

More information

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Plant Identification for Raised Bog Condition Assessment



Introduction

This guide is designed to help you identify common plant species on raised bogs in Ireland. Plant identification will help you to classify the bog as being in poor, fair, good or excellent ecological condition. In this guide, we will show you how to assess peatlands by identifying the plant communities on the bog. Plant species and other physical characteristics are used to do this.

This guide is primarily for use on uncut high bog. It can also be helpful on cutover bog but should be used with more caution as species composition can differ slightly and micro-topography is usually less well-developed. High bog is characterised as bog from the face-bank to the centre of the bog. It is still considered high bog even if it has been drained. Cutover bog refers to what is left behind after some turf has been extracted for domestic use, whether by hand or with machinery. Cutaway bog is bog that has been extracted industrially. This habitat is not included in this guide. Assessing raised bog habitat is very complex and it must be noted that this is a rough guide for non-experts to identify plant communities on the raised bog you are mapping using visual indicators.

What is a raised bog

Raised bog is formed in lowland areas from the build-up of partly rotted vegetation under waterlogged conditions in depressions and lakes left behind by the retreating glaciers of the Ice Age around 10,000 years ago. Complete decomposition of plant material is prevented by the lack of oxygen available under waterlogged (anaerobic) conditions.

Over time the semi-decomposed plant material forms a thick layer of peat that rises toward the surface of the lake. Eventually, the surface peat is invaded by reeds, rushes and sedges to form a fen. The fen peat layer thickens until the roots of plants growing on the surface are no longer in contact with the calcium-rich groundwater. The only source of minerals for plants is now rainwater, which is very poor in minerals. Raised bog species, such as *Sphagnum* mosses begin to invade, and eventually, the fen becomes a raised bog.

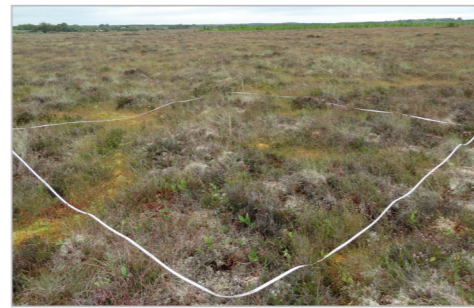
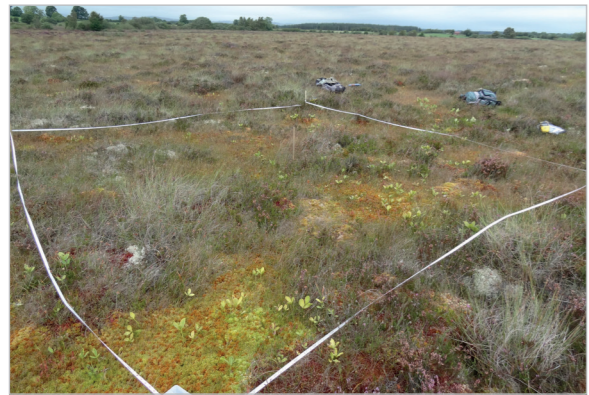
The principal supply of water and nutrients to a bog is from rainfall and the substrate

The chart below shows some of the species commonly found on raised bogs. These species can each occur right across the spectrum of ecological condition from poor to excellent quality. However, their abundance can indicate where along that spectrum an area of bog is likely to sit.

		Excellent Condition	Good Condition	Fair Condition	Poor Condition
Great Sundew		✓			
Sphagnum Cuspidatum		✓	✓		
Sphagnum magellanicum		✓	✓		
Sphagnum papillosum		✓	✓		
Common cotton grass			✓	✓	
White beaked sedge			✓	✓	
Bog Asphodel				✓	
Carnation Sedge				✓	✓
Ling heather				✓	✓
Purple Moor Grass					✓
Deer Grass					✓

Plant Cover

Plants that grow on the bog are a helpful indicator of the bog's condition. The plants you see on the edges of the bog, or on cutover bog, may differ in abundance as you make your way to the centre of the bog, or on to high bog. For example, heather is dominant at the edges of the bog. This indicates that the bog is drier in this area, which is quite normal for the edge of a raised bog. If the heather remains dominant as you make your way to the centre of the bog, this indicates that the bog is generally in a poor condition. By identifying and noting which plant species is most common, you can estimate the condition of the bog.



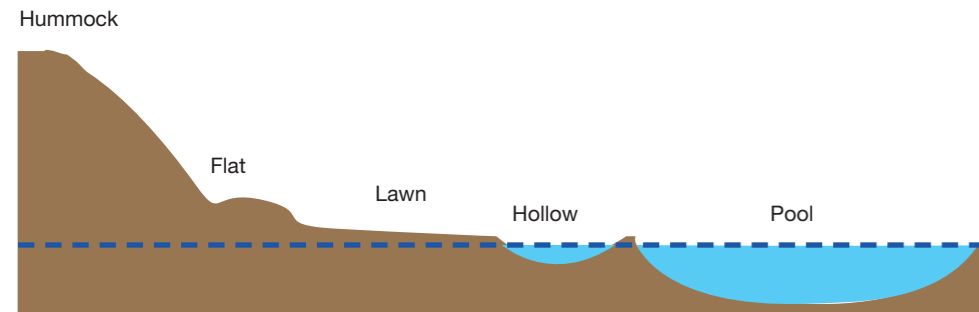
Raised Bog in Good Condition



Raised Bog in Fair Condition



Raised Bog in Poor Condition



Raised Bog in Excellent Condition

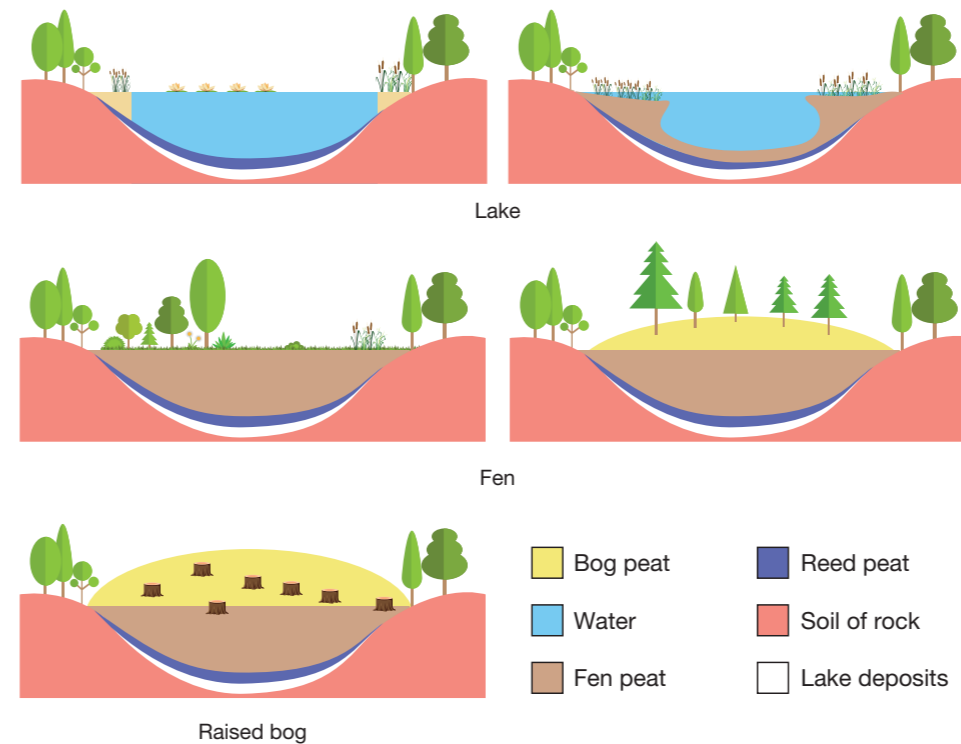


Western Raised Bog in Excellent Condition

	Excellent Condition	Good Condition	Fair Condition	Poor Condition
Micro-topography	Micro-topography usually ranges from pools to tall hummocks. Pools are frequent to dominant. On the more westerly sites pools tend to be more elongated and interconnecting with each other in places.	Less variable and usually dominated by lawns and/or low hummocks. Pools can be absent or occasional. Or if frequent the Sphagnum cover within them is low.	Degraded micro-topography, with very little differentiation between hummocks and hollows. Pools may still be present but usually they are algal with little or no Sphagnum cover within them.	Degraded micro-topography. No pools, lawns or wet hollows present.
Sphagnum cover	75-100% 50-100% in western bogs	30-50% in West of Ireland 40-75% in Midlands	15-30% in West of Ireland 25-40% in Midlands	Less than 10-20%

formed is acid peat soil. This forms slowly at approximately 1-2 mm/year or 1 metre/1000 years and can be up to 12m deep. Raised bogs are characterised by low-growing, open vegetation dominated by mosses, sedges, and heathers, all of which are adapted to waterlogged, acidic, and exposed conditions.

It is estimated that originally there were approximately 310,000 hectares of raised bog in the Republic of Ireland and 25,196 hectares in Northern Ireland. Ireland supports over 50% of the remaining European Atlantic region raised bog resource. Only 1,650 ha of raised bog in Ireland are currently deemed to be still forming peat, known as Active Raised Bog (ARB). Degraded Raised Bog (DRB) refers to areas of bog that although currently relatively dry and non-peat forming, are capable of developing into active bog within 30 years if their hydrology is repaired (usually after restoration works, particularly blocking of drains). Only those areas with the right combination of physical conditions (including surface shape, slope and drainage patterns) are considered DRB. Bog species typical of slightly drier conditions usually dominate in DRB. The remainder of the high bog that is neither ARB nor DRB is referred to as 'Supporting Raised bog habitat'.



Assessing the Condition of Raised Bog

Raised bogs can be visually assessed to identify whether it is in poor, fair, good, or excellent ecological condition. Firstly, you will need to take a look at the micro-topography.

Micro-topography

Micro-topography relates to the features on the surface of the bog. On Raised Bog, micro-topography refers to hummocks, flats, lawns, hollows, and pools. The micro-topography of a Raised Bog determines the types of plant communities that are present.

Good (or excellent) quality high bog is characterised by the presence of Sphagnum-dominated vegetation forming these hummocks, pools, and hollows with flat areas and lawns in between, and the water level is near or at the surface. Cutover bogs tend to lack the variety and abundance of this micro-topography.

Sphagnum Cover

A key characteristic of ARB is that it is wet and "still supporting a significant area of vegetation that is normally peat forming". As a proxy for assessing peat formation in raised bog

monitoring, a general threshold of Sphagnum cover of 40% is used as a criterion in determining whether an area of high bog is ARB. An area of cutover bog must also have Sphagnum cover of more than 40%, in addition to a number of other criteria (which are usually intrinsically present on high bog), to qualify as ARB.



Bog Plant Identification Trail

