My Raised Bog
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Raised Bogs are wetlands made of peat, plants and water combined together. They occur in the midland counties and in the Bann River valley of Ireland. Peat is the result of the accumulation of partially decayed plants over thousands of years. The dead plants don’t rot because they grow in waterlogged conditions where there is little oxygen.

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Cover images: Girley Bog, Co. Meath © C. O’Connell

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Raised bogs formed in lakes left behind after the Ice Age 10,000 years ago in the Irish midlands. Bacteria and fungi - the agents of decay were prevented from working in the waterlogged conditions found in such lakes. The lakes slowly filled with un-decomposed plant material which thickened into peat to fill the lake basin. Sedges invade the surface peat to form a fen. Groundwater feeds the plants in the fen and a rich alkaline wetland habitat develops. Eventually the plants lose contact with the groundwater and rainwater becomes the main water source which means the peatland becomes acidic pH 4. In the mineral poor wetland Sphagnum mosses establish and grow rapidly laying down peat each year until it thickens to 10m depth or more. All of this peat is stored carbon and as long as the bog remains wet, that carbon is not released to the atmosphere as greenhouse gas.
Walking on a raised bog is the closest you might ever get to being able to walk on water. This is because a raised bog is 90% water and only 10% solid earth. The ground is so soft that it takes three years for your footprint to disappear from the moss cushions. If you jump up and down on the bog you can feel and even see it move, proof that it is really wet.

All of this water is stored in a very powerful bog moss known as Sphagnum. It grows quickly and can hold up to 20 times its own weight in water. When Sphagnum mosses die their remains do not decay but collect as peat or turf.
Without *Sphagnum* mosses there would be no raised bogs in Ireland. Bogs have a living surface which is made of a thin carpet of *Sphagnum* mosses. This is floating on a thick layer of partly rotted plant material or peat that is soaking wet. This is why when you walk across the surface of a bog it feels bouncy.

The carpet of *Sphagnum* mosses is not flat. Some *Sphagnum* mosses grow tightly packed together to form hummocks or cushions. These can be up to 1m high on the bog and can be chocolate brown or orange in colour. Scientists have counted 50,000 *Sphagnum* plants in a hummock measuring one square metre. Other Sphagna form loose mats in colours of pink, red, copper and yellow. Still others grow as single plants surrounded by water in bog pools. These ones are bright green.

**Structure of a *Sphagnum* Moss Plant**

A single *Sphagnum* plant is very small but has an interesting structure. The head or capitulum is the growing point of the moss. Attached to the stem are two types of branches - the spreading branches stick out to interlock with other plants. The hanging branches are pressed to the stem and help to draw up water. Water is trapped between plants in a hummock, but it is also stored inside the plant itself in special containers called cells.
What lives in a Bog?

Clara Bog, Co. Offaly © C. O’Connell

Red Grouse © F. Doyle

Painted Lady © J. FitzGerald

Hare © D. MacPherson
The endangered Large Heath Butterfly depends on raised bog plants such as cross-leaved heath and bog cotton for its food.

The Emperor Moth flies in daylight and could be mistaken for a butterfly. You may find the caterpillars (called hairy mollies) of the Fox moth or Oak Eggar Moth or a pure silk Emperor moth cocoon on the bog.

Frogs hunt on the bog surface but breed in bog pools laying clumps of frog spawn in spring. The Viviparous Lizard may be seen sunning itself on hummocks on warm days.

Snipe, curlew, skylark and meadow pipit breed on bogs. With no trees these birds nest on the ground in hummocks. Some feed on insects while others probe the peat for food with their long beaks. Even birds of prey such as kestrel, buzzard or merlin will patrol the bog looking for small birds, freshly hatched chicks or other animals. Red grouse feed on Ling Heather. They have a distinct “go back, go back” sounding call. Look for clumps of their sausage like droppings on the bog.

You are most likely to see the Irish Hare running away from you on the bog. Its droppings are straw coloured oval balls. Hare’s feed on bog cotton. Foxes, Badgers and Shrews make foraging journeys to the bog but they don’t live there.

Some plants go to extremes to live in bogs. Sundews are carnivorous and they trap insects in sticky fluid found at the tips of tentacles on their tiny leaves. The tentacles move to enclose the insect on the leaf surface so that it can be eaten.
My Raised Bog - How Many Plants Do You Know?

- **Ling Heather**
  Calluna vulgaris
  Fraoch Coiteann

- **Crossed Leaved Heath**
  Erica tetralix
  Fraoch Naoscaí

- **Bog Rosemary**
  Andromeda polifolia
  Andraithéid

- **Cranberry**
  Vaccinium oxyccoccus
  Mónóg

- **Long Leaved Sundew**
  Drosera anglica
  Drúchtín Móna

- **Bog Asphodel**
  Narthecium ossifragum
  Sciolam na Móna

- **Bog Bean**
  Menyanthes trifoliata
  Báchrán

- **Many-flowered Bog Cotton**
  Eriophorum angustifolium
  Ceannbhán

- **Single-flowered Bog Cotton**
  Eriophorum vaginatum
  Ceannbhán Gaelach

- **White Beak Sedge**
  Rhynchospora alba
  Gobshéisc

- **Deer Sedge**
  Trichophorum cespitosum
  Cib Cheanngeal

- **Matchstick Lichen**
  Cladonia florerkeana
  Caipín Dearg

- **Pixie Cup Lichen**
  Cladonia pyxidata
  Cupán Móna

- **Antler-Horn Lichen**
  Cladonia uncialis
  Léicéan

- **Bearded Lichen**
  Cladonia portentosa
  Léicéan

- **Austin's Bog Moss**
  Sphagnum austini
  Sfágrann

- **Red Bog Moss**
  Sphagnum capillifolium
  Sfágrann

- **Feathery Bog Moss**
  Sphagnum cuspidatum
  Sfágrann

- **Rusty Bog Moss**
  Sphagnum fuscum
  Sfágrann

- **Soft Bog Moss**
  Sphagnum flexicaule
  Sfágrann

- **Lustrous Bog Moss**
  Sphagnum subnites
  Sfágrann

- **Magellanic Bog Moss**
  Sphagnum magellanicum
  Sfágrann

- **Papillose Bog Moss**
  Sphagnum papillosum
  Sfágrann

- **Heath Plait-Feather Moss**
  Hypnum jutlandicum
  Cleicthaochán

- **Heath-Spotted Orchid**
  Dactylorhiza maculata
  Na Circíní

- **Purple Moor Grass**
  Molinia caerulea
  Fionnán

- **Tormentil**
  Potentilla erecta
  Néalfartach
Bog Pool Dipping

Carnivorous flying insects, such as dragonflies and damselflies, hunt over bogs catching midges and mosquitoes. They lay their eggs under water in bog pools. The larvae spend three years developing in the pool. They are ferocious predators. After this time they emerge from the pond to become a flying insect and exploit a new habitat for food. Within bog pools there is a rich diversity of mini beasts for example: water scorpion, water beetle, water boatman, hoglouse, shrimp and tadpoles. Other mini beasts inhabit the surface water of the pool such as pond skaters and the hunting raft spider (*Dolomedes fimbriata*).
The Bog Archive

More than peat is preserved in bogs. Stumps of trees and wooden or leather artefacts such as tools, clothing and boats have been preserved; even the bodies of people who lived thousands of years ago. The wetness of the peat and the lack of oxygen are the reason why perishable items are preserved. Another great example is bog butter which farmers of old stored in the bog to keep it fresh for use at a later stage. Under the peat the remains of the Great Irish Elk have been found. Millions of seeds and pollen grains are also preserved in the peat. By analysing these we can see when the first farmers arrived in the midlands and how the forests colonised the land after the ice age. Even volcanic ash or tephra from the Islandic Hekla eruptions is found in bogs.

Steps in Time from 0 to 10,000 years ago and Peat Depths
Why are Raised Bogs Important?

Raised bogs are (or were) common in Ireland and scarce in Europe. They occur in few other places in the world. Raised bog habitats need protecting, just like the tropical rainforests.

When raised bogs disappear, we lose more than a source of fuel, moss peat and a unique habitat: we lose a natural environmental regulator. Bogs hold rainwater (just like a sponge), which reduces floods. The water is released during droughts. As they grow bogs store carbon and have a vital role to play in helping to tackle the climate crisis.

What has it to do with me?

People use peat. Turf is cut and dried for a home fuel - a tradition carried on for hundreds of years in Ireland. At first turf was cut and dried by hand but today machinery is used to cut the turf which is then spread out to dry. About 60 years ago the peat industry began. Machines were invented to mill peat which is used to make electricity. On top of that peat, rich in Sphagnum moss is bagged and sold to people to use in their gardens. We need to stop depending on peat and turf if we are to protect the last of the raised bogs. It’s time to use energy produced from renewable sources and to compost organic waste instead of using moss peat in gardening. With the climate in crisis we need to rewet any peat reserves remaining to prevent them leaking greenhouse gases which damage our environment.

Originally there was 300,000ha of raised bog in Ireland. Today only 10% of that area has a value for nature conservation. Sites are protected through conservation designation. Land owners are compensated for not cutting turf in the designated sites and for assisting with their restoration. Communities are advised on how to safeguard raised bogs and on how best to use them for recreation and education.

![Raised Bog Utilisation Chart 300,000ha](image)

- Turf Cut for Home Use 46%
- Forestry 2%
- Industrial Peat Extraction 24%
- Conservation Value 10%

![Machine cut Turf](image)

![Industrial Peat production](image)

![Industrial Peatland and windfarm](image)
Action You Can Take for Bogs

Get Stuck In - Help Block Drains
Rewetting damaged raised bogs means bringing the water table back up to the surface. This is achieved by blocking up old drains and removing any trees that can suck water from open parts of the bog. Even forestry plantations on raised bogs are being felled so that the bogs can be allowed to grow again. Some work needs special machinery but small jobs can be carried out by trained volunteers. Contact your local youth group or your local bog group through the Community Wetlands Forum to see what you can do to help.

Citizen Scientists Wanted
Each year the Irish Peatland Council record frogs and frogspawn seen on raised bogs and other wetlands. Records can be submitted on line at www.ipcc.ie. Join the Hop to It Irish Frog Survey.

Bog Habitat Transplant
Re-introducing *Sphagnum* moss to areas of raised bogs that have no plant cover helps their restoration. *Sphagnum* moss is transplanted from a donor site onto freshly prepared peat. The plants are covered with living strands of moss and protected with a layer of straw. After 3-5 years the moss regenerates covering the bare peat and preventing further loss of the peat soil (which is carbon) and wildlife. By volunteering on community projects you can help with bog transplants.
Like Raised Bogs
Spread the word about how great raised bogs are for you. Remember
My Raised Bog = Water
My Raised Bog = Wildlife
My Raised Bog = Carbon Store
My Raised Bog = Flood Control
My Raised Bog = A Day in the Wild

describes the work that needs to be done to bring the bogs back to good health. Read more at www.npws.ie and www.raisedbogs.ie.

Save the Bogs Campaign
The campaign to save a representative sample of Ireland’s peatlands for people to enjoy now and in the future began over 35 years ago. It is run by the Irish Peatland Conservation Council (IPCC) - an environmental NGO. IPCC

● Protect biodiversity and fight the climate crisis by restoring, managing and conserving peatland habitats and wildlife.
● Help Irish people save bogs and live sustainably through education, training and fundraising for essential projects. Read more at www.ipcc.ie.

Bringing Raised Bogs Home
Composting household waste cuts out the need to purchase bags of moss peat from a garden centre for use in your garden. Moss peat is harvested from raised bogs and this removes the carbon and greenhouse gas store that took thousands of years to build in the bog.

Planning for the Future
The National Parks and Wildlife Service of the Department of Culture, Heritage and the Gaeltacht have developed a plan to protect raised bogs for Irish people. This document sets a target area for conservation of raised bogs and
What Raised Bogs Can I Visit?

Because of their waterlogged nature, access to raised bogs can be difficult; however several bogs have boardwalks or walking tracks to help protect the sensitive bog surface from trampling. Respect wildlife and privately-owned lands. Leave No Trace. Above all enjoy your experience.
My Raised Bog Challenges

- I took part in International Bog Day
- I volunteered to help restore my local raised bog
- I shared my raised bog experience on social media
- I went pond dipping to discover wildlife in bog pools
- I’ve decided not to use moss peat in my garden and to recycle organic material to make my own compost
- I gave a talk about my raised bog to
  
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- I’ve worked out the age of my raised bog
- I’m going to use less electricity to help reduce my carbon footprint
- I found frogs and frogspawn in my raised bog and sent my records to the Hop To It Frog Survey