



## The red fox: problems in rural areas

The red fox is native to the British Isles, and widespread throughout mainland Britain. Its opportunistic ability to adapt to available food sources has made it a successful species. However this adaptability has also brought it into conflict with people. In rural situations, such problems can arise where livestock or game animals are kept.

### Biology and behaviour

#### Description

The fox is a common, familiar and widely distributed British mammal. It is not a large mammal, only weighing around 6 kg (13 lbs) with a head and body length of 60-75 cm (24-30 in). The distinctive bushy tail is around 40 cm (16 in) long. The general overall colour is yellow to brown with much variation even between litter-mates. The lower parts of the legs are typically black (black 'socks') and the tail frequently has a white tip. Occasionally foxes with unusual coat colours and fur length are found, which have resulted in claims of dog/fox hybrids. These have not been substantiated. The sexes are similar but males (dogs) are generally larger than females (vixens). Mature dog foxes have slightly broader heads than vixens. Often foxes are only seen fleetingly and at a distance, which makes it very difficult to distinguish between the sexes.

#### Distribution

Foxes are found throughout Great Britain in all habitats. They are present on Anglesey and the Isle of Wight but are not found on the smaller islands around the coasts of Wales and England.

Foxes thrive best in habitats where there is a mixture of scrub, woodland, grassland and arable land offering a wide variety of food,

resting and denning sites. Large uniform areas like large dense conifer plantations do not support many foxes. In the last 50 years foxes have expanded into areas where they were previously rare or absent. At one time, in some areas e.g. East Anglia, there were widespread intensive game rearing or commercial rabbit trapping operations and these areas were kept almost fox free by gamekeepers and trappers.

#### Food



Although classified as a carnivore, foxes will readily eat a wide variety of foods including fruit and vegetable matter. Foxes prey on a variety of wild mammals, birds, insects and other invertebrates such as earthworms. Foxes will scavenge almost anything edible - animal or vegetable. It is partly due to this ability to exploit a wide variety of different foods that foxes are common and found throughout Britain. Foxes will cache food that cannot be eaten immediately, especially

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when there is an abundance of a preferred food. Foxes may occasionally kill large numbers of easy prey such as ground nesting birds or captive hens without eating many of them, i.e. surplus killing. This phenomenon is not confined to foxes; many predators carry out surplus killing in response to an unusual super abundance of vulnerable prey.

### **Behaviour and Movements**

Foxes are mainly active between dusk and dawn but can be active during the day especially in more remote and less populated areas and when feeding cubs. Outside the breeding season, where surface cover is available, underground den or earth use is irregular. Adult foxes maintain a territory over which they range. Territory size varies and is related to the suitability of the habitat. Territories are smaller in areas with good food supplies and good denning sites than in less favourable areas, e.g. 1-200 ha (500-740 acres) in lowland mixed farmland farm but over 600 ha (1500 acres) in hill areas. At around 6-9 months old, juvenile foxes have a tendency to disperse from their parents' territories. Dog foxes tend to move further than vixens with movements of 52 km (33 miles) having been recorded, although these are exceptional. Some vixens remain in their parents' territory throughout their life. Distances moved depend upon population size and the level of local population control. Greater fox dispersal movements have been recorded in areas where fox control is practised, than in those areas where culling is not undertaken.

### **Breeding**

Although fox cubs have been found in nearly all months of the year, foxes are seasonal breeders with litters usually born in late March to early April. Vixens come into season in late January and early February; dog foxes are fertile for some time before this period and remain fertile until sometime afterwards. Like domestic dogs, foxes become 'locked' or 'knotted' during mating. A high proportion of vixens mate and become pregnant but not all carry their litters to full term to give birth to live young. The reasons for this are complex, but there is a tendency

for it to occur where foxes are numerous, where there is little fox control, and in younger females.

After a gestation period of 52-53 days the cubs are born, with short black fur, blind and deaf usually in an underground den. The eyes and ears open at 11-14 days. For the first 2-3 weeks the vixen stays with the cubs all the time. From then on, she spends an increasing amount of time away from them and from 4-5 weeks onwards often only comes back to the cubs to feed them. The cubs start to take solid food at about 4 weeks and by 5-6 weeks old will be eating a wide variety of solid items. Both parents bring food to the cubs.

The average litter size is 4-5 cubs. The vixen will move the cubs a number of times to different dens and these moves may be caused by human disturbance. Something as simple as a person making a short visit to a den may cause such a move. Cubs first appear above ground at 5-6 weeks old. Over time cubs become more and more independent and by early July, where sufficient surface cover is available, cubs will often lie above ground during the day. Cubs are adult size at 6-7 months old and will come into breeding condition before they are 1 year old.

### **Social Organisation**

Although less social than mammals like badgers, foxes live in family groups. The group can be as small as a pair of foxes and any dependent cubs. Family groups consist of a number of vixens (often related to each other – mother and daughters or sisters), usually with a single dog fox plus dependent cubs. These larger groups tend to be found in areas of higher fox numbers and/or where little fox control takes place. Itinerant animals, more often dog foxes, also occur. In family groups with more than one vixen it is not unusual for only one of the vixens to produce a litter of cubs. Animals of the same family group may forage together or separately. Foxes will scent mark by anal gland secretions and urine. Distinctive faeces (scats), often deposited in prominent places such as on logs or on large stones, are used as a means of fox-to-fox communication.

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Foxes also communicate by distinctive calls, most frequently heard during the breeding season.

### **Population size and numbers**

Various estimates of national fox numbers have been made, usually about 200,000-300,000. How accurate these estimates are is difficult to know. Whether or not fox control reduces fox numbers to levels below that which food supplies can support, is a subject of debate. In areas where a considerable amount of fox control takes place over 60% of the foxes may be less than one year old and the population turns over quickly. Foxes live longer in areas where little fox control takes place but cub production is likely to be low as individual breeding success declines as rising numbers of foxes increase the pressure on food and space.

### **Parasites and Disease**

Foxes can be infected with a number of zoonoses (these are diseases communicable to man). In Britain, foxes are not the only reservoir of any particular disease, so normally fox destruction purely for disease control purposes is generally not appropriate as other animals, e.g. dogs, are more likely to be the cause of human infection. All wild animals should be thought of as potential vectors of disease and sensible precautions taken where handling is necessary.

Foxes are susceptible to sarcoptic mange and, as a result, high mortality can occur. The first indication of mange in foxes is often an increase in cases affecting domestic dogs. Domestic dogs, cats and foxes often use the same holes in fences and hedges and can thus infect each other. Foxes are host to a number of tapeworms; of these *Echinococcus granulosus* (causing Hydatid disease in humans) is the most important from the public health point of view, but human infection is rare, and more likely to come from domestic dogs than from foxes.

## **Problems with foxes**

It must be expected that a carnivore like the fox is likely to prey upon animals of economic

importance. Foxes are often blamed for killing lambs, poultry and piglets reared in outdoor pig units. They also prey on many species of wildlife including game.

Problems of livestock predation are often local, unpredictable and sporadic. Farms may suddenly experience losses of livestock after long periods free from problems. Often, the only explanation is fox or other animal predation. This unpredictability can be very frustrating and lead to hasty and sometimes illegal action. It is difficult to tell whether or not a new-born lamb has been killed by a fox or if it has died as a result of the sudden onset of bad weather or mis-mothering and been subsequently scavenged by a fox. Thus foxes may be blamed for killing a lamb when in fact they have simply found it dead. Surveys of farmers show that, on a national and local level, reported losses of young lambs are small and not of overall economic significance. However, whether this is because sheep farmers vigorously control foxes in high risk areas and consequently reduce lamb losses to a low level, or that fox control is unnecessary, is the subject of debate and are questions that have not yet been resolved.

The fact that foxes prey on game animals is beyond dispute but the effects on game numbers and the economic losses are more difficult to calculate. The Game and Wildlife Conservation Trust (GWCT) has shown that predator control (including fox control) during the nesting period has a positive effect on wild partridge numbers resulting in a surplus for shooting in the autumn.

## **Management options**

### **Choosing the best approach**

It is difficult to give comprehensive advice on how to alleviate all possible problems that may be caused by foxes, as much depends upon the individual circumstances. Before any action is taken, a thorough assessment of the problem should be undertaken and the consequences of any action carefully thought through. It is pointless spending money on livestock protection or fox control, if the cost is likely to be more than that of the damage it

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is designed to prevent. The overall aim of any fox management needs to be considered. Is the problem due to year-round predation, or the protection of vulnerable animals during a short period?

If the overall objective is to reduce fox numbers, you will have a greater chance of success if your neighbours are controlling foxes and/or you are in a low fox density area. In high fox density areas, killing foxes to reduce numbers (and thus predation) is often not successful or cost effective. If culling takes place during the fox dispersal period (October to March) then resident foxes will be quickly replaced. Killing foxes gives only a short-term benefit, so culling requires a long-term commitment.

### **Non-lethal control measures**

Protection of livestock and control of damage is preferable to fox destruction. Investment in adequate poultry housing is preferable to a continual commitment to killing foxes and there is no substitute for good husbandry to ensure that livestock are healthy and able to withstand the sudden onset of inclement weather that may result in stock deaths.

**Repellents and deterrents:** It is illegal to use a substance as a repellent or deterrent unless it has been approved for the purpose. Registration and de-registration is an ongoing process and only approved products should be used to repel or deter foxes. Information on approved products is available from the Health and Safety Executive (HSE). On occasions when livestock only need protecting for a short time, novel objects in an area (e.g. flashing lights in lambing fields) are claimed to be effective deterrents to foxes. In addition, "close" shepherding at lambing time may be as effective as any deterrent and will allow early identification of problems such as mis-mothering and allow action to be taken to reduce the risk to new born lambs.

**Permanent fences:** These exclude foxes, but are uneconomic except for highly valuable livestock. A fox proof enclosure requires a fence that is 1.8-2m (6ft - 6ft 6in) high with an overhang at the top and a buried section at least 45 cm (1ft 6in) deep, to prevent foxes digging under it. Ideally, a

sheet of smooth durable material of at least 30 cm (1ft) depth should also be positioned at the top. The addition of an electric wire will also improve the security of this fence.

**Electric fences:** An electric mesh net fence or multi-strand wires around a field may be an effective deterrent for a short period when lambs or piglets are at their most vulnerable. If a fence is required for stock control regardless of fox problems then electric fencing may be an economic solution to the problem; to deter foxes such a fence should be at least 105 cm (3ft 6in) high. In experiments foxes would not cross multiple strand electric fences and electrified mesh fences. These experiments used captive foxes in a small enclosure and, as yet, have not been tested on a field scale. For guidance on the use of electric fences contact the Wildlife Management Adviser of the Welsh Government (see 'Further Information' section).

Additional detailed, technical information is available in the 'Electric Fence Reference Manual' (see Further Information section).

**Novel methods:** In the USA, llamas have been used to guard livestock, especially sheep, from predators. In Britain this technique has been little used but a number of farmers claim it is a successful method of reducing predation by foxes on lambs.

Game birds released for shooting are vulnerable to foxes. The Game and Wildlife Conservation Trust (GWCT) and British Association for Shooting and Conservation (BASC) offer advice on methods of protecting game. Specifications for fences for pheasant release pens are available from the GWCT.

### **Lethal control of foxes**

There are a number of legal methods by which foxes can be killed, but before embarking on any method first assess whether or not the problem could be solved by non-lethal means, such as better protection of vulnerable animals. Such approaches can provide a long-term solution and avoid the need for continuous culling. If fox destruction is the only option then consideration should be given to find the most appropriate method.

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**Shooting:** A number of different shooting techniques are used to kill foxes. The shooting of foxes at night using a rifle with the aid of a spotlight ('lamping') should only be done by competent shots that know the area well and are familiar with it in daylight. Shots at long range should not be taken and weapons and ammunition chosen with care. A rifle of .222 calibre or larger should be used. Similarly the use of dogs to flush foxes from cover so they can be shot should also only be undertaken by competent people using appropriate guns and ammunition and in accordance with the provisions of the Hunting Act 2004 (see below). A large breed of dog should be used, as terrier-type dogs, no matter how well controlled, are likely to investigate any fox den or hole they come across. A shot gun can be used so long as the fox is within range (the BASC Code of Practice for lamping recommends a maximum range of 20 metres) and the ammunition is appropriate; cartridges loaded with shot of at least size four and no larger than BB should be used. Wounded animals should be followed and humanely killed. The Codes of Practice available from BASC and GWCT should be followed.

**Snares:** Snare operators are recommended to read, understand and follow the Welsh Government's Code of best practice on the use of snares in fox control (The Code). Snare users must be competent before using snares for fox control, therefore training is strongly recommended.

Snares must be free-running as self-locking snares are prohibited under the Wildlife and Countryside Act 1981. The Code defines a free-running snare as a wire loop that does not relax when the fox stops pulling. It is a legal requirement that all snares must be inspected at least once every day. To avoid unnecessary suffering and cruelty, which are offences under the Animal Welfare Act 2006 more frequent inspections are recommended. In the winter, snares should be inspected soon after sunrise and preferably again later in the day. In the summer, when foxes may be active following an early sunrise, inspection after 7-7.30am but before 9am is preferable, with a further inspection in the evening.

When inspecting snares, it is essential that a means of humane destruction of a snared fox (and other "pest" species) is available. A .22 firearm or a shotgun is suitable for the purpose. Air weapons should not be used, as they are not sufficiently powerful. When shooting a snared animal, great care should be taken so there is no risk of personal injury or danger to others.

Snares should be set so that the chances of catching a non-target animal are minimal. All non target animals except for non-native animals must be released unharmed unless the animal is injured and has to be killed on humane grounds. Non-native animals such as mink or grey squirrels should not be released and must be humanely destroyed in order to comply with the Wildlife and Countryside Act 1981.

It can be difficult to release non-target animals such as badgers from snares without injury to both parties; this should be a further incentive to reducing the chances of capture of non-target species or to use alternative methods of management.

'Stopped' snares, where the loop is prevented from closing smaller than a set diameter, reduce the chances of injury or strangulation of both target and non-target animals and also reduce the risk of livestock or deer being caught by the leg. The Code recommends the use of a 'stop' and also the minimum diameter at which it should be fixed as a way to increase humaneness.

**Traps:** Live capture cage traps are not much favoured as a method of fox control in rural areas as they are believed to be inefficient in most circumstances. A number of different traps are available commercially. All are of similar design and depend upon attracting a fox to a suitable bait placed in the trap with a trip mechanism to close the door.

Most meat baits are suitable, but the use of live bait or decoys is prohibited. Fallen livestock, including dead poultry, should not be used as bait in a cage trap due to the potential risk of spreading disease.

Traps should not be placed where they are likely to be interfered with and should be sheltered so that trapped animals receive protection from inclement weather. Cage

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traps are likely to catch badgers, so traps should not be placed close to badger setts or in other places where there are signs of frequent badger activity.

The smaller mesh size traps (e.g. 25 mm x 25 mm) are also likely to catch grey squirrels or small carnivores (stoat, polecat and mink) that may be attracted to the bait. All protected species caught must be released unharmed, but non-native species such as grey squirrels and mink must not be released and should be humanely destroyed.

It is recommended that traps be inspected at least once every day, or more frequently to avoid unnecessary suffering and cruelty which is an offence under the Animal Welfare Act 2006. In the winter, traps should be inspected soon after sunrise and preferably again later in the day. In the summer, when foxes may be active following an early sunrise, inspection after 7-7.30am but before 9am is preferable, with a further inspection in the evening.

When inspecting traps, it is essential that a means of humane destruction of a trapped fox (and other “pest” species) is available. The advice given for snares regarding humane destruction of foxes (and other ‘pest’ species) also applies to cage traps.

Removal and release of trapped foxes elsewhere is not recommended on welfare grounds and should not be undertaken unless the landowners in the release area agree to such action. All trapped animals must be treated humanely. Causing unnecessary suffering, whether deliberately or through neglect is an offence. The provisions of the Animal Welfare Act 2006 and the Wild Mammals Protection Act 1996 should be considered.

**Fox hunting and Terrier Work:** The Hunting Act 2004 prohibits all hunting of wild mammals with dogs in Wales and England, except where it is carried out in accordance with the conditions of the few tightly drawn exemptions intended to allow certain necessary pest control activities to continue. These exemptions, which require the consent of the occupier or owner of the land, include:

- Stalking and flushing out with up to two dogs, provided that the wild mammal is

shot as soon as possible after it is flushed from cover;

- Using a single dog underground to flush out wild mammals in order to protect birds kept for shooting (the “gamekeepers’ exemption”); and
- Using up to two dogs to search for an injured animal, provided that appropriate action is taken to relieve the animal of its suffering as soon as possible after it is found and that it was not deliberately injured in order for it to be hunted under this exemption.

All the specific conditions of each exemption must be complied with if the hunting is to be lawful.

## Legal Aspects

### Traps

Trapped and captive animals must be treated and killed humanely (Animal Welfare Act 2006). Live baits and decoys are prohibited (Wildlife & Countryside Act 1981).

### Snares

These should be inspected at least once per day. Self-locking snares are prohibited (Wildlife & Countryside Act 1981).

### Bows, crossbows

The use of these weapons to kill foxes is prohibited (Wildlife & Countryside Act 1981).

### Poison baits

It is illegal to place poison baits with the intention of killing foxes (Animal Welfare Act 2006).

### Gassing

Although legislation allows the use of a gas, in a den, to kill foxes (Agriculture Act 1947), currently no products approved for this purpose. So for all practical considerations introducing a gas into a fox den is illegal.

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## Repellents and Deterrents

Only products registered under the Control of Pesticides Regulations 1986, Plant Protection Products Regulations 2011 or Biocidal Products and Chemicals (Appointment of Authorities and Enforcement) Regulations 2013 should be used.

## Blocking / destroying earths

This could be considered an offence under the Wild Mammals (Protection) Act 1996 if occupied.

## Hunting

The Hunting Act 2004 makes all hunting with dogs of wild mammals, including foxes, illegal, except those limited activities covered by the exemptions in Schedule 1 to the Act, summarised above.

## Further Information

In Wales, copies of the Welsh Government's Code of best practice on the use of snares in fox control and other advisory leaflets and further advice on dealing with fox problems can be obtained by contacting a Wildlife Management Adviser,  
e-mail: [Wildlife@gov.wales](mailto:Wildlife@gov.wales) or Tel: 0300 061 5920.

The full text of the Hunting Act 2004 can be obtained from The Stationery Office (Tel 0870 6005522) or from the HMSO website: <http://www.legislation.gov.uk>

The Code of practice on lamping (night shooting) is available from The British Association for Shooting & Conservation, Marford Mill, Rossett, Wrexham LL12 0HL.  
Tel: 01244 573 000

[Email@game.deer@basc.org.uk](mailto:Email@game.deer@basc.org.uk)  
<http://www.basc.org.uk/>

A guidance leaflet on using snares (Fox Snares: a guidance for the user) and advice on many aspects of Game Management including predator control are available from

The Game and Wildlife Conservation Trust, Burgate Manor, Fordingbridge, Hampshire SP6 1EF

Tel: 01425 652381

Email: [info@gwct.org.uk](mailto:info@gwct.org.uk)

<http://www.gwct.org.uk/>

## Training Courses

For further details on training in the use of snares please contact either GWCT (contact details above), BASC (contact details above) or the National Gamekeepers Organisation, PO Box 246, Darlington DL1 9FZ; Tel: 01833 660869;

email: [info@nationalgamekeepers.org.uk](mailto:info@nationalgamekeepers.org.uk)

<http://www.nationalgamekeepers.org.uk/>

Copies of the Electric Fence Reference Manual is available on the internet from [www.adlib.ac.uk/resources/000/025/646/Electric-fencing-manual.pdf](http://www.adlib.ac.uk/resources/000/025/646/Electric-fencing-manual.pdf)

Information on approved pesticides and biocides is available from the HSE (<http://www.hse.gov.uk>).

The following books provide further information on the subject of foxes:

- Burrows R Wild Fox (David and Charles, Newton Abbot, 1968)
- Harris S Urban Foxes (Whittet Books, London, 1986)
- Kolb H Rural Foxes (Whittet Books, London, 1996)
- Lloyd H G The Red Fox (Batsford, London, 1980)
- MacDonald D W Running with the fox (Unwin Hyman, London, 1988)

This leaflet was produced by Welsh Government.