

Ireland's Culture & Heritage

- * Peat supports an iconic and 'mind's-eye' landscape of Ireland
- * Peat lands are ancient landscapes up to 10,000 years old
- * Peat lands have supported pastoral farming in Ireland for 5,000 years
- * Peat holds within itself the story of its own past, the climate's past and the Irish landscape's past - it is a history book beneath our feet!
- * Peat contains many important archaeological remains, as at Lemanaghan Bog, Co. Offaly
- * There are regional types of sleáns peat (turf)-digging tools and vehicles in Ireland
- * Peat supports complex, dynamic ecosystems with beautiful, multi-coloured vegetation rich in unique and specialist flora such as carnivorous plants and fauna which are not found elsewhere
- * Peat lands in Ireland cover 20.6% of the land area or 1.466 million hectares
- * Peat lands contain 75% of Ireland's soil organic carbon
- * A substantial portion of Ireland's drinking water filters through peat
- * Ireland contains 8% of the world's Blanket Bog and almost 50% of the Raised Bogs in western Europe
- * 20% of Ireland's peat lands are being protected by state and private interests for future generations to enjoy
- * The Irish Peatland Conservation Council is the NGO that takes action to celebrate and protect peat lands in Ireland



Protecting & Restoring Ireland's Peat Lands Makes Sense

- The best means of flood control and moderating water flow in rivers is to maintain the hydrological integrity of peat bogs.
- Maintaining and improving peat lands is the best way to ensure a continued supply of good quality drinking water in parts of Ireland.
- Conserving existing peat lands maintains existing reservoirs of fixed carbon (carbon not in the atmosphere).
- Encouraging inactive peat to grow again through restoration will increase the carbon stored in land ecosystems, so reducing Ireland's carbon footprint.
- Conserving peat lands ensures the protection of their unique biodiversity.
- Protecting the ancient and cultural aspects of peat lands fosters Ireland's sense of identity and national pride.

Uses for Irish Peat Lands & their Resources

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| Animal Bedding | Horticultural | Roofing Material |
| Balneology | Compost | Surgical Padding |
| Therapy | Medicinal Plants | Scientific |
| Bird-watching | Fishing | Research |
| Bog Wood for | Snorkelling in Bog | Sheep-dog Trials |
| Carving | Holes | Training |
| Camping | Nature | Greyhounds |
| Clay Pigeon | Conservation | Turf Fuel |
| Shooting | Orienteering | Water Supply for |
| Education | Peat Smoking | Settlements |
| Food Collecting - | Fish & Whiskey | Water for |
| Berries, Animals | Pheasant/Grey | Whiskey Making |
| Forestry | Partridge-Rearing | Wildfowling |
| Heather Honey | Recreation | Wind Farms |



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What's So Special About Peat?





The Importance of Peat to Ireland & the World

What is Peat?

Peat develops in landscapes receiving lots of rain year round, in places with poor natural drainage. As peat and vegetation grow upward, they eventually lose contact with the groundwater beneath; and receive their water only from rain.

On Irish peat bogs, grasses and sedges are abundant in damp places while small shrubs in the heather family grow in drier areas. But soft, springy bog mosses (*Sphagnum* species) dominate the vegetation: they are important contributors to peat formation in Ireland. The top 10-30cm of living vegetation is the acrotelm: it protects the peat in the lower layer or catotelm. Dead bog moss plants don't decompose because their waterlogged environment which lacks air: they stay just as they are.

Layers of dead, undecomposed plants below the protective, living acrotelm form brown peat. The catotelm can grow to 10m deep in Irish bogs. Successive increments of dead vegetation build up, and, as the years pass, those at the bottom turn black. Active peat grows upwards just 1mm a year - but a peat bog is not just an amorphous mass of dead plants and dependent animals!

Water & Peat

Bog mosses can take in and store up to 20 times their own weight in water. So an active peat bog is actually a reservoir of trapped rainwater from 85% to 98% by weight, held in place by only 2% to 15% of plant material! Water moves slowly through both acrotelm and catotelm, between a complex mosaic of hummocks

and pools (visible on large bogs such as Lough Lurgheen in Galway). Walking on the surface you can feel the waterlogged peat below move with your weight.

Peat's slow-moving water is important for both flood-control and people's water supply. Active peat releases its water slowly and evenly into streams and rivers, moderating their rate of flow.

Carbon & Peat

All green plants take in carbon dioxide and water and convert it to plant food (sugars) using sunlight energy. When plants die and decompose, their carbon is released back into the air. But when plants of peat bogs die, they stay undecomposed, donating their bodies and their carbon to peat formation.

This means that all the dead-plant-carbon amassed within peat bogs during the last 10 millennia is locked up in that peat! While peat is active and growing it continues to lock up more carbon. Irish peat lands hold 75% of the soil's organic carbon.

Destroying Peat - Peat is Easily Destroyed

Peat loses its structure and functionality whenever its surface is broken by digging, cutting, draining, burning, overgrazing or erosion. Air gets in, so the dead plants start to decompose, releasing their carbon dioxide and other gases into the atmosphere. Damaged peatlands are a hot spot for carbon emissions responsible for one quarter of all carbon emissions in Ireland each year! Archaeological remains disintegrate as they are exposed to air.

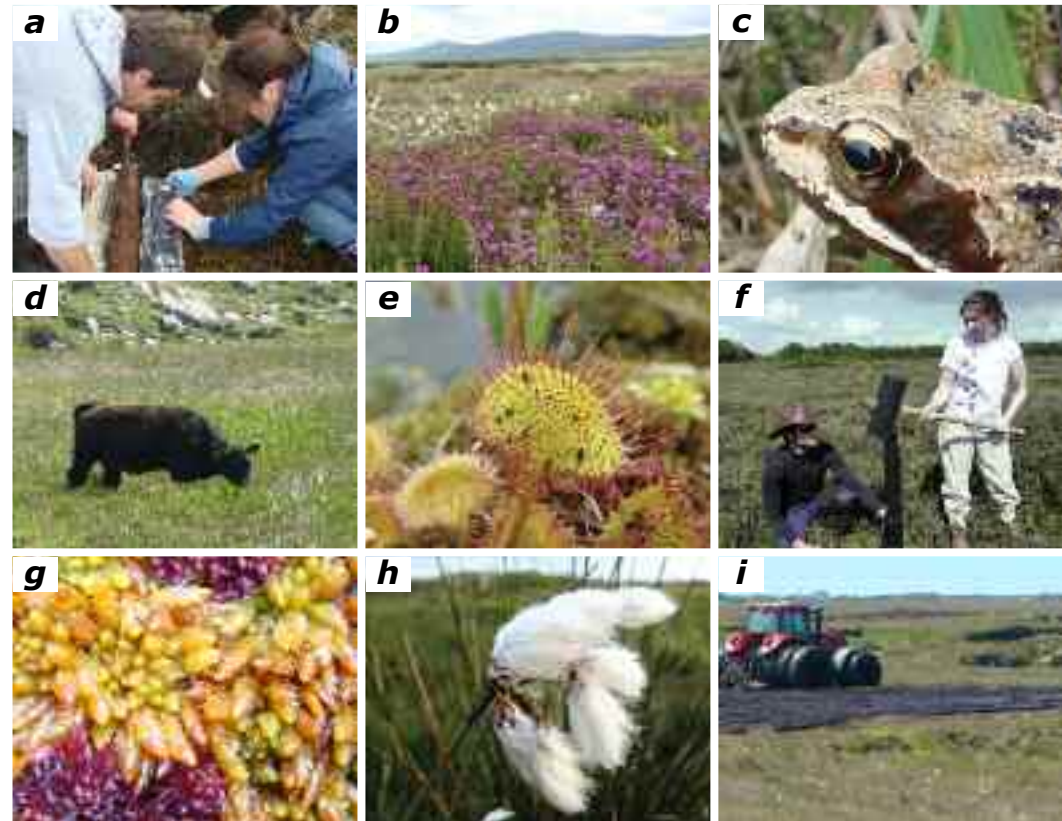
The water balance is also disrupted. Trapped rainwater is set free, flooding drains and waterways. Sediment is carried into rivers, flood-plains may be inundated and water rushes, unhindered, out to sea. River animals, fish spawning beds and plants suffer, with resulting economic effects.

The biodiversity is also changed. Disruption increases the variety of species found, making peat bogs more like other habitats. The unique and particular peatland biodiversity is lost.

The intensity of peat destruction in the 20th century in Ireland has meant that hydrologically and ecologically intact peat lands are rare.

Peat Land Restoration

The goal of peat land restoration is to promote the return of ecosystem functions, especially peat accumulation. Drains are blocked to raise the water level to within 10cm of the peat surface, ideal for *Sphagnum* growth. Oxidised peat is removed and the freshly exposed peat is raked over. Live *Sphagnum*, collected from a natural peat land donor site is spread over the restoration site in a 1:10 ratio. In eastern Ireland where rainfall is low, moss fragments are protected from drying out with a layer of straw. In 3 years moss covers the peat. It takes longer for the restored site to be self-regulating like a natural bog.



a) Taking a peat core from a peat land. b) Upland peat landscape. c) Common Frog (*Rana temporaria*) breeds in peat lands. d) Peatlands support low intensity grazing animals. e) The carnivorous Sundew (*Drosera rotundifolia*) is a specialist peat land plant. f) Building a dam in a bog drain using plastic piling forms the basis of peat land restoration. g) Without *Sphagnum* mosses there would be no bogs in Ireland. h) Fibres from bog cotton are used to make cloth. i) Turf cutting damages the hydrology, biodiversity & peat forming function of peat lands.