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The mammal
detective's guide to
recognising mammals
and their signs in and
around built-up areas

Spotting wild Mammals

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Picture credits: cover Terry Whittaker; inside front cover Niall Benvie; p7 Stephen Oliver, Pat Morris; p8 Colin Varndell, Pat Morris; p9 Pat Morris; p10 NP/S.C.Bisserot; p11 NP/O.Newman, Graham Street; p12 Stephen Oliver; p13 Pat Morris; p14 Pat Morris; p15 Pat Morris; p16 Niall Benvie, NP/E.Janes, Pat Morris; p17 Pat Morris, NP/O.Newman; p18 Pat Morris; p19 Pat Morris, Peter Oakenfull; p20 Stephen Oliver; p21 Robin Hamilton, Pat Morris; p22 Niall Benvie; p23 NP/E.Janes, Pat Morris; p24 Terry Whittaker; p25 Pat Morris; p26 Terry Whittaker, Pat Morris; p27 Terry Whittaker, Stephen Oliver; p28 Pat Morris; p29 Pat Morris; p31 Pat Morris, Niall Benvie. NP: Nature Photographers

Illustrations by Lizzie Harper, back cover drawings by Oliver Bennet and maps courtesy of Bright Star Publishing Plc.

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Reprinted 2011.

ISBN 0-9540043-6-1 British Library Cataloguing in Publication Data.
A catalogue record for this book is available from the British Library.



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Introduction

THE FACT that you are interested enough in mammals to be reading this book means you already have the makings of a great mammal detective. Enthusiasm and interest are important requirements, and you already own a superb set of mammal tracking equipment – your eyes, ears, nose and fingers will tell you most of what you need to know to identify any of our native animals.

While there are many mammals that you will see, others are more elusive and difficult to spot. You are much more likely to find evidence of their presence in the form of signs, tracks and trails. Droppings are often the easiest and most reliable signs you will discover, so these feature prominently in the guide that follows.

Tools of the trade

You can increase your chances of making correct identifications, especially in the early stages, by taking a few extra bits and pieces with you when you go out. Making notes or sketches will greatly enhance your observation skills, and will mean you don't have to rely on your memory. Graph paper is ideal for this purpose as it will help you to scale your

BE SAFE

By following the advice given here, you can maximise your chances of seeing a wild animal. But you should always remember that personal safety is paramount. Wear something reflective when walking along dark roads. If possible, carry a mobile phone and always make sure someone knows where you are going and when you plan to return.



Sometimes you don't need to go looking for wildlife – grey squirrels will come to you if you put out food, even if it's for the birds.

drawings correctly, and a pencil is better than a pen in damp conditions. A large scale map is useful for recording your observations – after a while you may see a pattern start to emerge that will tell you more about a particular animal's behaviour. A hand lens is very useful, and will help you to make out details such as tooth marks or the faint impressions made by hairs in a footprint.

A question of scale

Inevitably, similar animals often leave similar signs – for example, it can be difficult to differentiate between the tracks of different deer species. But it is also easy to confuse signs left by very different animals – for example rabbits, deer, squirrels and voles all strip bark from trees. In such cases, distinguishing between different species is often simply a question of scale, and here a tape measure is invaluable. Measure everything as accurately as you can.

The more accurate and detailed your observations, the better your chances of making a correct ID. Use comparisons – was that deer just brown? Surely it was closer to the colour of dead beech leaves or of that rusted old tractor? It doesn't matter what you compare with, as long as it helps fix the observation in your mind, and this trick works for colour, size, smell, sound, almost anything.

Where to look

Most mammals are creatures of habit and will use regular paths and runs. More often than not these follow linear structures such as hedgerows, walls and streams. These offer some cover and often provide the easiest route from one place to another – foxes, badgers and mice are no different to humans in this respect. Some of the best places to spot mammal signs are alongside woodland paths, in the long grass of verges and field margins, the banks of rivers and puddles where tracks may be recorded, and dense thickets of bramble or bracken.

When to look


The best time to hunt for mammals is very early in the morning. Admittedly this is when most of us would rather be tucked up in bed, but this is precisely why so many wild mammals prefer it! Most of our native animals are nocturnal. In some places they are just as active at dusk as at dawn, but in areas close to human habitation the evenings are often far from quiet, with traffic, evening joggers and people on their way to and from pubs and clubs. Early mornings are deserted by comparison.

Mammal hunting at dawn also has the advantage that the light gets steadily better instead of worse, and as it improves you will have an opportunity to

observe fresh tracks and trails before they are obliterated by the daily traffic of human feet or melt away with the dew, frost or snow.

How to look

Approaching wild mammals is very difficult. They are alert and wary and far better equipped than you for detecting smells, sounds and movement, and for moving off silently without being seen. If you want to have more than just fleeting glimpses of fast retreating mammals, it is better to wait quietly somewhere for them to come to you. If you have already made field sign observations you will have a good idea where to wait. Find a comfortable place to sit, ideally against something large and irregularly shaped like a tree, which will help hide your outline and give you a backrest so you don't have to fidget. You have to make yourself as inconspicuous and non-threatening as possible. Dress comfortably – warm enough to stand or sit still for prolonged periods, but avoiding clothes that make a lot of noise when you move. Do not wear strong perfumes or smoke, and take off a layer if you're walking fast – if you get hot your scent will be stronger. If you have a dog, leave it at home this time.



Living is easy for urban foxes. 60% of their diet is made up of free handouts from kindly householders.

Habitats in built-up areas

SOME MAMMALS are bold enough to venture into the heart of cities, and make a good living among our homes, shops and factories and in the green spaces around them. Species such as bats and rats will actually share our homes and buildings, while others, such as urban foxes and hedgehogs, patrol our gardens and parks in search of food after dark.

1. Gardens

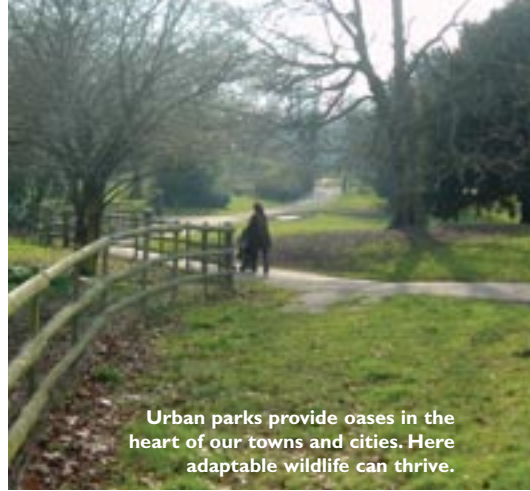
Gardens are great places for mammal watching, the larger the better. But even a small plot has potential if it backs on to other gardens or to another useful habitat such as a churchyard or woodland. Fences and walls are no obstacle to moles, mice and squirrels, and if you have any gaps in your fence or hedge, you can expect visits from hedgehogs, badgers, foxes, rabbits and even deer.

2. Urban parks

Urban parks often contain dozens of different microhabitats – the more varied the better. They can often be too manicured, reducing the number of places for mammals to shelter but, nevertheless, many species can thrive. Look for signs of rabbits, foxes, mice, rats and squirrels. Some city parks are stocked with red and fallow deer, while others that offer some woodland might have natural populations of roe and muntjac.

3. Commons and scrubland

Commons are unfenced open areas where mammals can roam freely without being obstructed by fences, walls and other barriers. Scrubby vegetation such as goat willow,



Urban parks provide oases in the heart of our towns and cities. Here adaptable wildlife can thrive.

hawthorn, blackthorn, bramble, gorse and young trees, combined with wide open areas, form a mosaic of habitats that provide ideal places for mammals to shelter, forage and nest.

4. Wasteland and derelict land

Formerly built-up land can provide temporary havens for many mammals. Here, brambles and other vegetation build up quickly and provide welcome shelter for many species. Vole feeding runs can often be seen under sheets of corrugated iron or plastic, and fox cubs can sometimes be seen playing in broad daylight, away from the hustle and bustle of parks and gardens.

Remember that permission from the site manager must be sought if you wish to visit. However, most larger mammals can often be seen easily from nearby vantage points, so don't forget your binoculars!

5. Churchyards and cemeteries

Not only are these habitats often old, they are also by their very nature places of peace, where people come quietly and in small numbers. We also tend to avoid them at night! They make ideal homes for field and bank voles, rabbits, moles, foxes and even stoats and weasels.

6. Playing fields and golf courses

Large expanses of grass are attractive to rabbits, provided there is shelter such as a hedgerow or woodland nearby. Molehills are easy to spot in the short grass, and the open conditions make bat watching easy, especially around lights that attract night-flying insects. Look along field margins for signs of hedgehogs, voles and mice.

7. Allotments

Allotments are often quiet at night and support rich invertebrate populations. This makes them very attractive to hedgehogs, shrews and bats. Less welcome visitors include rabbits, moles and rodents, which in turn attract foxes. Some allotments are visited by badgers.

8. Railway embankments and road verges

These are forgotten habitats that people usually whisk past in cars, lorries and trains. Apart from seasonal mowing, they are pretty much left to nature. They act as useful corridors enabling wild mammals to spread deep into built-up areas from the

countryside around.

The long, rough grass is ideal for voles and mice, which attract predators such as stoats, weasels and foxes. Remember

Churchyards are excellent habitats for wildlife. Quiet and undisturbed, they provide a haven for all sorts of timid mammals.



USE YOUR CAR

Remember you can also have some great mammal sightings from your car. Urban mammals in particular are familiar with cars and, provided the engine is not running, seem to regard them as part of the landscape. By parking up on the edge of a park, cemetery or allotment you might find yourself in a front row comfy seat to watch animals going about their usual activities just metres away.

not to trespass on the railway, but you can watch mammal activity from beyond the fencing.

9. Rivers and canals

Look for mammal signs both in the water and along the bank. Brown rats and water voles are frequent riverbank dwellers, and harvest mice and field voles like long grass in damp places. Bats often hunt over water and otters are making a welcome return to waterways around Britain, sometimes within towns. Don't forget to check under bridges for paths used by wildlife. Always take special care when surveying rivers and streams as banks can be slippery.

Insectivores

THE INSECTIVORES are a diverse group of mammals with six British representatives, including the hedgehog, mole, common shrew, pygmy shrew and water shrew. The white-toothed shrew is restricted to the Channel Islands and Isles of Scilly.

The hedgehog can usually be recognised at a glance, and molehills are such distinctive features that the species can be confidently identified with no sighting at all. That leaves the shrews as the only possible source of confusion. Shrews are occasionally mistaken for mice, but there is no real excuse for this! The long, wriggly nose and tiny eyes typical of shrews are very distinctive, and red-tipped teeth are unique to common, water and pygmy shrews. Opportunities to examine dead shrews are surprisingly common. The secretions of the shrews' scent glands are distasteful to predators, such as cats and foxes, so their corpses are rarely eaten. Instead, undamaged bodies can often be found on paths or in prominent places where they have been dropped by predators that killed them by mistake. Moles are also often rejected as prey.

Shrews are exclusively carnivorous; they do not eat seeds or other plant material, and their extremely rapid metabolism means they can starve to death in a matter of hours.


Hedgehogs, too, relish meat and often become regular visitors to gardens where people leave out food for them. Tinned dog or cat food is ideal. They also enjoy a saucer of traditional bread and milk, but cow's milk can cause tummy upsets, which can be dangerous to young hedgehogs.

Shrews are solitary animals and do not tolerate encountering other shrews outside their own family. One of the most common

SMALL MAMMALS IN BOTTLES

Shrews are common victims of human carelessness. Their insatiable curiosity leads them to investigate all possible sources of food, and this often includes discarded rubbish. Glass and plastic bottles smell of food and their openings are usually large enough to allow a shrew to enter. But once inside, the slippery neck makes it very difficult for the animal to scramble out again. In a very short time, shrews will starve to death.

The corpses and skeletons of unlucky shrews are often found in empty bottles. While this is sad, it is a useful opportunity for you to study the shrew's skeleton, particularly the skull. All three species of shrew on mainland Britain have red-tipped teeth. This is the surest way of telling a shrew skull from mice and vole remains.



Discarded bottles are death traps for unwary shrews, mice and voles.

signs of their presence in an area are the loud, piercing shrieks they emit when they meet each other in the undergrowth.

Most nocturnal animals are frightened by light, so it is a good idea to cover your torch with a transparent red cover. Humans can see well in red light, but most nocturnal animals cannot and are therefore blissfully unaware of a red light being shone at them. They rely heavily on their sense of hearing and will immediately freeze if they hear an unfamiliar noise.

Hedgehog *Erinaceus europaeus*



SIZE: head-body 23–28cm

HOW TO RECOGNISE:

Hedgehogs have characteristic spines all over their body except on their face, legs and underside; individual spines are banded yellow and brown with pale tips. They have coarse brown fur on the face and underside.

WHEN TO LOOK: Hedgehogs emerge from hibernation in April and are active until about October. They are strictly nocturnal.

WHERE TO LOOK: Grassland and scrubland, parks and gardens. Hedgehogs are often attracted to compost heaps and unlit bonfires by the warmth and abundant insect food found there.

WHAT TO LOOK FOR: In spring and summer, hedgehogs do not form specific nests but shelter in any long vegetation such as a bramble thicket or hedgerow.

LISTEN OUT FOR: Noisy rummaging and snuffling sounds in vegetation. From early May until late June you may be lucky enough to witness the hedgehog's courtship ritual, which involves the male circling the female

while both animals snort and puff loudly.

BEHAVIOUR: Hedgehogs are usually solitary, except when mothers have young in early summer. They travel about at a slow rolling amble, pausing often to investigate food, or at a bustling businesslike trot. They forage for invertebrates, such as beetles, slugs, worms and spiders. They also eat carrion, eggs, fruit and fungi.

TRACKS & TRAILS: Hedgehog footprints are 2.5–3cm long, but are rarely seen. Their winding trails are more easily spotted as they can often be detected early in the morning where the animal has trundled across dewy grass.

DROPPINGS: These are up to 5cm long sausages of very dark dung, containing shiny, indigestible fragments of insects such as beetle wing cases.



Hedgehogs are widely distributed through mainland Britain, but numbers are thought to be declining.

SIGNS TO LOOK FOR



Hedgehog droppings – are almost black and about the size of a little finger. They often contain shiny, black fragments of beetle prey, which glisten purple and green in the light.

Hedgehog tracks – the hind feet are about the same width but longer than the front feet. Claw marks usually show.



Mole *Talpa europaea*



SIZE: head-body 11–16cm

HOW TO RECOGNISE: Moles have a robust cylindrical body with a short tail and short powerful legs; their forefeet are spade-like, with large claws; their eyes and ears are very small; they have dark greyish brown fur, which is short and velvety.

WHEN TO LOOK: Moles are active all year round, day and night, but are rarely seen above ground. Their digging activity increases during the breeding season between March and July.

WHERE TO LOOK: Woodland, grassland, parks and gardens in areas with well-drained soil and a good supply of earthworms.

WHAT TO LOOK FOR: Characteristic heaps of soil, every few metres which mark

their network of underground tunnels. Also extra large molehills – called ‘fortresses’ – are built for breeding in areas where a high water table poses a risk of tunnels flooding.

LISTEN OUT FOR: During spells of hot dry weather, moles spend more time on the surface looking for food. Early in the morning, after a few weeks without rain, you might hear a mole as it tears at clumps of grass in search of food.

BEHAVIOUR: Moles are solitary; they spend almost all their time underground, excavating networks of tunnels into which worms and beetles fall. They occasionally venture above ground to look for food or to disperse to new areas.

TRACKS &

TRAILS: The best indicators of mole activity are hills and tunnels. Tunnels can be detected by probing the soil between molehills with a length of garden cane. Moles moving over wet grass or very soft earth may leave trails that can be traced to tunnel entrances in the middle of molehills. Footprints are distinctive but rare.



Moles are common and widely distributed on mainland Britain. They are absent from Ireland.

SIGNS TO LOOK FOR



Molehills and anthills – may be confused (ant hill seen here on the left). Molehills can be distinguished by the fresh soil pushed to the surface.



Molehills – can ruin the appearance of smooth turf. However mole activity helps to aerate and drain the soil, and they also feed on unwanted grubs.

Common shrew *Sorex araneus*



SIZE: head-body 5.5–9.5cm

HOW TO RECOGNISE:

Common shrews are tiny mouse-like animals with a long tapering snout and very small eyes and ears. Their fur is velvety, dark brown to black on the back, lighter on the flanks and greyish white on the belly; their tail is half the length of their body.

WHEN TO LOOK: Shrews are active all year round, both day and night.

WHERE TO LOOK: Grass verges, under fallen trees, logs and planks, bushy scrub on wasteland; anywhere with thick grass.

WHAT TO LOOK FOR:

Small nests of loosely arranged grass in burrows and other natural crevices or in dense tussocks of vegetation. Breeding nests are more substantial structures of woven grass.

LISTEN OUT FOR:

High-pitched twittering and shrill screams of fury.

BEHAVIOUR:

Shrews are solitary; they are busy and bustling creatures, pausing often to investigate smells and devour prey, such as beetles, worms and spiders; they have bouts of frenetic foraging alternating with short rest periods.

TRACKS & TRAILS: Shrews rarely leave identifiable prints, but regular routes may be recognisable as tiny runways through leaf litter.

DROPPINGS: These are tiny, black and crumbly, and contain insect remains but are very unlikely to be found.



Common shrews are very common and widely distributed throughout mainland Britain.

SIGNS TO LOOK FOR



Shrew remains – can often be found inside bottles. Look closely at the skull – it is narrow and pointed and it has red tips on all the teeth.



Owl pellets – often contain the remains of shrews. These can be dissolved carefully in warm water to allow closer inspection of the bones.

Lookalike shrews:

Pygmy shrew – much smaller than the common shrew with a more thickly furred tail and paler coloured fur. They are rare in urban areas. It is the only shrew species found in Ireland.

Water shrew – larger than the other shrews, with dark, almost black, fur and a white belly. They are adapted to an aquatic lifestyle and are usually found along the margins of clean streams and watercress beds.

Bats

UP TO 17 species of bat occur in Britain. Of these, nine or ten are relatively common and widespread. Bats generally are quite easy to see, but species identification is tricky, not least because most sightings are of tiny shapes flitting past in the dark! Important factors in identifying bats on the move are size and shape, flight pattern and time of emergence from the roost.

Several bat species have adapted to living alongside humans in buildings in our towns and cities. Pipistrelles and brown long-eared bats are the species most commonly found in built-up areas, with noctules and Daubenton's also occurring in some areas. In summer, they seek out draught-free attics, between beams and under roof tiles. From here, they can hunt over the mosaic of gardens, ponds, parks, streams and canals in search of their insect food.

Even for batworkers, accurate identification usually requires the use of a little technological wizardry. Only people with extremely sensitive hearing, such as children, can hear the ultrasound calls of bats. An electronic bat detector will pick up these calls and convert them into distinctive lower frequency sounds that everyone can hear. The detector can be tuned in to different frequencies to pick up sounds produced by different bats.

Bats and the law

All British bats are considered vulnerable to extinction and numbers are thought to be in decline. Therefore, all bats and their roosts are protected by law under the Wildlife and Countryside Act, 1981. They must not be deliberately caught or disturbed, or their roosts interfered with, by anyone without a licence. Remember, do not touch any bats you find. For advice, visit www.bats.org.uk.

Pipistrelle bats

Pipistrellus pipistrellus ('common')
Pipistrellus pygmaeus ('soprano')



SIZE: head-body 3.5–5cm;
wingspan 18–24cm;

HOW TO RECOGNISE:

Pipistrelles are the smallest of our bats and have long, narrow wings. Their fur is dark brown but the wings, face and ears are black. Their ears are small and triangular with rounded tips.

WHEN TO LOOK: Pipistrelles emerge from hibernation in about March and are active until early winter. They are nocturnal, leaving the roost about 20 minutes after sunset.

WHERE TO LOOK: Pipistrelles are common in towns and villages, and often roost in buildings in tight, sheltered spaces. They feed on insects in parks and gardens and over ponds and lakes.

WHAT TO LOOK FOR: Mouse-like droppings anywhere you suspect that pipistrelles may roost, including attics, beneath gables and in porches. Watch out at dusk for streams of bats emerging from building roofs just



Pipistrelles are relatively common and widely distributed across the British Isles

after sunset and returning just before dawn.

WHAT TO LISTEN FOR: Chattering calls can sometimes be heard in roosts just before the bats emerge.

BEHAVIOUR: Females gather in maternity colonies in spring and each gives birth to a single baby in June or July. Bats fly quickly and erratically, hunting nocturnal insects on the wing. They are often attracted to street lights by the moths that gather there.

DROPPINGS: Small, black, cylindrical pellets around roosting sites crumble easily to reveal shiny insect remains.

Brown long-eared *Plecotus auritus*



SIZE: head and body 4–5cm; wingspan 24–29cm

HOW TO RECOGNISE: Brown long-eareds have huge ears, which are as long as the body. Their fur is shaggy and dark to pale brown. Their wings are brown and the face pink.

WHEN TO LOOK: Long-eareds emerge from hibernation in April and are active until November. They usually leave the roost at least 30 minutes after sunset.

WHERE TO LOOK: Long-eareds are often found in houses, sheltered parks and gardens.

WHAT TO LOOK FOR: Watch for them emerging from buildings up to one hour after sunset. It is sometimes possible to spot their long ears when they fly past slowly or are

silhouetted against a clear sky.

WHAT TO LISTEN FOR: Also called 'whispering bats', long-eareds are very quiet and difficult to hear, even with a detector.

BEHAVIOUR: In summer, they form large roosting colonies of up to 100 animals. They are agile in flight, hunting aerial insects, or 'gleaning' them from leaves or the ground.

DROPPINGS:

Small, black, crumbly pellets containing shiny insect remains.



Brown long-eareds are common and widely distributed throughout the UK.

Other bats you might see:

Noctule – This large bat has long, narrow wings and is one of the first species to emerge at sunset. They fly fast and high, and can sometimes be confused with swifts as they make sudden dives to catch insects. Some people can hear their high-pitched calls without a bat detector.

Daubenton's bat – These bats are well adapted to foraging for insects above ponds and lakes. They can often be seen an hour after sunset skimming quickly over the water in straight lines, scooping insects from the surface with their large feet.



Squirrels

SQUIRRELS ARE among the easiest British mammals to watch. They are active by day and their ability to dash to safety up the nearest tree makes them very bold. Both red and grey squirrels readily venture into gardens and can become very tame. In the trees, they move with astonishing speed and agility, scurrying up and down trunks head first and leaping from branch to branch with ease.

Sadly the red squirrel has been pushed out of much of its former range in England by its more adaptable grey cousin from America. Therefore, it can be ruled out of sightings in most of England and Wales, although remaining strongholds include islands in Poole Harbour, the Isle of Wight, Formby in Lancashire, Anglesey, Snowdonia and parts of Dyfed, Wales.

Telling the difference

Grey squirrels are both larger and heavier than reds. Although the grey's coat can often turn a warm brown in summer, particularly on the back and flanks, it is never chestnut-coloured like the red's. Furthermore, the grey's tail is always fringed with white, whereas the red's is all one colour. (The species do not interbreed).

Grey squirrels can be quite destructive to trees, especially in young plantations, so their presence is not always welcome. They strip the trees' bark to feed on the tasty sap beneath. If the damage extends all around the trunk – calling 'ringing' – the crown of the tree will eventually die, making them very unpopular with foresters. Squirrels can also be a nuisance in suburban areas, where they raid garden bird tables, frightening off the birds, and then dig little holes in lawns to stash their bounty. They will also dig up borders in search of the spring bulbs that are an irresistible squirrel snack!

Grey squirrel *Sciurus carolinensis*



SIZE: head-body 23–30cm;
tail 19–25cm

HOW TO RECOGNISE: Grey squirrels have silvery grey fur, with reddish undertones that can be quite pronounced in summer. Their tail always has a white fringe.

WHEN TO LOOK: Greys are active all year round, exclusively during daylight hours.

WHERE TO LOOK: Greys are common anywhere with trees – in parks, gardens and woodlands, both up trees and on the ground.

WHAT TO LOOK FOR: Football-sized nests of twigs with leaves still attached (called dreys), wedged in the branches of a tree. These can be distinguished from the nests of birds such as magpies because the twigs still have leaves attached. In winter, watch for courting pairs of squirrels racing through the treetops and over the ground.

WHAT TO LISTEN FOR: When they are irritated, greys make angry chittering calls.

BEHAVIOUR: In autumn, grey squirrels cache nuts in the ground to tide them through the winter. Their diet includes all kinds of nuts, pine kernels and acorns, also twigs, fruit and bark. Breeding begins in January and about three young are born between February and July.

TRACKS AND TRAILS: Squirrel footprints often appear triangular because of their narrow

'heel' and splaying toes. Fore prints are 3–4cm long with 4 toes, hind prints up to 5.5cm long with 5 toes. Look for tracks on tree branches when it snows – these are unlikely to be anything other than a squirrel's.

DROPPINGS: Ovoid pellets about half the size of rabbit droppings and difficult to spot. Often the pellets are slightly flattened at one end and pointed at the other.

FEEDING SIGNS: Squirrels make a mess when stripping cones, peeling acorns and sweet chestnuts. They crack open the nuts, leaving shell fragments scattered on the ground below.

Look for squirrel tracks leading to and from trees.



Grey squirrels are common and widespread throughout most of England and Wales, and are spreading rapidly in Scotland and Ireland.

Other squirrels and lookalikes:

Red squirrel – smaller and lighter than the grey. The coat is solid red-brown colour with no grey. Their tail is all one colour and their ears have long tufts in winter. Red squirrels are largely restricted to coniferous forest and nearby gardens, mainly in northern England and Scotland.

Edible dormouse (*pictured below*) – easily mistaken for a grey squirrel, but is smaller and rounder with a much less bushy tail which is always one colour. Edible dormice hibernate from November to May and, once they emerge, are nocturnal. They are currently restricted to the Chiltern Hills of Hertfordshire and Buckinghamshire.



SIGNS TO LOOK FOR



Nibbled cones – the cones of conifers are stripped of their kernels and the central part discarded like an apple core. Look for these in plantations.



Winter drey – these robust nests of twigs and leaves are built close to the tree trunk to give maximum protection from the elements.



Bark stripping – squirrels sometimes strip the bark from tree trunks, just above side branches where they can sit. They rarely leave tooth marks.

Voles, Mice and Rats

MEMBERS OF this family, which are often referred to as 'small rodents', present some of the toughest identification challenges among British mammals. They are all rather similar in form, but with a little knowledge of their lifestyle, habitat and typical field signs you should be able to make a reasonable guess as to which species is present, even without a clear sighting.

Wood mice are often mistaken for house mice simply because they often come into houses! In fact, the two are easy to tell apart – the wood mouse looks very appealing, with warm brown fur, large eyes and ears, and long back feet like a tiny kangaroo. The house mouse is greyish-brown, slightly greasy-looking and has a characteristic stale smell.

Another common confusion is between the similarly sized brown rat and water vole, both of which favour waterside habitats. However, the vole is easily distinguished by its blunt, chubby face and small ears hidden in its fur. The rat has a narrow, pointed face and large ears.

Our two common voles, the bank vole and field vole, can be tricky to tell apart from a brief sighting. The colour of the fur is important – that of the bank vole is a warm, reddish-brown, especially on the back, while the field vole is rather dull by comparison. The field vole's tail is often so short that it is hidden in its shaggy fur.

Being small and light, these rodents only leave clear prints on soft surfaces. Their tracks are all very similar, with four long, splayed toes on the front print and five on the larger hind print. To get a good idea which animal you are dealing with you need to look at tracks within the context of other clues, such as location, habitat, droppings and feeding signs.

Bank vole *Clethrionomys glareolus*



SIZE: head-body 9–11 cm

HOW TO RECOGNISE: Bank voles have rounded bodies and blunt faces, with reddish-brown fur which turns greyer on the flanks. Their eyes are large and bright and their ears protrude from their fur. They have short tails, about half the length of their body.

WHEN TO LOOK: Bank voles are active all year round, both day and night, with peaks of activity at dawn and dusk.

WHERE TO LOOK: Scrubby vegetation, wooded areas, bushes and sometimes in gardens.

WHAT TO LOOK FOR: Bank voles are unlikely to be seen except by accident since they live under dense ground cover. Look instead for burrows leading from under fallen trees and pieces of corrugated iron, and tunnels through long rough grass.

WHAT TO LISTEN FOR:

Voles are usually silent, but they do squeak loudly during aggressive encounters.



Bank voles are common and widespread across most of the UK.

BEHAVIOUR: Voles are quick and nimble and dart away if disturbed (they do not bound along like wood mice). They climb well in search of fruit, nuts, buds, fungi and insects – so look up!

DROPPINGS: Similar to those of mice but not easy to find, vole droppings are 6–7mm long, brown/black in colour and left in clusters.

FEEDING SIGNS: Bank voles open hazelnuts by making a circular hole with chiselled teeth marks round the rim. They don't leave teeth marks on the outside shell like wood mice.

Field vole *Microtus agrestis*



SIZE: head body 8–13cm

HOW TO RECOGNISE: Field voles can be distinguished from bank voles by their fur, which is shaggier and dark

grey-brown not reddish-brown. They also have smaller ears and a tiny, inconspicuous tail, which gives rise to the name 'short-tailed vole'.

WHEN TO LOOK: Field voles are active all year round, both day and night, especially around dawn and dusk.

WHERE TO LOOK: Areas of rough grass and open woodland including churchyards, road verges, overgrown gardens and allotments and railway embankments. They do not enter houses.

WHAT TO LOOK FOR: Well-formed runways forming a network through long grass, marked by small piles of green droppings and little mounds of nibbled grass stems and leaves.

WHAT TO LISTEN FOR: Loud squeaking in grass when guarding their territory

BEHAVIOUR: Voles breed from April to September. Their diet includes mostly grass and herbs, sometimes tree bark in winter.

DROPPINGS: Oval, olive green pellets.

FEEDING SIGNS: Field voles leave cropped grass stems and other plants close to their runways.



Field voles are common but with an increasingly patchy distribution.

SIGNS TO LOOK FOR



Vole tracks



Vole tunnels – voles use regular runways that turn into tunnels as the vegetation grows up and over them.



Vole nest – when breeding, field voles build round nests of finely shredded grasses. Look for these at the base of tussocky grasses.

Wood mouse *Apodemus sylvaticus*



SIZE: head-body 10–11 cm



HOW TO RECOGNISE: Wood mice have warm brown coats, with greyish-white undersides. They have large ears and bright eyes and a long tail, which is almost as long as their body. They are also called the long-tailed field mouse.

WHEN TO LOOK: Wood mice are active all year round. They are mainly nocturnal and particularly active at dawn and dusk.

WHERE TO LOOK: Woodland, grassland, farmland and gardens. Wood mice often set up home in houses and outbuildings, especially in winter. This is the mouse species most likely to

be seen in gardens as they are attracted to bird seed and grain on bird tables.

WHAT TO LOOK FOR: Burrows and cavities in rotted-out tree roots; piles of nuts and seeds stashed in tree crevices, abandoned birds' nests, in compost heaps and under logs.

WHAT TO LISTEN FOR: Wood mice are generally silent but squeak when angry or frightened.

BEHAVIOUR: Wood mice usually travel with fast hops, making great leaps when alarmed. They climb well in search of a wide range of fruits, nuts, buds, fungi and invertebrate prey. They generally nest under ground or in hollow trees, bird boxes or even attics!

DROPPINGS: Dark brown and cylindrical pellets about 3–5mm long are rarely found.

FEEDING SIGNS: Wood mice open hazelnuts by gnawing a round hole edged with tiny tooth marks. They will also strip and discard the flesh of rose hips to get to the seeds.



Wood mice are common and widely distributed throughout the UK.

SIGNS TO LOOK FOR



Nibbled nuts – wood mice leave parallel tooth marks on the inner rim and rough marks on the nut's surface.

Nest – the nests of small rodents are often discovered under logs and in outbuildings, but can rarely be identified in the absence of the owner.



House mouse *Mus musculus*



SIZE: head-body 7–10cm

HOW TO RECOGNISE: House mice have pointed faces with large ears and greasy, grey-brown fur. The tail is very long, pinkish-grey and scaly.

WHEN TO LOOK: House mice are active all year round, and mainly nocturnal.

WHERE TO LOOK: In and around buildings, barns, grain stores, factories and outhouses and the London Underground! They are sometimes found in fields, gardens and hedgerows.

WHAT TO LOOK FOR: The most obvious signs are scattered black droppings and damage to food stores, such as empty cereal packets,

and even damage to wax, leather and soap!

WHAT TO LISTEN FOR: They are generally silent but emit high-pitched squeaks when angry.

BEHAVIOUR: House mice will scurry away very quickly and leap when alarmed. They can also climb and swim well.

DROPPINGS: Cylindrical pellets, about 2mm thick and 6mm long, which are hard when dry and do not crumble like bat droppings (which look similar). They often accumulate in latrines, or are incorporated into pillars with urine and greasy secretions. They smell of ammonia.

FEEDING SIGNS:

House mice make holes in sacks and packets of dry food and leave tooth marks in larger food items.

OTHER SIGNS:

Unlike wood mice, house mice have a distinctive musty smell. They also leave greasy marks along regular runways, and enlarge small holes by gnawing them to allow easier access to food.



House mice are common and widely distributed in the UK.

SIGNS TO LOOK FOR



Mouse tracks



House mouse babies – house mice are prolific breeders and a single female can produce as many as 50 young in her lifetime. They make nests out of shredded cloth, paper and other waste, often under floors and behind skirting boards.



Brown rat *Rattus norvegicus*



SIZE: head-body 21–29cm

HOW TO RECOGNISE: Brown rats have drab, shaggy grey brown fur and a very long scaly tail. The face is pointed with round, pink ears and beady, black eyes.

WHEN TO LOOK: Brown rats are active all year round, and generally nocturnal, although dense populations may also be active in the day.

WHERE TO LOOK: Anywhere associated with humans, including farms, outbuildings, rubbish dumps, towns, factories and sewers, also waterways and field margins.

WHAT TO LOOK FOR: Droppings (they

produce about 40 each day) and runs, about 5–10cm wide, which can appear as long trampled depressions in grass.

WHAT TO LISTEN FOR: Squeaks and squeals, grinding noises made with their teeth.

BEHAVIOUR: Brown rats move at a fast bounding scamper, often rummaging noisily on the way. They are excellent swimmers and can climb well to reach all kinds of plant and animal matter, as well as various artificial substances such as soap and candle wax.

DROPPINGS: Cylindrical brown pellets 12–16mm long and less than half as wide, pointed at one end.

FEEDING SIGNS:

Damage to stored foods and packaging, accompanied by prominent tooth marks, and hairs among stored food.

OTHER SIGNS:

Rats can leave greasy marks along regular routes where their fur touches walls or other objects; gnawed wood around doors, floors and windows.



Brown rats are common and widely distributed throughout the UK, including city centres.

SIGNS TO LOOK FOR



Brown rat tracks – can sometimes be spotted on very soft mud.



Rats – are naturally clean animals, but where they live at high densities, runways may become marked by greasy secretions.



Gnawed foodstuffs – brown rats are notorious for nibbling grain stores, but they are cautious of new foods, which makes them less susceptible to poisoned baits.

Other voles, mice, rats and lookalikes:

Yellow-necked mouse (below) – looks very similar to the wood mouse but it is much bigger and heavier. Also, as the name suggests, it has a broad collar of yellow-brown fur across the throat and chest. They are nocturnal and found mainly in woodlands and hedgerows in southern and southeastern England.



Harvest mouse (below) – is very tiny and only weighs as much as a two pence piece! It has golden brown fur and a white underside. They are found in long grass at the base of hedgerows and field margins, and in dense reedbeds. In summer, they build small, rounded nests, woven from shredded grass, and attached to grass stems or brambles. Harvest mice are now quite rare and found mainly in southern and eastern England, with a few populations in the Midlands, the north of England and southern Scotland. They are entirely absent from Ireland.



Water vole (above) – lives in similar habitats to brown rats, along well vegetated river banks and in reedbeds, and the two species are therefore often confused. It is about the same size as a brown rat, but has a chubbier face, blunt nose, shorter tail, and small, furry ears almost hidden in its long rich brown fur. It makes a loud 'plop' when diving into the water. Numbers have declined dramatically in recent years, but the species remains widespread throughout England, Wales and southern Scotland. Water voles are not present in Ireland.



Hazel dormouse (above) – has golden orange fur and a bushy tail. It hibernates all winter and is only active from May–October. It emerges at night and spends all its time above ground in trees and shrubs. It is mainly restricted to scattered patches of traditionally managed mixed woodland and hedgerows, mostly in southern England. Is very rare in urban areas.

Black rat – smaller and lighter than the brown rat, the black rat has glossy, dark fur and large bare pink ears. They are very rare in Britain now, and are restricted to buildings in ports, dockland areas and old towns near the coast.

Rabbits and Hares

THE FAMILIAR rabbit is both common and widespread in Britain. This is somewhat ironic as it was, in fact, introduced about 900 years ago by the Normans. The others, the brown and mountain hares, are much more restricted in their distribution and are less likely to be seen in built-up areas. Hares are much larger than rabbits and can be recognised from their very long, black tipped ears.

Rabbits are adaptable and are increasing in many places. They can often be found in built-up areas, such as gardens, parks and golf courses, along hedgerows, field margins and railway embankments. In fact, you should look for them wherever you find short grass with plenty of secure cover nearby. This can include scrub, undergrowth, boulders or even tumbledown walls. They will feed in daylight, but are always alert to danger, so approach cautiously. Rabbits often upset gardeners by nibbling vegetables, fruits, flowers, shrubs and trees. You can protect your foliage by using rabbit-proof fencing, fitting young trees with wire guards, or by simply growing plants that rabbits do not eat such as daffodils, foxgloves, lilies, poppies or sage.

On the run

Although superficially rabbit-like in appearance, there is no mistaking a hare once it starts to move. An orangey-brown shape streaking across a field or hillside at startling speed in a large zig-zag is clearly a brown hare. The two species of hare are usually distinguishable by location – brown hares are found on lowland grasslands, pastures and ploughed fields, while mountain hares are restricted to the upland grouse moors of Scotland, Ireland and the Peak District.

Rabbit *Oryctolagus cuniculus*



SIZE: head-body 34–50cm

HOW TO RECOGNISE: Rabbits have long legs and long hind feet which are usually hidden by their crouching posture. They have small round heads with large bulging eyes and long, erect, oval ears. Their fur is greyish-brown and paler on the underside. The white powder puff tail shows clearly as the animal runs away.

WHEN TO LOOK: Rabbits are active all year round, mostly at night but they can be seen out and about at any time of day. They are easiest to see in summer when the short nights prompt them to feed more in broad daylight.

WHERE TO LOOK: Open grassland and heath, margins of woodland and agricultural land, especially on well drained soils.

WHAT TO LOOK FOR:

The warren is a system of underground tunnels and chambers with many entrances. Rabbits won't eat nettles, ragwort or hemlock, so these grow in profusion on the disturbed soil near burrows. The entrances are usually



Rabbits are common and widespread throughout the UK.

marked with a heap of excavated soil. Rabbits also use familiar paths around the warren, creating runs that can be traced in the undergrowth. Look for tell-tale tufts of fur on nearby bushes and barbed wire.

WHAT TO LISTEN FOR: Usually silent but squeal when captured and drum their hind feet as an alarm signal.

BEHAVIOUR: Rabbits normally live in social groups numbering on average 20–50 individuals. They feed mainly on grasses and other tender stems in summer, creating lawns around their burrows. They switch to twigs, bark and other vegetable matter in winter. They run at a gentle rocking lope, accelerating rapidly when alarmed to large bounds, zig-zagging to avoid capture.

TRACKS & TRAILS: Their front feet leave small oval prints 2–3cm across and 3–4cm long. Well-used routes are worn into tracks through grass, heather or snow.

DROPPINGS: Round, dark greenish-brown to black, oval pellets about 10mm in diameter, often deposited in heaps on raised features such as tussocks, molehills or tree stumps to serve as territorial markers.

FEEDING SIGNS: Areas of close cropped grass and heavily browsed plants; twigs nibbled off low branching trees and shrubs; bark gnawed from young trees close to ground level.

Lookalikes:

Brown hare – is much larger than the rabbit with very long legs, long ears with prominent black tips and glaring orange eyes. Because they rely on speed to evade predators, cover is not essential for hares and so they live on arable farms, pastures and open grassland such as airfields. They are found throughout Britain, except the north west of Scotland and most of Ireland.

Mountain hare – is smaller and more rounded than the brown, and its coat turns white in winter. It is only found in Scotland, the Peak District and Ireland.



SIGNS TO LOOK FOR



Rabbit tracks – the fore paws make small, round prints, arranged one behind the other, while the hind feet make two large prints side by side.



Rabbit droppings – there are often communal latrines consisting of hundreds of tightly packed, round faecal pellets, not far from burrow entrances.



Rabbit warrens – these are often dug on slopes, which provide better drainage, and the entrances are easily spotted as round holes about 10–20cm wide.

Deer

THERE ARE six species of deer living wild in Britain. Only two of these, the roe and the red, are true natives. Fallow deer were introduced by the Romans, while sika, muntjac and Chinese water deer are more recent arrivals. Red deer live mainly in uplands and deer parks, with many in the southwest, Midlands and East Anglia, while roe deer have adapted well to changes in the landscape and will take advantage of parks, gardens and golf courses surprisingly close to towns. Therefore, of all deer tracks and signs, you are most likely to come across those of roe. The animals themselves, however, can be elusive. Most sightings occur early in the morning, and are usually a fleeting glimpse of a rapidly retreating white rump. For this reason, the shape and markings of deer rump patches are very useful for identification.

Easy to spot signs

Being large animals, deer leave conspicuous signs. Their footprints, known as 'slots', are distinctive, showing the two sharp-edged toes that make up the cloven hoof on each foot. Beware of confusion with domestic livestock – sheep, goats and cattle also have cloven hooves. Antlers that have been shed are a great find – male deer regrow these impressive bony structures every year, and the size and shape are diagnostic of species. They use them for fighting, thrashing branches and fraying the bark of trees and bushes. Fraying is most common in spring and summer, when the velvety skin that covers new antlers is shed, as it relieves itching.

Deer feeding signs are similar for all species. Nibbled twigs and buds are left with ragged edges, and browsed saplings are forced to grow bushy rather than tall, which is why deer can be unpopular with gardeners and foresters.

Roe Deer *Capreolus capreolus*



SIZE: head-body 95–135cm

HOW TO RECOGNISE: In summer, the roe's coat is short and reddish-brown, while in winter it grows shaggy and dark grey-brown. The pale rump patch hides a very short white tail. Males sport short antlers with no more than 3 points. The large black nose and white chin are distinctive.

WHEN TO LOOK: Roe deer are active all year round. They are mainly nocturnal, with peaks of activity at dawn and dusk.

WHERE TO LOOK: Woodlands and their margins, fields, parks, gardens and golf courses with tree cover close by.

WHAT TO LOOK FOR: During the day roe hide away in dense shrub to rest. They often scrape the ground to make a 'bed' and may shed hairs here.

WHAT TO LISTEN FOR: The alarm call is a sharp bark. In summer rutting males give harsh, rasping calls.

BEHAVIOUR: Roe are solitary but may be seen in small groups when out in the open. They have a careful walk, minimising noise. If disturbed, they will bound away, leaping high and flashing the pale rump.

TRACKS & TRAILS: Slots are about 4.5cm long and 3cm wide. The toes of the front feet are more splayed than those on the back,

especially when jumping or moving at speed. When walking, the hind prints may fall within the front ones.

DROPPINGS:

Rounded cylinders 10–14 x 7–10mm, sometimes pointed at one end; black on the outside, greenish inside; deposited in clumps in feeding areas or scattered along tracks when walking.



Roe deer are found throughout Scotland and northern England as well as the southernmost counties.

FEEDING SIGNS: Pronounced browseline on trees at about 95cm – browsed twigs have ragged ends; young trees whose buds have been browsed by deer sprout low bushy outgrowths; bark stripped or gnawed at around deer head height.



In spring, male roes thrash their new antlers against young trees to rid them of their velvet and to leave scent to establish a territory.

Other deer:

Muntjac – standing the height of a Labrador dog, the muntjac is the smallest deer found in Britain. Its rounded back and short, prong-like antlers are distinctive. In summer, it sports a rich red coat, which turns duller and darker in winter with almost black forelegs. Unlike roe, the tail is very conspicuous and may be held erect when alarmed to show the white underside. Muntjac often bark, especially when alarmed, and the sound can be confused with that of a dog. They may be seen at night or during the day in large undisturbed gardens, parks and woodlands, wherever there is some cover. They are found in southern and central England, and as far north as Lincolnshire.



SIGNS TO LOOK FOR



Deer tracks – different species can be distinguished by print size and location.



They have curved outer edges whereas sheep have straighter margins.



Deer hair caught on wire – hairs can often get snagged as deer pass beneath barbed wire fences. Look for them where the ground has been churned up.



Deer droppings – these are produced in piles and are black-brown in colour, shiny when fresh, usually with a point at one end and a dimple at the other.

Carnivores

THE ORDER Carnivora includes some of Britain's most exciting predators, such as the otter and the wildcat. They have cunning intelligence, athletic bodies, wonderfully sleek fur and sharp teeth... no wonder we find them so fascinating! However they are also extremely elusive and usually live far from places frequented by humans. Nevertheless there are at least two large carnivores that often live surprisingly close by, and which leave a wealth of field signs to inspire the amateur nature detective.

The fox and the badger are among Britain's best-loved mammals, and both species are the subject of considerable controversy. Foxes remain at the centre of the hunting debate and badgers are subjected to culls aimed at preventing the spread of bovine TB. It is therefore not surprising that research into both species is proceeding apace, and field sightings remain an important part of this work.

Wildcats – oversized tabby cats

Wildcats look like large, very furry tabby cats. They have striped fur and a long, bushy tail, marked with several broad stripes and blunt-tipped. This description could apply to many pampered pets, but the main difference is in temperament. Genuine wildcats are the most



elusive mammals in Britain. Above all, they detest people. A cornered individual will spit, snarl and fight with a ferocity no tamed cat could muster. The chances of seeing one in a town, even in Scotland, are virtually zero. However, most towns have large populations of cats that live wild. These secondarily wild moggies are known as feral cats. Although wildcats were once found throughout Britain, they now only survive in the remote Highland forests and moors of Scotland.

Red fox *Vulpes vulpes*



SIZE: head-body 60–90cm

HOW TO RECOGNISE: The fox's bushy tail, pointed snout, amber eyes and erect triangular ears are unmistakable. The fur is a rich reddish-brown, sometimes darker on the legs, with white markings on the tail tip and chest.

WHEN TO LOOK: Foxes are active all year round. Although they are mainly nocturnal, and most active at dawn and dusk, they are often out and about during the day.

WHERE TO LOOK: Almost all habitats, from woodlands, farmland and uplands to sand dunes, suburbs and city centres, especially near detached houses with large gardens.

WHAT TO LOOK FOR: A large den or 'earth' dug into a bank, rocky crevice, drain or

under a garden shed when breeding. Active earths are often indicated by excavated soil outside, scattered prey remains and a distinctive 'foxy' smell. Older earths are often surrounded by lush vegetation, especially nettles, where rotting prey has increased soil fertility. At other times, foxes find shelter above ground such as in pipes and abandoned buildings.

WHAT TO LISTEN FOR: Various barks, repeated bloodcurdling screams at night, especially during the midwinter mating season.

BEHAVIOUR: Foxes hunt alone, foraging for whatever food is available, including raiding dustbins and bird tables. They use regular routes around their home range, easily overcoming obstacles with their lithe agility, and can be mistaken for cats in low light.

TRACKS & TRAILS: Prints of all feet are virtually identical, about 4cm wide and 5cm long, with a central pad, four well spaced toe pads and clear claw marks. The middle two toes are well in front of the other two. Beware of confusion with dog (see Red Herrings p28–29).

DROPPINGS: Firm sausages, often with curly tapered ends, usually contain recognisable remains such as fur, small bones, seeds, insect parts or soil (from earthworm guts); often deposited prominently on rocks, tussocks and tree stumps as territorial markers.

FEEDING SIGNS: Scattered rabbit fur and bird feathers are typical at the site of fox kills, because large prey such as rabbits and pigeons are rarely killed outright. Prey is often beheaded, with multiple bite marks, especially around the neck and shoulders. Carcasses are usually carried elsewhere for eating and remains are discarded close to the earth. Rubbish pulled out and scattered around the dustbin was probably investigated by a fox.

OTHER SIGNS: Disturbed earth on lawns and flowerbeds where excess food has been cached for later. Foxes produce a very distinctive smell – foul, musty and acrid – which has been likened to especially potent old socks!



Red foxes are common and widely distributed throughout the UK. They are however not present on the Isle of Man or on some Scottish islands.

SIGNS TO LOOK FOR



Fox tracks – they are longer than they are broad. They neatly follow in a straight line, one behind the other.



Fox droppings – these are up to 12cm long. They generally tend to be black and have a twisted point at one end but this varies according to their diet.



Food remains – look for the feathers of the fox's bird victims. These are chewed or sheared off, rather than plucked in the manner of birds of prey.

Badger *Meles meles*



SIZE: head-body 67–80cm – equivalent to a medium-sized dog

HOW TO RECOGNISE: Badgers have robust, heavy bodies, short legs and a small white tail. They have shaggy grizzled grey fur with distinctive broad black and white stripes from the muzzle, over the eyes to the ears.

WHEN TO LOOK: Badgers are active all year round, mainly nocturnal, especially active at dawn and dusk.

WHERE TO LOOK: Woodlands and pastures, increasingly in suburban areas where there is a mosaic of habitats, such as golf courses, large gardens, railway embankments etc.

WHAT TO LOOK FOR: Communal dens or

'setts' are often dug in sloping ground or under a rocky overhang; entrances marked by large heaps of excavated soil, mingled with old bedding of leaves and grasses. Regular pathways also marked by trails of bedding.

WHAT TO LISTEN FOR: A wide range of calls, including snorts, scolds, moans, keckers and growls. Badgers also make a lot of noise when barging through dense vegetation.

BEHAVIOUR: Badgers emerge at dusk and spend some time near the sett grooming and playing before moving off to forage alone. They may travel long distances from their sett to pastures rich in worms, grubs, fungi or fruit.

TRACKS & TRAILS: Large prints 4cm wide and at least 5cm long, with 5 toes and claws.

DROPPINGS: Firm lumpy sausages or runny splats, usually black or brown, usually deposited in a shallow uncovered pit or latrine, close to the sett or path.

FEEDING SIGNS: Dead wood and bee hives ripped open by strong claws in search of insect grubs and honey; also 'peeled' hedgehog skins.



Badgers are common and widespread in Britain.

SIGNS TO LOOK FOR



Badger tracks – all five toes are clearly visible, plus a broad kidney bean-shaped pad and the imprint of their claws.



Badger hair – badgers often leave long coarse hairs (5–7cm long) on brambles or wire fences as they pass beneath.



Badger sett entrance – usually about about 20cm high and 30cm wide with piles of excavated earth in front.

Other carnivores:

All our other resident wild carnivores belong to the weasel family, the mustelids. They are long, slender animals with short legs, long tails, small heads and small ears. Most species can be distinguished by size, habitat and location.

Stoat (*below*) – our most common and widespread carnivore, found throughout the UK. Stoats have chestnut brown fur separated from a white underside by a clear line. The tail always has a black tip. Found in farmland, woodland, scrub and upland.



Otter (*below*) – most likely to be seen in or near water, the otter lives along rivers, streams and on the Scottish coast far from humans. The otter has a powerful streamlined body and tail, brown fur, short legs and a broad muzzle. Found in Scotland, Wales and patchily spread in northern and southern England and Ireland.



Pine marten – a cat-sized mammal, the most arboreal member of the family, the pine marten has rich chocolate brown fur, a bushy tail and pale yellow bib. Found mainly in forests in northwest Scotland.

Polecat (*below*) – smaller than a domestic cat, with dark brown fur, a pale face and dark mask, the polecat lives mainly on farmland, in lowland woodlands, hedgerows and in old buildings near marshes. Found mainly in Wales, but now spreading into the Midlands. Absent from the rest of the UK.



American mink (*below*) – another water-loving mustelid but much smaller than the otter, with sleek, chocolate brown fur and white markings on chin and chest. Found throughout the UK and becoming steadily more numerous.



Weasel – the smallest British carnivore, like a long, slim mouse. In addition to its small size, the weasel can be distinguished by the irregular line where the chestnut brown fur meets the white belly and lack of a black tip to the tail. Found in grassland, woodland and upland areas throughout Britain, but absent from Ireland.

Red Herrings

ONCE YOU start looking for signs of mammals, you will see them everywhere. Almost every muddy path will be scattered with animal tracks, every hedgerow lined with droppings and every farm fence will seem to sprout tufts of mystery hair. But be warned – many of these will come from domestic animals such as cats and dogs, or livestock such as sheep. To avoid drawing false conclusions, it helps to know a bit about these signs too, so you can eliminate them from your investigations. Below are some of the common signs left by domesticated mammals.

Tracks that you might confuse

Dog tracks vary in size, but are usually very round, with a large triangular central pad, around which are grouped four smaller toes. Claw marks are frequently visible. Fox tracks have a triangular central pad that is similar in

size to the toe pads, which arch tightly around it. The two central toes have a tendency to point inwards. Cat tracks are small (about 3cm across) and round. They have four toe marks clustered closely around a 3-lobed central pad. Cats retract their claws when walking, so they leave no marks.

Sheep tracks may be confused with those of deer, particularly roe. However, sheep hooves leave 'slots' that are broader (4–5cm), rounded at both tips, with a narrow gap in between the toes. One toe is usually larger than the other. Roe tracks are narrower, more pointed and with a larger gap between the two toes. On soft ground, you may spot dew claws.

Droppings that you might confuse

Dog droppings are recognisable by most people, as they are so common in our parks and on our pavements. They are regular sausages, usually with an even consistency reflecting a regular diet. Fox droppings are

Tracks that are easily confused



Dog tracks



Cat tracks



Fox tracks



Badger tracks

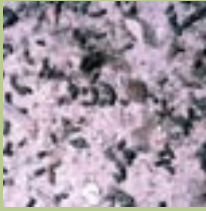
Sheep tracks – are similar in size to those of fallow deer. However, they have rounded tips and there is usually only a small gap between the two slots. Look for greasy wool caught on barbed wire to confirm identity.



Deer tracks – are usually heart-shaped with curved outer edges that narrow towards the pointed tips. It is very hard to distinguish between the deer species from tracks, except by relative size.



Droppings that are easily confused



Bat droppings



Fox droppings



Hedgehog droppings



Rabbit droppings



Mouse droppings



Dog droppings



Goose droppings



Deer droppings

FINDING A dropping is only the beginning. While you need to study closely the shape, colour and texture - poking with a small stick is a good way to examine the contents for beetle wings, bones etc. - you should also consider the location. Observe the surrounding habitat closely, and look around you for pathways - have the droppings been deposited on a well-used route, or left in a prominent position? It can be tricky to identify the exact species from a dropping. One clue is that only one or two pellets are usually left by carnivores; clusters of ten or more often belong to herbivores. Be aware that some birds produce mammal-like droppings too - Canada goose droppings are often found on open spaces near water and are finger-sized, soft, green and always with some white.



Sheep droppings

more slender than dogs; they are dark-coloured, long and twisted, with bits of fur, feathers and bone easily identifiable. This sometimes gives them curly or tapered ends.

Badger droppings are similar to those of dog and fox, but they are nearly always deposited in a shallow, uncovered pit called a latrine. Cat droppings are usually buried, but they are sausage-shaped and twisted, with pointed ends. They also smell strongly. Hedgehogs droppings are black and tarry, containing the shiny wing cases of their insect prey, and deposited

randomly, not in neat piles.

Sheep droppings are usually found in small clusters. Each small, dark pellet is rounded with angular facets. Deer droppings are oval, black cylinders, usually with a point at one end and a dimple at the other. They vary in size according to the species and it is not wise to try and identify the species from the droppings alone. Both of these droppings may be confused with those of rabbits, but the latter are much smaller and more spherical, and are usually deposited somewhere prominent as territory markers.

Roadkills

IT IS HIGHLY regrettable that the traffic on Britain's roads contributes to millions of mammal deaths every year. If you've driven more than a mile or two today, you've probably passed at least one squashed rabbit or hedgehog. While such loss of life is lamentable, it need not be a total waste. The random nature of roadkills can make them an effective survey aid. Roadkill records provide all kinds of useful information. For example:

- **Species distribution and habitat** – most animals die where they are hit, confirming the site as part of the species range.
- **Population size** – a reduction in the number of roadkill records may warn of a decline in the wider population.
- **Behaviour** – do kills happen by day or night, at certain times of year, or along certain favoured routes?
- **Health** – Cause of death might be obvious, but post mortems on victims can provide information regarding parasite load and endemic disease.
- **Genetic information** – post mortem DNA fingerprinting has the potential to reveal hitherto unknown details about mammal populations, such as inbreeding statistics, gene dispersal and family relationships.

Fresh roadkills are usually quite conspicuous – gory lumps on the road are hard to ignore and can be distressing. However, fresh kills are also quite easy to identify – the animal is simply a messier version of its former self – battered and broken, but still recognisable. But what of those road victims that have been dead many hours, days or even weeks? Such animals are such a common sight on our roads that often

we scarcely notice them. They might have been run over not once, but many hundreds of times. The skeleton is crushed, the remains cleaned by flies and crows and washed in the rain or baked dry in the sun. Often all that remains is a leathery pancake welded to the road and adorned with scraps of fur. Bear in mind, too, that on busy roads **you must not stop your vehicle to get out to inspect remains closely**. However the clues are there if you know what to look for, and with practice you will be able to identify most roadkill victims with just a fleeting glance.

Size matters

One of the first clues is size, but this is not as straightforward as you might think. The size of a flattened animal relates less to the dimensions of body length and height, than to those of surface area and volume. For example, a slender animal like a stoat will make a much smaller splat than a broad, bulky one of the same length, such as a hedgehog. Remember, too, that on less busy roads there may have been plenty of time for scavenging animals, birds and insects to make off with parts of the body – what is left on the road might be just fragments.

Relative size is often a good guide. Compare what you see with some everyday objects. Is the dead mammal the size of a saucer (mice, stoats), dinner plate (hedgehog, squirrel) or dustbin lid (fox, badger) for instance? Answering this question immediately narrows down the range of species that it is likely to be.

Another good clue is overall colour, but again this might not be obvious. Most mammals have two layers of fur – an outer layer of guard hairs and an inner layer of soft underfur. Often the two layers are quite different colours. In life the underfur is hidden by the outer fur, but on road victims the fur is roughed up and the undercoat shows much more clearly.

Roadkills ID

Badgers

Badger corpses are large enough to be a hazard to road-users, so they are often dragged to the side of the road. They may eventually be flattened into an oval shape. Their long, shaggy fur looks yellowish-grey and lifts in strong draughts.



Squirrels

Squirrel kills are usually identifiable by the long bushy tail. The species can be distinguished by location and colour. Red squirrel kills have dark red fur with no patches of white, while grey squirrels appear pale. Large numbers of squirrels get run over, especially in late summer when juveniles are looking for somewhere new to live.



Foxes

Fox corpses are about the size of a medium sized dog and are often left by the side of the road, rather than flattened. This

makes them easily recognisable. The red fur and white-tipped tail can be very distinctive.



Hedgehogs

Flattened hedgehogs usually appear circular, and draughts from passing cars cause little movement of

their coarse fur. The spines are a giveaway, and give the corpse an overall pale appearance.

Rabbits

Squashed rabbits form an elongated shape with long legs at odd angles. The rabbit's fine fur blows about in even in the



lightest wind. The fur usually looks pale greyish-brown, with contrasting bright white (that of the brown hare looks more red-brown).

Stoats

Stoats are about 30cm long (head and body), much larger than weasels, and have ginger-brown fur on their head, back



and flanks and a creamy white belly. The most distinctive feature to look for is their black tipped tail which is surprisingly easy to spot.

Glossary

Arboreal – living or active in trees

Browse – to feed on leaves and shoots of trees and shrubs, as distinct from grasses

Browse line – a noticeable line on trees, shrubs and other foliage beneath which all green shoots, leaves etc. have been nibbled off by herbivores, usually deer, sheep and goats

Carnivore – an animal that eats meat, or a member of the Order Carnivora

Cache – a food store or the act of storing food

Crepuscular – active at twilight, around dusk and dawn

Dew claw – rudimentary inner (fifth) toe of forefeet; most familiar on dogs, cats and deer

Diurnal – active by day

DNA – deoxyribonucleic acid, genetic material

Drey – nest of a squirrel

Earth – fox den

Emergence time – refers to the time at which bats come out of their roost, closely linked to the time of sunset

Habitat – specific environment in which an animal lives

Herbivore – an animal that eats mainly plant material

Hibernation – prolonged winter inactivity during which metabolic functions are reduced to a minimum to save energy



Home range – area routinely used by an animal, not necessarily exclusive to it

Insectivore – an animal that eats mainly insects and other invertebrates, or a member of the Order Insectivora

Nocturnal – active at night

Meadow – grassland cut for hay

Mustelid – a member of the weasel family, which includes badger, otter, pine marten, polecat, stoat, weasel and mink

Omnivore – animal that eats both plant and animal matter

Pasture – grassland used to graze livestock

Predator – animal that hunts and kills for food

Prehensile – able to grasp (as in tail)

Rut – breeding season of deer, during which males compete for rank and access to females

Scats – droppings, especially of fox

Sett – badger den

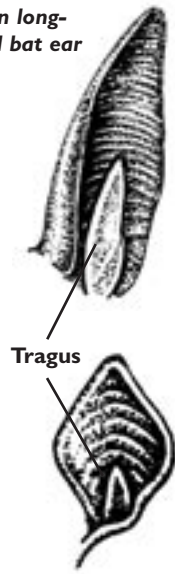
Spraint – droppings, usually of otter

Terrestrial – lives on the ground

Territory – exclusive area defended by an individual or a group

Tragus – a cartilaginous lobe in front of the opening of bats' ears, characteristic of particular species

Brown long-eared bat ear



Pipistrelle bat ear





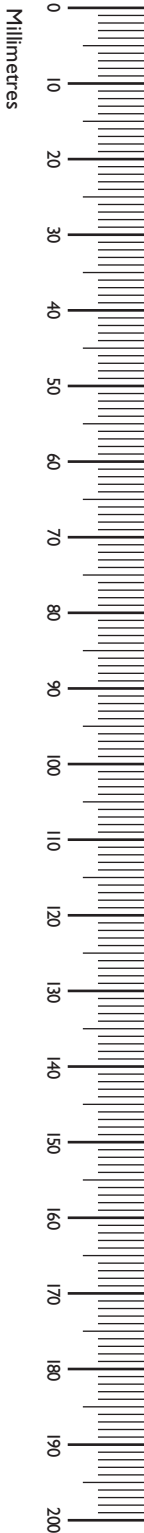
Established for over 30 years, the People's Trust for Endangered Species is a conservation charity working worldwide to ensure a future for endangered species and habitats. Since 2001, we have had a special focus on British mammals.

- **We raise funds for research and practical conservation based on sound scientific understanding.**
- **We are taking a major role in setting up national monitoring schemes for all British mammals and encouraging everyone to collect relevant information by joining in innovative, exciting surveys.**
- **We offer our supporters opportunities to observe and enjoy native mammals in their natural habitats and to meet the scientists and others at work.**
- **Our lively conferences and publications help spread the word and provide practical, useful advice.**
- **We purchase reserves to ensure their long-term protection and for educational purposes.**
- **We work in partnership with other voluntary organisations, wildlife experts, government and industry.**

For more information on British mammals visit our website www.ptes.org

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A Rough Guide to Mammal Sizes



Relative size
of a tin of
beans 450g



Rat



Hedgehog



Weasel



Stoat



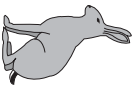
Polecat



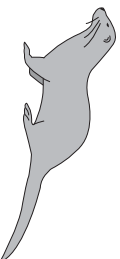
Squirrel



Rabbit



Hare



Otter



Badger

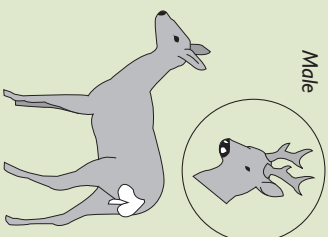


Fox

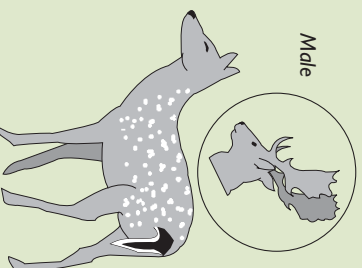
Relative size
to a man of
1.74m



Muntjac



Roe Deer



Fallow Deer