

Bogland Wildlife

A detailed collage of various bogland wildlife. In the top right, a kestrel with orange and grey plumage perches on a tree stump. Below it, a brown hare stands alert. To the left, a fox with a white muzzle and chest is shown in profile. In the upper left, a small bird is perched on a branch with purple flowers. A large, patterned moth is visible on the left side. In the center, a water vole is shown eating green grass. To its right, a small, speckled bird sits on the ground. In the bottom left, a blue frog is partially visible. In the bottom right, a long-billed snipe stands near a body of water. A mossy log lies horizontally across the middle of the image.

Quirky
Facts

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The bogs of Ireland have been valued in the past for the peat, often called 'brown gold', stored beneath their surface. Today, we are not the Ireland of years gone by. Rather than using turf or milled peat, we have alternative, greener technologies available to heat homes and to generate electricity. Moreover, when choosing a compost to improve garden soil, we can choose peat-free products. This booklet is about bogland biodiversity, and presents some quirky facts about how wildlife has adapted to life on the wet and wild bogs of Ireland.



Fox - A predator on bogs.
Photo: É. de Buitléar

Species Name:

Fox
Vulpes vulpes
Sionnach

The fox is one of Ireland's top predators. It is described as an opportunistic bogland animal. It uses the bog to hunt for prey, but does not actually live on the wet bog surface, instead preferring the surrounding drier landscape.

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Bogs are Climate Change Warriors

Bogs or peatlands are wetlands containing 90% water and 10% dead plants. Peat is the result of the accumulation of partially decayed plants over thousands of years. The dead plants do not rot because they grow in waterlogged conditions where there is little oxygen. Bacteria and fungi - the agents of decay - are prevented from working in such conditions. This lack of decomposition means peat is a massive carbon store.

Raised bogs began their formation 10,000 years ago in lakes created during the last Ice Age, while blanket bogs began to form 4,000 years ago in the uplands.

Sphagnum moss, known as the 'bog builder', is abundant on bogs and can hold up to 20 times its weight in water, thereby ensuring that the bog is waterlogged year round. Peatlands' main source of water is rainfall.

Bogs represent a valuable ecosystem and provide provisioning, cultural, regulating and supporting services. Their wildlife demonstrates wonderful and unique adaptations that enable them to survive in one of Ireland's wettest, most windswept landscapes. Meanwhile, the dead plants that have built the bog store carbon, helping Ireland meet climate change targets.



Blanket bog, Co. Wicklow.
Photo: C. O'Connell



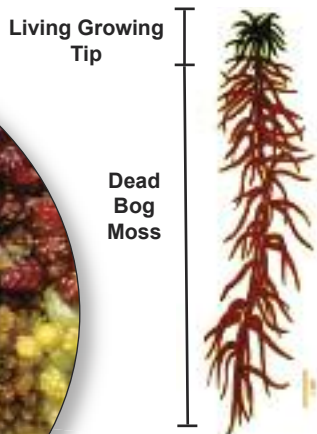
Raised bog, Co. Westmeath.
Photo: N. Madigan

Quirky Fact
Bogs are climate-change warriors. They cover about 3% of the earth's land-surface area, yet they store roughly 30% of all land-based carbon.

Water-Storing *Sphagnum* mosses



Bog mosses form a colourful carpet on Girley Bog, Co. Meath.
Photo: C. O'Connell



Quirky Fact

The absorbency of *Sphagnum* moss was put to good use in the First World War, as it was used to make bandages.

Species Name:

Bog Moss
Sphagnum moss
Súsán

There are over 20 different species of *Sphagnum* moss found on Irish bogs. These are known as the 'bog builders' and are the most important plants on bogs. They form living carpets over the surface of the bog that range in colour from green and yellow to red and brown. Different species of *Sphagnum* mosses form different features on the bog surface, from the dry hummocks to the linings of wet hollows. By analysing the species of *Sphagnum* moss growing on bogs, ecologists can determine if the bog is healthy and actively laying down peat.

Sphagnum moss grows quickly and holds up to 20 times its own weight in water. The only part that of the plant that is alive is its growing tip. As the plant grows upwards, it buries dead plant material on the surface of the bog, building the peat layer of Irish bogs at a rate of 1mm per year.

During the First World War, *Sphagnum* moss was harvested and dried and stitched together as a wound dressing to treat injured soldiers. It was only when the last of the military hospitals closed in London in the 1920s that the use of *Sphagnum* moss as a wound dressing came to an end and collections of the moss from Ireland's bogs for this purpose stopped.

Camouflaged Frog

Species Name:

Common Frog
Rana temporaria
Loscann

The common frog is an amphibian, meaning that, when it reaches adulthood, it can live both in water and on land, but must return to water to breed and complete its lifecycle. Young frogs are called tadpoles. Adult frogs are known as gardeners' friends, as they are carnivores that feed on slugs and flies. Tadpoles are actually herbivores and can eat algae in your garden pond.

The frog's long sticky tongue is attached to the front part of its mouth. It can flick it out to catch flies. Frogs have lungs that allow them to breathe on land, but under water they breathe through their skin.

The colourful pattern on the frog's skin helps to disguise it from enemies such as rats, herons and hedgehogs. A frog can also make its skin become darker or lighter to match its surroundings. This camouflaging colour change takes approximately two hours to effect.



Spot the frog - it is well-camouflaged against the ground. Photo: N. Madigan



A male frog waits in a pond for a mate.
Photo: T. Whyte

Quirky Fact

Male frogs have vocal sacs that stretch to act like resonating chambers, allowing them to sing to attract a mate.

Sundew - a Fly-Trapping Plant



The remains of flies that have been eaten by a sundew plant. Photo: C. O'Connell

Quirky Fact
On average, a sundew plant can trap up to five insects per month



Sundew plant on the bog surface. Photo: N. Madigan

Species Name:
Round-leaved Sundew
Drosera rotundifolia
Drúchtín Móna

Plants are normally eaten by insects. On bogs, however, the opposite happens, as insects become prey to certain plants. The leaves of the sundew sport multiple red tentacles containing glands at the tips that create a sticky trap. When an insect lands on the leaf, it gets stuck in the sticky fluid and the leaf tentacles close around it. All the nutrients in the insect's body are digested into molecules that can be absorbed into the sundew through pores on the leaf surface. This stimulates the plant to grow.

Round-leaved sundew is not the only insect-eating plant on Irish Bogs. Long-leaved and intermediate-leaved varieties can also be found. Two other insect-eating plants found on bogs are common butterwort and bladderwort.

Why do they have this very special adaptation? Bogs are extremely nutrient-poor; this is due to the high water table on bogs, which limits decomposition and the associated release of nutrients.

With limited food available throughout the winter months, sundews die back to conserve energy. Watch out for sundew on a peatland in your local area between April and September.

The Calling Curlew

Species Name:
Curlew
Numenius arquata
Crotach

The iconic call of the curlew was once a familiar sound on Ireland's bogs. Sadly, today the curlew is the most threatened bird in Ireland, with the National Parks and Wildlife Service recording a 98% decline in the breeding population since the 1980s.

Curlew build their nests on the bog surface each summer. Their camouflaged plumage helps to hide the adult bird from predators such as fox and grey crow while it sits in the nest. The eggs are mottled and muted in colour to blend in with the bog wildlife. Chicks feed on the bog and in the surrounding farmland before they

fledge. Long grass provides cover for them during this flightless period. Adult birds feed by probing their long sensitive curved beaks into wet soil in search of invertebrates. As the surface of the bog can freeze during winter, curlew migrate to coastal areas to feed at this time.

Unfortunately, the ascending 'cur..lee, cur..lee' cry, and the 'cew, cew, cew' calls are no longer common on our bogs due to habitat destruction and predation of eggs and chicks by foxes and hooded crows. There are currently fewer than 130 breeding pairs in Ireland. Action is being taken by conservationists, working with farmers and landowners, to protect these birds and help boost the current breeding population.

Quirky Fact

Curlew spend most of the year along the coastline of Ireland, but move to Irish bogs in the summer to nest and rear their young.



Close-up of a curlew. Photo: D. Camier



Curlew in flight. Photo: A. McCluskey

Bog Asphodel Partners Bacteria



The flowering head of bog asphodel. Photo: C. O'Connell

Quirky Fact

Bog asphodel is also known as 'brittle bones', as it contains chemicals that have an adverse weakening effect on the bones of grazing animals. Its Latin name translates to 'bone breaker' in English!



Bog asphodel grows at the edge of bog pools. Photo: C. O'Connell

Species Name:

Bog Asphodel
Narthecium ossifragum
Sciollam na Móna

The star-shaped flowers of bog asphodel have glowing yellow petals with orange-tipped anthers. The leaves can be described as sword-shaped and are arranged in groups of three on the stem.

Living in the nutrient-poor peatland habitat, bog asphodel has formed a partnership with a nitrogen-fixing bacterium called *Rhizobium*. This partnership is a type of symbiotic relationship through which

both bog asphodel and the *Rhizobium* bacterium benefit. Our atmosphere contains 78% nitrogen, but plants cannot use nitrogen in this form. However, *Rhizobium* bacteria can fix atmospheric nitrogen into a usable form for plants, but to achieve this it needs a host. Bog asphodel provides its roots as a host for the *Rhizobium*, and in return the bacterium shares its fixed nitrogen with bog asphodel.

Bog Asphodel hibernates in winter. Its leaves turn orange as it reabsorbs all the nutrients from the leaves into its underground stem. It is in flower on Irish bogs in July.

The Lizard that Drops its Tail

Species Name:
Viviparous lizard
Lacerta vivipara
Earc

Also known as the common lizard, the viviparous lizard is Ireland's only native reptile. 'Viviparous' means 'live birth' and this lizard is so-named because it gives birth to live young.

Lizards are cold-blooded, meaning they cannot regulate their own body temperature. In cold weather, they can slow their metabolism to almost a

complete stop. To heat their body temperature and start their metabolism, they must bask in the morning sunshine, absorbing heat. This is also the best time to see a lizard on your local bog, because when they are cold they are also slow-moving. By the afternoon, the lizard will be quick to hide when disturbed.

Similar to other reptiles, their body is covered in scales that blend in with the surrounding landscape, these scales help the lizard camouflage itself from predators.



The viviparous lizard is well-camouflaged on this lichen-covered twig. Photo: P. Foss

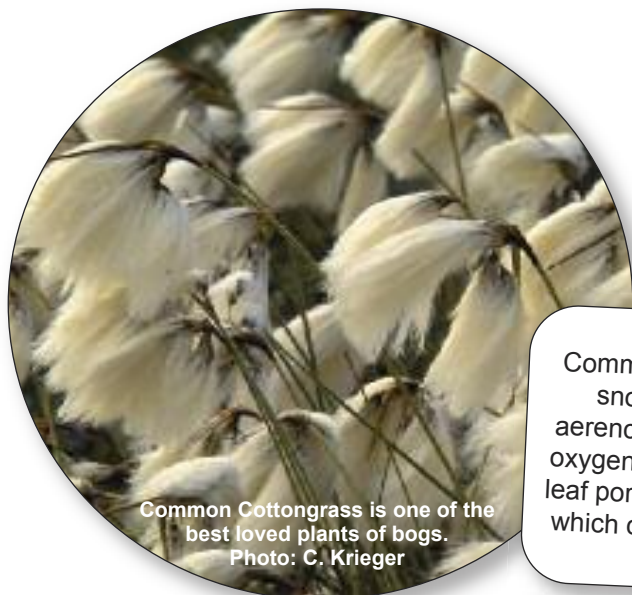


Viviparous lizard with missing tail. Photo: N. Madigan

Quirky Fact

The viviparous lizard can drop the end of its tail to escape predators - allowing it to find shelter and leaving its predator with only a wriggling tail for lunch! The tail can grow again.

Snorkelling Bog Cottons



Common Cottongrass is one of the best loved plants of bogs.
Photo: C. Krieger

Species Name:

Common Cottongrass
Eriophorum angustifolium
Ceannbhán

Common cottongrass (also known as many-headed bog cotton) produces four to five white seed heads that, at first glance, look like cotton wool.

It is the deepest rooting plant on the bog, as its roots can reach into the peat to a depth of 60cm. Common cottongrass is sometimes called the 'bog snorkeller'. Its leaves and stems contain a type of tissue called 'aerenchyma', which is characterised by the presence of multiple air channels. These channels allow the transport of oxygen from the aerial part of the plant (i.e. the leaves) to the roots of the plant, which are deep in the peat.

Within the stem of bog cotton, internal air channels allow oxygen to move from the surface of the bog to the roots deep below the peat.



Quirky Fact

Common cottongrass acts like a snorkel. Internally, there is aerenchyma tissue that channels oxygen entering the plant through leaf pores to the roots of the plant, which can be up to 60cm deep in the bog.

Why are these deep roots so important? In the nutrient-poor waterlogged bog habitat, being able to access nutrients where no other plant can enables the common cottongrass to survive on bogs.

Common cottongrass dies back in winter. As the nutrients in its leaves are withdrawn to underground storage organs, the leaves turn red, giving the whole bog a rusty colour in winter.

Single-headed bog cotton (also known as hare's-tail bog cotton) is also found on bogs. This has only one white fluffy seed head.

We do not collect bog cotton in Ireland to make clothing, as the cotton fibres are too short; however, locally it was collected and spun into thread or used to stuff pillows.

The Drumming Snipe

Species name:
Common Snipe
Gallinago gallinago
Naoscach

The snipe is a ground-nesting bird of boglands. It builds its nest on tussocks, and when disturbed it flushes explosively from the vegetation, making a 'scratch'-like alarm call and flying away in a distinctive zig-zag pattern. The sudden nature of this flushing behaviour can give unsuspecting visitors to bogs quite a shock as they walk across the bog surface.

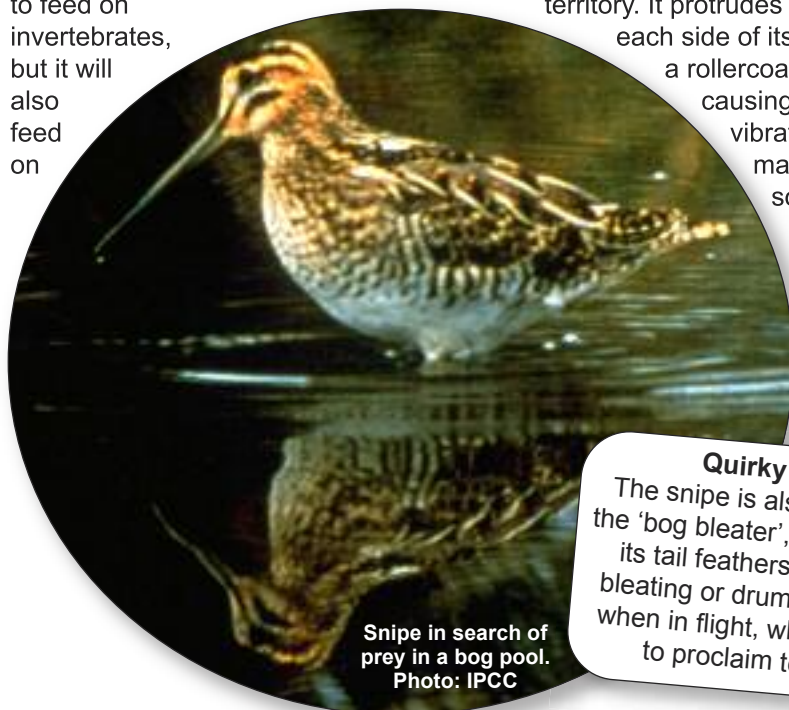
Its long, straight sensitive beak is used to probe peaty soils and wet bog pools to feed on invertebrates, but it will also feed on

seeds and other plant material.

As snipe are omnivorous, they can live in bogs year round. In summer, they enjoy a plentiful supply of invertebrates, and in autumn they feed on seeds. Curlew are not omnivores, so they leave the bog in winter in search of invertebrates at the coast.

Their plumage of dark brown, pale buff and black stripes and bars on the head and body provide good camouflage that helps protect them from predators, including the fox and birds of prey such as the buzzard and kestrel.

The snipe makes an amazing drumming sound to mark its breeding territory. It protrudes a feather on each side of its tail and flies in a rollercoaster pattern, causing the feathers to vibrate in the air and make a drumming sound.



Snipe in search of prey in a bog pool.
Photo: IPCC

Quirky Fact

The snipe is also known as the 'bog bleater', as it can use its tail feathers to make a bleating or drumming sound when in flight, which is used to proclaim territory.

Lichens are Air-Quality Indicators



Quirky Fact

Some lichens are very sensitive to air pollution, and only grow in fresh clean air, which is plentiful on Irish bogs

Lichens form mini gardens on the bog surface.
Photo: K. Geraghty

Species Name:

Lichen
Cladonia genus
Léicean

A lichen is a plant formed through a symbiotic relationship between an algae and a fungus. Both live in harmony and benefit from the relationship. The alga makes glucose through photosynthesis, while the fungus collects nutrients such as water for the alga.

Look out for pixie cup, bearded, antler-horn and matchstick lichens on the bog.

year, as they have the ability to desiccate; that is, dry themselves out, which prevents the plant from freezing in the winter and protects the plant from transpiration (water loss) in summer.

Lichens are mainly divided into three groups: crustose, foliose, and fruticose, and these groups can be used as indicators of air quality

- * Crustose lichens are pollution tolerant.
- * Foliose lichens can live in areas of moderate air pollution
- * Fruticose lichens are sensitive to pollution, and are only found in areas with clean air.

They survive on the bogland habitat all

False-Eyed Emperor Moth

Species name:
Emperor Moth
Saturnia pavonia
Empire

The emperor moth is a spectacular invertebrate found on bogs. This large day-flying moth can be easily mistaken for a butterfly due to its bright colours and the prominent false eye-spots on its wings. These false eye-spots are used by the emperor moth to warn off predators.

The caterpillar of the emperor moth feeds on ling heather, and due to its

large size and bright green colour it is easily identified. The caterpillars spin a cocoon from brown silk that protects them as they mature into adults. This cocoon resembles an antique gun-powder flask.

Adult emperor moths do not feed. Their sole purpose is to find a mate and reproduce. Once the female emerges from her cocoon she releases pheromones, a chemical scent, and then sits and waits. The male emperor moth can be seen flying over the bog surface in a zig-zag pattern trying to locate the females' irresistible scent.

Quirky Fact

A male emperor moth can detect a female up to a kilometer away using his feather-like antennae.



The female emperor moth is larger than the male.
Photo: N. Madigan



The male emperor moth has feathery antennae that it can use to pick up the scent of female moth pheromones.
Photo P. Foss



Silk emperor moth cocoon. Photo: C. O'Connell



Emperor moth caterpillar feeding on ling heather.
Photo: N. Madigan

Lucky White Heather

Quirky Fact
If you find heather with
white flowers you'll be in
for some good luck.



Flowering ling heather
colours the bogs
purple in
autumn.
Photo: P. Foss



Lucky white heather.
Photo: O. Huby

Species name:

Ling Heather
Calluna vulgaris
Fraoch Coiteann

Ling heather is one of the tallest plants found on living peat-forming bogs, growing to a height of 50cm. It is a woody, shrubby plant associated with the drier parts of the bog, and has special adaptations that allow it live on the bog surface all year long.

Although it lives in a wetland, ling heather prefers the drier parts of the bog. It has small waxy leaves to prevent transpiration (water loss) from the plant during long warm days of summer and when buffeted by cold

winter winds. Ling heather also holds very little water within its body, ensuring that it does not freeze in winter.

Ling heather makes its own food through photosynthesis, utilising its evergreen leaves year round. You can expect to see the pretty purple/pink flowers from August to October each year.

If you come across heather with a white flower it is said to bring you luck. This form of heather is rare and is more likely to be found in the west of Ireland where there is a luxurious growth of this plant!

Hares Eat their Own Droppings

Species name:

Irish Hare

Lepus timidus hibernicus

Giorria Éireannach

The Irish hare can often be seen running across the bog surface. As herbivores, hares feed on heather and bog cotton. Even if you do not see a hare, you may find evidence of its presence on the bog by watching for footprints, fur or their droppings, which are oval in shape.

Unlike rabbits, hares do not dig burrows. They build their shelter or

'form' in a moss hummock on the bog surface. This allows them to live on bogs. Rabbits cannot live on bogs because they cannot dig a dry burrow in the wet bog.

Female hares are larger than males, and, therefore, dominate males throughout the year. During the mating season, in March, it is not uncommon to see hares 'boxing' one another. Usually, this is when a female hare is warning a male hare to stay away. This is also the origin of the saying 'Mad as a March Hare'.

Young hares are known as 'leverets'.



Hare feeding.
Photo: D. MacPherson



Hare form in a moss
hummock.
Photo: P. Foss



Hare leveret.
Photo: N. Madigan



Hare Droppings

Quirky Fact

During times of food shortage, hares have been known to eat their own droppings, which remain rich in nutrients.



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The Irish Peatland Conservation Council's mission is to conserve a representative sample of Irish peatlands for people to enjoy now and in the future.

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