Sphagnum Cultivation as a means of Restoring Irish Raised Bog Habitat

Tadhg Ó Corcora, Irish Peatland Conservation Council

***Sphagnum* moss - Peat forming vegetation**

Lodge Bog, Co. Kildare, Ireland (GPS: 53.16499N - 6.55489E) is a 35ha intact remnant of raised bog habitat which is being managed for conservation by the Irish Peatland Conservation Council (IPCC).In 2009 IPCC began to trial the *Sphagnum* transfer method of restoring peat forming vegetation to damaged areas of Lodge Bog following the methods of Quinty & Rochford (2003).

Lodge Bog has two distinct lobes and is surrounded by cutaway bog habitat and the mineral island of Lullymore. Significant drainage occurred historically on site while the target *Sphagnum* transfer area was once used as a spreading ground for domestic turf cutting

Sphagnum mosses have special peat forming characteristics and are critical for formation and sustainability of raised bog habitats. Drainage, fire and peat extraction have caused a loss of 88% of Ireland's raised bog resource.

Restoration of damaged raised bogs is key to safeguarding the future of the habitat and species as well as ensuring that Ireland meets its EU Habitats Directive targets.

Prior hydrological monitoring using piezometers is key to locating a suitable site

IPCC volunteers prepare one of the *Sphagnum* transfer sites on Lodge Bog South West

***Sphagnum* is spread across the bare peat at a ratio of 1/10 with the *Sphagnum* taken from the donor site**

Finally straw is overlain on the entire plot to regulate temperature and moisture loss

This was the first time that the *Sphagnum* transfer technique was trialled in Ireland. Sixteen plots measuring approximately 25m^2 were constructed on bare peat (pH 4 – 5) from 2009 to 2013. Fifteen plots were established on a spreading ground where turf had been dried in the past. The *Sphagnum* layer had died and vegetation consisted of *Calluna vulgaris*, *Molinia caerulea*, *Betula pubescens*, *Campylopus introflexus* and *Eripohorum vaginatum*. The 16th plot was established in a borrow pit on the high bog from which peat was used to create a dam in an adjacent drain. Here peat was removed to the level of the surrounding water table. This had been monitored over the previous 6 months.

REF: Quinty, F. and L. Rochefort. 2003. *Peatland Restoration Guide, second edition.* Canadian Sphagnum Peat Moss Association and New Brunswick Department of Natural Resources and Energy. Quebec.

The following results were obtained:

50% were successful with good *Sphagnum* regeneration (>30% plot cover)
25% failed due to flooding
25% showed partial growth of *Sphagnum* (10-30% plot cover)
The borrow pit trial showed the 3rd highest % cover despite being installed in 2012

A key finding was that over time successful *Sphagnum* colonisation can lead to a return of the characteristic active bog species to the area, a step towards restoring active bog habitat. ` Given the success of the 16th plot IPCC put forward that implementing the *Sphagnum* transfer method on borrow pits with adequate water table should be recommended as a best practice procedure where peat dams are being construction on raised bogs across Ireland.

A significant *Sphagnum* layer can be seen today on the plots established in 2008

Proper site selection can lead to significant *Sphagnum* recovery on donor sites (above 2 years after removal)

Hydrological monitoring is essential prior to *Sphagnum* transfer to avoid flooding within the plots

The removal of peat to install dams on restoration sites provides the ideal opportunity to implement the *Sphagnum* transfer method

Sphagnum Cultivation as a means of Restoring Irish Raised Bog Habitat. Poster paper presented at 'Peatlands a New Conversation' conference hosted by the Irish Peat Society 2015.

Lullymore, Rathangan, Co. Kildare R51 V293, Ireland, Email: bogs@ipcc.ie, www.ipcc.ie

Acknowledgement: The work of the IPCC is supported by the Irish Environmental Network through the Department of the Environment, Community & Local Government.

Photographs courtesy of IPCC staff & supporters.
Maps modified from Bing Maps (www.bing.com)

Irish Environmental Network