

AFTER LIFE PLAN



LIFE14 NAT/IE/000032

Restoring Active Raised Bog in Ireland's SAC Network 2016 - 2020



An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

Introduction

The Department of Housing, Local Government and Heritage (DHLGH) was the Co-ordinating Beneficiary for the €5.4m Irish Raised Bog Restoration Project (LIFE14 NAT/IE/000032) known as The Living Bog and funded through the EU LIFE 2014-2020 programme. The project ran from January 2016 to March 2022. The purpose of the project was to improve the conservation status of the priority EU habitat Active Raised Bog (Habitat Code 7110) through the conservation and restoration of a suite of 12 sites within the Raised Bog Special Area on Conservation (SAC) network. This was to be achieved through implementing best practise restoration works on the 12 sites and included drain blocking, barrier dam construction, bunding and tree removal.

The key project objectives, deliverables and outputs were:

SECURE LANDOWNER COOPERATION AND LOCAL COMMUNITY SUPPORT INCLUDING FORMULATION OF A STAKEHOLDER COMPENSATION SCHEME

CARRY OUT RESTORATION ACTIONS TO ACHIEVE A TARGET AREA OF 752 HA OF ACTIVE RAISED BOG WITHIN AN OVERALL AREA OF 2,649 HA OF RAISED BOG HABITAT.

DEVELOP A PUBLIC AWARENESS CAMPAIGN TO DISSEMINATE INFORMATION ABOUT THE IMPORTANCE OF CONSERVING THE NATURA 2000 NETWORK OF SITES

CARRY OUT COMPREHENSIVE SURVEYS BEFORE AND AFTER IMPLEMENTATION OF RESTORATION MEASURES FOR SCIENTIFIC MONITORING PURPOSES

PRODUCE RELEVANT TECHNICAL INFORMATION/DOCUMENTS TO INFORM FUTURE PROJECTS

The Results

The Living Bog made major progress on the restoration of protected raised bogs, carrying out a range of management works on lowland raised bogs throughout the midlands of Ireland. Positive results of these works are already visible with a clear improvement in hydrological conditions across all sites, leading to their revegetation with plants characteristic of the Annexed habitat.

The LIFE project's communications actions were to help inform the public of the need to restore and rehabilitate degraded bogs. Where previously raised bogs were seen by some as wastelands or as a resource to be solely exploited for fuel and drained for improved agricultural output, the project aimed to engender a new direction of thought, aimed at an appreciation of the other values of bogs. Changing perceptions, educating the public on these other importance services and the detrimental effects of continued damage will need to continue and expand beyond the The Living Bog.

However, whilst the project ultimately carried out substantial works on 13 raised bogs in Ireland, there are over 50 more raised bog SAC sites in Ireland and a proposed network of 61 raised bog Natural Heritage Areas (NHA). All these sites require restoration and so a very significant programme of work will need to continue after The Living Bog project.

After the project, we will:

CONTINUE TO PUBLICISE THE PROJECT OUTCOMES, AS WELL AS RESOURCES REQUIRED AND LESSONS LEARNED

CONTINUE TO BUILD STAKEHOLDER CAPACITY FOR RAISED BOG CONSERVATION AND MANAGEMENT

MAINTAIN THE EXISTING WORKS TO ENSURE THEIR LONGEVITY AND EFFECTIVENESS

CONTINUE TO MONITOR THE WORKS AND MAKE ALL NECESSARY AMENDMENTS WHERE NECESSARY BASED ON THE RESULTS

WORK WITH LANDOWNERS IN OTHER AREAS AND OFFER COMPENSATION MEASURES TO COVER RESTORATION ACTIONS AND ENCOURAGE PARTICIPATION

SUPPORT LOCAL COMMUNITIES THROUGH THE DEPARTMENT OF HOUSING, LOCAL GOVERNMENT AND HERITAGE'S PEATLANDS COMMUNITY ENGAGEMENT SCHEME AND ITS SUPPORT OF THE COMMUNITY WETLANDS FORUM

CONTINUE TO WORK WITH LOCAL COMMUNITIES TOWARDS THE DEVELOPMENT OF AMENITY INFRASTRUCTURE AT THE PROJECT SITES CARROWBEHY BOG SAC AND KILLYCONNY BOG SAC WHOSE DEVELOPMENT WAS NOT FEASIBLE DURING THE LIFETIME OF THE PROJECT FOR VARIOUS REASONS

Project publicity

Project webpage

The project website www.raisedbogs.ie will be incorporated as a National Parks and Wildlife Service website and it will be maintained and remain active for at least five years after the end of the project and expanded to include updates on NPWS's restoration programme. All the reports from the project will be available to download from the website and any further updates will be incorporated.

Project information boards

Project information boards will remain in place highlighting the contribution of the LIFE programme and providing specific site information on the flora and fauna of the particular raised bog. These will be maintained by the NPWS or the local community depending on their location.

Distribution of project publications

End of project results have been and will continue to be disseminated, through the distribution of printed documents and as downloads from the Project webpage for a minimum of five years. Two specific publications from the project, *Best Practice in Raised Bog Restoration in Ireland* (Irish Wildlife Manual) and the Project Techniques Manual will be used in house by NPWS but will be also used by any new or ongoing projects. Together these manuals are the standard Irish reference point for peatland restoration.

More details of 'The Living Bog' including the objectives of the project, results and key messages are included in the Layman's report which will be available for distribution and available online after the project ends. Full contact details of the co-ordinating beneficiary are included to aid in any follow up requests.

Continuation of other project actions

The Living Bog project was composed of a combination of actions required to deliver the aims and objectives of the LIFE programme. As detailed in the original application, many of the concrete actions consisted of one-off measures specific to the delivery of the project and which did not require continuation beyond the project. For other actions continuation will be needed. One-off actions include the preparatory actions, some of the public awareness and dissemination actions and the overall project management actions. A list of the actions that require continuation beyond the timespan of The Living Bog project are detailed in Table 1.

TABLE 1

A LIST OF THE ACTIONS THAT REQUIRE CONTINUATION BEYOND THE TIMESPAN OF THE LIVING BOG PROJECT

PROJECT ACTION

AFTERLIFE CONTINUATION PLANS

B1

Strategic land purchase and compensation payments

The Protected Raised Bog Restoration Incentive Scheme (PRBRIS) will be available for lands or rights that may be impacted by restoration works or where access is required to carry out restoration measures on land within these sites as part of the national restoration programme for raised bog Special Areas of Conservation (SACs) and Natural Heritage Areas (NHAs).

C1

Install and maintain dams

Almost 10,000 drain blocking structures were installed during the life of the project. These have settled and the failure rate is low. The type of technique varied depending on conditions but these structures will continue to function until natural vegetation (mostly sphagnum moss) fills the drains. Regular monitoring of the sites will be undertaken by NPWS.

C2

Control natural regeneration of trees and shrubs

Associated with the work of Action C1 this action will limit scrub regrowth, however it is anticipated that there will be minor scrub regeneration especially where the water table has been successfully established within 10cm of the ground surface.

C3

Fencing

The fencing on site was constructed to a high standard and life expectancy is estimated to be 15+ years. NPWS will monitor fencing and if necessary repair if grazing livestock threaten damage.

D1

Hydrology monitoring

Hydrological monitoring was carried out to measure change pre and post implementation of restoration works and completed specifically for the project period. However, long term monitoring will be more insightful will continue to measure the hydrological response to restoration management after the project.

D2

Vegetation monitoring

Vegetation monitor monitoring was to measure change pre and post implementation of restoration works and completed specifically for project period. However long term monitoring will be more accurate and will continue after the project.

D3

Water chemistry and climate change monitoring

Further work is required to estimate greenhouse gas emissions from cut-over bogs. A greenhouse gas monitoring study has been set up at Killyconny Bog and is underway and will form an important part of the afterLIFE monitoring plan.

E2

Notice boards and visitor facilitation

Amenity facilities on the sites will remain open to the public and be maintained by the NPWS. Local NPWS Conservation Rangers and other NPWS staff will continue to hold guided wildlife walks and public access will be encouraged. Some community groups also organise their own events on the project sites. NPWS is continuing to work with local communities around Carrowbehy Bog SAC and Killyconny Bog SAC regarding the provision of amenity infrastructure which was not feasible within the lifetime of the project.

F4

End-of-Project GIS maps

All the information gathered by the project has been digitised showing location of sites, works implemented and the monitoring sites. These will be maintained by NPWS and used to inform the day to day management of project sites.

The list of actions detailed in Table 1 are specific to 'The Living Bog project'. However there are over 50 more raised bog SAC sites in Ireland and a proposed network of 61 raised bog Natural Heritage Areas (NHA) that are proposed for restoration. Therefore, the afterLIFE plan for the project will go beyond the specific 14 sites contained within the project. Results from the project will be used to design best practice methodologies related to the hydrological monitoring of peatlands and shared with future restoration projects in Ireland. For example, the results highlighted the importance of collecting baseline measurements, determined an optimised sampling frequency and demonstrated the pros and cons of using manual data compared to using logger data to accurately characterise the hydrological conditions on raised bogs.

Since the end of The Living Bog project there have been initiatives to develop the concepts of the project into a wider area using the best practice methodologies developed by The Living Bog. One example is the FarmPEAT project, a locally-led, innovative, results-based pilot programme for farmers who manage lands that surround eight remaining raised bogs in the midlands of Ireland. A new feature in the proposed new Irish agri-environmental measures is a co-operation approach, available to farmers in defined high priority geographical areas. Eight areas in the country have been defined by a cross departmental working group as having particular environmental characteristics and farmers in those areas can engage in the new AECM through cooperation project teams. Four of the eight high priority geographical areas include Raised bog SACs, including:

- **Cork/Kerry - one Raised Bog SAC**
- **Mid-West Southern uplands - four Raised Bog SACs**
- **Connemara - one Raised Bog SAC (Addergoole at Lough Corrib)**
- **North West Connaught - three Raised Bogs**



Building capacity in the community

Building capacity in the community has continued with help from the Community Wetlands Forum (CWF).



This is a national initiative under the aegis of Irish Rural Link, supported by the DHLGH, which provides a network platform for groups from around the country to share ideas regarding conservation, active management and responsible amenity use of wetland sites. Three of the project sites, Killyconny Bog Project/ St. Killian's Heritage Group (Killyconny), Galway's Living Bog – (Carrowmagappul) and Clara Heritage Group (Clara) joined the CWF. The CWF provides training and assists with grant applications, including the Peatlands Community Engagement Scheme (PCES) as administered by DHLGH. Three groups received funding from the PCES in 2022. This scheme is as a result of campaigning from the CWF members together with feedback from the community engagement from the The Living Bog project to the NPWS showing the need for funding in the area. The scheme was only initiated as a pilot in 2018 and the number of applicants has tripled over the last 2 years.

NPWS will continue to maintain the amenity infrastructure put in place on 4 of the project sites. We are also continuing to work on the issues that restricted full implementation on all sites at in particular Carrowbehly Bog SAC and Killyconny Bog SAC and will continue to work with the local communities to determine what best suits for each site and helping to deal with planning and access issues.



Strategic land purchase and compensation payments

Under 'The Living Bog' project over 37ha of land were purchased and compensation payments made on a further 547ha. The land purchased will be managed by NPWS.

Land purchase and compensation payments are an important component in the restoration of peatland. Following a review of the LIFE Living Bog Project pilot compensation scheme, the NPWS built upon the findings and further developed the pilot in 2021 into the Protected Raised Bog Restoration Incentive Scheme (PBRIS). This scheme will be used going forward to incentivise landowners and turbary right holders to facilitate restoration measures on their lands within raised bog SACs and NHAs. The scheme is open to applications from eligible property right holders who wish to have their lands included as part of the restoration scheme or where access is required for restoration works within raised bog SACs/NHAs.

Habitat restoration works

Based on survey data 'The Living bog' created over 43ha of Active Raised Bog habitat on high bog in just three years on five sites, which equates to nearly 20% of the long-term target for new Active Raised Bog on High Bog for all project sites.

Modelling predicts that over 95% of the Active Raised Bog targets of the project will be achieved over the next number of years. The project also confirmed that restoring Active raised Bog on cutover bog is also achievable but at a slower pace. Various restoration techniques were implemented or trialled during this project. These have been summarised in the project techniques manual detailing the measures and commenting on their effectiveness. These measures have all been documented ensuring future projects benefit from the findings of best practice measures utilised by 'The Living Bog' Project.





THE LIVING BOG PROJECT INSTALLED A COMPREHENSIVE HYDROLOGICAL MONITORING NETWORK THAT INCLUDES 246 MONITORING WELLS, MAKING THE LIVING BOG PROJECT ONE OF THE MOST INTENSIVELY MONITORED PEATLAND RESTORATION PROJECTS IN EUROPE.

Monitoring, evaluation and communication of long term results

Previous raised bog monitoring surveys indicate that approximately a decade is needed to achieve significant increases in the area of active raised bog on the high bog after restoration works are undertaken. However, positive results (i.e. development of active raised bog pioneer vegetation) can also be achieved on cutover areas within a ca.10 year period.

Initial indications from pre and post survey work by 'The Living Bog' project are positive with a positive trajectory in habitat quality. However, to fully evaluate the success of the restoration works, continuous monitor is necessary. The hydrological and vegetation monitoring will continue after the project to determine the efficacy of the measures used to raise water tables.

The Living Bog project installed a comprehensive hydrological monitoring network that includes 246 monitoring wells, making The Living bog project one of the most intensively monitored peatland restoration projects in Europe.

Monitoring of these wells will continue after the project has finished. The project also established a network of high bog and cutover vegetation monitoring plots linked with hydrological monitoring points. A selection of these will continue to be monitored as part of the after the LIFE project. Results of the continued monitoring will greatly enhance the understanding of the relationship between hydrological conditions post-restoration that lead to specific bog vegetation types. This will significantly improve our understanding of vegetation recovery following implementation of measures and inform the setting of restoration targets in the future.

A research project to determine the impact of restoration works on cutover habitats on Greenhouse Gas (GHG) fluxes is ongoing at Killyconny Bog SAC in conjunction with the Science and Biodiversity Unit of the National Parks and Wildlife Service and will continue as part of the AfterLIFE plan. The results will be used in conjunction with other research projects and use to extrapolate to a national scale by using available ecological mapping data across a spectrum of vegetation types.

SWOT Analysis

Now that the project and work is completed, the strengths, weaknesses, opportunities and threats remaining after the end of LIFE funding are highlighted in a SWOT analysis (Table 2).

OVER 200 KM OF DEEP DRAINS ASSOCIATED WITH PEAT HARVEST WERE BLOCKED ON HIGH AND CUTOVER BOG AREAS USING UP ON 10,000 PEAT DAMS, PLASTIC DAMS AND OVER 3000M OF TRENCH BUNDING ALL TO RAISE WATER LEVELS AND REWET THE BOGS.

TABLE 2 SWOT analysis at the end of the living bog project:



STRENGTHS

- Work appreciated by the local community.
- Strong conservation works delivered.
- Availability of qualified contractors to complete works.
- Work targeted to the needs of particular site.
- Continued Support from partnership developed through the living bog.
- Local knowledge capital has been developed.
- Strong well received public awareness.

WEAKNESSES

- Suitability of present agri-environment measures for ungrazed raised bog habitats.



OPPORTUNITIES

- Link between tourism, biodiversity can be further strengthened.
- Conservation condition of the project sites has improved.
- Strong legislative framework for Natura 2000 aids in targeting future resources. Funding opportunities within the Irish RDP.
- Increased awareness of Natura 2000 within local community.
- Compensation programme available for other sites.

THREATS

- Lack of continuity of experienced personnel.
- Loss of governance approaches developed by project personnel.
- Loss of good will developed through the project.
- High oil price can lead to renewed interest in turf cutting for fuel.





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