

COILLTE AND THE EU LIFE PROGRAMME: 10 YEARS OF RESTORATION WORKS ON AFFORESTED PEATLANDS IN IRELAND

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SUMMARY

Coillte is a commercial company managing Ireland's publicly owned forests. It has secured and managed three *LIFE* co-funded projects for the restoration of blanket bog and raised bog habitat. The main work was the felling of plantation conifers and the blocking of drains. The main objective was to raise and maintain water-levels close to the surface of the bog to create the conditions which will allow habitat regeneration. Changes in vegetation and water levels were monitored. Recovery of bog vegetation varied according to the density of the tree crop which had been removed. There has been a marked increase in water-levels on most sites. Regenerating trees will be monitored. Restoration should have a positive effect beyond the restoration area. The work has contributed to a greater knowledge of afforested bog restoration.

KEY WORDS: Coillte, *LIFE*, bog restoration, water-levels

INTRODUCTION

Coillte and the LIFE Programme

Coillte's core purpose is to enrich lives locally, nationally and globally through the innovative and sustainable management of natural resources. Coillte is a commercial company operating in forestry, land based businesses, renewable energy and panel products. The company employs approx 1,100 people and was established in 1988. It owns over 445,000 hectares of State owned land, about 7% of the land cover of Ireland, including 232,000 ha of peatlands – mostly blanket bog. Coillte manages approximately 20% of its entire estate with biodiversity enhancement as its primary objective and has recently celebrated 10 years of FSC certification for responsibly managed forests.

Since 2002, Coillte has secured and managed three EU *LIFE* co-funded projects for the restoration of previously afforested peatlands on a total of 51 sites on its estate. The first of these projects dealt with the restoration of 1,967ha of blanket bog mostly in the West of Ireland. The second two projects dealt with the restoration of 1,207ha of raised bog habitat in the Irish Midlands. Details for these three projects are as follows:

“Restoring Active Blanket Bog in Ireland” (LIFE02 NAT/IRL/8490)

“Restoring Raised Bog in Ireland” (LIFE04 NAT/IE/000121) {selected as one of the best LIFE Projects evaluated in 2009}

“Demonstrating Best Practice in Raised Bog Restoration in Ireland” (LIFE09 NAT/IE/000222). Coillte was the sole beneficiary of the first two projects but the National Parks and Wildlife Service is an associated beneficiary and an important co-funder of our current raised bog project which runs until 2015.

Irish Bogs and Forestry

Blanket bogs are wild areas that cover the lowlands and uplands of Ireland. They occur wherever the annual rainfall is very high. This explains why they are found extensively on Ireland’s western seaboard and indeed on most mountain ranges throughout the country. Raised bogs are valuable wetland habitats that are becoming increasingly rare in Ireland, but which once formed extensive wetlands over much of the central lowlands of the country. Both types of bogs are wetland ecosystems supporting many plants and animals that are specialised to live and thrive in bog habitats – Irish bogs are among the richest in Europe in terms of their plant and animal life. On these bog habitats, you can find a rich diversity of species, from the little mosses, lichens, spiders and dragonflies to the otter, red grouse and merlin. The loss of both blanket and raised bog habitat has occurred across Europe – for this reason, a range of these habitats are listed for protection on Annex I of the EU Habitats Directive.

Over Millennia, bogs were intricately linked with Irish culture, but for the most part, they were considered wastelands, to be converted to more productive land uses. The utilisation of peat bogs escalated during the 20th century, with the removal of peat on a commercial scale for the production of fuel and horticultural peat. As a result, only a fraction of the former area of raised bog habitat in particular remains today. Forestry was seen as another possible land-use that would provide employment and boost local economies. During the 1950’s to 1980’s substantial areas of Ireland’s blanket bogs (and a much smaller proportion of raised bogs) were afforested by the State. This involved planting mostly with exotic conifer species such as Lodgepole pine and Sitka spruce. At planting stage, drains were dug across the bog surface and water was drained off the bog, causing the surface peat to dry out. This led to the loss of many of the specialist bog plants and animals. The addition of fertiliser in some cases promoted the growth of grassy species at the expense of some of the bogland species. Subsequently, the growing conifer trees cast a dense shade, which the bog plants could not tolerate. However, in some instances, particularly on very wet bogs, these efforts to establish commercial forests failed – the trees could not grow sufficiently well in these conditions.

In the meantime, there has been a growing realisation that Ireland’s bog ecosystems are unique and irreplaceable. Coillte’s three *LIFE* projects specifically address the effects of afforestation on blanket and raised bog habitats and represent an important contribution towards the conservation of this precious resource.

MATERIALS AND METHODS

In all three projects, the full suite of *LIFE* Project Actions was implemented. These included Preparatory Actions, Concrete Conservation Actions, Public Awareness / Dissemination Actions and Project Management and Monitoring Actions.

Preparatory Actions included elaboration of site action plans with relevant national competent authorities, site safety plans and hazard identification, site surveying work and obtaining the advice of experts with previous experience of similar projects.

The main Concrete Conservation Actions carried out at most of the project sites were the felling of plantation conifers and the blocking of forestry drains. In the first project drains were mainly blocked using manually installed re-cycled plastic dams (following the model of earlier UK projects) and to a lesser extent mechanically installed peat dams. In the second two projects these proportions have been reversed as peat dams were found to be very effective and much less costly to install and are a much more natural solution. The main objective of this conservation work was to raise and maintain water-levels close to the surface of the bog in order to create the conditions which will allow blanket / raised bog habitat regeneration in future years. Other actions included fencing against trespassing animals, fire protection, removing regeneration tree and shrub species and installing dipwells for monitoring water levels.

The Public Awareness / Dissemination Actions included producing a project brochure, a DVD, a Results Booklet, Information panels and site signage and an end of project conference for each project. On the demonstration sites car parks and boardwalks were provided for visitors along with more detailed signage. Project Promotion included bog walks/ talks, school visits, networking with other *LIFE* Projects across the EU, hosting visits from 3rd level educational institutions and visiting groups from abroad.

Project Management and Monitoring Actions included the holding of four formal Project Management Group meetings per year and one broader based Project Advisory Panel meeting per year. Project ecologists were employed on contract to monitor changes in vegetation and water levels (using dipwell and vegetation quadrats respectively) throughout the projects. Progress was reported to the EU in a series of annual progress reports and a monitoring mission by the EU external monitoring team was hosted annually.

RESULTS

Initial Results

On both blanket and raised bog sites where the conifer crop was relatively young and the trees had not closed canopy, the recovery of bog vegetation has been rapid within a few years. At sites where the trees were taller and more mature the rate of recovery has been slower because of the loss of the native bog vegetation due to drainage and shading effects. The removal of trees and the blocking of drains has resulted in a marked increase in water-levels on most sites. Regenerating conifer trees are a problem on some areas of some sites. These regenerating trees will be monitored into the future and will be removed where necessary.

Recent Monitoring

Monitoring of Blanket Bog project sites completed in 2007 was renewed in late 2011. Re-colonisation with typical wet bog species has been slower than originally hoped for due to competition from purple moor grass, and *Sphagnum* mosses are confined largely to the blocked drains. Regenerating Lodgepole pine is a serious problem at only 2 of the 20 project sites. On all other sites there are only occasional groups of regenerating pine/spruce – which

will not be a problem into the future as there is no longer a viable seed source on these sites. These trees will be removed before they produce seed. It is intended to carry out a similar exercise on all 14 LIFE04 Raised Bog Restoration sites in 2012. Observations to date are that large areas of the projects are very wet with abundant *Sphagnum* species, although regenerating birch and conifers are an issue on some areas of some the project sites.

CONCLUSIONS

Direct Effects

Coillte's first two *LIFE* projects demonstrated a range of restoration techniques which had not been previously used in Ireland on afforested bog sites (either blanket or raised). It has been shown that following the felling of trees, there is an immediate rise in water levels, this is followed by a further increase when the drains have been blocked. *Sphagnum* mosses quickly colonise the blocked drains at most project sites. At sites where the conifer crop was relatively young and the trees had not closed canopy, there has been a rapid recovery of bog vegetation. However, at sites where taller and more mature trees had been removed, the recovery of bog vegetation has been much slower, as much of the original bog species has been lost due to drainage and shading. More recent monitoring of the blanket bog sites would indicate that expansion of bog species has not been as good as expected but that the regeneration of plantation conifers is not a major problem at most project sites.

Coillte's third project is currently applying best practice demonstrated in its *LIFE04* Raised Bog Project to a further 636 ha of raised bog on the Coillte estate. By the time this project finishes in 2015, Coillte will have restored 1967 has of afforested blanket bog and 1,207 has of afforested raised bog on its estate throughout Ireland.

Wider Benefits

Restoration should have a positive effect beyond the actual restoration area, i.e. on adjoining intact bog that has been subject to drainage effects. Implementation of the three projects has resulted in greatly increased knowledge regarding the large-scale restoration of afforested peatland in Ireland. At a number of project sites the removal of the conifer crop has also resulted in positive benefits with regard to the visual appearance of the landscape. As a result of the Public Awareness Actions of the three projects there is an increased awareness of the value and beauty of bog habitats. It is anticipated that bog restoration will be the preferred management option for suitable areas of conifer plantation on blanket peat on the Coillte estate in the West of Ireland. All three projects have shown that, given adequate funding large areas of afforested peatland can be restored.

ACKNOWLEDGEMENTS

Coillte is delighted to take this opportunity to acknowledge the generous co-funding from the EU *LIFE* Programme for all three restoration projects, and also to thank the Irish National Parks and Wildlife Service for its co-funding of our current raised bog project. We would also like to particularly acknowledge our contract Ecologists John Derwin and John Conaghan as well as the project teams, project management groups and project advisory panels for all three projects.

REFERENCES

The above abstract is based on Coillte internal documents and the published promotional materials (brochures and results booklets) of the three *LIFE* projects available for download from the project websites;

www.irishbogrestorationproject.ie

www.raisedbogrestoration.ie