

Lodge Active Raised Bog Restoration Project

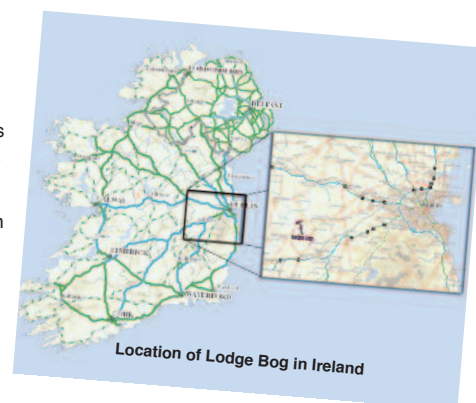
Success after 5 years

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Introduction

Lodge Bog, Co. Kildare, Ireland is a 35ha intact remnant of raised bog habitat. The site has been managed for conservation by the Irish Peatland Conservation Council (IPCC) since 2005. The key management issue on the bog is the restoration of the water table following years of drainage. Drainage changes hydrology and impacts on the growth of the peat forming *Sphagnum* mosses. With the aim of achieving optimum conditions for *Sphagnum* moss growth on Lodge Bog (water table within 10cm of the bog surface year round) IPCC have blocked over 5km of drains since 2005. Over 200 dams were installed by hand including geoflex drain piling, peat and composite dams which consist of both peat and geoflex. 114 piezometers have been installed throughout the bog, these allow water table levels to be measured on a regular basis enabling IPCC to assess the impact of the drain blocking and the health of the ecosystem.



Methods

IPCC staff have been measuring the water levels on Lodge Bog since 2010. Water levels are measured monthly using a plover and metre stick at the 114 piezometers that are inserted throughout the bog. Water duration curves are presented in Figure 1.

A drain and dam survey was undertaken in 2010 and again in 2016. At each of the 200 dams the following information was recorded: type of dam, dam width, drain width, % cover of *Sphagnum* moss on both sides of the dam, water level relative to bog surface on both sides of the dam, any damage to the dam. The % cover of *Sphagnum* moss from the 2010 survey was compared with the results from the 2016 survey (see Table 1).



Conducting the dam survey on Lodge Bog



IPCC volunteer measuring water levels on Lodge Bog

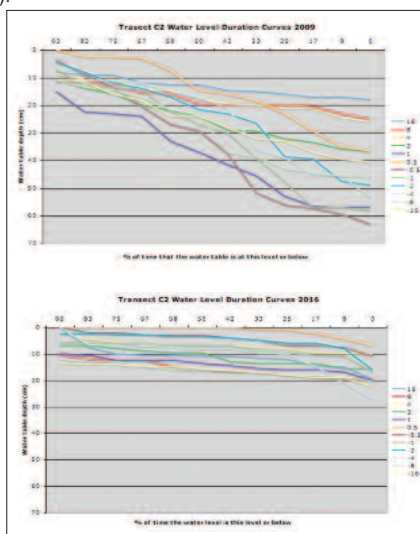


Figure 1: Water level duration curves for Lodge Bog showing the % of time the water level was at or below a certain level at transect C2 (located along drain C) in 2010 and in 2016



Active Raised Bog habitat at Lodge Bog, Co. Kildare

% <i>Sphagnum</i> cover	Number of Quadrats (% of the total on Lodge Bog) 2010	Number of Quadrats (% of the total on Lodge Bog) 2016
0	165 (43.2%)	65 (16.5%)
1-24	11 (2.9%)	23 (5.8%)
25-45	10 (2.6%)	17 (4.3%)
50-74	19 (5%)	25 (6.3%)
75-100	177 (46.3%)	264 (67%)

Table 1: The number of quadrats and varying percentage cover of *Sphagnum* moss recorded in the drains surveyed on Lodge Bog. Results from 2010 and 2016



Photo of dam taken in 2010 showing 0% *Sphagnum* cover



Photo of dam taken in 2016 showing 100% *Sphagnum* cover

Results Discussion

Scientists describe a timeline of successful raised bog restoration following re-wetting. First, physical change - increased water levels and chemical conditions, followed by medium-term re-vegetation and finally long-term topographical changes to the bog surface. Studies of the restoration work on Lodge Bog show *Sphagnum* re-colonization after just 5 years.

The results in Table 1 and Figure 1 provide proof and a timeline for physical and biological changes for the better on Lodge Bog following restorative management. Figure 1 shows that the water level has risen by over 30cm in some of the piezometers. The charts also indicate that water levels have become more stable being within 20cm of the bog surface 90% of the time in 2016 whereas in 2010 the water table was below 20cm 70% of the time.

The increased growth of *Sphagnum* moss recorded within the drains after just 5 years indicates that the water levels in the bog are raised and that the flow of water through the drains has been stopped or significantly reduced. These elements confirm restoration of active raised bog.



Numenius arquata



Coenonympha tullia

Conclusion

Successful restoration of active raised bog habitat on Lodge Bog is vital for the survival of the rare bogland species that rely on this habitat. Lodge Bog is home to many rare peatland plants and animals including two pairs of breeding Curlew (*Numenius arquata*) of which there are only 124 pairs in Ireland. Lodge is also home to a healthy population of the Large Heath Butterfly (*Coenonympha tullia*) which is listed as vulnerable in the European Red List of Butterflies.

IPCC will continue to monitor and enhance Lodge Bog for the survival of rare habitats and wildlife and to build awareness of the importance of these beautiful wetlands.