canada geese. For example:

- Fencing an area to keep birds off may cause them to move to an alternative site close by where they could also cause damage. This may be a suitable option if damage is acceptable on other areas of the site.
- Preventing reproduction by treating eggs to stop hatching will not immediately reduce the population of adults (and hence the levels of damage or nuisance).
- Culling the adult population at a site may simply allow non-breeding adults from nearby waters to move in to vacated breeding territories.

In those cases where effective management of the problem has been achieved, integrated management strategies which combine a number of techniques have invariably been employed. One of the most effective Canada goose management programmes to date involved the development of an IMS that combined reduction of adult numbers, reproductive control and fencing to exclude birds, carried out by Wandsworth Borough Council as part of a larger programme to improve the quality of its urban park lakes.

The scale of management required for a successful IMS

Although the damage or nuisance caused by a group of Canada geese may be occurring at only one site, it is important to remember that the population of geese to which the birds belong may be spread over a number of nearby waters. When developing an IMS for a particular situation, it will often be necessary to manage birds away from the site where the problem actually occurs. This is especially important if population reduction is to be included in the IMS. For example, if scaring or habitat management proved insufficient to control a problem at a wintering site, and population reduction by egg control or culling became necessary, the breeding and moulting sites used by the wintering birds would need to be identified and the co-operation of the relevant landowners obtained before this strategy could be implemented.

Available techniques for the control of problems caused by Canada Geese

The choice of which techniques to combine into an IMS will depend upon the type of damage occurring, the type of control needed to reduce the damage to acceptable levels, the biology and distribution of the birds involved and the cost of management relative to the seriousness of the problem. A series of examples are given in the ‘Examples of possible Integrated Management Strategies for problems caused by Canada Geese section of this leaflet.

The techniques available fall into two broad categories; the control of behaviour, by scaring or excluding the birds from the site in question, and the control of numbers, by manipulating the breeding rate or rate of mortality of adult birds. Some of these techniques, especially those involving the manipulation of bird numbers, are permitted by a general licence, and hence can only be carried out for certain purposes. It should be remembered that complete elimination of Canada geese may not be feasible, so consideration should be given to whether the presence of these geese can be tolerated on parts of the site. Where an action is only permitted by a general licence, this is indicated below.

Behaviour modification (scaring, exclusion, repellent chemicals)

Visual scarers

Ground based scarers

Most visual scarers rely on a wild animal’s natural fear of the unfamiliar. Scarecrows of various designs, flags

and flapping tapes have all been employed to deter geese from areas such as sprouting crops. However, even migratory goose species learn to ignore these deterrents and Canada geese, which often live close to man, are used to man-made items. Scarecrows, whether human or animal effigies, windmills, rotating mirrors etc., should be placed in the centre of the area where problems are occurring and should be moved every 2 or 3 days to maximise their effect. Flags or flutter tape should be attached to upright poles at regular intervals across the affected area. In general, the closer the spacing of the flags the greater the deterrent effect is likely to be. Visual scarers may be effective for short term deterrence of Canada geese from sensitive areas, especially if alternative sites are available nearby.

Kites and balloons

Other visual scaring techniques include kites and balloons, often painted with large eyes or made in the shape of predatory birds. A threat from above may be more intimidating for birds which naturally fear being attacked by birds of prey, and a single balloon may deter birds from a larger area than a ground based scarer. The devices should be set to fly above the problem area during normal wind conditions. They may need to be re-set if wind direction changes and may not fly well in heavy rain or very strong winds. As with ground based scarers, birds will eventually learn to ignore them and they are best used as short term deterrents when alternative sites are available for the birds to move to.

Kites and balloons are covered by specific aviation legislation. If you wish to use either of these methods as visual scarers you are advised to consult with the Civil Aviation Authority as certain restrictions may be applicable. Their address is given at the end of this leaflet.

Problems with visual scarers

Although effective in the short term, visual scarers have some drawbacks, particularly in situations such as public parks. The scarers may be unattractive and interfere with recreational use of areas and could be subject to theft. They also require maintenance and some need to be moved on a regular basis to maximise their effect. Visual scarers are particularly appropriate for use to protect agricultural crops where the geese need to be excluded for a limited period of time such as during sowing or harvesting.

Acoustic scarers

Acoustic scarers, from the commonly used gas cannon through recorded bird calls to complex solar powered artificial sound generators, are all marketed as being effective in deterring Canada geese. Most will deter the birds from relatively small areas provided that there are alternative areas for them to use for roosting or feeding nearby. Like visual scarers, the birds will eventually learn that they offer no threat, although their effectiveness can be prolonged by moving the scarers every two or three days. Acoustic scarers are often hidden (by deploying them at the edge of a field or behind hay bales or other screens) so that the birds cannot see where the sound is coming from. This is thought to prolong the time before the birds realise that the sound represents no threat, but there is little scientific evidence to support this assertion. It is advised that you consult your Local Authority if you choose to use acoustic scarers because of their powers under the Environment Protection Act 1990 Part III in respect of noise nuisance which embraces the use of gas bangers and electronic sound generating scaring devices.

Problems with acoustic scarers

As with visual scarers, acoustic scarers may be unsuitable for use in areas frequented by the public due to the sudden loud noises involved, and the relatively expensive equipment may be subject to theft or vandalism. These systems are more likely to be of use to protect agricultural crops or to deter birds from islands or similar remote areas.

Combined visual/acoustic

Some scaring systems combine visual and acoustic stimuli in order to enhance the deterrent effect. Such systems vary from gas cannons which shoot a projectile up a pole when the cannon goes off (in order to simulate a shot bird falling to the ground) to an inflatable rubber man which emerges from a box accompanied by a loud klaxon. The combination of visual and acoustic stimuli may lengthen the time before the birds habituate to the scarers, and they will benefit from being moved every 2 or 3 days. All of these systems have the same drawbacks as visual or acoustic scarers alone and are suitable for use in similar situations.

Human operated bird control

For many bird species the most effective bird scarer is a human being, armed either with a harmless scaring device such as a flag or firework, or with a shotgun. Where Canada geese are regularly shot, the simple presence of a human may be sufficient to deter birds from an area. In most situations, however, Canada geese show little fear of man, particularly where they are used to being fed by the public. Even if the geese can be trained to fear humans, the deterrent will only

be effective if it is continuously deployed whenever the geese are present. The resulting high cost of human operated scaring of Canada geese, by whatever method, means that it is usually only an effective option when the damage caused is extremely expensive, or where the risks to health and safety are extreme (e.g. in preventing birdstrikes to aircraft)

Shooting to support scaring

It is widely believed that periodic shooting of a small number of birds helps to make them more wary, thus making acoustic and visual scarers more effective. While non-lethal shooting to scare can be carried out throughout the year, lethal shooting during the close season or on a Sunday is only permitted under the authority of a licence (see “Protected Status” section for guidance on licences). Any shooting, whether in the open or close season, must comply with the requirements of the Firearms Act 1968 (as amended).

Chemical repellents

A number of products are currently under development which, when sprayed on vegetation, harmlessly repel wildlife from areas where they are not wanted. Some of these products are currently on sale in the USA and have met with mixed success. At present, there is no repellent chemical available in the UK that is approved for use and is effective against Canada geese. Further field testing will be required before a proper evaluation of available repellent chemicals can be made in the future

Habitat management

It may be possible to permanently alter an area where Canada geese are causing problems to make the site permanently unattractive to them. Whilst the features that make a water suitable for Canada geese are not fully understood, enough is known about the biology of the birds to allow a number of suggestions for habitat modifications to be made.

Landscaping: bank steepening and island removal

As with fencing (see below), making it more difficult for Canada geese to walk out of water bodies onto feeding areas by steepening banks may encourage the birds to move elsewhere. Avoiding shallow marginal areas which support water plants will also restrict the food supply for the geese, but this may adversely affect other waterfowl and/or damage the rest of the aquatic habitat. Safety concerns arising from deep water and steep banks in public areas would also need to be considered. Because Canada geese prefer to breed on islands, the complete removal of an island could be considered if fencing proved ineffective in discouraging the birds. Low lying islands could be effectively removed by raising water levels in some circumstances. As with all other exclusion or habitat modification techniques, the effect on other wildlife would need to be considered before embarking on such a project.

Barrier planting, marginal vegetation, trees

Establishing areas of dense vegetation along the shores of water bodies (possibly concealing a cheaper fence structure) or breaking up large grass areas with planting which restricts the bird’s view of the water (and hence reduces its feeling of safety) have all proved effective in certain circumstances. If Canada geese do fly out to feed in small areas flanked by hedges and trees, they prefer a shallow climb out angle to aid their escape. Thus, the taller the surrounding vegetation relative to the size of the field or other grazed area the less likely the geese are to use it.

Reducing available foraging areas adjacent to water bodies by changing ground cover

It may be possible to reduce or eliminate Canada goose damage to amenity areas by changing the ground cover planting to species that are not palatable to the geese. Ground cover plants with tough leaves, such as Ivy, and many shrub species are not readily eaten by Canada geese and planting the fringes of lakes with a combination of barrier planting and unpalatable ground cover may reduce the feeding opportunities to the point where the geese move elsewhere. Also, allowing short grass to grow long/or mowing alternative feeding areas can also be successful in moving geese within a site and may even reduce geese numbers. However, it should be noted that a change in planting may also affect other waterfowl.

Exclusion

Where scaring of Canada geese is not desirable, it may be possible to exclude the birds from sensitive areas by physically preventing them from gaining access. As with scaring techniques, exclusion is likely to be most effective if alternative sites are available for the birds to move to. However these techniques may create some difficulties as they affect other waterfowl species as well as Canada geese. The erection of fences along a lakeside may also have implications for public safety if someone were to fall into the water and be unable to get out easily.

Fencing

Perhaps the most obvious way to exclude Canada geese is to fence sensitive areas to prevent them gaining access. Despite the fact that the geese can fly,

even low fences of between 0.3 - 1m high can be effective in excluding them from some areas as they prefer to walk to their feeding and roosting sites if possible, often landing and taking off from water. Thus, fencing the edge of a lake may be sufficient to cause the geese to move elsewhere if they are unable to walk easily out of the water. Canada geese dislike enclosed areas where they cannot easily escape from predators. Barriers that divide an area into smaller units may therefore help to discourage the birds from using the site concerned.

Fences have also been successfully used to exclude Canada geese from breeding and roosting sites, especially where alternative sites were available nearby. Fencing the perimeter of park lakes is not necessarily an expensive option because a simple post and chicken wire fence will suffice if properly erected, but a more decorative and permanent structure may involve a significant cost. Fencing may be a particularly effective option at sites used by moulting Canada geese because if they are prevented from walking out of the water whilst they cannot fly they will not be able to access the protected areas. Care should be taken, however, to ensure that moulting birds and newly hatch young have access to sufficient suitable grazing areas so they do not starve. A gap at the bottom of the fence of about 8cm will allow smaller waterfowl access to the land. However, any fencing will also deter other geese and mute swans.

Changing cropping patterns

Where agricultural damage is occurring, it may be possible to change the crops being grown to those less susceptible to damage by Canada geese, or to move to crops which are most vulnerable when the geese are elsewhere. This would obviously require a balance to be struck between the economics of moving to a different crop compared to the cost of either tolerating or controlling the damage being suffered.

Population management

In situations where serious problems are being encountered and where habitat management, scaring or exclusion techniques are inappropriate or have been tried and have failed, it may be necessary to reduce the scale of the problem by reducing the size of the goose population at a particular site. There are a number of techniques that can be used for population management. A range of techniques are permitted under general licence. Trapping and shooting are also permitted during the open season. No method prohibited under section 5 Wildlife of the Countryside Act 1981 may be used.

Relocation

Section 14 of the Wildlife and Countryside Act 1981 prohibits the release of Canada geese into the wild without a licence. This offence carries a penalty of a custodial sentence and/or a fine.

The initial response to the first problems caused by Canada geese in the 1950's and 60's was to capture the birds during the flightless period of the moult and to move them to other waters where there were no Canada geese at the time. Many of the relocated birds simply returned to their original home, whilst those that did remain on the new site began to reproduce rapidly in the new habitat and problems soon began to occur at the new sites as well. It is thought that these translocations played a significant part in the sudden rapid expansion of the Canada goose population which is continuing today. Because further translocations are likely to accelerate the geographic spread of the species, and may also speed up population growth in newly colonised areas, it is unlikely that licences will be granted to relocate Canada geese in the foreseeable future.

For advice on licensing the release of Canada geese contact the Non-native Regulation Team (see "Further Information" for details).

Shooting (during open season or under a general licence)

Canada geese may be legally shot during the open season (1st September to 31st January, or 20th February inclusive on the foreshore), or under a general licence, by authorised persons (see 'The Protected Status of Wild Canada Geese' section of this leaflet). Intensive shooting to reduce population size has additional drawbacks in that it can disturb other waterfowl, and may not be possible in public parks etc. for safety and public relations reasons.

Shooting (under specific licences) has been shown to be effective in scaring Brent Geese, and a sustained programme of shooting during the open season and under a general licence during the close season is likely to be effective against Canada geese.

It should be noted that the sale of dead Canada geese is prohibited under the Wildlife and Countryside Act 1981, therefore arrangements for disposal must be made if birds are shot in large numbers. Carcasses should not be left in places which will be visible to the public. However providing they are not sold, they may be eaten.

Any shooting must be in compliance with the Firearms Act 1968 (as amended).

Egg control (under a general licence)

Treating the eggs of Canada geese to prevent hatching is one of the most commonly used population control techniques during the close season. It is easily carried out and requires effort annually over a limited period. It is also generally regarded by the public as an acceptable means of population control. Eggs could be removed from nests once the clutch is complete (acting under a general licence), but there is a possibility that the bird will simply lay a second clutch. To avoid this, eggs may be treated to prevent hatching or replaced with dummy eggs so that the goose incubates the eggs as normal and then abandons the clutch when they fail to hatch. There are a variety of treatment methods that are permitted under the general licences:

- Egg oiling. Eggs may be coated with mineral oil by rolling them in a small quantity of the oil carried in a polythene bag. The mineral oil sold as liquid paraffin (BP) in chemists is harmless to the birds - note this is not paraffin fuel as used in stoves etc. The oil blocks the pores in the eggshell and starves the embryo of oxygen. This technique is easy to carry out, 100% effective in preventing hatching and does not adversely affect the sitting bird.
- Egg pricking. This involves piercing the egg with a pin or small nail and moving this rapidly around inside the egg to kill the embryo before returning the egg to the nest. Egg pricking must be done carefully as if the bird detects that the eggs are damaged she may desert the nest and lay another clutch.
- Boiling. Eggs may be boiled to kill the embryo and returned to the nest.

Providing that the treatment is applied early in the incubation cycle, ideally immediately after the clutch is complete, all of these techniques are humane and effective in preventing additional young birds being recruited to the population. However, because of the low mortality rate of the adults, it may need 80% of all of the eggs on a site to be treated for a number of years before egg control alone will begin to show a reduction in population size. If nests are hard to find or manpower resources limited, egg control alone is likely only to hold the problem at its present level rather than to reduce it significantly.

Round-up and cull of adults during the moult (under a general licence)

The quickest way to achieve a large scale reduction in the number of Canada geese at a site is by the culling of fully grown birds. The effect is immediate and, if the birds can be captured during the moult, most, or all, of a population can be removed. The principal disadvantage of this technique is that it often meets with a strong adverse reaction from the public. The techniques also require some specialist knowledge and considerable manpower if a large scale cull is to be carried out effectively and humanely.

The most common way of removing birds is by capture during the moult. Canada geese moult all of their flight feathers simultaneously, and, for a period of four to six weeks around the end of June and beginning of July, are unable to fly. The birds form moulting flocks, remaining on the water for most of the time to reduce the risk of predation during this vulnerable period. A number of small boats or canoes can be used to herd the birds towards the bank where a funnel shaped enclosure made of chicken wire supported by fencing stakes is erected. The funnel leads into a catching pen with a removable door. The birds are forced up onto the bank and into the mouth of the funnel. The catching party then drive the birds into the funnel and, eventually, into the pen and the door is closed. This technique requires some experience if it is to be carried out successfully, and expert advice should be sought. Smaller numbers of birds may be captured using nets or similar devices, provided that the method used does not contravene Section 5 of the Wildlife and Countryside Act 1981. Again, expert assistance should be employed.

Once captured, it is necessary to humanely despatch the birds. A number of techniques are allowed by law, but it is best to seek professional advice if a large number of birds needs to be despatched. Employing a veterinary surgeon to despatch the birds by lethal injection or to oversee the whole operation may be advisable to allay the concerns of the general public. Note that, once captured, the birds cannot be released except under licence (see Further Information). Therefore, if there is a possibility that not all captured birds will be despatched, a licence to release Canada geese should be sought before the operation is carried out.

Before embarking on the large scale destruction of geese it is important to be sure that the birds that you are removing are actually the ones that are causing the problem. For example, birds causing agricultural damage at a wintering site may moult at a site a considerable distance away. It should also be noted that at long established breeding sites there may be a surplus of birds waiting to occupy breeding territories, but which moult elsewhere. Thus, a cull of breeding birds may simply create vacant territories for other birds to move into and repeat culls may be necessary for a number of years before the problem is finally

brought under control. It should also be borne in mind that control of adults in urban areas may attract an adverse public reaction, especially in public areas such as parks.

The issue of disposal of carcasses must also be considered, particularly for large numbers of carcasses. Incineration or burial may be considered but there are restrictions and limitations on the use of either method. Three suitable methods may be:

- incineration;
- sending to a rendering plant; or
- landfill

However, you should consult your local authority in the first instance about suitable methods for your particular situation.

Examples of possible Integrated Management Strategies for problems caused by Canada Geese

The choice of which techniques to use in an IMS will depend on a number of factors specific to the site in question; these include the biology and movement patterns of the birds involved, the severity of the problem, the timescale in which the problem needs to be resolved, possible adverse public reaction, cost and manpower constraints, and whether the purpose of control falls under a relevant general licence. Examples of IMS that might be developed for typical situations are set out below. If in doubt, the landowner or manager should take expert advice on the development of an IMS suitable for his or her particular circumstances.

Example 1

A public park with an ornamental lake and lawns. A resident and growing population of 200 Canada geese with 15 pairs breeding on an island on the lake. Birds range widely over the park, damaging lawns and bankside vegetation and leaving large quantities of droppings which are fouling grassed areas and paths. If the fouling is considered to pose a risk to human health and safety, action against Canada geese and their nests and eggs could be taken all year round under the relevant general licence.

Suggested IMS:

The lake shore and island should be fenced to prevent the birds walking out to feed. If other waterfowl are present, a small gap, of about 8 cm, at the bottom of the fence will allow them to move in and out of the water whilst restricting the movement of the geese. Consideration should be given to establishing bankside vegetation that is resistant to damage by the geese (the presence of the fence will aid establishment or reinstatement of damaged areas). Flutter tape or other scarers may be deployed to keep the geese off badly damaged areas. In order to prevent further population increase, the eggs of any birds that breed on the island (despite the fencing) should be treated under the relevant general licence (for the purpose of preserving public health and safety) if droppings in public areas pose a hazard to the general public using the park. These techniques should be monitored for at least two years in order to assess their effectiveness. If problems persist, a cull of birds may be necessary, with sufficient birds being captured during the moult to reduce the population to the desired level, followed by ongoing egg control to keep the population under control.

Example 2

A keepered country estate with a large lake which is used as a fishery and a waterfowl shoot in winter. A summer population of 200 Canada geese with 40 breeding pairs along the lake shore. Non-breeding birds moult at a large reservoir nearby and additional birds from other breeding sites frequent the water in winter, swelling the population to 400 birds. The geese are damaging grazing pasture and destroying bankside vegetation which is used as nesting habitat by other waterfowl. Canada goose droppings are thought to be polluting the water.

Suggested IMS:

Increasing the in-season shooting pressure on the geese may be sufficient to encourage the wintering population to move to the other waters nearby. The estate could consider organised goose shoots which may help to bring in income. Visual or acoustic scarers should be deployed to protect grazing pasture from damage during the summer months. Out of season shooting to augment this scaring could be carried out under the general licence for the purpose of preventing damage to the grazing pasture and possibly the fishery. The summering population could be further managed by fencing the lake edge and planting unpalatable barrier vegetation (which would double as nesting cover for other waterfowl species). If this was insufficient to reduce numbers of breeding birds, the landowner could (under a relevant general licence) treat eggs to prevent hatching. Culling is unlikely to be immediately effective in this case unless the exercise can be carried out both on the estate lake and the nearby reservoir. A cull on the estate lake would simply make breeding territories available to non-breeding birds which would rapidly move in, necessitating repeat culls over a number of years.

Example 3

A farm adjacent to a large reservoir, part of which is a designated nature reserve. A resident population of 600 Canada geese with 30 breeding pairs occupy the reservoir all year round. The birds fly out from the reservoir to feed, damaging newly sprouted winter cereals and other crops.

Suggested IMS:

In these circumstances, the attitude of the reservoir managers and others with interests in managing the nature reserve (e.g. local wildlife trusts etc.) are crucial. If the owners of the reservoir are opposed to any control action designed to reduce the population, then the farmer is limited to shooting in season and under a general licence (to prevent damage to crops), scaring, or changing his cropping patterns to minimise damage. Considerable effort and expense may be required to sustain the scaring effort needed over the period necessary to protect his crop. Acoustic and visual scarers should be deployed and moved at regular intervals to maximise their effect. Regular shooting of the Canada geese should aid the effectiveness of the scaring, and may encourage the birds to feed elsewhere, especially if there are alternative feeding sites nearby. Population management (under the general licence for the purpose of preventing serious damage to crops), either in the form of egg control, or a flightless cull, would only be possible with the co-operation of the owners of the reservoir.

Further Information

In England, further advice on dealing with Canada goose problems, as well as problems caused by other birds and mammals can be obtained by contacting the Department for Environment, Food and Rural Affairs (Defra) Wildlife Management Team at:

Address: Wildlife Administration Unit, Defra, Burghill Road, Westbury-on-Trym, Bristol, BS10 6NJ

Telephone: 0845 601 4523 (local rate)

Fax: 0845 601 3438 (local rate)

E-mail: enquiries.southwest@defra.gsi.gov.uk

The general licences and a range of leaflets on wildlife topics, are available online at:
http://www.defra.gov.uk/wildlife-countryside/vertebrates

Licences for the control of Canada geese for conservation purposes are issued by English Nature. Further details can be obtained from English Nature local offices, details of which can be found in the telephone directory, or from their Headquarters:

Address: English Nature Licensing Section, Northminster House, Peterborough, PE1 1UA

Telephone: 01733 455000

Fax: 01733 568834

E-mail: enquiries@english-nature.org.uk

Licences allowing the release of Canada geese into the wild are issued by Defra's Non-native Regulation Team. Further details can be obtained:

Address: Non-native Licensing Team, Ashdown House, 123 Victoria Street, London, SW1E 6DE.

Telephone: 0207 082 8122

Fax: 0207 082 8123

Website:
http://www.defra.gov.uk/environment/gm/nonnav/index.htm

Advice on Biology and Management

Defra RDS National Wildlife Management Team (address above).

Central Science Laboratory, Sand Hutton, York, YO41 1LZ.

The Wildfowl and Wetlands Trust, Slimbridge, Gloucestershire, GL2 7BT.

Advice on Control Techniques

Scaring techniques

Defra RDS National Wildlife Management Team (address above)

National Farmers Union, Agriculture House, 164 Shaftesbury Avenue, London, WC2H 8HL. Tel: 0171 331 7200

Civil Aviation Authority, CAA House, 45 – 59 Kingsway, London, WC2B 6TE. Tel. 020 7379 7311

The British Association for Shooting and Conservation (BASC), Marford Mill, Rossett, Wrexham, LL12 0HL. Tel: 01244 573000. E-mail: eng@basc.demon.co.uk

BASC's fact sheet 'Canada geese: A guide to legal control measures' is available from the BASC website:
http://www.basc.org.uk/

Advice on Shooting and Connected Issues

The British Association for Shooting and Conservation (address above).

Advice on carcase disposal and acoustic scarers

Local Authority - (your Local Authorities address can be found in the telephone directory).

Further reading

- Allan J.R. Kirby J.S. & Feare C.J. (1995) The biology of canada geese (Branta canadensis) in relation to the management of feral populations. Wildlife Biology Vol. 1 p 129-143.

- Department of the Environment Transport and the Regions (1998) **Population Dynamics of Canada Geese in Great Britain and Implications for Future Management**. Report by Wildfowl and Wetlands Trust and British Trust for Ornithology.
- Department of the Environment Transport and the Regions (1998) **Canada Goose Research Project: Control Measures and Study of Related Canada Goose Problems.**
- Wandsworth Borough Council (undated) **London Lakes Project Overview Document**. Obtainable from Wandsworth BC price £15
- National Farmers Union: **Leaflet; code of practice on bird scaring**

This leaflet was produced by the Defra Rural Development Service (RDS) and the Central Science Laboratory (CSL).

Photograph courtesy of Anthony O'Connor, Defra RDS.

A full list of Rural Development Service publications can be viewed and downloaded from http://www.defra.gov.uk/corporate/rds/publications/default.htm.

Footnote[1]: Amended in England and Wales through the Countryside and Rights of Way Act 2000, the Wildlife and Countryside (England and Wales) (Amendment) Regulations 2004, and in Scotland through the Nature Conservation (Scotland) Act 2004.