

SURVIVING WINTER



How do animals survive winter? They don't get to sit in a cosy house on the couch by the fire eating snacks like we do, they are out in the cold, the wind and the snow. When temperatures start to drop in the winter, animals need more food to get the energy they need to keep warm and survive, however, during winter there is often less food about, so how do they survive?

There are 3 main ways in which animals can survive the winter:

- **Hibernate** or **torpor** so they burn less energy
- **Migrate**, moving to warmer places where there is more food
- **Adapt** their body and/or behaviours to save energy



Hibernating dormouse © Amy Lewis

Hibernation and Torpor

I don't know about you, but there are days I wish I could hibernate, curl up into a little ball somewhere cosy like this adorable dormouse and sleep through the coldest days till spring returns. If only it were that easy though!

Only **three British mammals truly hibernate**, well two species and one group of species: the hazel dormouse, the hedgehog and bats (we have 17 breeding bat

species in the UK). As well as mammals, some invertebrates including bumblebees, some solitary bees, some snails and some butterflies also hibernate in the UK. **But what is hibernation?**

Hibernation is when the heart rate slows right down to around one tenth of its normal rate, breathing slows down, the body temperature cools to the same temperature as its environment, and the metabolic rate slows down. The metabolic rate is how quickly the cells in an animal's body turn the food eaten into energy to move and keep warm etc. So basically, the animal looks like its sleeping, it's cold to the touch and its body is working more slowly and using up fat reserves slowly, so it doesn't have to keep finding food when there isn't much food about.



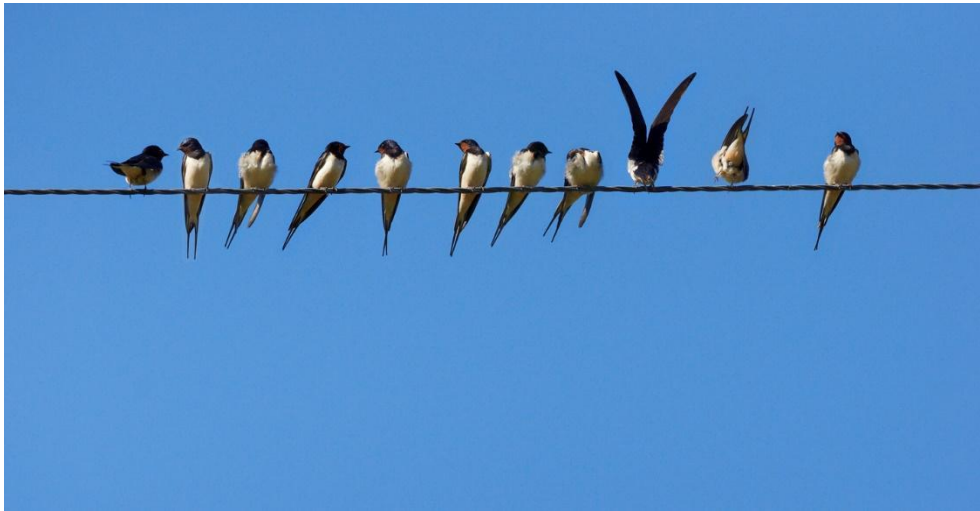
Hedgehog© Amy Lewis

Hibernation is a voluntary state, which means the animal knows it's going to happen and prepares for it. Before hibernating, animals have to eat a lot to gain enough fat (stored food) to give them all the energy they need to survive hibernation. They also have to find or create a safe place to hibernate. A hedgehog may find a pile of leaves under logs beside a hedge, a bat may hibernate in a cave or inside a hollow tree and a butterfly may find a cool shady shed or attic room. They need somewhere safe and protected from big changes in temperature. Lots of temperature changes can cause them to wake before they want to, which burns extra energy. If when they wake there is nothing to eat to replace fat reserves they can starve and die, so it's safer to stay in hibernation until spring and wake up as little as possible.

Other animals which we might think hibernate are actually in a sort of light hibernation called torpor. **Torpor** is not voluntary, so the animal doesn't actually decide to go into a deep sleep but if it can't find enough food or the weather gets cold its body does a very similar thing to a hibernating animal. Torpor is more short term than hibernation, so it may only last a day or so and the animal may "wake" and continue feeding if the weather warms up a bit, then go back into torpor the next day

if it's too cold. Animals which use torpor include bears, racoons and skunks. Many animals in torpor can wake to eat a little or go to the toilet but not bears, they can somehow hold it in, sometimes for months!

In the UK, reptiles, amphibians, squirrels, badger and some fish all use torpor to get through the colder winter months. Young swifts, which feed entirely on small insects and spiders, even use torpor if there is a cold spell and no food available before they are ready to fledge. They basically go into a deep sleep until the weather improves and they are fed again. Frogs and toads often survive in torpor at the bottom of ponds to escape actually freezing!



A group of swallows ©Alan Price

Migration

Other animals, in particular some birds, **migrate** in the winter away from cold areas with little of their preferred food to warmer more food rich habitats.

Some birds, like swallows, make huge journeys. Swallows fly around 6000 miles to South Africa, or the arctic tern which flies from pole to pole, around 12000 miles! If it's the difference between starving and dying or surviving then it must be worth it, but it's no easy feat and not all birds will survive the journey.

Other birds and animals make shorter seasonal movements to warmer areas in winter. A lot of birds, like the curlew which nest in the hills in the summer, move to warmer coastal areas in the winter. On the coast they feed as part of a flock, often with other species. They feed on mudflats at low tide and in fields at high tide. Safety in numbers helps them to avoid predators like foxes.

In the autumn and winter, many of our regular garden birds are joined by more of the same species moving down from more northern, colder countries like Norway and Sweden. In addition, birds we don't see the rest of the year like red wings, fieldfares, more siskins and maybe bramblings and waxwings, appear from Scandinavia and Russia. The colder the northern winters, the more birds move south to escape the weather and look for food.

Adaptations

Last but not least, many animals have found other ways to adapt to their environment and to make it through the winter without hibernating or migrating.



Ptarmigan ©Mark Hamblin

Many mammals, including deer, fox and mountain hare grow a thicker **winter coat** often with a double layer to keep them warm in the winter. Some dogs also do this and shed their thinner summer coat all over your house! Some animals even change the colour of their coat if they live in snowy areas to help with camouflage. Mountain hare, stoat and ptarmigan (like a mountain grouse), all have a white winter coat. This can be unhelpful however if there is no snow!

Many animals **change their diet** over the winter months, like foxes which eat more meat in winter; in autumn they eat more fruits and berries. Other animals adapt by **huddling together** to keep warm like huge flocks of starlings which fill the skies with their murmurations before roosting together, and groups of up to 60 wrens found roosting together in bird boxes. Now that must be a bit of a squash and a squeeze!