Polecats and ferrets – a tale of two species on the rise

The popularity of pet ferrets is increasing, but their wild counterpart, the polecat, is also on the up... *Lizzie Croose*, BSAVA Scientific Editor, provides an insight into the history and lives of these closely related carnivores.

Ferrets (*Mustela putorius furo*) were domesticated from European or Western polecats (*Mustela putorius*) over 2,000 years ago, and polecats and ferrets have a close relationship that continues to this day.

What's in a name?

Polecats are one of our lesser-known wild mammals today but were well known to our ancestors. Like many carnivores, polecats had a turbulent history and a troubled relationship with humans. The polecat was historically widespread in Britain and believed to be the third commonest carnivore during the Mesolithic period, with an estimated population of 110,000.[1] The Latin name for polecat, *Mustela putorius*, literally translates as 'foul-smelling musk-bearer' and the modern English name 'polecat' probably derives from the French term '*poule-chat*' or 'chicken-cat' – a reference to the polecat's fondness of poultry. The polecat's notorious smell, released from its anal scent glands as a defence mechanism, and reputation for predating poultry, fuelled widespread malice towards it. The word polecat was extensively used as an insult in the Middle Ages, even featuring in Shakespeare's *The Merry Wives of Windsor*, and more recently in UK parliamentary debates![2]

A turbulent past

The polecat's much-maligned reputation led to extensive trapping and poisoning, with polecats killed to protect poultry and game birds, hunted for sport, and trapped for their fur. This large-scale persecution was encouraged by the payment of bounties and resulted in polecats being killed in higher numbers than any other animal, except the mole.[2] As a consequence, the population declined significantly in the 18th and 19th centuries, bringing the species to the brink of extinction, and limited to a refuge in Mid Wales and the English/Welsh border counties by the turn of the 20th century.

An easing in trapping pressure during and following the First World War began a change in fortunes for the polecat and from the 1930s onwards they began to expand their range. Polecats have subsequently recolonized large areas of their former range and are now well-established in all of Wales, much of England, with the exception of parts of northern England, and restricted areas of Scotland. The total population is currently estimated at 83,300.[3]

Despite their growing numbers, polecats are rarely seen in the wild due to their primarily nocturnal and solitary nature and low density (Figure 1). Polecats can be found in a variety of habitats, with a preference for lowland areas, farmland, riparian zones, and woodland edge, where they den in rabbit burrows, log piles, haystacks and farm buildings. In Britain, rabbits dominate their diet and they also eat rodents, amphibians and birds. They mate during February–March and give birth to an average of 4–6 kits (but can be up to 10) in May–June.

FIGURE 1: Despite their increasing numbers, polecats are rarely seen in the wild.

Polecats and ferrets

There are an estimated 100,000 ferrets kept as pets in the UK,[4] but many are also kept as working animals for catching rabbits and rats (Figure 2). It is inevitable that some ferrets will escape into the wild, and this creates opportunities for them to breed with wild polecats and produce fertile hybrids. Additionally, some breeders have deliberately 'backcrossed' their ferrets with wild polecats to maintain the range of colour varieties in domestic ferrets.[2] In Britain, this extensive introgression and several generations of backcrossing ferrets and hybrids with 'pure' polecats has resulted in a high prevalence of hybrids in the wild, particularly along the edge of the polecat's range in peripheral populations, where the species is re-colonizing new areas. This has led to a dilemma in distinguishing 'true' polecats from polecat-ferrets and ferrets – a particular challenge for wildlife biologists and conservationists when collecting records of polecats and monitoring their changing distribution. So, what is the difference between polecats and ferrets?

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FIGURE 2: Ferrets are becoming increasingly popular as pets.

Polecats and ferrets have traditionally been distinguished based on morphological characteristics, but the accuracy of this is questionable. 'Pure' polecats are typically dark all over, with creamy underfur, little to no white guard hairs on the body and a distinctive 'bandit'-like facial mask, with a pale ring around the eyes, white on the muzzle and ear margins. Polecat-ferrets and ferrets generally have a lighter coloured pelage, often with a pale throat patch, and the facial mask is less distinct. Their pelage varies seasonally as both species moult twice a year, resulting in a darker and shorter pelage in the summer and a paler appearance in the winter with the thicker creamy underfur showing more prominently (Figure 3).

However, genetic data show that it is not quite as clearcut as this, and using phenotype to distinguish purebred polecats from hybrids is not accurate where extensive introgression has occurred.[5,6] Genome sequencing has shown that all English polecats sampled, regardless of phenotype, had some degree of introgression, and animals assigned as 'hybrid' were sometimes less introgressed than those assigned as 'pure'.[6] In other words, animals that look like pure polecats can actually be hybrids, and animals that look like hybrids can actually be pure polecats. Furthermore, while polecats have greater post-orbital breadths and cranial volumes than ferrets, there is a significant overlap between the two species, so skull measurements are also not a reliable indicator for distinguishing the two.

Despite this widespread introgression, the polecat phenotype seems to have selective competitive advantage in the wild, meaning that polecats are likely to swamp most of the ferret genetic influences.[5,7] Feral ferret populations rarely become established, except on offshore islands, and have reduced survival skills due to their tameness and docility. Although introgression has left a genetic signature of past hybridization within the polecat population, it may not have an impact on phenotype, behaviour and ecology.[7]

Not out of the woods yet

Whilst the polecat's fortunes have improved, they still face several anthropogenic threats which may limit their population and recovery in some areas. These may also result in injured polecats being found by members of the public and presented for treatment.

A major source of mortality for polecats is road traffic accidents and it's not uncommon to see dead polecats on the road in areas where they are well-established. Road casualties are most common in March, coinciding with the mating season when male polecats are moving and crossing roads to find females, and September/October, when juveniles are dispersing.[8]

Polecats are also susceptible to secondary rodenticide poisoning, when they consume rodents (mostly rats) that have been poisoned and accumulate lethal levels of poison. Rodenticide exposure is extensive in several species of mustelid, with detectable residues of at least one second-generation

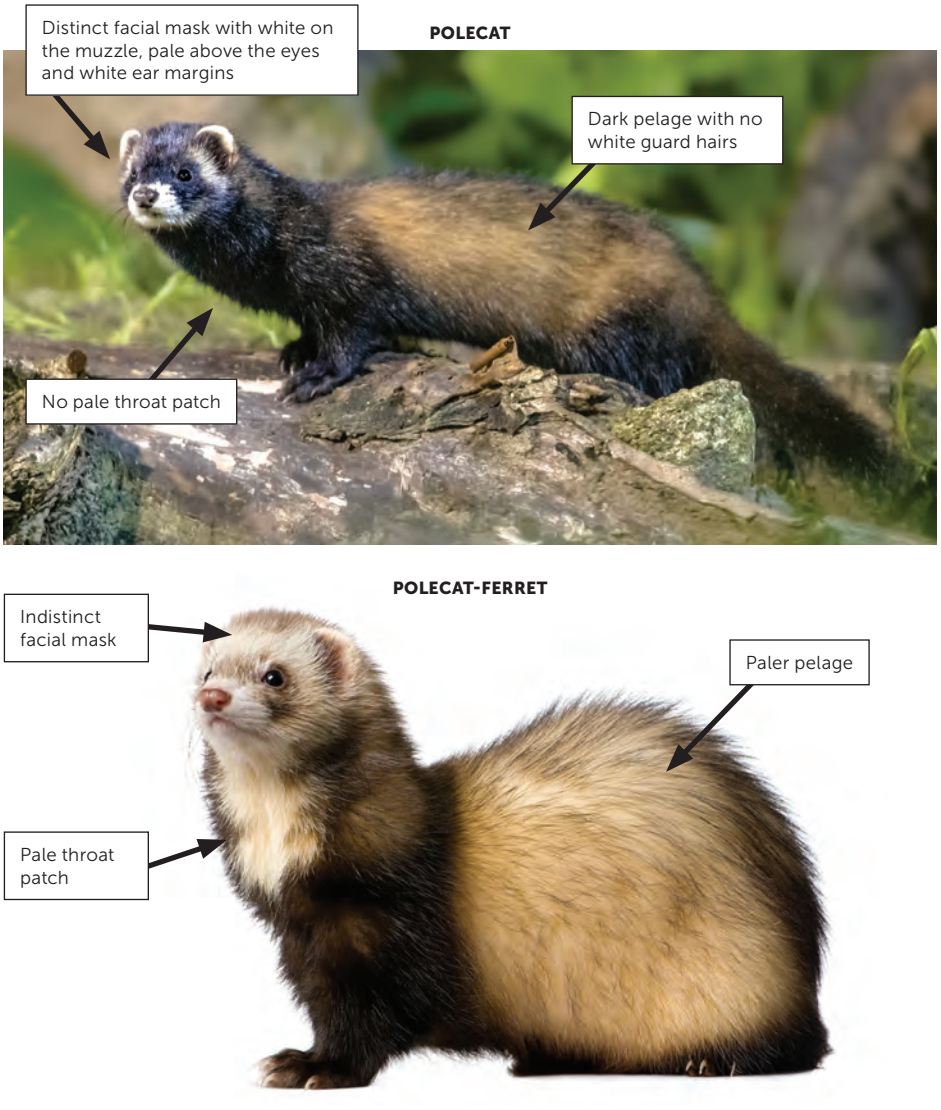

FIGURE 3: Key pelage characteristic differences between polecats and polecat-ferret hybrids, although these are not always accurate where introgression is widespread.

FIGURE 4: Polecats may be caught in traps set for other species, such as rabbits or squirrels. Credit: John Martin

anticoagulant rodenticide found in 79% of polecats in Britain in a recent study.[9] The prevalence of morbidity and mortality from rodenticide exposure is likely under-recorded, as most polecats will die out of sight underground or in barns or haystacks.

Polecats are vulnerable to accidental capture in traps set for other species such as rabbits, grey squirrels or American mink, which can result in injury or death (Figure 4). Polecats have partial legal protection under the Wildlife and Countryside Act 1981, whereby it's illegal to set a trap to intentionally catch a polecat, but shooting a polecat is not illegal. Polecats may also be caught by dogs, although they may use their scent glands in defence, making any interaction rather unpleasant for the dog!

Polecats are subject to a number of diseases in common with other small mustelids, including toxoplasmosis, leptospirosis, adiaspiromycosis, trichinosis, rabies, canine distemper virus and bovine tuberculosis.[2,10] Pleuritis, pyothorax and pulmonary granulomatosis have also been observed in polecats.[11] Polecats are vulnerable to *Skrjabingylus nasicola* infection and heavy infestation may have a negative effect on body condition.[11,12]

Treating polecats in practice

If presented with a polecat-like animal in practice, it's important to distinguish between wild polecats and domestic ferrets with polecat-type coloration. Ferrets should not be released into the wild. Prior to releasing a polecat, it's important to ensure that they are capable of surviving in the wild after release. For individuals independent from their mother, they should be released as close as possible to where they were found, unless this is dangerous (for example, on a road). If caught by a dog or cat, they should be released into appropriate habitat near to where they were found. A good release site is quiet farmland or woodland edge, with plenty of rabbits and away from busy roads. See the *BSAVA Manual of Wildlife Casualties* for further information.

A brighter future?

Whilst the potential impact of anthropogenic threats on the continuing recovery of polecats is unknown, the future looks positive as they continue their comeback across the country. The species is now more widespread than at any time in over 100 years and the return of this native predator that was once lost from our countryside is a welcome sight.

About the author

Lizzie is Scientific Editor for the BSAVA, promoting veterinary science and research content to BSAVA's members and the wider profession. She has a background in scientific publishing, science communication and mammal research and conservation, with a specialism in mustelids. She has a degree in Environmental Management and an MSc in Biodiversity, Wildlife and Ecosystem Health. Lizzie is passionate about the use of evidence-based science and making science more accessible.

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