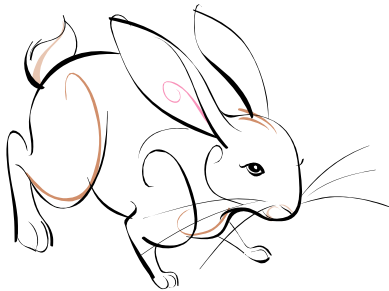


INFORMATION SHEET

An Environmental Protection Team Service



Rabbit

Oryctolagus cuniculus

A fully grown rabbit is about 40cm long (head and body) and can weigh 1.2-2kg. It may eat 0.5kg of green food a day. The only similar species with a wide distribution is the brown hare which is larger, has black tips to the ears, longer hind legs and, unlike the rabbit, does not show a white underside to the tail when running.

Distribution & Habitat The rabbit is found throughout most of Western Europe and was introduced to Britain by the Normans. It is now widespread in habitats which provide suitable vegetation for grazing and well drained ground for burrowing, or other suitable harbourage.

It lives communally with other rabbits usually in a system of burrows known as a warren. Some or all of the entrances may be hidden away in dense vegetation. Rabbits will also live under sheds, amongst rubble and in piles of dead tree roots and branches. During the day they can often be found lying above ground in sheltered places.

Biology The male is known as a buck and the female as a doe. The main breeding season is from January to July, with a small number of animals breeding outside this period. Early born litters often do not survive well, particularly if conditions are cold and wet. Females born early in the year may start to breed at 3-4 months. The gestation period is 28-30 days, with an average of 5 young per litter and females may produce 4-5 litters per year.

The young are born either in the main warren or in a "breeding stop", a blind tunnel up to a metre in length, some distance away from the warren. At birth they are blind and without fur. The female seals the entrance to the stop with soil and visits only once a day to suckle the young which are weaned at 3-4 weeks.

Myxomatosis

Myxomatosis is caused by a virus which is spread from rabbit to rabbit by blood-sucking insects, particularly the rabbit flea. It can spread from wild to domestic rabbits, but it does not affect any other animals such as hares, cats, dogs or humans. Infected individuals are recognised particularly by their swollen eyelids and ear bases. The disease was once invariably fatal, however, rabbits are now showing an ability to recover from infection.

When myxomatosis first reached Britain in 1953, it spread rapidly and is estimated to have killed 99% of the wild rabbit population. Now weaker strains of the virus have come to predominate and in some areas rabbits have developed genetic resistance to the disease. In these ways the severity of the disease has been lessened so that by the 1980s it was only killing about 20% of the rabbits each year. Outbreaks continue to occur locally however, often causing a higher level of mortality. It is, therefore, still a factor in keeping rabbit numbers below pre-myxomatosis levels in some areas, but it cannot be relied upon to reduce particular problem populations. It is illegal to deliberately spread myxomatosis.

VHD

A 'new' disease, Rabbit Viral Haemorrhagic Disease (VHD), has recently been recorded in the UK. Infected rabbits die within two to three days. Whilst this virus disease was initially thought to represent a similar threat

to

wild rabbits as myxomatosis did in the 1950s, it has now been found that UK rabbits have some immunity to the disease. Local outbreaks can occur, but the disease does not appear to have the same effect on populations in the UK as it does in mainland Europe or Australasia.

Signs of Presence

Rabbits may leave many signs of their presence in an area. These include:

Burrows:	interconnecting to form a warren system of which some of the entrances may be hidden in scrub.
Scrapes:	small excavations, usually with one or two droppings among the excavated soil.
Runs:	pathways where the repeated passage of rabbits has suppressed the vegetation.
Fur:	either caught on fencing or thorns, or torn out during fighting.
Droppings:	spherical pellets 7-10mm in diameter composed largely of undigested plant remains.
Latrines:	heaps of large numbers of droppings.
Feeding signs:	grazing of vegetation and barking of shrubs and trees.

Some indication of the number of rabbits present in an area can be gained from the density of these signs, but a more reliable method is to count actual rabbits. The number of rabbits seen in the daytime is not an accurate guide as their activities are mainly nocturnal.

From late spring to early autumn (April to September) counts can be carried

out at dawn or dusk, preferably with the aid of binoculars. In the winter a more accurate guide will come from counts during darkness, using a powerful spotlight. Bright moonlight and frosty conditions should be avoided. Counts never show the total number of rabbits, but can provide a good indication of the size of the population before action is taken. Counts taken after control of fencing has been carried out can be compared with those before the operation to give an indication of success.

Importance Before taking action an assessment should be made of the seriousness of damage to see whether action is justified. In making this assessment, account should be taken of the likelihood that the rabbit population will increase. The legal obligation of occupiers of land to control rabbits or, if this is not practicable, to prevent them from doing damage on neighbouring land should also be considered.

Damage can result from both digging and feeding activities.

In extreme cases of damage from digging, rabbit burrows can be undermine embankments and structures resulting in collapse. More commonly, burrows and scrapes damage the surface of high quality amenity grasslands such as golf courses, bowling greens and cricket pitches.

Feeding damage by rabbits can be identified from shoots and leaves which are bitten off squarely: twigs are cut with a clean sloping cut. Gnawing and bark stripping leave characteristic teeth marks 2-3mm wide. Sometimes it appears each of these teeth has a groove along the middle of the front surface.

Damage to cereals and other crops and market gardens can result in serious economic loss to farmers and growers. Grazing damage can weaken or kill most garden plants and allotment crops and grazing of grassland can result in a deterioration of the quality of the sward as the more palatable grasses are selectively grazed.

Rabbits can also seriously damage and kill newly planted or even fairly mature shrubs and trees by damaging leading shoots and stripping bark.

Prevention Of Damage **Wire netting fences**

These are often the most effective and permanent solution to rabbit problems as the rabbits are either confined within or excluded from an area. The netting should have a mesh size of not more than 31mm and wire of not less than 18 gauge and should be not less than 900mm wide. The bottom 150mm should be turned out at right angles, towards the rabbit harbourage, and weighted or pegged down. As grass grows through this apron it will hold the netting fast making burying of it unnecessary. In particularly light soils, burying the turned out part of the wire may improve effectiveness. The fence must be supported with straining wires and posts at either 15 metre intervals if spring steel straining wire is used, or at not more than 4 metre intervals for mild steel straining wire. Provision should be made for rabbit-proof gates to allow for human access: badger gates may be necessary where these animals are present. In areas with public access, vandalism can quickly make fencing ineffective.

Electric fencing

Portable electric netting manufactured specifically for excluding rabbits is useful in agricultural situations to give temporary protection to crops during a vulnerable period. A high powered fencer unit and heavy duty battery are required. Unless the fence can be erected on bare ground, a strip about 0.5 metres wide should be sprayed with weedkiller to prevent vegetation growing up and earthing the fence. Overhanging tree or hedgerow branches that might earth the fence should be cut back.

The fence should be regularly inspected at no more than 2 week intervals to change the battery and ensure short circuiting is not occurring. Vegetation should be managed as necessary.

Tree guards

For small areas of amenity tree and shrub planting permanent fencing may be too costly. A variety of plastic or metal individual tree guards are available. Proprietary tree shelters provide protection and accelerate growth.

Repellents

Young trees and shrubs may be protected by the use of repellents but they can be expensive and are often unsatisfactory. Care must be taken to follow the instructions as damage to the trees can result if applications are incorrectly timed.

Control Gassing

This method can be very effective when correctly carried out under the right conditions and in suitable situations and by specialist operatives. It is essential that rabbits lying out are driven to ground before warrens are gassed. Gassing of badgers and foxes is illegal. As they may live in close proximity to rabbits, care must be taken that gassing does not affect badgers, foxes or any other species that might be at risk. If in doubt do not gas.

The most widely used material is a powdered cyanide compound "Cymag" which generates hydrogen cyanide gas on contact with moist air or soil. Pellets containing metallic phosphides, which generate phosphine gas on contact with moisture, are also available.

Cyanide powder is introduced into rabbit holes by spoon, hand pump or power gassing pumps. The latter is the most efficient delivery system. Aluminium phosphide pellets are introduced to burrows by gloved hand or specially designed applicators.

Spoon gassing

Using a tablespoon fastened to the end of a stick, about 30gm of powder (a heaped tablespoon full) is placed in a compact heap 20cm down the hole and the entrance is sealed with turf, grass side down, to prevent loose soil falling onto the powder.

A lethal concentration of gas builds up in the tunnel about 0.6m back from the entrance and lasts about 24 hours. Rabbits entering this zone become overcome and killed as they attempt to dig their way out. All holes in the burrow system must be located and treated.

Hand pump gassing

The pump container is filled with powder before gassing taking care to avoid spilling the material.

The pipe from the pump is inserted into a hole on the windward side of the warren and sealed with turf. Powder is then pumped into the burrow system and holes are blocked as powder is seen to emerge from them. Holes must not be blocked until the powder emerges. Any unused powder should be returned to the manufacturer's tin after use.

Power gassing

A petrol-driven pump is used to push the gassing powder around the burrow system. As with hand pump gassing, after the pipe from the pump is inserted into a hole on the windward side of the warren and sealed in with turf, powder is pumped into the burrow system and holes are blocked as powder is seen to emerge from other holes. Holes must not be blocked until the powder emerges. It may be necessary to treat several holes within a system.

Warning!

Both the powder and the gas are potentially extremely dangerous. Technicians must follow the safety precautions carefully. At least 2 people are required for the operation and an antidote kit should be available. It is a legal requirements that technicians receive training.

Aluminium Phosphide

Available as tablets or pellets, Aluminium Phosphide products are easier to handle than cyanide powder. They must be placed in rabbit burrows in accordance with the dose rates and applications systems prescribed on the product labels. Typically, 4-5 pellets or one tablet are placed in each burrow and the burrow entrance sealed over with an upturned turf.

Follow-up Treatments

After any gassing operation, a follow-up should be carried out after a week, when any reopened holes should be retreated.

Other Methods of Control

Most of the other methods of control originate from techniques intended to provide rabbits for the pot. Unless rigorously applied, these methods have no major impact on the resident population.

Shooting

Considerations of safety and public acceptability mean that this method generally has limited application. Daytime shooting of rabbits is rarely effective; night shooting can be more so but is a specialised technique requiring experienced staff and it is subject to certain legal restrictions. However, it is useful, together with the use of dogs, to drive rabbits to ground, prior to gassing operations. Shooting is not as cost effective as gassing.

Ferreting

This requires experience and is potentially laborious. It is best used in winter when no young rabbits are present which may cause the ferrets to lie-up and have to be dug out.

Snaring

A free-running noose of brass wire is permitted. Snares must be visited at least once and preferably twice a day. There is much public opposition to this technique on humaneness grounds and there is also a risk of catching non-target wildlife species and domestic pets.

Spring Traps

Approved spring traps can be used to catch and kill rabbits. They must only be used within the overhang of a rabbit tunnel entrance. Traps must be visited at least once, but preferably twice, a day, but again there is the risk of catching non-target wildlife species and domestic pets.

Baited Cage Traps

Cage traps are commercially available from various pest control suppliers. They have proved to be very effective at controlling rabbits. The traps should be placed in the rabbits' feeding areas and baited with sliced carrots. Cage traps must be visited at least once and preferably twice a day. Trapped rabbits must be humanely despatched on removal from the traps. Cage traps can be particularly useful for catching rabbits in confined spaces such as gardens and cemeteries.

Drop Traps

Historically used to catch rabbits within managed warrens, drop traps are once again being used to capture rabbits. A large sunken box is placed beneath a rabbit-proof barrier, usually a fence, through which rabbits are encouraged to pass at the trap location. A tipping treadle forms part of the roof of the box. On occasions the treadle is set so that the rabbits passing over it fall in to the catching box. Once set to catch, the trap must be inspected at least once and preferably twice a day, with captured rabbits being removed and humanely despatched. Non-target animals should be released unharmed.

Habitat Modification/Scrub Clearance

It will often be desirable to clear scrub to allow access for gassing operations and to deny rabbits harbourage. More extensive, long-term habitat modifications may include levelling of unwanted banks and the destruction of warren systems.

Before undertaking such operations consideration must be given to the value of the habitat for the conservation of other animals and plants. Scrub clearance must not be undertaken at the time of year when birds are nesting. Where the site is scheduled as a Site of Special Scientific Interest (SSSI) the appropriate statutory nature conservancy body must be consulted in advance.

Legislation

Protection of Animals Act 1911: requires that spring traps are inspected at least once every day between sunrise and sunset.

Pests Act 1954: an Order has been made under this Act declaring the whole of England and Wales to be a rabbit clearance area in which every occupier of the land is responsible for destroying wild rabbits on his land. Where it is not practical to destroy them steps must be taken to prevent damage, e.g. by the erection of rabbit-proof fencing.

Wildlife & Countryside Act 1981: bans self-locking snares and requires that other snares be visited at least once a day.

Spring Traps Approval Order 1995: lists spring traps approved for killing rabbits.

Wild Mammals Protection Act 1996: prohibits the cruel treatment of wild mammals, but allows legitimate pest control by humane means.

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