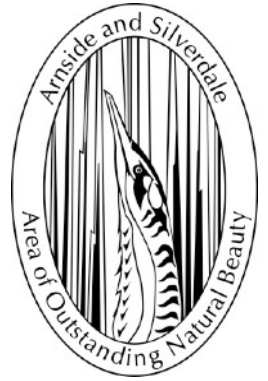


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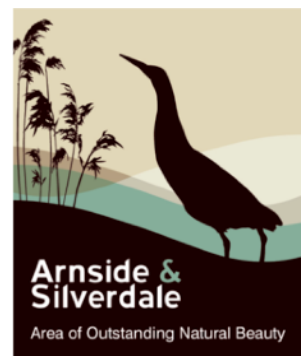
An Atlas and Guide to the Mini-Mammals of the Arnsdale & Silverdale AONB



Supporting the Arnsdale & Silverdale Area of Outstanding Natural Beauty

Bittern Countryside Community Interest Company
Registered Office: The Old Station Building, Arnsdale, LA5 0HG
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A Guide to the Mini-Mammals of the AONB

Bob Hamnett and Gail Armstrong, March 2014

Why have an Guide and what is it for?

The AONB overall is an excellent area to see a wide variety of mammals because it has so many nature reserves where mammals can get on with their lives with relatively little disturbance. Some like woodland, some rough grassland and hedgerows and others, woodland edges. Then there are the aquatic/amphibious mammals that need water to survive. Yet others are specific to salt water. All these habitats and more are present within the AONB so it is little surprise that we have a rich selection of mammal species present often in relatively large numbers. It does mean that wild mammals tend to live in a secret world that we humans find difficult to appreciate. In order to see them you need a combination of quiet, stealth and often distance. You need to put yourself in a position where either they don't detect you (an element of surprise) or they don't feel threatened. Sometimes the best you can do is detect the signs they have left which identify them rather than to actually see them. In our past we have evolved to hunt larger mammals, whereas they have evolved to escape us. Nowadays, in our modern world, we rarely develop our hunting skills but these abilities are still within us and can be employed to get views of our wild animals.

There are 19 species of mini-mammals in our area. We have defined a mini-mammal as a mammal which is less than 180mm from the tip of its head to the end of its body, not including the tail. The larger mammals from hedgehogs and squirrels to red deer have a booklet of their own.

Species such as shrews, voles and mice are ubiquitous throughout but are difficult to see. We can detect them through occasional sightings, by trapping and release and through detecting their signs including bait tubes in which they leave their droppings that can be later analysed for DNA. The Arnside Natural History Society has, since 2011, been involved in surveying the area for small mammals as part of a national survey organised by the Mammal Society. This is now providing excellent information.

We also need the help of the general public since we have not seen or detected all species that may be present and we also value any animal sightings to add to our general knowledge base for the area. With such a secret world we always need more eyes and ears to produce more sightings but we do need you to be confident of what you see. Hopefully, the following descriptions of the species likely to be present will help you in this and, at the same time, give interest to your wanderings around the AONB. Where relevant we will point you to areas where you are most likely to view particular species.

Photographs by Gail Armstrong and Bob Hamnett unless stated.

Front cover clockwise from left: Bank Vole - Philip Tomlinson,
Brown Long-eared bat - Gail Armstrong and Wood Mouse - David Talbot.

Back Cover: Ann Kitchen

Edited by Ann Kitchen

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Maps, where shown, mark ideal habitats where either the mammal itself or its signs might be seen, but not all the places they have been recorded.

Base map taken from openstreetmap.org under Open Database License

Wood mouse - *Apodemus sylvaticus*

Status: Common. Habit: Mainly nocturnal.
Body length: c 95mm. Food: Omnivorous.
Habitat: Bushes and shrubby places.

These are mice of tremendous character! Difficult to see but almost always there! Their tails are longer than their bodies from which derives the alternative name, Long Tailed Wood mice. The coat is usually a shiny, sandy brown with a white belly, but it is noticeable that ours locally seem to be a darker brown. They have large prominent eyes (to help them see in the dark), large ears and long rear feet. Wood mice are very capable climbers, so don't be surprised to see a Wood mouse

looking at you out of a hedge or bush at eye level! They are very active and leap from site to site in search of food, relying on speed of movement and agility to escape predators. This means they will venture into open spaces where other micro mammals fear to tread. They are omnivorous, eating seeds, nuts, snails, insects and larvae.



Photo: David Talbot



Photo: David Talbot

During daylight they probably feel relatively safe in trees, bushes and hedges, where predators cannot penetrate. They also make burrows, where they store food, rest up during daylight and where they rear their young. Wood mice will be in most gardens in the AONB, often in or under outbuildings and even in lofts and houses. They are not confined to woodland and have territories said to be about half the size of a football pitch.

They breed from March onwards with around 4 litters of 5 young each year. They do not hibernate, are active most of the winter but can have periods of torpidity.

House mouse - *Mus musculus*

Status: Locally very rare. Habit: Mainly nocturnal.
Body length: c 85mm. Food: Omnivorous.
Habitat: Around and in dwellings.

They are now uncommon in many parts of the UK and have not been recorded in the AONB for several years. They have greasy, smelly fur and urine which gives a unique taint wherever they are present. They generally live indoors and seem to be dependent for survival on the shelter and food man provides.

House mice have large ears, pointed faces, shorter tails, grey brown fur and a grey belly. Their large eyes are less prominent than those of the Wood mouse. They cannot leap and tend to be more active at night. They can live outdoors in the summer but need to



migrate indoors to survive in winter. Their teeth grow continuously so they need to gnaw to wear down this growth. Consequently, they often do much damage in lofts and outhouses. They are not popular with their human companions due to their smell, eating habits and disease transmission.

In the AONB we seem to have been reasonably successful in reducing their numbers but are very unlikely to ever be completely free of them due to their prodigious breeding ability. Females mature at 6 weeks old and can then bear 5-10 litters of typically 6-8 young a year ... so they could return!

Bank vole - *Clethrionomys glareolus*

Status: Common. Habit: Diurnal.
Body length: c 85mm. Food: Omnivorous.
Habitat: Throughout.

Bank voles are more likely to be seen than Wood mice since they are more active during the day. They scurry rather than leap and rarely stay still for more than a second in the open. They are common in rural gardens and can be seen close to a bird table to which they scurry for a quick meal of spilt seed, before running back to cover.



Photo: David Talbot

Voles are easy to distinguish from mice by their blunt noses, chubby appearance, less prominent ears and smaller eyes. Bank vole adults have chestnut brown coats and grey belly fur, with shorter tails about $\frac{2}{3}$ the length of their body. They are similar in size to mice.

Bank voles are also good climbers. They like to climb blackberry bushes in autumn to eat the fruit and where the undergrowth protects them from predation. They are omnivorous, eating seed, berries, nuts, green plants and fungi, together with insects and snails. They can burrow and make food stores, usually underground, where food can be eaten in safety.

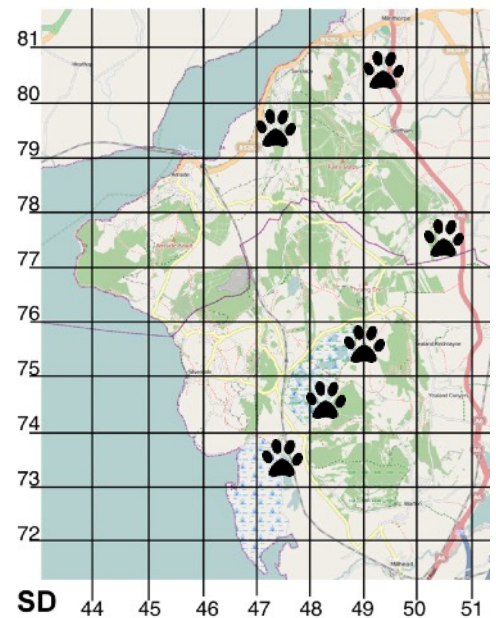
Like other small mammals they are good breeders with 4-5 litters, each with 4-5 young, between April and September. They can breed in their first year if conditions are good. They do not hibernate and rely on a thick winter coat for warmth. The nest can be in a tree crevice but is more often underground and served by tunnels.

Field vole - *Microtus agrestis*

Status: Very common. Habit: Diurnal with nocturnal bias.
Body length: c 85mm. Food: Herbivore.
Habitat: uncut ungrazed grassland.

Similar in size to Bank voles, they can be distinguished by a yellowy brown coat. Shorter ears are less obvious and they have shorter tails of about a third the length of their bodies. Their tails give them an alternative name of Short-tailed vole.

Field voles have 4-5 litters of 4-6 young and a longer breeding season than the Bank vole from March through to December. The offspring can breed from 6 weeks old onwards so Field voles are capable of rapid population increase when conditions are right.



Likely Habitat



Photo: Tony Riden

Surveys show that populations are often cyclical with highs and lows every 3-5 years. This population change will also impact on their predators, particularly Barn owls, who will move into a high population area until their hunting efforts cause a population drop and the cycle starts again.

How about looking for Field voles?

They are easy to detect, with a little practice, but are more difficult to see! They generally live in a network of tunnels in rank overgrown grassland where the canopy provides protection from owls and other predators. Start looking under grass tussocks and you are likely to soon find their networks amongst the grass base. 2cm cut grass stem tubes and olive green droppings accumulated in latrines confirm their presence. In the right grassland they are very common throughout the AONB.



Field vole latrine with nibbled grass in bottom right hand corner

Shrews belong to the genus *Sorex* and are more closely related to moles and hedgehogs than mice or voles from which they are very different. Shrews are very secretive and solitary so are rarely seen. This is because they forage under the leaf litter and in runs they have dug themselves or share with small rodents. They have small eyes and poor eyesight, so if caught in the open they can appear confused. They rely mainly on touch (using their whiskers), smell and sound. Shrews live out their short lives at a furious pace, day and night, as they desperately search out food or a mate. Such is this need that shrews can die from starvation within 2 hours of the last meal. As a protection against predation they are generally unpalatable so some predators avoid them and a cat having caught one is likely to leave it uneaten. It is assumed we have three shrew species within the AONB. Their status is mostly defined by trapping, DNA analysis from bait tubes and sightings including gardens.

Common shrew - *Sorex araneus*

Status: common within AONB

Habit: Diurnal

Body length: 48-80mm

Food: Carnivorous

Habitat: Most low vegetation cover.

As the name suggests this is our commonest shrew. Although difficult to see they can be heard! They lead solitary, very territorial lives and when they meet they scream at each other but presumably quieten down to mate.

A white neck patch may indicate a female with damage from the mating restraint inflicted by the male. Even on their own they constantly twitter and mutter. They are carnivorous, eating worms, slugs, insects and woodlice, consuming at least their own weight of food per day. They have naturally red-tipped teeth, which seems to coincide with their blood thirsty lives! They utilise runs under cover which they can share with voles and mice. They are keen but not expert burrowers.

They are smaller than voles and mice and have long pointed noses, small ears and tiny eyes. They are a dark, greyish brown with paler underparts and moult into summer and winter coats. They are quite prolific, producing 4-6 litters of 5-7 per year. They live for about 15 months.



Photo: Tony Sutton

Pygmy shrew - *Sorex minutus*

Status: Likely to be present within AONB although no recent evidence

Habit: Diurnal

Body length: 45-55mm

Food: Carnivorous

Habitat: Low vegetation cover
as for common shrew.

Well named since it is only 2 inches (5cm) in body length and weighs just 4gm. It is 2cm shorter than the common shrew. It also has a more bulbous head and narrower snout and less contrast in dark brown colour between back and flanks. The definitive difference, however,



Photo: Philip Hay

is the tail which is proportionately longer, around 70% of body length compared to 55% in the common shrew. Its tail is also thicker and more hairy.

It is the smallest mammal in the UK and the second smallest in the world (beaten only by a bumble bee bat). They are likely to be widespread in the AONB but are rarely seen and reported. We therefore would like to hear of any new sightings, particularly if you think it is something the cat brought in! We know very little about their current status even nationally.

Pygmy shrews are even more active than the Common shrew and need food more often (every 2 hours day and night). In terms of aggression they are a close second to the Common shrew and can be just as noisy. They have the same habitats as their cousins, of hedges, undergrowth and below leaf litter. They are remarkably hardy for such small mammals and have been recorded high up on Ben Nevis.

They are carnivorous, feeding on spiders, small beetles, woodlice, insect larvae, slugs, snails and carrion....basically anything that comes across their path that is small enough.

They have the potential to rapidly multiply in favourable conditions. Litter size varies between 2 and 8 with up to 5 litters per year between April and August and they live for up to 15 months.

Water shrew - *Neomys fodiens*

Status: not common but present within AONB in Leighton Moss plus reports from garden ponds

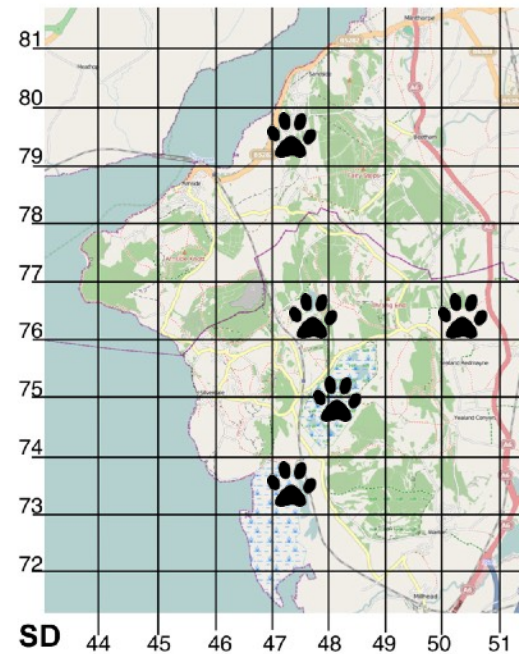
Habit: Diurnal

Body length: 67-96mm

Food: Carnivorous

Habitat: Mostly but not always near water and sometimes on beaches. Also man made environments including gardens with ponds.

It is the largest shrew and almost black in colour with white eyebrows and ear tips and a white belly. They have a relatively long tail at 2/3 body length. These characteristics should easily distinguish them from other shrews.



Likely Habitat

They have bristly rear feet and tail underside which makes them such good swimmers. Their coat traps the air so they appear silvery underwater and as a result the buoyancy only allows them to stay under water for brief periods. Like other shrews they are carnivorous and will eat anything small and slow enough to catch, including tadpoles, insect larvae and newts in water but on land it will eat anything suitable. They are solitary and aggressive. They breed from May onwards with 2-3 litters per year of 3-8 young. They can breed in their first year and can live to 18 months.



Photo: Elizabeth Dack

For the last two years the various voluntary organisations have been hard at work putting out and inspecting dormice tubes. The purpose is to check for the presence of this endearing little mouse. If present these tubes have proved popular with dormice to use for building a waterproof nest for secure sleeping accommodation where they can snore peacefully. We have also been checking each Autumn for signs of dormice nibbled hazel nuts. So far we have drawn a complete blank. The work is necessary to prove the absence of dormice before an introduction programme can be developed.



Photo: Hilary Smith

Such a programme is expensive and we need to convince the Peoples' Trust for Endangered Species and Natural England that our AONB is a suitable site in competition with other bids. We are at the northern limit of dormice distribution with local populations in the Duddon Valley and Roudsea. Introduction may be possible in a few years time as we continue to improve the local habitats and build up a convincing case.

Mole - *Talpa europaea*

Status: Very common and widespread within the AONB.

Activity: Diurnal and nocturnal, active throughout year usually in three, 3 to 4 hr periods each day.

Body length: Males 121-159mm females 113-144mm

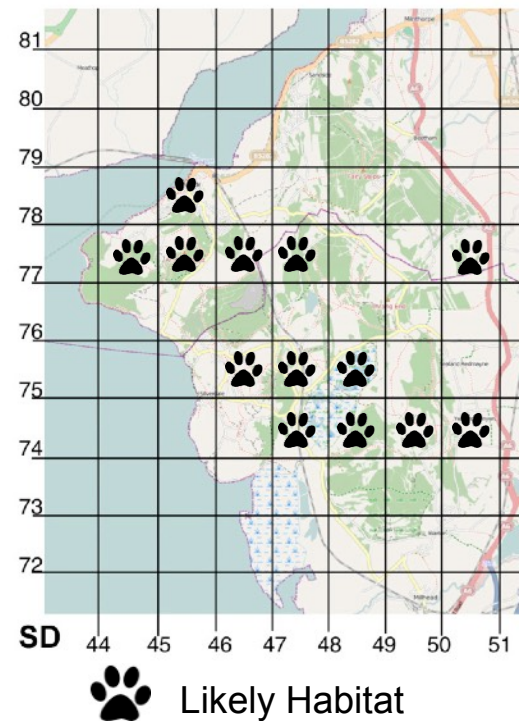
Food: carnivorous, mostly earthworms but also include insect larvae and molluscs

Habitat: Fields, woodland and throughout our many nature reserves wherever the soil is deep enough. An unwelcome invader of some gardens!

Only one species exists in the UK. Its appearance is unmistakable with elongate cylindrical body, pink fleshy snout, usually black short fur, spade like digging forelimbs and very small but functional eyes. It relies mainly on smell, touch and sound.

Rarely seen above ground but may come out at night to seek new territories and to disperse after rearing. Sometimes caught by owls as indicated from presence in pellets.

Moles are solitary, generally only meeting for breeding. Females occupy territories of around 1700m². whereas male territories can be 3000m² or more. That is roughly quarter to half the size of a full size football pitch. Territory size varies according to food supply with larger territories in more limited food supply. Population densities can reach 16 per hectare in summer but may be half this over winter. Males tend to overlap into female territories but only guard territories against other males. Females guard



territories from other females and males. Territory disputes are usually resolved without serious fighting.

Within the territory will be a nest of bedding material used for sleeping and for birth/rearing. Moles regularly patrol their tunnel system looking for earthworms or other prey that has fallen in. They regularly store earthworms to eat later having immobilised but not killed them by mutilating their anterior segments. They are powerful diggers using their highly modified front legs while stabilising their bodies with their rear legs. As soil accumulates they reverse round to gather soil with their front legs to deposit in their familiar mole hills. Tunnels can be as much as 1m down but most tunnels are near surface.

The breeding season varies between North and South in the UK. Within the AONB it is likely there will be one litter of 3 to 4 born in May/June after a pregnancy of c4 weeks followed by a 4 to 5 week lactation and a dispersal at 5 to 6 weeks. Moles are most vulnerable to mortality at dispersal as this usually occurs above ground when they will be taken by owls, buzzards, stoats, foxes, dogs. They are also run over by vehicles. Starvation is also common at this time as they try to establish new territories. About 70% mortality is likely in their first year. Once territory established mortality is 50% pa with some moles reaching 6 years old.

Moles are perceived as a pest by farmers as their mole hills contaminate silage (leading to undesirable butyric fermentation) and hay crops in particular. Until 2006 moles could be legally killed using strychnine hydrochloride but this is now banned leading to a probable recovery in populations as trapping is less effective. Their survival has never been in doubt, however. There are no moles in Ireland.

BATS

Bats account for almost a third of mammal species in the UK and occupy a wide range of habitats, such as wetlands, woodlands, farmland, as well as urban areas. They can tell us a lot about the state of the environment, as they are top predators of common nocturnal insects and are sensitive to changes in land use practices. Bats and their roosts are strictly protected under UK and European law.

Of the 18 British bat species, eight are known to be present in the AONB with possibly three further species for which no breeding sites are known. The ecology of the different species varies in detail, but all share an annual cycle of activity.

In the autumn, adult bats begin to mate. This activity can continue throughout the winter period and into early spring. During the winter bats hibernate in cool, damp places where they go into a state of 'torpor' to save energy by reducing heart and breathing rates and body temperature. High humidity is also required to minimise the loss of water from their wings and other membranes.

Bats leave these hibernation sites when the weather warms and days lengthen. Adult females congregate to form nursery colonies in late spring. These colonies can include several hundred individuals that move regularly during the summer (e.g. soprano pipistrelles), or smaller numbers that remain at one site (e.g. brown long-eared bats and others). Roosts at this time may be in buildings (especially houses), bridges, or trees. Males often roost separately but nearby, as individuals or in small groups.

Each female produces a single baby, or occasionally twins, usually in June. The baby suckles mother's milk until it is weaned at about six weeks old. At three weeks, nearing adult size, the young are able to fly out at dusk with the adults and use ultrasonic echolocation to find their insect prey. The breeding roost generally disperses around August. Sexual maturity is usually reached in the second year, and individual bats have been recorded living for thirty years.

There are few bat "hotspots" in the AONB because the habitat is suitable everywhere. Seeking bats out in the field takes a bit of effort and using a bat detector helps greatly. Bats will be seen on all of the narrow lanes with tall hedgerows or treelines adjacent, for example Moss Lane and Bottoms Lane in Silverdale. Other good sites to watch bats foraging are: Leighton Moss around the visitor centre and along the public causeway, around Hawes Water, the area around Heron Corn Mill and Dallam Park especially along the River Bela. Bats are thinly distributed on the Knott although several can usually be seen foraging on Heathwaite.

For more information on bats, their lifecycle and bat detectors visit:

The Bat Conservation Trust - <http://www.bats.org.uk/>



Typical Tree roost.
Photo: Brian Hancock

Noctule bat - *Nyctalus noctula*

Status: Widespread but uncommon

Habit: Nocturnal, emerges early

Head & Body length: c80mm

Wingspan: c400mm

Food: Diptera bugs, caddis flies, beetles and moths

Habitat: Deciduous and mixed woodland, pasture and parkland

This is the largest British bat and has long, narrow wings which means that it flies very fast and in the open. It has short, round ears and sleek chestnut or reddish-brown fur all over.

It emerges from its roost early in the evening, just a few minutes after sunset, sometimes foraging with swallows and swifts before daylight fades. It usually flies high and fast and can often be seen hunting over open water where it sometimes makes steep dives whilst chasing larger prey items. It can travel many kilometres in a single night to take advantage of seasonal food such as cockchafer beetles.



Noctule bats almost always roost in trees, using rot holes or natural cavities and changing roost sites often throughout the year but they have been found in stone bridges and can also be tempted into bat boxes. Relying on speed to avoid predators such as sparrowhawks, they need a clear flight path to and from the roost site. Colony size in summer can be up to 50 female bats with male colonies tending to be smaller. Young bats can sometimes be heard chattering inside the roost on hot summer days and longstanding roosts often have urine staining beneath the exit hole. They are rarely found in winter except accidentally when trees are felled.

We know of few roost sites within the AONB but there are records of individual tree roosts in Silverdale and Yealand.

Daubenton's bat - *Myotis daubentonii*

Status: Widespread and common on waterways

Habit: Nocturnal, emerges late

Head & Body length: c50mm

Wingspan: c250mm

Food: Midges, caddis flies, aphids, mayflies, lacewings

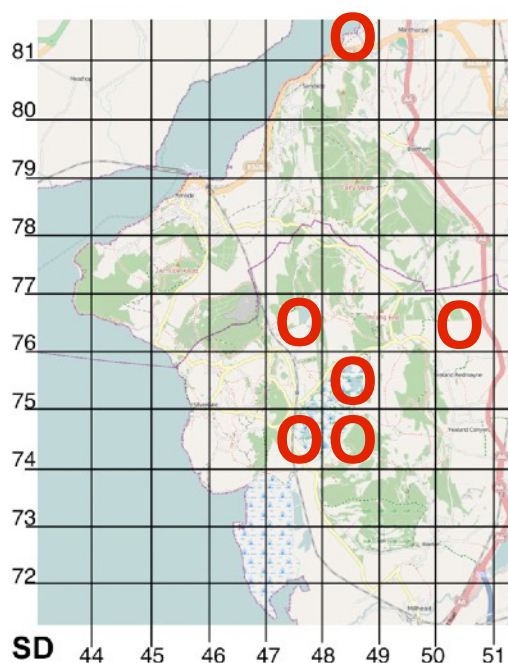
Habitat: Deciduous woodland, usually close to water

A medium sized bat which emerges well after sunset and mainly forages low over bodies of still and slow flowing water. Individual bats may hunt in woodland. The tail membrane is attached at the ankle, well clear of the large feet with which the bat snatches insects from the water surface. The membranes are pinkish, the dorsal fur is brown but the belly is much paler.

Daubenton's bats roost in tree holes, especially suitable ones adjacent to rivers and canals. They also roost in stone buildings, bridges and tunnels and do not seem to mind a damp environment, even in summer. They have been found sharing roost sites with other species. Colony sizes vary but can be up to several hundred in highly suitable habitat. Male bats are sometimes found roosting in a maternity colony; these may be dominant males or sexually immature juveniles.

In winter, they have been known to travel many kilometres to swarming and hibernation sites which are usually underground.

Within the AONB this species is common on the River Bela and has been recorded at Leighton Moss and known roost sites are in bridges, lime kilns and natural caves.



 Likely Locations



Natterer's bat - *Myotis nattereri*

Status: Widespread but uncommon and elusive

Habit: Nocturnal, emerges late

Head & Body length: c50mm

Wingspan: c275mm

Food: Spiders, harvestmen, flies, moths and beetles

Habitat: Predominantly woodland and vegetated waterside

A medium-sized bat which has a preference for flying inside, or close to, the roosting area before emerging well after sunset. It is a slow flying bat and is known to glean for non-flying prey items such as spiders. The face is bare and pink and ear tips tapered. The dorsal fur is a mid-brown/grey and the ventral fur is white or pale grey.

Their summer roosts tend to be in stone buildings, often churches but traditional houses and agricultural buildings are also used as well as bridges and lime kilns. They also use natural roost sites such as tree holes and adapt readily to bat boxes. Colony sizes in summer tend to be less than 50 and the whole colony often moves roost sites frequently.

In autumn, they are the species found most commonly at swarming sites and their hibernation sites are usually underground. Within the AONB this species is rarely found but they have been recorded in several of the lime kilns and caves.



Whiskered bat - *Myotis mystacinus*

Status: Widespread but uncommon

Habit: Nocturnal

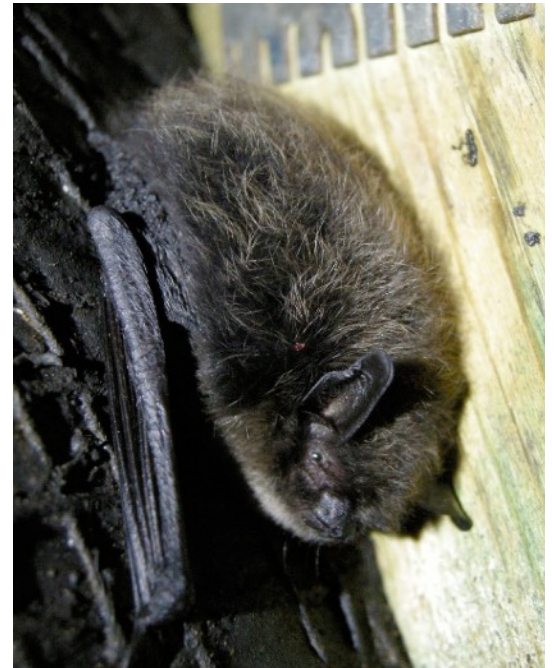
Head & Body length: c42mm

Wingspan: c225mm

Food: A broad range of small flying insects such as Diptera, moths and lacewings

Habitat: Wide range of semi-open habitats

A small bat which is surprisingly numerous within the AONB although few roost sites have been found. The wings and face are dark and belly fur is much lighter than the dorsal. They emerge earlier than other *Myotis* species and are distinguishable by their foraging style; they “patrol” slowly along a hedgerow or other linear feature, usually staying at a constant height, in contrast to the rapid and acrobatic flight of the more common Pipistrelle bats.



Whiskered bat.
Photo: John Martin

They utilise a wide range of roost sites but show a preference for older buildings although they have been found in the caves and lime kilns within the AONB.

Brandt's bat - *Myotis brandtii*

Status: Widespread but uncommon

Habit: Nocturnal

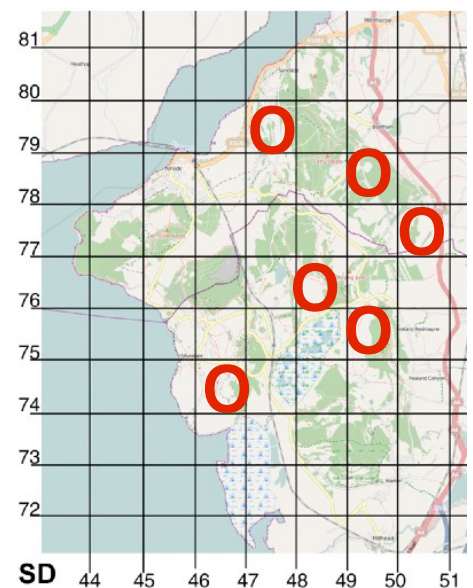
Head & Body length: c42mm

Wingspan: c225mm

Food: A broad range of small flying insects such as Diptera, moths and lacewings

Habitat: Deciduous and mixed woodland

Similar to the Whiskered bat but it has a closer association with woodland. The wings and face are usually paler than Whiskered bats but other physical differences are subtle and variable. Like Whiskered bats, they roost in stone buildings in summer and often change roost sites frequently. They use caves, mines and other stone structures in winter.



 Likely Locations

Brown long-eared bat - *Plecotus auritus*

Status: Widespread but reasonably common near woodland

Habit: Nocturnal, emerges late

Head & Body length: c45mm

Wingspan: c250mm

Food: Mainly moths but also Diptera and other bugs as well as some non-flying prey

Habitat: Deciduous and mixed woodland

A medium sized species but with extremely long ears and very quiet echolocation calls. It is very closely associated with a cluttered environment such as broad leaved woodland. It has pale brown fur, broad wings and flies slowly and deliberately, often gleaning insect prey from the foliage.

Roost sites are usually in older buildings with an internal space, such as a roof void or attic, in which the bat flies before its nightly foray. It emerges from its roost only after dark, is rarely seen flying in the open and seldom travels a long distance from the roost site to forage. It also roosts in trees in locations such as old woodpecker holes.

The main prey items are moths and these will often be captured in flight then taken to a favoured feeding perch to be consumed, the moth wings being discarded. Collections of moth wings and bat droppings, characteristic of this behaviour, are often found on the floors of barns or sheds.

Colony size in summer can be up to 100 bats with male bats often being found sharing the same site as the nursery colony. In contrast to other species that move regularly, the nursery site will usually be occupied for several months and even into the winter although most hibernation sites are in caves and other cold, damp places.



Brown long-eared bat roost in Silverdale. Photo: Mike Moon



Close-up of Brown long-eared bat showing ears

Common pipistrelle - *Pipistrellus pipistrellus*

Status: Widespread and common

Habit: Nocturnal

Head & Body length: c40mm

Wingspan: c220mm

Food: Diptera and numerous other small flying insects

Habitat: All habitats including urban parks and gardens

A small, common species which occurs in all habitats and is often seen at, or just after, sunset foraging around gardens. It has small round ears and a uniform dark brown fur with a blackish face and wing membranes. The flight looks erratic with many tight twists and turns as it chases after the small flying insects that make up its diet.

Roost sites are in trees and all types of building, especially of modern construction where they occupy the external areas under barge boards, soffits, hanging tiles, ridge tiles etc. They enter and exit these sites via small holes or gaps in mortar. They readily use bat boxes in all suitable locations. They also use buildings for hibernation, roosting singly or in small groups, often on the North side of a building where they seek out secure crevices which are damp but without large fluctuations in temperature. They are rarely found in underground sites in winter.

Colony size in summer can be up to 200 female bats in nursery colonies and they emerge to forage shortly after sunset. The whole colony will usually move roosts several times during the breeding season. Male bats occupy small roosts nearby. Several sizeable colonies of this species are found in Silverdale and Arnside.

Soprano pipistrelle - *Pipistrellus pygmaeus*

Status: Widespread and common

Habit: Nocturnal

Head & Body length: c40mm

Wingspan: c220mm

Food: Diptera and numerous other small aquatic insects

Habitat: All habitats but more common near rivers, canals and lakes

Very similar to the Common pipistrelle, having broadly similar habits but there are some notable differences. It is more often found in a water habitat, roosting close to rivers and lakes and a larger portion of its diet is made up of aquatic insects. The fur is usually paler than the Common pipistrelle and skin membranes are pinky-brown.

They occupy a wide range of roosting sites in trees, bat boxes and buildings of all types. They are also known to be very quick to take advantage of suitable new sites in optimum locations. A colony moved into a building at Leighton Moss RSPB reserve when it was less than two years old.

Colony size in optimum locations can be several hundred strong and they tend to occupy the roosting site for several weeks or months in summer. They are often reported as being noisy in the roost. This is the social chatter of a large colony of mothers and young. A musky odour is sometimes reported where large colonies occur but this does not persist when the colony disperses.

These bats are numerous in Silverdale and along the River Bela, where a colony of over 800 has been known to occur.



Common pipistrelle on the left, Soprano pipistrelle on the right

Other species which may occur in the AONB, but for which there are no recorded roosts, are as follows.

Nathusius pipistrelle - *Pipistrellus nathusii*

Probably overlooked, it is slightly larger than the other two Pipistrelle species with ventral fur that is much paler than the dorsal. It is widespread in Europe and thought to be migratory, sometimes occurring in Britain in the winter. It is usually found near water.

Leisler's bat - *Nyctalus leisleri*

Related to, but smaller than, the Noctule bat and recent research in Southern Scotland has shown that they forage at higher altitudes. A "lion's mane" of thicker, grey-brown fur around the shoulders is usually apparent.

Alcathoe's bat - *Myotis alcathoe*

Slightly smaller than the Whiskered and Brandt's bats, it has recently been discovered in Yorkshire and may be present but previously overlooked in other areas.



Arnside Knott



Trowbarrow



Arnside Moss



Bank Well, Silverdale



Leighton Moss



Arnside Tower