



# ***HEREFORDSHIRE INSECTIVORE ATLAS 1960 to 2015***

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Photograph credits: Steve Evans, Denise Foster and Sue Ellis***

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## Introduction

In the UK there are six mammal species that cover the Insectivores. These include the European hedgehog, European mole, common shrew, pygmy shrew and water shrew. The white-toothed shrew is restricted to the Channel Islands and Isles of Scilly. In Herefordshire, we have records for all five species.

The traditional order Insectivora has recently been abandoned and all British insectivores are now part of a new order - Eulipotyphla. The order Insectivora was a convenient taxonomic dumping-ground for small, primitive-looking mammals that didn't fit readily into other orders. However, recent molecular evidence has proved that Insectivora was not monophyletic (ie containing all descendants of a single common ancestor) and hence is not a valid order. For example golden moles and tenrecs (from Africa and Madagascar) have been shown to be more closely related to elephants than shrews, moles and hedgehogs! Many species have been moved out of Insectivora and the remnants of the order have been renamed as Eulipotyphla ("truly fat and blind"). However, for the purposes of this baseline Atlas, it was decided to continue to refer to the members of this order as Insectivores.

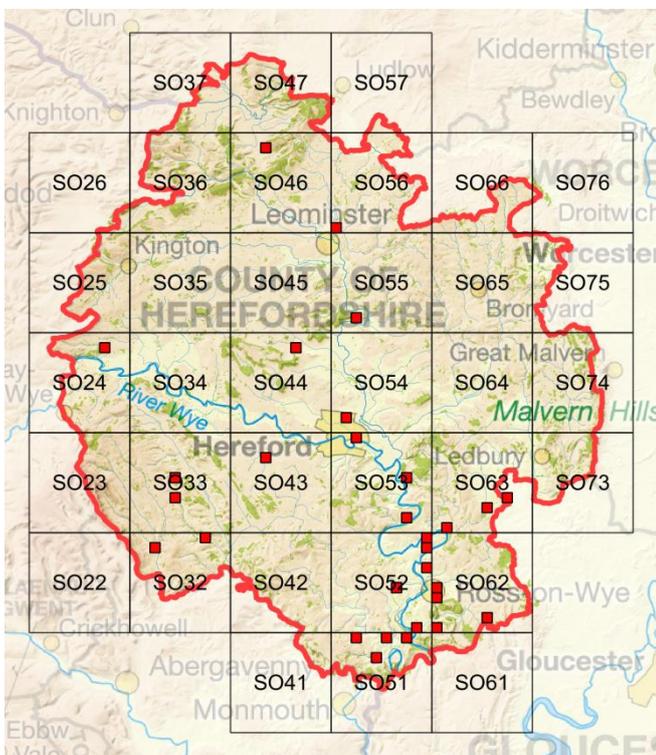
All insectivores contained in this Atlas are generally solitary animals and are active mainly during the night time hours. The primary food source for all five species is invertebrates. Shrews and moles are exclusively carnivorous and will only eat insects, grubs and worms. The hedgehog will eat invertebrates but they will also take advantage of food left out for them by householders, which can include cat biscuits, bird food, peanuts and tinned dog or cat food. Bread and cow's milk will also be eaten but this causes diarrhoea as hedgehogs are lactose intolerant. The hedgehog is easily identified as a robust, spiny medium-sized mammal and moles are also very easy to spot due to the mole-hills which appear in large numbers particularly in the winter months. However, shrews can often be mistaken for mice, particularly by the general public. Unlike mice, shrews have very long and pointed noses.

Two sets of distribution maps have been created for the Insectivore Atlas using records taken from the Herefordshire Biological Records Centre (HBRC) and the National Biodiversity Network Gateway (NBN). One map has been produced using 182 available records from 1960 to 2000 (red squares) and the second using 1547 records from 2000 to 2015 (blue squares). In total 1729 records were available to create this base-line Insectivore Atlas. The number of records per species is shown below:

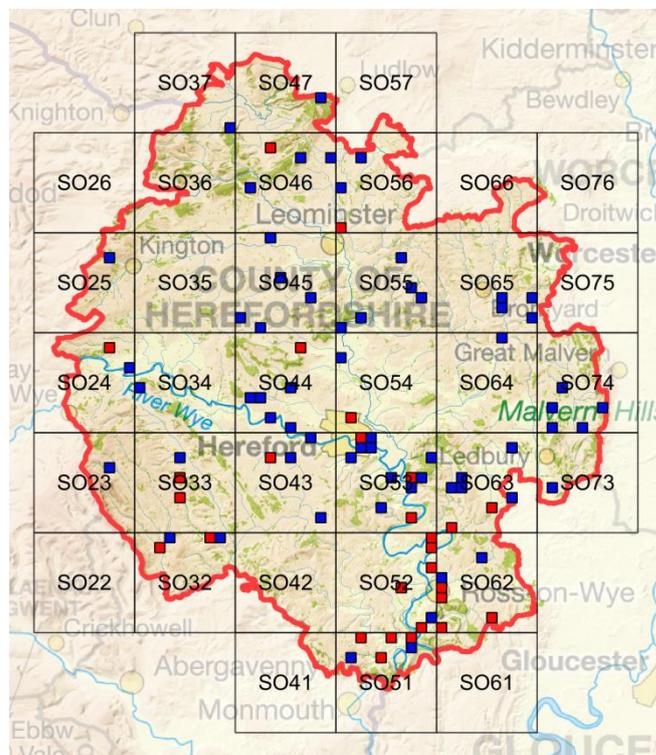
<b>Insectivores</b>	<b>Number of Records from 1960-2000</b>	<b>Number of Records from 2000-2015</b>
Pygmy Shrew	11	41
Common Shrew	29	64
Water Shrew	8	31
Mole	110	472
Hedgehog	24	939
<b>Total Records</b>	<b>182</b>	<b>1547</b>

### **Number of records for each species used to create distribution maps**

Explanatory notes about the records and the species have been included in this document in addition to the distribution maps and photographs. Pygmy and common shrews can be difficult to separate unless identified up close or in the hand, so the accuracy of some records from the genus *Sorex* should be viewed with some caution. Below are distribution maps which were available covering all *Sorex* records (shrew species, pygmy and common shrew aggregate).



Distribution of *Sorex species* aggregate from 1960 to 2000 in Herefordshire



Distribution of *Sorex species* aggregate from 2000 to 2015 in Herefordshire (Pre-2000 records are shown as red squares)

New records will continue to be collected from 2016 onwards from small mammal trapping surveys, visual surveys and hedgehog footprint surveys in woodland, hedgerows, on field boundaries and for the shrews at dormouse and bat box checks when these animals are occasionally encountered.

## Pygmy shrew (*Sorex minutus*)



Photo: Pygmy Shrew (courtesy Steve Evans)



Photo: Pygmy Shrew (courtesy Steve Evans)



Photo: Pygmy Shrew in a dormouse box (courtesy Denise Foster)

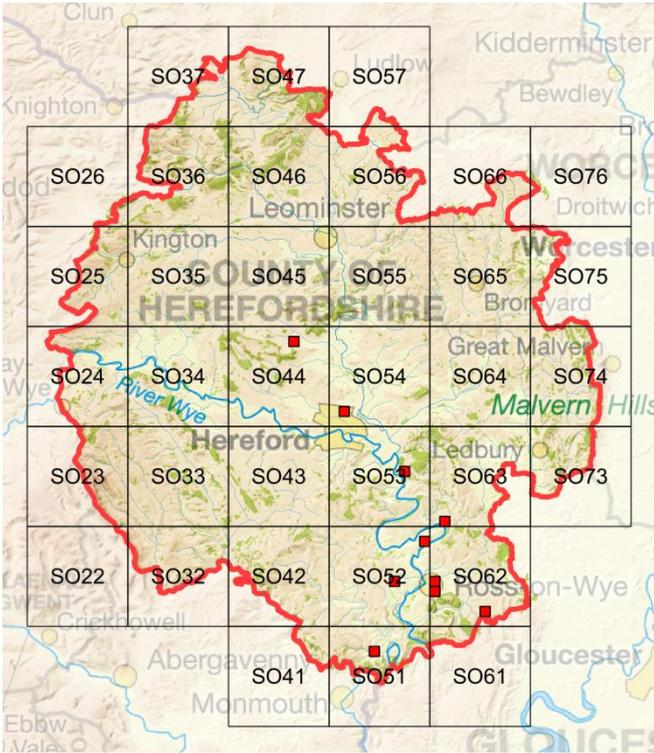
**Distribution:** The pygmy shrew is widely distributed across Britain and Europe, although absent from the Channel, Scilly and Shetland Isles. It is the only shrew species currently found in Ireland. It is not uncommon in Herefordshire, although probably under-recorded and almost certainly less abundant than the common shrew. It is the shrew species most likely to be found in discarded drinks cans and bottles.

**Identification:** Like all shrews, it has a long flexible snout with small ears and very small eyes, but with a noticeably more 'domed' head shape than the other shrew species. Typical weight is between 2.5g and 5g, and it is up to 6.5cm in length. It has a proportionally longer and hairier tail than the common shrew – typically 65-70% of the body length. The pelage consists of a pale belly with a dark brown back, but is generally paler brown in appearance than the common shrew. It also lacks the three-toned colouration which is present on the common shrew.

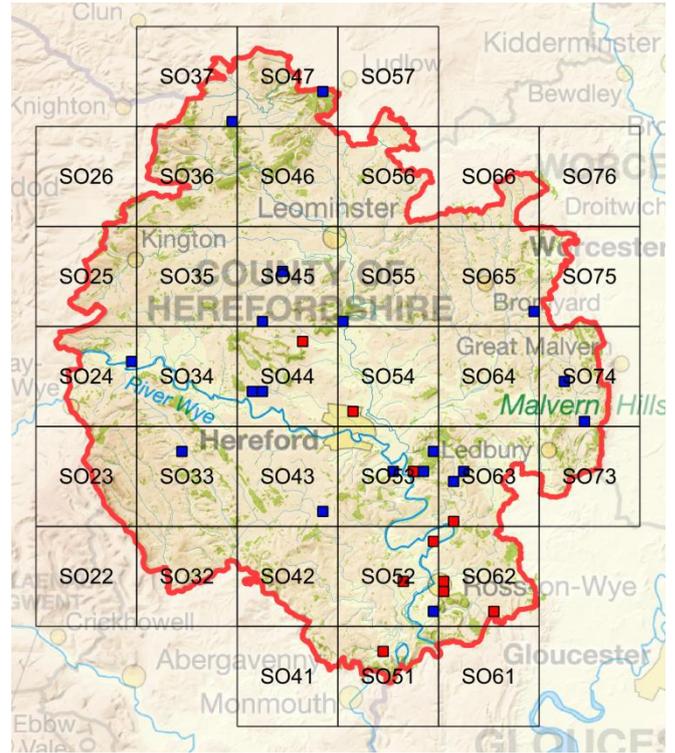
**Feeding habitat and diet:** It is present in a wide range of terrestrial habitats as long as there is plenty of ground cover, such as hedgerows, scrub, and woodland. Its diet is mainly terrestrial invertebrates including beetles, woodlice, insect larvae and spiders. It is more common at higher altitudes and on moorland and blanket bog than the common shrew. It rarely eats earthworms unlike the latter species. It must consume more than its entire body weight in food each day to survive.

**Ecology:** It is active both day and night and it must spend a significant amount of time foraging for food. Its lifespan is typically 1 year. Small, loose nests of grass are made amongst cover typically at ground level. Pygmy shrews are the shrew species most likely to be found in dormouse and bird boxes suggesting a more arboreal lifestyle. It rarely digs or burrows when feeding or building a nest. It is highly territorial with males and females only socialising during the mating season which is between April and September. Litters consist of 4-7 young, which reach sexual maturity the following spring. The main predators are owls, stoats, weasels and foxes (domestic cats often catch shrews, but rarely eat them).

## Pygmy shrew (*Sorex minutus*)



Distribution of *Sorex minutus* from 1960 to 2000 in Herefordshire



Distribution of *Sorex minutus* from 2000 to 2015 in Herefordshire (Pre-2000 records are shown as red squares)

## Common shrew (*Sorex araneus*)



Photo: Common Shrew (courtesy Steve Evans)

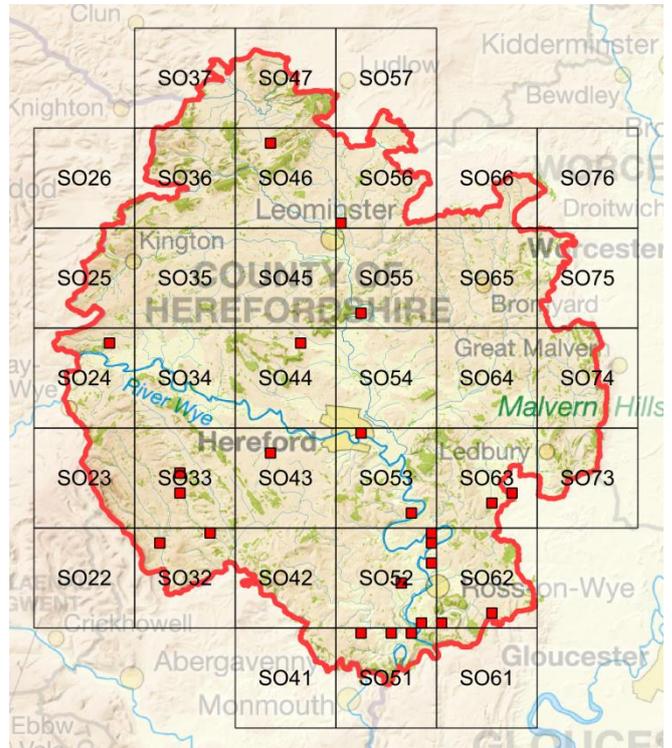
**Distribution:** The common shrew is widely distributed across central and northern Europe but, with the exception of Britain, it is absent from most of Western Europe including Ireland. It is relatively common in Herefordshire, although under-recorded.

**Identification:** Like all shrews, it has a long flexible snout with small ears and very small eyes. The typical weight is between 5g and 15g, and it measures up to around 8cm in length. Its tail is no greater than  $\frac{3}{4}$  the length of the head and body. A key feature used to distinguish it from other shrew species is the 'tri-colouration' of its pelage: a dark brown back, with lighter brown flanks and a paler off-white belly. Some individuals also have white ear tips.

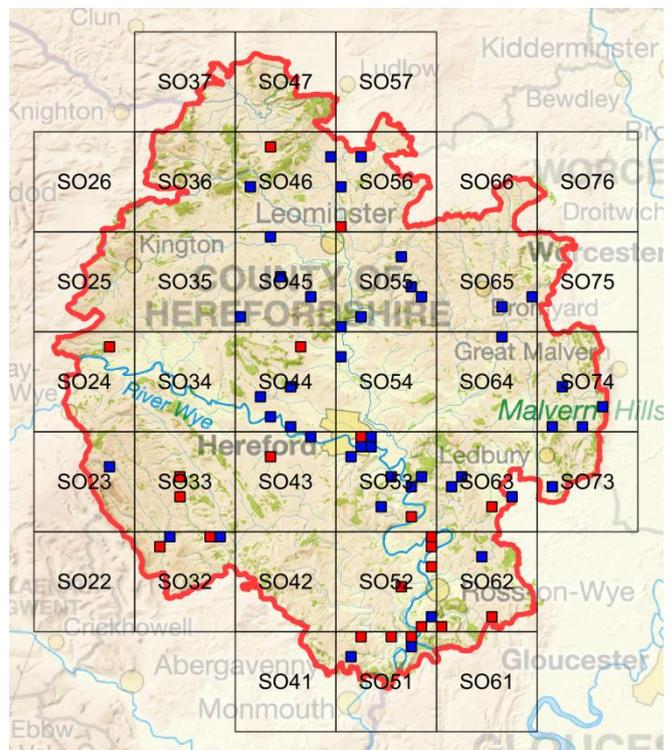
**Feeding habitat and diet:** It is present in a wide range of habitats as long as there is plenty of ground cover, such as roadside verges, hedgerows, scrub, woodland, and urban wasteland. Its diet consists mainly of terrestrial invertebrates including beetles, earthworms, slugs, snails, woodlice, insect larvae and spiders. It must consume between 80% and 90% of its body weight in food each day to survive. Its prey is located primarily by smell, and its eyesight is generally poor. There is also some evidence suggesting that various shrew species may also use echolocation to navigate and hunt.

**Ecology:** It is active both day and night and must spend a significant amount of time foraging for food. Its lifespan is typically 1 year (rarely up to 2 years). Nests are made usually at ground level amongst vegetation, or underground. It is more often heard than seen-by a high-pitched squeaking and chattering, particularly in March and April when it starts to mate. It is highly territorial and males and females only socialise during the mating period. Females produce

up to 4 litters per year between May and September containing 5 to 7 young. Its main predators are owls, stoats, weasels and foxes,



Distribution of *Sorex araneus* from 1960 to 2000 in Herefordshire



Distribution of *Sorex araneus* from 2000 to 2015 in Herefordshire (Pre-2000 records are shown as red squares)

## Water shrew (*Neomys fodiens*)



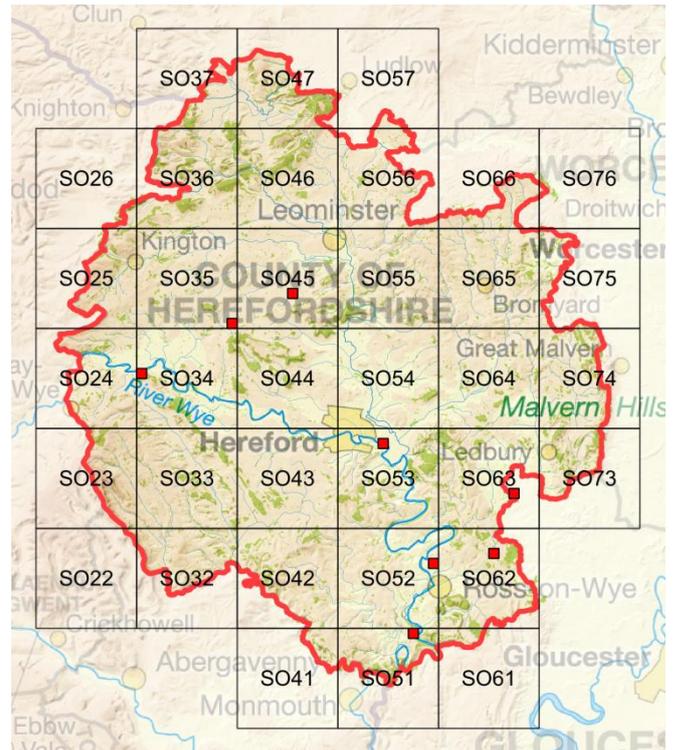
Photo: Water shrew (courtesy Steve Evans)

**Distribution:** The water shrew is widely distributed throughout Britain and Europe. It is the least abundant of the British shrews. It is scarce in northern Scotland and absent from Ireland. In Herefordshire, it is considered the rarest of the 3 shrew species.

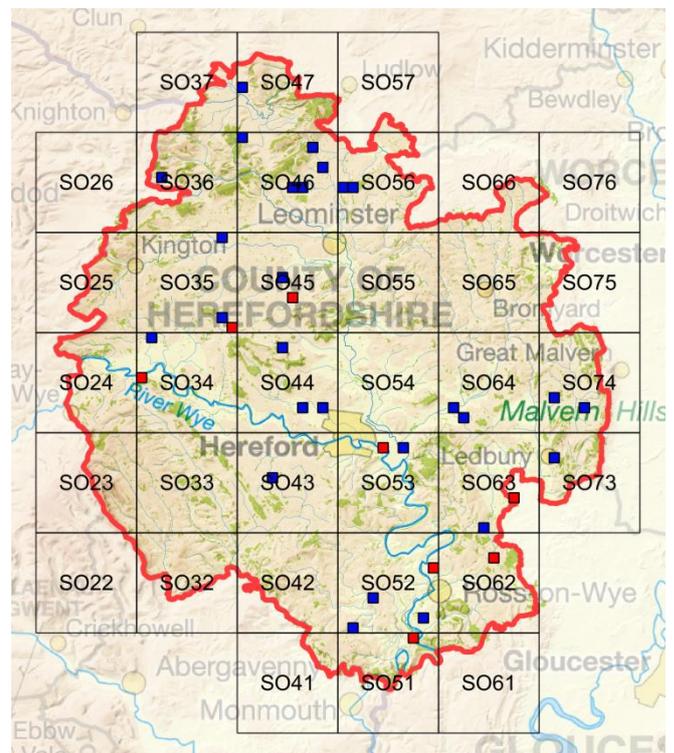
**Identification:** It is the largest native shrew, weighing between 10g and 20g, and measures up to 17cm long from nose to tail-tip; the tail measures between 5cm and 7cm long. It has dark- brown/black dorsal fur with a very pale belly (some animals appear truly black and white). White ear-tufts are sometimes present. It has dense almost mole-like fur and pale, stiff hairs on the underside of the tail and hind feet to aid swimming.

**Feeding habitat and diet:** Usually found in habitats near water such as streams, riverbanks, ponds, reed beds and wet grassland but can also be found several kilometres from water. The only UK shrew species to include aquatic prey in its diet, including water slaters, freshwater shrimps, caddis fly larvae, and occasionally fish and amphibians. It will also eat a wide range of terrestrial invertebrates.

**Ecology:** Its lifespan is around 14 to 19 months. It is mostly solitary, territorial and will only socialise in the breeding season between April and September. Two litters are produced per year, averaging 6 young per litter, in underground nests either dug themselves or in disused small mammal burrows. It is the only venomous UK mammal, although harmless to humans. The toxin produced in their saliva is probably used to subdue prey.



Distribution of *Neomys fodiens* from 1960 to 2000 in Herefordshire



Distribution of *Neomys fodiens* from 2000 to 2015 in Herefordshire (Pre-2000 records are shown as red squares)

## European Mole (*Talpa europaea*)



Photo: European Mole (Courtesy Steve Evans)

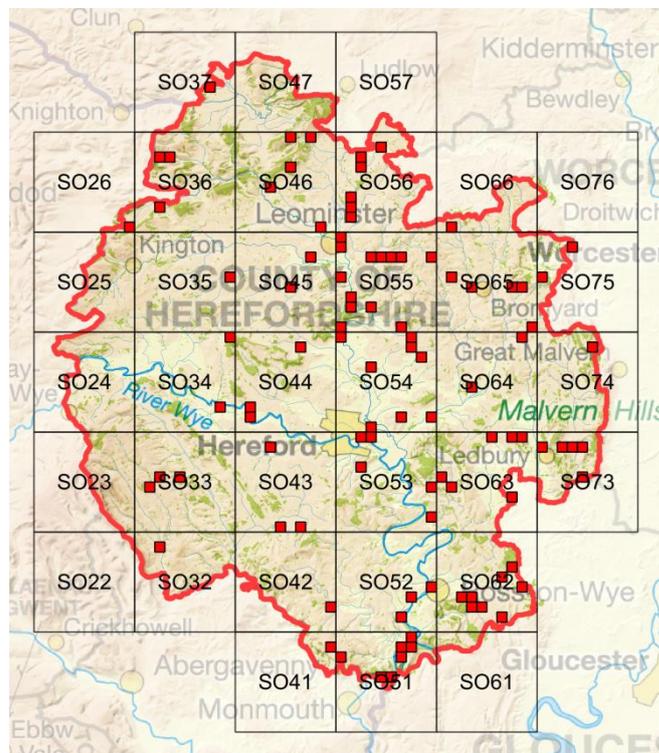
**Distribution:** The European mole can be found across Western Europe, but not in the extreme north or south. It is widespread across the UK but absent from Ireland. In Herefordshire it is evenly distributed across the county but it is currently under recorded.

**Identification:** Its entire body, with the exception of its snout and paws is covered with short black fur with an average head and body length of 140mm. It has large broad feet for digging but no distinguishable neck or visible ears. The eyes are small and often hidden beneath the thick facial fur.

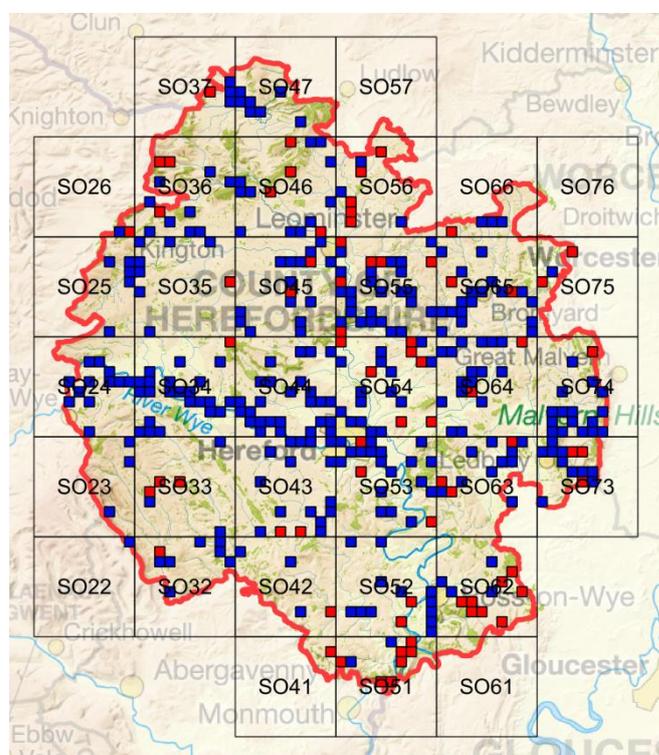
**Feeding habitat and diet:** It has adapted to a subterranean life and found in almost any habitat with a sufficient soil depth. It will forage underground for food using its nose to locate prey. Earthworms make up about 75% of the diet with insect larvae accounting for the rest. Beetles, slugs and millipedes are also taken when available. Earthworms are often beheaded and stored in caches for dry or cold periods. Moles will sometimes venture above ground for food or to drink early morning dew, but this behaviour is thought to be unusual.

**Ecology:** Moles live a solitary life, each with its own fiercely defended tunnel system which it uses when searching for food. A nest of dried leaves or grass is built in the centre of this system where the animal sleeps. Nests are occasionally built above ground within large molehills known as "mole fortresses." The breeding season starts late February to early June when females are only receptive to males for 3 to 4 days. An average of 4 pink and furless young is born after a gestation period of four weeks. The male takes no part in the young's upbringing. After 9 weeks the young will disperse which usually takes place above the surface. They then establish their own territory by digging a new tunnel system or finding an abandoned territory. This is the time of highest mortality for

moles when they are predated by tawny owls, buzzards, foxes and mustelids. Domestic cats and man are responsible for a large proportion of mole fatality.



Distribution of *Talpa europaea* from 1960 to 2000 in Herefordshire



Distribution of *Talpa europaea* from 2000 to 2015 in Herefordshire (Pre-2000 records are shown as red squares)

## European Hedgehog (*Erinaceus europaeus*)



Photo: Hedgehog (Credit Sue Ellis)



Photo: Hedgehog (Credit Sue Ellis)



Photo: Hedgehog in care (Credit Denise Foster)

**Distribution:** The European hedgehog is common throughout mainland Britain and Ireland. It has also been introduced to many islands including Orkney, Shetland, Isle of Man and some of the Channel Islands. In Herefordshire, it is widespread and

common. However, it is currently a species of concern and has been classified as a priority conservation species by the People's Trust for Endangered Species. Since 2002, approximately 30-40% of the population has been lost in the UK. Its biggest threats are agricultural intensification including reductions in permanent pasture, loss of hedgerows and field margins, the fragmentation of habitat in urban areas, and predation by badgers.

**Identification:** A medium-sized mammal with some animals weighing over 1.5kg just before hibernation. The hedgehog is recognised by its spiny back and sides. Its face, legs and under-belly is covered in brown/grey coarse fur. It has small black eyes for its size and a long snout. It can often be heard snuffling in the undergrowth.

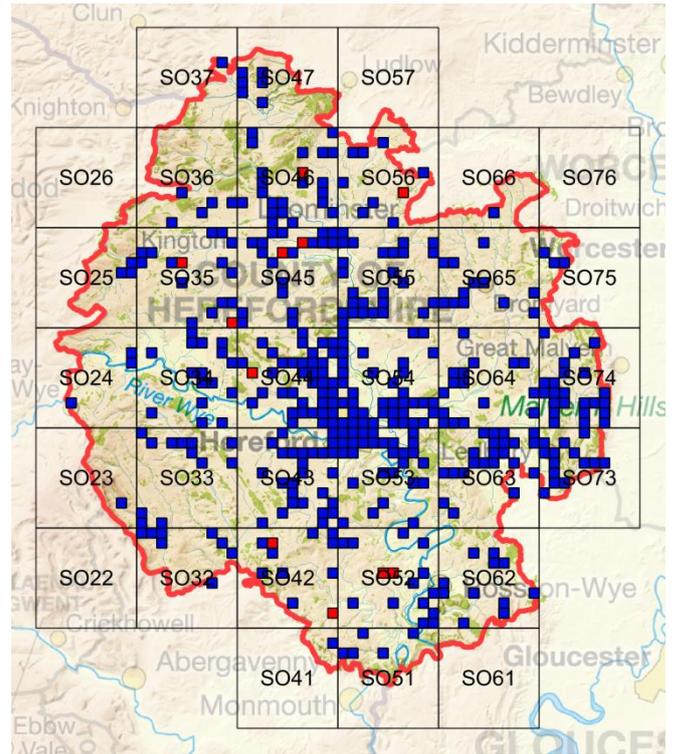
**Feeding habitat and diet:** The hedgehog is found in many types of habitats such as city parks, wasteland, along railway lines and other urban areas. It is also found in gardens, on grassland, woodland edges, hedgerows and arable farmland (but not intensively farmed land). It will travel about 1-2km each night, males more so than females. The hedgehog feeds at night on invertebrates such as slugs, worms, beetles, caterpillars etc. It is also known to eat eggs and possibly the chicks of ground-nesting birds but this activity is rare. It is also partial to feeding under bird tables in gardens picking up the left overs of dried mealworms, sunflower hearts and peanuts.

**Ecology:** Mating begins around May and this is often accompanied by lots of grunting and loud snuffling noises. Females have litters of approximately 4-5 young as early as April until September. Males do not assist in rearing them. Hoglets that are born late in the season are unlikely to survive the winter due to being too light to survive hibernation. Hibernation usually begins about November and ends around Easter, but it is weather dependent. Underweight hedgehogs may continue to feed much later trying to build up fat reserves; they have to be at least 450g to hibernate. The hedgehog will wake up several times over winter and late spring and may build a new nest of dry leaves. A hibernaculum can be found under hedges, a log pile or even a garden shed. It may use a daytime nest for several days then move on to another nest site.

## European Hedgehog (*Erinaceus europaeus*)



Distribution of *Erinaceus europaeus* from 1960 to 2000 in Herefordshire



Distribution of *Erinaceus europaeus* from 2000 to 2015 in Herefordshire (pre-2000 records are shown as red squares)