

# THE YEAR OF THE RABBIT: WINTER

By Dr Anne McBride

**W**e have followed a litter of rabbits from their birth in mid-April to the Autumn equinox in mid-September. They spent the summer growing and learning rabbit habits, including how to avoid predators. Now at the grand age of six months and not yet full grown, the young males face increasing pressure to make their own way in the world.

## Increasing numbers

Throughout the summer the size of the family group has been expanding as more youngsters are born, causing serious issues of space! This leads to decreasing levels of tolerance from the adults, particularly towards adolescent males who represent a potential challenge to the group's dominant male. In contrast, young does are more tolerated and tend to stay in their natal group or warren. Thus adult females in a warren complex are closely related. The young males, however, will disperse to other groups within the warren, or even to a different warren.

Outside the breeding season, between August and January, relative peace and harmony descends on rabbit society. Territorial boundaries are less defended, hierarchies weaken and emigration from and immigration to different social groups occurs, and young bucks will be fairly readily accepted. This annual dispersal of young animals is essential to the health of the wild rabbit population. It maintains genetic diversity across the groups that make up the warren, and between other nearby warrens. A cascade of new genes flowing from warren to warren means the population as a whole does not become inbred and thus potentially weakened. We have seen the catastrophic effects of inbreeding in domestic animals, including rabbits. Humans selectively mate genetically close individuals, to perpetuate and enhance particular characteristics such as colour, size or body shape. This leads to all sorts of inherited problems within 'breeds' and thus within the domestic population as a whole.

If the breeding season has been mild, not plagued by drought or flood, then more young will survive and the population grow seemingly exponentially. Then there simply may not be enough room in the existing warrens to accommodate them all, nor suitable areas to dig new tunnels. Some young males will not find a new group and not all the young females are able to remain in the home group. Known as


satellites, these rabbits will live on the surface, resting in shallow holes or under bushes finding shelter as best they can. These unlucky outcasts are usually born later in the season and, being younger and therefore smaller, are less able to fight their older siblings for the right to a warm underground home. Old males may also become satellites, driven out by those who are younger and stronger and who have beaten them in hierarchical contests. The rise of the next generation into social positions of power is common across the animal kingdom. Though more exposed to bad weather and hungry predators, these surface dwellers have the advantage of being less likely to catch diseases.

## Introduction of disease

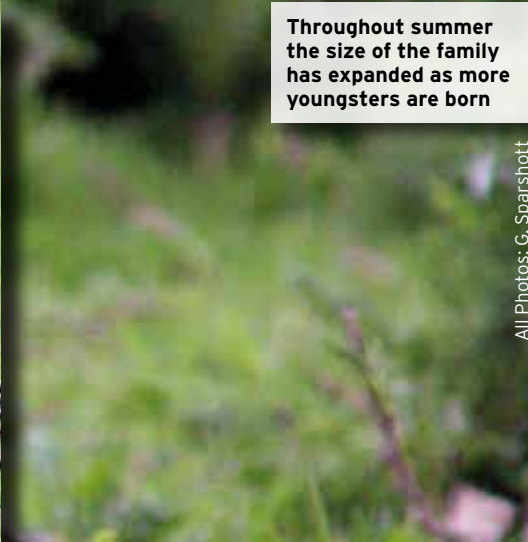
Humans introduced both myxomatosis and rabbit haemorrhagic disease (RVHD) into the European rabbit population as an attempt at pest control. These diseases are highly contagious and rabbits living cheek by jowl in crowded winter burrows are most at risk, especially those that are young or weakened by age. Though rabbit kits under 10 weeks old are fairly immune to RVHD, as they get older they are susceptible. Myxomatosis and RVHD kill many thousands of rabbits in the UK every year, though they suffer less from RVHD than wild rabbits in their native southern Spain and Portugal.

RVHD is more prevalent in semi-dry areas. It has devastated the wild population in its natural range of the Iberian Peninsular. Here 70% of wild rabbits have died since the arrival of RVHD in 1988, due to RVHD, habitat loss and over-hunting for food, pest control and sport. The reduction in the numbers of the once ubiquitous rabbit in this area raises serious conservation concerns for predator species including the Iberian lynx and Spanish Imperial eagle. The Iberian lynx is a particular issue as it has co-evolved with the rabbit in the Iberian scrubland since the Pleistocene, some 10,000 years. It is a uniquely specialised hunter of rabbits,





Some young males are unable to find a new group



Throughout summer the size of the family has expanded as more youngsters are born

All Photos: G. Sparshott



Young rabbits under 10 weeks of age have immunity to RVHD

which make up 75% of its diet, having evolved a method of using the cover of shrubs to stalk and ambush them. Unlike other predators, the Lynx has not been able to adapt to hunting other prey and the loss of both rabbits and its scrubland habitat to hotels and houses, means it is now critically endangered. There are fewer than 200 remaining in the wild, which is really too few for the species to survive in the long term and this beautiful cat is now on the brink of extinction.

### Preparing for cold weather

To prepare for the oncoming cold weather the rabbit grows a thick winter coat of short dense fur. This traps the air which is warmed by the rabbit's body and acts as an insulating puffer jacket encasing the whole body, including the soles of the feet. This coat is fully complete by the end of November in time for the coldest part of the winter of December and January. Rabbit skins and the attached fur were very important to our ancestors in helping them keep warm in winter, through making rabbit skin hats, coats, gloves and boots. This was true well into the 20th century before the discovery of synthetic materials. In temperate climates such as ours, the best quality wild rabbit skins come from rabbits killed in the winter as the coat is thick and

the fur even. During the rest of the year the rabbit's fur is rather uneven as hair is shed or pulled out to make nests or in fights, and thus is not so prized by furriers.

Dry cold winters are less of an issue to rabbits than wet winters where young and adult animals are prone to death by hypothermia, especially if the ground is flooded and food is scarce. Food is also rendered scarce when snow lies thickly on the ground, as rabbits find it hard to dig through to find any vegetation underneath. Then rabbits will turn to less favoured sources such as the lower leaves and shoots of trees. Such damage is why people protect young saplings with plastic tree guards. In a severe winter, when rabbits are hard pressed to survive, they will eat the bark off trees and can easily kill a sapling and even a young tree by stripping the bark away.

### The circle begins again

The year is coming to a close with the approach of mid-winter and the cycle of breeding, growing, living and dying will continue with the coming spring. Whilst there is much more to learn about this little creature, we have seen that our European Rabbit is a unique, resourceful species well evolved to its native Iberia, yet able to adapt to a range of habitats. Its role in the web of life is as an extremely important source of food and, for most, life is very short. This has influenced its physical and behavioural characteristics and means it lives in the fast lane with respect to breeding. Indeed, the rabbit motto might be "be smart, be alert, be afraid, but enjoy each day; eat well, sleep well and be amongst friends". Some lessons there for us all perhaps!