

## **Bats *Chiroptera* Ialtóg**

Bats are mammals, and more than 1,000 species are known worldwide. At least 5 species of bat are found in the Gleninchaquin area. Bats are highly intelligent, social creatures and may live for up to 30 years. Bats are the only mammals to have mastered true flight, and their anatomy is especially evolved to accommodate this. A bat's wing is a modified hand, with a layer of thin skin stretched between the fingers. The wing is attached to the foot, which is thin and small. Because the legs are so small, they cannot hold the weight of the bat in an upright position and so bats hang upside-down when at rest. Flying is very energy demanding, and so bats only fly when necessary and when conditions are most suitable. Bats avoid windy, stormy weather, when few insects would be available for food, and when flying conditions would be poor. Bats also like to fly along lines of trees and hedgerows. This gives cover to the bat and offers shelter from the buffeting effects of wind.

Insect eating bats have evolved the sense, echo-location, which helps them to locate and catch prey during flight. This is why some bats have strange looking nose and ear appendages, which help them to send and receive high frequency signals, like satellite dishes! The sounds are at too high a frequency to be easily heard by humans. This is a good thing, as the sounds are very loud, and even the bat emitting such a sound must protect itself, by closing its ears while it emits the pulse. Bats can be heard by using a special piece of equipment, called a bat-box, which converts the high frequency sounds to noises that humans can hear. Because different species of bat emit sound at different wavelengths, bats can also be identified using a bat box.

There are 10 species of bat currently known in Ireland. All are insect eating microbats (microchiroptera). All these hunt for insects, flying at night and avoiding competition with birds, who hunt for insects by day. Bats are a very important part of the ecosystem, eating thousands of midges, moths and pest insects that might otherwise cause damage to crops. Each species is specially adapted to a particular niche, hunting for slightly different type of prey, or in a different habitat to other species.

Irish bats hibernate in winter and must find a suitable roost that is clean, sheltered and unlikely to be disturbed. Hibernating bats lower their body temperature to conserve energy, and this may fall to as low as 5°C. They must wake up at regular intervals to excrete metabolic waste and to avoid freezing if temperatures drop below zero. Waking up takes some time and uses valuable energy. If they are awoken by disturbance, precious energy reserves that are necessary for their survival through the winter may be wasted.

### **Leisler's bat**

The Leisler's bat is Ireland's largest known bat species, and yet reaches only 6.4cm in body length! It is quite rare on a European scale, but is Ireland's 3<sup>rd</sup> most common bat, and is quite

widely occurring across the country. They sometimes hunt, at sunset, with swallows and swifts, and their main diet is composed of yellow dung flies and beetles, though they also take flies and midges by flying with open mouths through dense swarms! Summer roosts are found in attics, between felt layers, and between slates. In Europe the main roost sites are in hollow trees, but the lack of such sites here may prevent this trend in Ireland. However, the increase in afforestation and the non-interventionist conservation management of existing woodland may improve roosting conditions for this species. Leisler's bats also use bat-boxes when available and they may even breed in them! They are vulnerable to disturbance in their winter roosts, particularly as they tend to roost in large numbers.

**Pipistrelles** (Common pipistrelle *Pipistrellus pipistrellus*, Soprano pipistrelle *Pipistrellus pigmyaeus*)

Until recently, only one species of pipistrelle was recognised in Ireland and Britain, but now it seems that there are actually three! The common pipistrelle is Ireland's most common and abundant bat. They are preyed on by kestrels and owls and so do not emerge to forage for insects until some time after sunset. They feed quite close to their roost, which is usually close to trees. Roosts are usually very confined spaces, such as behind window sashes and inside cavity walls. The diet of the common pipistrelle is dominated by small insects such as midges, flies and small moths, which are caught and eaten on the wing. More than 3,000 insects may be taken by a bat in a single night!

The soprano pipistrelle is very similar to the common pipistrelle but emits sounds at a higher frequency (55 kHz). This species feeds almost always in habitats associated with water, and smaller species of moth and midge are taken (compared to those preferred by the common pipistrelle). Pipistrelles face the same threats as all bats and are favoured by habitat enhancement.

**Lesser Horseshoe**

The lesser horseshoe is a small, delicate bat and is instantly recognizable by the horseshoe-shaped plate surrounding its nose. The world population of this species has been in decline in recent years and the Irish population is of European importance. In Ireland it is quite rare, and restricted to the west of the country, where it forms summer roosts of up to several hundred bats, in old buildings. It spends the winter in underground sites such as caves and cellars. More than half of the Irish population of this species is thought to be in Co. Kerry.

Lesser horseshoe bats are active all night in summer, emerging from their roosts about 30 minutes after sunset. Their main food consists of craneflies, moths, caddis flies and lacewings. Lesser horseshoes are very maneuverable and can fly low, hunting over dense vegetation and along farmyard walls. Individuals have been known to live for up to 18 years, but the average lifespan in Ireland is probably about 5 years. The lesser horseshoe is threatened by disturbance, loss of roost sites and the reduction in insect numbers associated with changes in agriculture. Its preference for open roost sites, such as old buildings, makes this species vulnerable to the deterioration of such places through neglect.



### **Arctic Char *Salvelinus alpinus* Ruabhreac**

The Arctic char is a fish, similar in appearance to brown trout but with pale spots, and during the spawning season the male has a vibrant red underbelly. As their name suggests, they are fish that live in deep cold water, such as that in the Arctic. After the ice of the last glacial period receded, some populations of this species were left 'locked' in high altitude lakes such as Lough Inchaquin, and where the conditions have remained suitable, they have survived. The Irish populations of this species are very important as they have been genetically isolated from other populations for at least 10,000 years. In addition, the populations in Kerry (16% of Irish populations) are the most southerly known. Arctic char are very sensitive to their environment and so are indicators of very clean pure waters. Unfortunately, this feature renders them very vulnerable and they have become extinct in at least 20 lakes throughout Ireland over the past 100 years. The reasons for these extinctions have been the addition of nutrients to water (from silage, sewage and other run off) and acidification (from commercial forestry). Like most salmonoid fish, arctic char are opportunistic feeders. In ideal conditions they live on a diet of invertebrates and insect larvae. However, if other trout species are present, these are better competitors for the preferred food and the arctic char will make do with feeding on the plankton (microscopic plants and animals) available. Another contributor to the demise of this special fish is predation. Although no other large fish is native in the types of lake that arctic char inhabit, predatory species such as pike have been introduced to many for angling. These will readily take arctic char and have contributed to the extinction of the species in some lakes.

### **Frog *Rana temporaria***

The frog is Ireland's best known amphibian. Frogs are found in all sorts of habitats, from woodlands and hedgerows to grassy fields, wherever there is fresh water nearby. Frogs have a very interesting life cycle, beginning in late winter when hundreds of adult frogs, on waking from their winter hibernation, congregate in ponds and ditches to mate. Females lay the eggs which are then fertilised by the males. The fertilised eggs, frog spawn, are transparent jelly-like masses, in



which the embryo is clearly visible. The young emerge as tadpoles, which look remarkably like tiny versions of their cousins, the newts. Over the weeks of spring, the tadpoles grow, slowly developing legs and losing their tails, until they eventually become little frogs! Frogs eat small invertebrates such as snails and insects. Frogs can vary their colour to match the environment, cleverly hiding themselves from predators such as herons and foxes.