

Blanket Bog

Blanket bog is one of the most important habitats in the Park. Bogs consist of waterlogged soils upon which only a limited number of plants will survive. The Park contains the best example of bog in the east coast of Ireland.



Formation of Blanket Bogs

Around 4000 years ago Ireland's climate became wetter and milder. Heavy rainfall caused minerals to be leached from the soil forming an impermeable layer in the soil known as an iron pan. Water couldn't soak through this layer, so the soil above the iron pan became waterlogged and peat began to form. Peat is brownish/black in colour and consists of approximately 90% water. Peat is made up of partially decomposed remains of dead plant material, which have accumulated on top of each other over thousands of years. The dead plant material consists of mosses, grasses and heathers. The roots of trees are often found in bogs. These trees are from ancient forests that were swallowed by the bog. The lack of oxygen prevents the complete breakdown of the plant material, resulting in the formation of peat. Peat only grows about 1mm a year but can reach depths of several metres. The name 'blanket bog' is derived from the fact that these bogs consist of a carpet of peat extending over large areas of land. Blanket bogs receive all their nutrients from rainfall, resulting in very acidic conditions (pH levels from 3.5 to 4.2). The lack of nutrients, low oxygen levels and high acidity means that there are only certain plants that will grow in this hostile environment. Many plants have special adaptations to help them survive.

Blanket Bog in the Park

The type of bog in the Park is known as mountain blanket bog, as it is found in mountainous areas (above 200m in altitude), where rainfall occurs over 175 days a year.

Blanket bogs originally covered 774,360ha of the land surface in Ireland. Extensive survey work has shown that there is only 21% of blanket bog left relatively intact. This is why the conserved areas of bogland are so important.

Liffey Head Bog is an actively growing blanket bog within the Park. It is the best example of mountain blanket bog in the east of Ireland. It is situated in a hollow between Djouce, Kippure and Tonduff Mountains. Here you will find the headwaters of the Rivers Liffey, Dargle, Cloghoge and Dodder. This site is of international importance and has been designated a Special Area of Conservation. The wet bog surface and luxuriant growth of mosses and bog cottons show that it is an actively growing bog. Plants which are not common around Wicklow are found here such as Cranberry, Cowberry and Bog Rosemary. Liffey Head Bog has a system of flushes (water flows) which are an important part of the natural drainage system of the bog. These flushes often bring up nutrients from the mineral soil below the peat which support plant species not usually found on mountain blanket bog, such as Star Sedge, rushes and Devils Bit Scabious.

Like most habitats within the Park and in Ireland in general, Liffey Head Bog has been exploited in the past by man. In 1802, the Military Road was built across the bog, which opened it up for turfcutting by the local people. Turf is the name for peat which has been hand cut and dried out for use as a solid fuel for home heating. During World War II, turfcutting was carried out, in order to supply Dublin with fuel. By mid-1980s, machine exploitation of Liffey Head for turf was initiated by the landowner. However, this cutting was carried out in an area of relatively low ecological value. In 1986, a series of parallel drains were dug across an intact area of high ecological value. Protests by conservationists led to the acquisition of most of Liffey Head Bog by the State. This site became one of the core areas of the newly set up National Park. The earlier drainage and peat extraction had altered the hydrology of the bog. Waterlogged conditions are essential to the survival of a bog ecosystem. In 1995, extensive and costly work began on blocking the drains previously dug in order to rehabilitate the bog.

Flora on the Bog

Sphagnum mosses are specialised bog plants which colonise every part of the bog. Sphagnum grows upwards from the tips leaving the lower parts of the plant shaded. They die and become peat, resulting in the bog growing upwards above the surrounding landscape. Sphagnum mosses have adapted to the waterlogged conditions by being able to hold up to ten times their own weight in water. Sphagnum mosses have an ion exchange mechanism. They can absorb calcium ions from the rainwater they hold and release acidic hydrogen ions as a waste product. This creates a nutrient poor environment with high acidity allowing sphagnum to dominate. As other types of flora have to grow through the sphagnum, they tend to be stunted in growth. There are many varieties of sphagnum and colours range between greens, reds and yellows.

Where sphagnum mosses are actively growing, different zones of vegetation develop: hummocks, hollows and lawns. Hummocks are the higher and drier parts of the bog, usually dominated by heathers, lichens and sedges that like a dry exposed environment. Hollows are the pools in between,

often lying below the water table. Here you will find plants that are specifically adapted to survive under water e.g. Manyheaded Bog Cotton. The height difference between hummock and hollow is usually around 30cm but can be up to 100cm. Flatter areas are known as lawns.

Plants that are specific to boglands include carnivorous plants such as Sundew and Lesser Butterwort.

There are a variety of heathers found in the different vegetation zones such as Ling and Bell Heather, Cross-leaved Heath, Cranberry, Crowberry and Cowberry. Other prolific flora on the boglands include lichens, sedges such as the bog cottons, grasses such as Purple Moor-grass and colourful flowers such as Bog Asphodel and Heath Milkwort.



Wildlife on the Bog

Invertebrates

Bog pools are a wildlife haven and invertebrates are the most abundant animals on blanket bogs. Mayfly and stonefly larvae as well as dragonfly and damselfly larvae spend their early years on the bed of the bog pools. Other insects that can be seen on the surface of the pools are whirligig beetles, pondskaters and water boatmen.

The Emperor Moth *Saturnia pavonia* cocoons can be seen on the heather if you look carefully. Due to the lack of calcium, there are no snails on the bog but you will see plenty of black slugs. The wet areas are also good habitats for our Common Frog, Common Lizard and Smooth Newt.

Birds

Due to the lack of trees, the most common bird species to be seen are ground nesting birds. The Wicklow Mountains is one of the best areas to see Red Grouse, which is dependent on the shoots, buds and flowers of heather for food and nesting. The most common bird to be seen is the little Meadow Pipit. Other birds to be seen include Skylark (though not as common as it used to be), Curlew, Snipe and Golden Plover. Birds of prey such as Merlin, Hen Harrier and Kestrel hunt over the open bog.

Mammals

The exposed harsh conditions of the bog do not make a favourable habitat for many mammals. Animals can still be seen such as Mountain (Irish) Hare, the characteristic density is about one hare per square km. Sika Deer thrive on poorer ground as they are resilient to disease. The elusive Pygmy Shrew is present and Foxes can sometimes be seen running over the bog in search of food.

Conservation issues

Sheep Grazing

Sheep grazing is a common practice in the bogs and heaths of the Park and is an important part of maintaining the upland vegetation communities. If the sheep stocking density remains below 3 sheep per hectare, the ecological stability of the blanket bog can be maintained. Heather is a particularly useful food being evergreen and can withstand up to 40% new shoot removal. Trampling by large concentrations of sheep can damage the vegetation. It also damages larger lichens and concentrated trampling will result in a total loss in vegetation.

Turfcutting

Cutting peat for fuel has been carried out in the mountains for centuries. Handcutting turf, known as turbary, is not as damaging as large-scale peat extraction done using machines. Owners of turbary rights may hand-cut turf for domestic use. Mechanical peat extraction is no longer carried out in the Park.

Erosion

There can be both natural and manmade erosion. Natural erosion can occur due to the force of rain and wind, particularly in exposed locations. Erosion can be accelerated by trampling and overgrazing by animals as well as recreational activities such as hillwalking, off-road motoring, horseriding and mountainbiking. These activities can cause breaks in the protective vegetation. Rain and wind cause gullies to form in the exposed peat. The peat is gradually washed away, eventually exposing the mineral soil beneath.

Afforestation

Blanket bog has been the most affected habitat by afforestation. In Wicklow, many areas of bogland have been planted with commercial forests. Sitka Spruce is the most commonly planted tree. In order to plant a large amount of trees, the bogs are drained, so the bog will no longer continue to develop. In addition to the drainage, this tree growth brings about many ecological changes. As the

open ground is replaced by forest, many of the heath and bog plants will disappear. The birds of the open bog such as Red Grouse, Snipe and Curlew disappear to be replaced by tree-loving birds such as Goldcrest and Siskin. Forest management in Ireland is highly intensive, as plantations are managed as crops rather than woodlands. Commercial plantations, on poor land also need large amounts of fertiliser, in order to be productive. Harvesting is normally by clearfelling, which has a negative visual impact.

Why Conserve our Blanket Bog?

Ireland possesses 8% of the world's blanket bog, so we are now the most important country in Europe for this type of habitat, this is why sites such as Liffey Head Bog are so important.

The peat layers of the bog preserve a record of their own growth and development and on a greater scale, provide insights into regional vegetation change, bog change and atmospheric pollution

Blanket bogs are an important specialised ecosystem and a refuge for several rare plants, invertebrates and bird species. They are nesting grounds for some of our rare bird species. We hope that by encouraging a greater understanding of this complicated ecosystem, that we can help preserve some of Ireland's blanket bog for the future.

