

LIFE Project Number  
**LIFE04 NAT/IE/000121**

## **TECHNICAL FINAL REPORT**

*Covering the project activities from 01.10.2004 (project starting date) to  
30.09.2008*

Reporting Date  
**31/12/2008**

LIFE PROJECT NAME  
**Restoring Raised Bog in Ireland**

### Data Project

Project location	Ireland
Project start date:	01/10/2004
Project end date:	30/09/2008
Total Project duration (in months)	48 months
Total budget	€2,500,000
EC contribution:	€1,875,000
(%) of total costs	75%
(%) of eligible costs	75%

### Data Beneficiary

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1.	CONTENTS AND ANNEXES	2
2.	KEY-WORD AND ABBREVIATIONS	2
3.	EXECUTIVE SUMMARY	3
4.	INTRODUCTION	5
5.	LIFE-PROJECT FRAMEWORK	7
6.	PROGRESS, RESULTS	10
	A Preparatory actions/management plan preparation	10
	C Non-recurring biotope management	13
	D Recurring biotope management	19
	E Public awareness and dissemination of information	24
	F Overall project management	46
7.	EVALUATION AND CONCLUSIONS	57
8.	LAYMAN'S REPORT AND AFTER-LIFE PLAN	61
9.	COMMENTS ON FINANCIAL REPORT	61
10.	ANNEXES	62

## 2. KEY-WORDS AND ABBREVIATIONS

### (I) Key Words:

Raised bog restoration, Ireland, tree removal, water level monitoring, vegetation monitoring, raising water levels, drain blocking, fencing.

### (II) Abbreviations:

FSC	Forest Stewardship Council
IPCC	Irish Peatland Conservation Council
NPWS	National Parks and Wildlife Service
PAP	Project Advisory Panel
PMG	Project Management Group
SFM	Sustainable Forest Management
NUIG	National University of Ireland, Galway

### 3. EXECUTIVE SUMMARY

#### Project objectives

The principal project objectives were to restore 571.2ha of raised bog on 14 sites to a favourable conservation status and, in particular, to extend the area of raised bog by means of tree removal, so that the area free from the effects of afforestation would be enlarged by almost 450ha thereby increasing the likelihood of recolonisation with ANNEX 1 habitat type species. This objective was to be further facilitated by the blocking of drains on 427ha of cleared or open bog areas. Additional project objectives were to eliminate trespassing stock through the fencing of open bog areas, and to remove naturally regenerated trees from open bog areas on an as required basis. Broader objectives were to demonstrate and interpret the techniques of bogland restoration on afforested sites, principally tree removal and drain blocking, to as wide as possible an audience but particularly to the foresters who are managing these areas. A further objective was to increase current knowledge in the area of afforested bogland restoration through the dissemination of project objectives, actions and results in Ireland and internationally.

#### List of Key Deliverables and Outputs

Product	No. of Action	Deadline	Achieved
Safety Plan and Hazard Identification Appendix No.3	A3	31.03.2005	Ongoing throughout the project, completed 30.09.2008
Training Course Project Summary / Land Managers Training Days Appendix No. 7	E1	31.03.2005	Achieved
Drainage Pattern Survey (Initial Report) Appendix No. 5	D3	31.10.2005	Achieved
Project Information Brochure Appendix No. 9	E3	31.10.2005	Achieved 20,000 brochures produced and widely distributed
Hydrology Monitoring Interim Report Appendix No. 22	F5	30.11.2006	Achieved
Mid-point Project Mapping Appendix No. 24	F7	31.12.2006	Achieved
Produce 1 technical article during the life of the project Appendix No. 14	E6	31.12.2008	Steve Davis, Dept of Archaeology UCD has submitted an abstract to the NCER Conference, Los Angeles, California July 20 – 24, 2009 3 <sup>rd</sup> National Conference on Ecosystem Restoration.
Drainage Pattern Survey (Final Report) Appendix No. 6	D3	30.09.2008	Achieved
Project Results Booklet / Layman's Report Appendix No. 10	E4	31.12.2008	Achieved 10,000 copies produced and widely distributed
Vegetation Monitoring (Final Report) Appendix No. 23	F6	31.12.2008	Achieved report produced by project site
Hydrology Monitoring (Final Report) Appendix No. 23	F5	30.11.2008	Achieved – report produced by project site
End of Project Mapping Appendix No. 25	F7	31.12.2008	Achieved
Produce layman articles for inclusion in Coillte Contact, newsletters 2 x year Appendix No. 13	E6	01.10.2004 – 31.12.2008	Achieved

## Summary of the remaining report chapters

Chapter 4 (**Introduction**) details how raised bog areas on the Coillte estate came to be afforested, how the project came to be written and its overall and specific objectives. The habitat types and main conservation issues targeted are also noted, along with the expected results. Chapter 5 (**Life-Project Framework**) describes the essential features of the project, which were the removal or felling to waste of conifer plantations on raised bogs and the blocking of forestry drains in order to restore raised bog water levels and facilitate the growth of raised bog vegetation, along with a comprehensive public awareness and education programme. Project planning and organisation are also detailed.

Chapter 6 (**Progress, Results**) details the outcome of each project action, following the standard LIFE-Nature action categories A-F, including activity description, achievement table and explanatory comments as necessary. In particular, detailed site by site achievement tables have been provided for the main physical works ("C" actions). Overall, the project achieved or exceeded its main physical targets. Details are supplied for the high quality outputs under the public awareness and education "E" actions including land manager training days, project brochure, project website, promotional DVD, layman's report and boardwalks/ car parks/ signage at Demonstration Sites. The very extensive range of media outputs/events over the four years (including magazine/newspaper articles, radio interviews, bog walks, exhibitions and conferences) is summarised. There has been an improvement in the conservation status of 571.2ha of active and degraded raised bog habitat within the Natura 2000 network, as detailed by the ecological monitoring actions.

Chapter 7 (**Evaluation and Conclusions**) details the project process and project management, as well as project successes and problems encountered. The environmental benefits, innovation, demonstration value, transferability, socio-economic effects and future prospects are also treated. Chapter 8 (**Layman's Report and After-LIFE Plan**) states where these documents may be found. Chapter 9 (**Comments On Financial Report**) summarises the financial outturn, and comments on the main features. Overall, the project was delivered within its approved total budget. Chapter 10 (**Annexes**) lists the titles of all appendices supplied on the accompanying CD.

Overall, the main project targets were achieved and the project, with its two demonstration sites and comprehensive dissemination activities, has acted as a flagship demonstration of what can be achieved on a wider scale in Ireland and other Member States subject to the availability of funding.

## **4. INTRODUCTION**

### **Description of background, problems and objectives**

Ireland began a reforestation programme in the early 1900s following centuries of exploitation of native woodlands and deforestation for agriculture. Successive governments supported a programme of plantation establishment but a strong farming lobby ensured that this was confined mainly to sites marginal, or unsuitable, for agriculture. Peatland (both raised and blanket peats) were one of these site types and until their ecological value was fully appreciated they were regarded as wasteland to be converted to more productive uses. Forestry was one of these uses and in the midland region, many plantations were established on the cutaway edges of raised bogs and also in some cases on high bog. The main period of afforestation occurred over a 20 year period from the mid 1960s to the mid 1980s with the cutaway peats being favoured as being more accessible, fertile and easier to cultivate than the high bogs. Today the Coillte estate comprises a total raised bog area of 31,815ha of which 6,496ha are virgin raised bog.

Since 1997, 11,832ha of high raised bog has been proposed for designation in candidate SACs under the EU Habitats Directive (92/43/EEC). The Coillte estate contains many partially or wholly afforested areas that have been included in SACs and which continue to impact on the raised bog habitat. In this project 14 of these sites have been selected, in conjunction with NPWS, that have the potential for restoration. They represent the largest and best raised bog areas owned by Coillte within SACs and form an important part of the company's nature conservation programme. When restoration work is completed their management objectives will change from timber production to the conservation of raised bog habitat.

These facts have resulted in new management options for afforested peatland areas. One such option is restoration where suitable of peatland habitat. Such was the focus of this LIFE-Nature project which is now at the end of its four years of implementation.

### **How the project came about**

The project came about in the overall context of Coillte's adoption of SFM and achievement of FSC certification for well managed forests and following on from the success of Coillte's "Restoring Active Blanket Bog in Ireland" LIFE project (LIFE02 NAT/IRL/8490). Sites were selected in conjunction with NPWS Research Branch, Coillte's company ecologist and a contract ecological survey; the project application was prepared by Pat Doolan, Philip Murphy and Aileen O'Sullivan.

## Overall and specific objectives

- To restore 571.2ha of raised bog on 14 sites predominantly in the central plain of Ireland to a favourable conservation status.
  - To extend the area of raised bog, so that the area free from the effects of afforestation is enlarged by 448.2ha thereby increasing the likelihood of recolonisation with ANNEX 1 habitat type species.
  - To block drains on 427.1ha of cleared or open bog areas.
  - To ameliorate the effects of turbary and reduce hazards to adjoining landowners.
  - To reduce the risk of fire damage to the project sites by implementing Coillte's fire plan and carrying out vegetation clearance on vulnerable high risk perimeter areas as necessary. Accordingly the project sites will benefit from the protection of Coillte's existing fire control infrastructure.
  - To remove naturally regenerated trees from open bog areas on an as required basis.
  - To demonstrate and interpret the techniques of bogland restoration on afforested sites, principally tree removal and drain blocking, to as wide as possible an audience but particularly to the foresters who are managing these areas.
  - To increase current knowledge in the area of afforested bogland restoration through the dissemination of project results in Ireland and internationally.
- :
- **Sites involved**

There were 14 sites, all owned and managed by Coillte Teoranta, that had been partially or wholly afforested. The project sites covered 571.2ha within 14 SACs, spread over 7 counties.

## Habitat types targeted

Type of Habitat	Coded
Active Raised Bog	7110
Degraded Raised Bog capable of regeneration	7120
Alkaline fen	7230
Bog Woodland	91D0

All of the above habitats are listed under *Annex I of the Habitats Directive*.

## Main conservation issues being targeted (including threats)

This project addressed the main ecological threats which affect active raised bog habitats through the following actions:



- Removal of 448.2ha of plantation forest.
- Blocking forestry drains on 427ha in order to elevate water levels and hence restore the hydrological balance of the peatland areas.
- Removal of naturally regenerated trees as required.
- Perimeter protection of vulnerable raised bog sites against fire and trespass.
- Consultation to secure control of turbary (turf-cutting) rights.

### **Expected results**

During the period of the project it was expected that there would be a significant improvement in the quality of the open bog areas.

- This would be due to measures taken to gain control of areas and the re-establishing of natural water levels brought about by the removal of trees, drain blocking and clearance of invasive conifer regeneration.
- Over 570 hectares of raised bog would be improved using these measures. There would be a measurable increase in actively growing raised bog species since monitoring began at the start of the project.
- These improvements would be demonstrated using data from dipwells, monitoring changes in water levels and data from vegetation transects.
- The area of raised bog would be increased by 450 hectares through the removal of conifers. Maps and field inventory would record this process.
- Natural water levels on the raised bog area cleared of trees and on the open bog area would be re-established resulting in an improvement in habitat quality.

This was the largest single raised bog restoration project of its kind to be undertaken in Ireland. By the end of this project, significant habitat restoration work would have been completed on 571.2 ha of raised bog conserved in SACs – a significant contribution to conservation of some of the most valuable raised bog habitat in Europe. The project would serve as a hands-on demonstration of the best approaches to restoration of raised bog habitats.

## **5. LIFE-PROJECT FRAMEWORK**

**Description and schematic presentation of working method, including overview of: (i) project-actions, and (ii) planning**

The essential features of this project were the removal or felling to waste of conifer plantations on raised bogs together with the blocking of forestry drains in order to restore bog water levels and facilitate the growth of bog vegetation.

**(i) Overview of project actions:**

A1-A5	Preparatory actions
C1-C6	Once-off management interventions e.g. tree removal/drain blocking
D1-D7	Repeat management interventions e.g. remove natural regeneration
E1-E7	Public awareness / dissemination e.g. project brochure, Results Booklet and website
F1-F7	Project management e.g. PMG, reporting, monitoring, expert advice.

**(ii) Planning**

Action A2 provided for the elaboration of action plans while time planning was detailed at Form 22 of the approved project proposal, as were deliverables at Form 23 and milestones at Form 24. Achievement was continually monitored against planning at quarterly PMG meetings and annual site plans were prepared for each calendar year as part of Coillte's own computerised Integrated Planning System.

**Presentation of Beneficiary, partners and project-organisation**

The beneficiary was Coillte Teoranta/The Irish Forestry Board. There were no partners or co-financiers. All actions were carried out by Coillte or its contractors. There were no project modification requests. At project end, the PMG was comprised as follows (all Coillte except where stated otherwise).

Title	Name
Chairman	George McCarthy
Project Manager	Michael Delaney
Project PR/Administration Manager	Angela Wallace
Project Accountant	Richard Clear
EU Affairs Manager	Philip Murphy
Company Ecologist	Pat Neville
Contract Ecologist	John Derwin
Region Director	John O'Sullivan
Head, Research and Environment	Michael Keane
National Parks and Wildlife Service	Jim Ryan Judit Kelemen
The Forest Service	Pat O'Callaghan

Implementation of the project was also assisted by a Project Advisory Panel (PAP) which met annually in Years 2-4, and comprised of representatives of the following organisations: IPCC, Local Authorities, The Heritage Council, BirdWatch Ireland, Laois Heritage, The Eastern Fisheries Board.



## Organisational Chart

## **6. PROGRESS, RESULTS**

As there were no project partners, all actions were implemented by Coillte and/or its contractors.

### **"A" Actions – Preparatory Actions, Elaboration of Management Plans**

#### **A1: Site Visit to see another LIFE sponsored project**

##### **Activity Description**

The main purpose of this action was to give project staff experience of similar LIFE projects already in existence. We also extended invitations to other LIFE projects to visit our project.

##### **Action Report**

Members of our project team visited / attended :

- Coillte's 1<sup>st</sup> LIFE Project to Restore Active Blanket Bog in Ireland (LIFE02 NAT/IRL/8490) in October 2004.
- LIFE Workshops on Raised Bogs/Dunes in Holland in October 2004, and in Latvia/Estonia in August 2005.
- August 2006 - members of our project team visited a number of LIFE sites in Scotland, facilitated by Stuart Brooks (UK consultant who had previously provided expert advice to our project under Action F4).
- Coillte's other two LIFE Projects - Restoring Active Blanket Bog in Ireland (LIFE02 NAT/IRL/8490), and Restoring Priority Woodland Habitats in Ireland (LIFE05 NAT/IRL/000182) during 2007.
- End of Project Conference for Coillte's 1<sup>st</sup> LIFE Project "Restoring Active Blanket Bog in Ireland" (LIFE02 NAT/IRL/8490) on the 4<sup>th</sup> & 5<sup>th</sup> of October 2007.
- End of Project Conference "Farming for Conservation in the Burren" (LIFE04 NAT/IE/000125) on the 25<sup>th</sup> & 26<sup>th</sup> February 2008.

##### **Our project hosted visits from :**

- Finnish LIFE project "Protection of Aapa Mire wilderness in Ostrobothnia and Kainuu 2002-2005" (LIFE02 NAT/FIN/008469) – Sept 2005
- Latvian LIFE Project No. (LIFE04 NAT/LV/000196) Implementation of Mire habitat management plan for Latvia to our Site No. 11 – Carn Park Bog – June 2006

- Staff from the Danish Forest and Nature Agency including staff from the Project "Restoration of Raised Bogs in Denmark with New Methods" No. LIFE05 NAT/DK/000150 visited the demonstration site at Carn Park Bog site No. 11 in 2007.

### **Comments**

These visits have proved very successful for information exchange and networking. Some visiting projects took details of suppliers of dipwells and took away samples of the plastic piling, which we had been using for drain blocking. Our project team gained knowledge of techniques which had been tried out on other projects particularly Coillte's Blanket Bog LIFE Project.

**Appendix No. 1 – photographs of visits to and from the Restoring Raised Bog in Ireland project.**

## **A2: Elaboration of Action Plans**

### **Activity Description**

The main thrust of this action was consultation with key stakeholders in particular NPWS in relation to operational work on all sites. A detailed action plan was to be produced for each project site.

### **Action Report**

An initial meeting was held in the NPWS Office in Mullingar on 9<sup>th</sup> November 2004 to brief all relevant field staff and managers on the background, actions and objectives of the Raised Bog Restoration Project. A detailed site action plan was prepared for each site, this formed the basis of consultation with key stakeholders. Stakeholders included local communities, Fisheries Boards, Local Authorities, Forest Service, NPWS and IPCC. Many of these stakeholders attended project events / field days such as Land Managers Training Days, Bog Walks and the End of Project Conference.

### **Comments**

As part of our After-LIFE management plan, it is envisaged that consultation will continue and NPWS have indicated that they are interested in doing some monitoring work on the restored sites in the future. In summary, consultation was an integral part of our work on the 14 project's sites. This action has been most useful in developing good working relationships at local level between Coillte, NPWS, Forest Service and IPCC.

**Appendix 2 – Sample of Site Action Plan / Photograph of consultation meeting with NPWS and project Staff at Killyconny Bog – site No. 9**

### **A3: Identify Safety Hazards and draw up a general safety plan for all sites**

#### **Activity Description**

The requirement of this action was that Safety plans were to be drawn up and hazard identification risk assessment forms (HIRA) should be completed for all actions on all project sites.

#### **Action Report**

The company's safety officer reviewed and updated the raised bog Safety Plan for all project sites before sites became operational. HIRA forms were completed for all operational work and safety regulations adhered to on all sites during the project. This action has been shown as completed on 31.03.2005 in the table "Summary of Deliverable Products" (Executive Summary), but it was ongoing throughout the 4 years of the project. Safety signage is displayed at the entrance to all project sites warning visitors of 'Deep water in the blocked drains'.

#### **Comment**

Safety was an integral part of the management of all operations that took place on project sites. All site managers and project personnel worked with Coillte's safety and training team to ensure that appropriate safety procedures were in place on all 14 project sites.

### **Appendix No 3 - Safety Plan and HIRA form**

### **A4: Survey of fence lines and enclosures**

#### **Activity Description**

The unidentified boundaries were to be surveyed in advance of fencing on the following site No's: 7 - Drumalough Bog, 10 - Ardgullion Bog, 11 - Carn Park, 12 - Crosswood Bog, 13 - Mount Hevey Bog and 14 - Coolrain Bog.

#### **Action Report**

Surveys were completed on all sites programmed for this action.

### **A5: Land Survey**

#### **Activity Description**

All sites were to have land survey to an accuracy of 10cm contours to optimise the distribution and location of dams.

## Action Report

Land surveys were carried out on all project sites after felling was complete and in advance of drain blocking to facilitate the number and location of dams required.

### "C" Actions - Non-Recurring Management

The following tables for each action outline progress to project end against each action.

#### C1: Fell and Windrow

##### Activity Description

Fell and windrow – this action involved the felling of immature conifer trees, either mechanically or manually depending on site conditions. These felled conifers were then mechanically 'stacked' into windrows (long lines of felled trees - photograph at **Appendix No 4**), thus leaving large areas of the bog surface cleared for other operations such as A5 Land Survey and C3 Drain Blocking / installing dams. The experience from our colleagues on the Blanket Bog LIFE Project (LIFE02 NAT/IRL/8490) is that the regeneration of bog vegetation e.g. sphagnum mosses, in between the windrows is much enhanced.

##### Action Report

Site	Detail of action	Area Programmed	Area completed (Ha)
1	Windrow	6.7	4.3
1	Fell/Windrow	0.6	3.0
3	Fell/Windrow	7.4	7.4
4	Fell/Windrow	10.8	10.4
5	Fell/Windrow	29.1	4.6
6	Fell/Windrow	2.4	5.3
6	Fell/Windrow	7.2	7.2
7	Fell/Windrow	Nil	10.3
7	Fell / Windrow	Nil	4.9
8	Fell/Windrow	Nil	17.0
9	Fell/Windrow	11.6	2.6
10	Fell/Windrow	21.9	21.9
11	Fell/Windrow	50.4	50.4
12	Fell/Windrow	17.1	12.2
12	Fell/Windrow	3.7	3.7
13	Fell/Windrow	25.3	25.3
13	Fell/Windrow	Birch 0.8	0.0
13	Fell / Windrow	Nil	11.3
14	Fell/Windrow	38.3	38.3
14	Windrow	14.1	14.1
	<b>Programmed</b>	<b>247.4</b>	
	<b>Completed</b>		<b>258.5</b>

On implementation of Actions C1 and C2 it proved necessary to 'move' parts / whole sites between these actions. This accounts for the differences between areas programmed and completed on these action tables. Overall the total felling programmed between these two actions was achieved (in fact slightly exceeded).

Some of the reasons for the switching of sites between C1 and C2 were – bad road access which resulted in an area being changed from Commercial harvesting C1 to fell to waste C2, and weather conditions – which meant that using machinery may have caused damage to the sensitive bog vegetation, so felling to waste was considered the best option in these circumstances. On the other hand, in some cases the crops were better than expected and ground condition proved good, so it was possible to harvest some areas commercially which were originally programmed as fell to waste.

## **C2: Commercial Felling**

### **Activity Description**

This action involved the mechanical felling and extraction of premature and semi-mature conifers. These trees were felled by harvester machine, debranched and the logs transported to roadside by forwarder machines. All machines working on these sensitive raised bog sites used brash mats to traverse the bog (brash mats are made from the side branches and tops cut from the harvested trees and placed under machines).

### **Action Report**

<b>Site</b>	<b>Detail of action</b>	<b>Area in application</b>	<b>Area completed</b>
2	Harvesting	13.8	13.8
3	Harvesting	33.2	33.2
5	Harvesting Additional not programmed	0.0	24.5
7	Harvesting	24.3	16.8
8	Harvesting	29.0	5.0
9	Harvesting additional not programmed	0.0	9.0
10	Harvesting	3.1	3.1
11	Harvesting	40.7	40.7
12	Harvesting	22.5	26.8
13	Harvesting	30.1	19.4
14	Harvesting	4.1	4.1
	<b>Programmed</b>	<b>200.8</b>	
	<b>Area completed</b>		<b>196.4</b>



### C3: Install Dams

#### Activity Description

This action involved blocking drains on all of the project sites. After action A5 (land survey) was carried out, the number and intensity of dams required became apparent at each site and work was completed accordingly. There were two methods of drain blocking used, mechanically installed peat dams or manually installed plastic dams. The experience gained from our Blanket Bog LIFE Project colleagues, and our own experience, proved that it was generally more efficient and cost effective to install peat dams. Plastic dams were installed on selected sites which were not suitable for peat dams.

#### Action Report

Site	Details of Action	Area to be treated (Ha)	Area complete (Ha)
1	Install dams, peat	7.3 ha	7.3 ha
2	Install dams, peat	13.8 ha	13.8 ha
3	Install dams, peat / plastic	40.6 ha	40.6 ha
4	Install dams, peat/ plastic	1.8 ha	10.8 ha
5	Install dams peat	29.1 ha	29.1 ha
6	Install dams peat	9.6 ha	9.6 ha
7	Install dams peat	32.0 ha	32.0 ha
8	Install dams peat / plastic	30.7 ha	30.7 ha
9	Install dams peat / plastic	11.6 ha	11.6 ha
10	Install dams, peat	25.0 ha	25.0 ha
11	Install dams peat / plastic	91.4 ha	91.4 ha
12	Install dams peat	39.1 ha	39.1 ha
13	Install dams peat / plastic	56.7 ha	56.7 ha
14	Install peat / plastic	29.4 ha	29.4 ha
	<b>Programmed</b>	<b>427.1 ha</b>	
	<b>Completed</b>		<b>427.1 ha</b>

## **Comments**

As previously explained, we were unable to block perimeter drains on some project sites – No. 9, 10, 11, 14 and internal drains on site No. 12 – as this would have adversely affected turbary (peat cutting) rights on adjoining areas outside of the project.

Generally both plastic and peat dams performed well. Site managers in consultation with the project manager made the decision which type to use based on experience gained while visiting other projects and depending on site conditions. Generally manually installed plastic dams were used on open bog areas which were very wet and where heavy machinery would have caused too much damage. Otherwise mechanically installed peat dams were preferred as they were much cheaper and easier to install in previously afforested bog areas. On average a plastic dam would cost in the region of €30 (material and labour) while a peat dam would cost €2/3.

**NPWS have given an update as regards the Cessation of Turbary Scheme as follows :- (email of 12.01.2009)**

“the turbary on the first 32 designated SACs must cease in 2009 according to the derogation given in 1999. The Minister has not yet informed NPWS if this will in fact happen”. NPWS has made a commitment to inform Coillte staff as soon as NPWS receive further instructions / information from their HQ on the matter.

**Appendix No. 4 – Photographs showing Windrows (part of Action C1) and both peat and plastic dams – Action C3**

## **C4: Fencing**

### **Activity Description:**

In order to restore the project sites to more favourable conservation status, fences were erected, as required, on some project sites so as to identify the boundaries and to protect them from trespassing stock. Trampling caused by trespassing stock could cause serious damage to the recovering bog vegetation of the sites and could also cause damage to dams - both plastic and peat.

### Action Report

Site	Details of action	AREA PROTECTED (Ha)	Metres of fence to be erected	Area fenced (Ha)	Metres of fence erected
7	Erect fence	5.0	590	5.0	220
9	No programme	11.6	0.0	11.6	600
10	Erect fences	25.0	1400	25.0	1,355
11	Erect fences	132.2	2800	132.2	845
12	Erect fences	42.7	1900	42.7	1,955
13	Erect fences	58.2	1210	58.2	1,700
14	Erect fences	56.5	1100	56.5	1,100
	<b>Programmed</b>	<b>319.6</b>	<b>9,000</b>		
	<b>Completed</b>				<b>7,775</b>

### Comments:

In some cases site managers found it necessary to carry out more fencing than that programmed, and on other sites less than that programmed was required.

### C5: Build and repair roads onto sites for safe access and the removal of trees

#### Activity Description

This action was required to facilitate the removal of trees which had been commercial felled, and to provide limited off road access and parking facilities for staff working on site and more especially for visitors to the two demonstrations sites. These roads could also be used in the event of a fire at the site, and to facilitate the distribution of materials particularly plastic piling for dams, signage and during the construction of the boardwalks.

### Action Report

Site	Details of Action	Metres of road / car parks	Works completed
8	Construct New Road	150m	150m
8	Construct Car Park	1 park	1 Car Park
11	Construct New Road	1450m	1450m
11	Construct Car Park	1 park	1 Car park

Both demonstration sites were visited extensively throughout the duration of the project, and were very busy in Year 4. Delegates from the International Peat Congress visited Carn Park Bog on the 11<sup>th</sup> June, 2008 and delegates from the End of Project Conference visited Cloonshanville Bog on the 9<sup>th</sup> May 2008.

## C6: Install Dipwells

### Activity Description

A total of 122 water level rain gauges (walrags) were installed on the project sites. These operate mechanically and give maximum and minimum readings which allowed us to measure water table / levels, and thereby quantify the level of success in re-wetting the bogs.

Site No.	Site Name	Detail of action	Completed No. of dipwells
1	L. Lurteen Bog & Ballinastack Turlough	Install dipwell	6
2	Camderry	Install dipwell	8
3	Curraghleanagh	Install dipwell	8
4	Kilsallagh	Install dipwell	8
5	Lough Ree	Install dipwell	12
6	Lisnageeragh & Ballinastack Turlough	Install dipwell	8
7	Drumalough	Install dipwell	10
8	Cloonshanville	Install dipwell	12
9	Killyconny	Install dipwell	6
10	Ardgullion	Install dipwell	8
ction 1 1	Carn Park	Install dipwell	12
12	Crosswood	Install dipwell	8
13	Mount Heavey	Install dipwell	8
14	Coolrain	Install dipwell	8
	<b>Total</b>		<b>122</b>

### Comments

122 dipwells were installed on all 14 sites by the end of the 1<sup>st</sup> project year. Readings were taken monthly and collated by John Derwin, the project ecologist, who has prepared graphs of the readings from all the dipwells for the four year period.

(See Reports on Action F5 Interim Report at Appendix No. 22 and Final Reports at Appendix No. 23).

We are at present liaising with NUIG Lecturers in the Environmental Science area who visited Cloonshanville Bog demonstration site since the project finished. They have expressed a keen interest in continuing both the water quality / level and vegetation monitoring at the project sites, but this work is dependent on funding being available.

#### **“D” Actions – Recurring biotope management**

##### **D1: Remove natural regeneration**

##### **Activity Description**

This action was necessary to prevent the sites from drying out as a result of regeneration of non bog type species on the unplanted bog dome and has varied from site to site depending on the strike rate of the re-generating conifers.

##### **Action Report**

<b>Site No.</b>	<b>Site Name</b>	<b>Detail of action</b>	<b>Target for Action (Ha)</b>	<b>Completed to 30/09/08 (Ha)</b>
1	Lough Lurteen & Glenamaddy Turlough	Remove regen	As required	0.5
3	Curraghlahanagh	Remove regen	As required	4.0
5	Lough Ree	Remove regen	As required	20.5
7	Drumalough Bog	Remove regen	As required	7.0
8	Cloonshanville Bog	Remove regen	As required	5.0
10	Ardgullion Bog	Remove regen	As required	5.0
11	Carn Park Bog	Remove regen	As required	7.0
13	Mount Hevey Bog	Remove regen	As required	1.5
14	Coolrain Bog	Remove regen	As required	56.0
	<b>Total</b>			<b>106.5ha</b>

##### **Comment :**

This work was carried out as the need arose during the project, following annual inspection by site managers. Some sites, such as No's 5 and 14 required to be treated more than once, and also had relatively large areas of unplanted bog. The work involved either picking of small seedlings by hand or the cutting of larger seedlings by strimmers / chainsaw.

This operation will form part of the After-LIFE conservation plan into the future.

## **D2: Removal of trespassing livestock**

### **Activity Description:**

This action was necessary in the event of trespassing of livestock onto the project sites which would inhibit the restoration of the sites.

### **Action Report**

Trespass did not occur onto the project sites during the 4 years.

## **Action D3: Drainage pattern survey and inventory**

### **Activity Description:**

This action was required to record nutrient outflow after felling of conifers took place and to address information gaps which existed in this area. Water quality monitoring was carried out at Cloonshanville Bog for a year before felling took place to ensure the project had baseline data in order to make comparisons.

### **Action Report**

To address concerns at the potential of bog restoration measures, most particularly forest harvesting, impinging on the water quality of watercourses in the vicinity of the raised bog project sites, water monitoring was conducted at two of the fourteen sites, i.e. Cloonshanville Bog (Site No. 8), Co. Roscommon and Coolrain Bog (Site No. 14), Co. Laois.

Continuous water monitoring was started in Cloonshanville in June'05 and continued for the duration of the project using an autosampler sited below the forest property on a modified 1<sup>st</sup> order stream that drains into the Breedoge River. This sampling was supplemented by a weekly grab sample taken from the tributary upstream of the forest to provide a measure of the background water quality originating from the adjacent peatland.

A less intensive water monitoring programme was adopted at Coolrain. Four sample points were selected in the vicinity of the demonstration site on both a tributary and main channel of the Tonet River which is part of the Nore River Catchment. The initial grab samples were taken in July'05 and continued at least once and where possible twice a year until the end of the project in 2008.

All water samples from both sites were dispatched on day of collection to the Coillte Research Laboratory and analysed for a wide range of parameters including total suspended solids [TSS], pH, ammonia, nitrate, soluble reactive phosphorus (otherwise known as ortho-phosphate [Ortho-P]) & total phosphorus [TP].

The results showed a distinct difference between Cloonshanville and Coolrain Bogs in the impact bog restoration operations had on water quality. Despite similar sized commercial and non-commercial felling coups, which totalled approximately 29 ha,



the greater impacts by far were observed at Cloonshanville. Such factors as the presence of an established riparian zone on one side of the demonstration site, the lack of surface water flowing directly into the receiving watercourses and the presence of mineral flood spoil on the river bank were all thought to minimise the impacts at Coolrain.

Furthermore, although the results from Cloonshanville show the greatest impacts in terms of maximum concentrations recorded for TSS, Ortho-P and TP of all restoration bog sites where water monitoring was undertaken in Ireland including the LIFE Blanket Bog sites, post operation results would indicate that baseline water quality will be attained and/or surpassed within two years of completing all works on this site.

Finally, the findings from water monitoring at Cloonshanville and Coolrain would indicate that in order to protect and enhance the long-term ecological status of waters within raised bogs, significant short-term impacts arising from bog-restoration measures on some sites can be expected and need to be considered when planning such actions.

#### **Appendix No. 5 Drainage Pattern Survey – Initial survey**

#### **Appendix No. 6 Drainage Pattern Survey - Final report**

### **D4: Fire Prevention – Firebreaks**

#### **Activity Description :**

Firelines were necessary to reduce the risk of fire spreading onto the project sites from adjoining bog. Firelines were installed 4m wide.

#### **Action Report**

<b>Site</b>	<b>Details of Action</b>	<b>Number of metres of fireline</b>	<b>Firelines Completed</b>
1	Fireline	710m	690 m
2	Fireline	1230m	430 m
3	Fireline	2030m	1835 m
4	Fireline	2320m	1420 m
5	Fireline	2000m	1835 m
6	Fireline	1300m	930 m
7	Fireline	720m	1350 m
8	Fireline	1000m	1120 m
9	Fireline	650m	1500 m
10	Fire line	1200m	2300 m
11	Fireline	4700m	7250 m
12	Fireline	1300m	2510 m
13	Fireline	1200m	820m
14	Fireline	1000 m	1100m
	<b>Programmed</b>	<b>21,360m</b>	
		<b>Completed</b>	<b>25,090m</b>

**Comments:**

The requirement for firelines varied from site to site as can be seen from the differences between the work programmed and that actually carried out on the above table. Site managers installed fire lines where in their experience they found it necessary to do so. Firelines were renewed where site managers considered fire to be high risk and this is included in the above figures. No fires spread into the project sites during the four years.

At sites 1 – 6 local NPWS management did not favour the physical cutting of firelines. As an alternative the site manager achieved a similar effect by clearing the perimeter of felled tree residues thus leaving this cleared area as a fireline.

**Action D5: Refuse removal****Activity Description:**

This activity was programmed to deal with any refuse dumped at the 2 demonstration sites during the 4 year period.

**Action Report**

Site	Details of Action	Number of Loads	Loads Completed
8	Refuse Removal	8 Loads	8 loads
11	Refuse Removal	10 Loads	4 loads
		<b>18 Loads</b>	<b>12 loads</b>

**Comments:**

The project worked closely with members of Frenchpark Tidy Towns committee who have been vigilant in patrolling Cloonshanville Bog demonstration site. The location of the site which is on the edge of the village and good relations with the Tidy Towns Committee, has meant that dumping was less of a problem than it might have been.

**Action D6: Vegetation control****Activity Description**

As opposed to Action D1 which took place on unplanted areas, this action took place on areas where Actions C1 or C2 had taken place. This action involved the removal of regenerating scrub species such as birch, lodgepole pine, rhododendron, and gorse re-growth after tree removal had taken place on 454.9 ha.

### Action Report

Site No.	Details of Action	No of Ha	Completed to 30/9/2008
1	Vegetation Control	As required	3.0 ha
2	Vegetation Control	As required	2.0 ha
3	Vegetation Control	As required	8.0 ha
6	Vegetation Control	As required	12.0 ha
7	Vegetation Control	As required	6.0 ha
8	Vegetation Control	As required	5.0 ha
9	Vegetation Control	As required	7.0 ha
10	Vegetation Control	As required	25.0 ha
11	Vegetation Control	As required	55.0 ha
12	Vegetation Control	As required	4.0 ha
13	Vegetation Control	As required	50.0 ha
14	Vegetation Control	As required	49.0 ha
<b>Total</b>			<b>226 ha</b>

#### Comments

After actions C1 and C2 had taken place, sites were checked regularly by site managers and treated where necessary. The work involved either picking of small seedlings by hand or the cutting of larger seedlings by strimmers / chainsaw.

### Action D7: Check/repair dams

#### Activity Description :

Under this action it was necessary to check the effectiveness of the peat and plastic dams which had been installed on the project sites.

### Action Report

Site No.	Details of Action	No. of Ha	Completed to 30.09.2008
9	Check peat dams	As required	2 ha
11	Check / repair peat dams	As required	7 ha
14	Check / Repair plastic dams	As required	21 ha
	<b>Total</b>		<b>30 ha</b>

#### Comment :

Towards the end of the project dams were checked and repaired where necessary. The quality and therefore the effectiveness of the damming carried out on the project sites has been excellent, resulting in minimal repair work required.

Over the duration of the project no major problems have been evident with regard to the durability of either type of dam. Future checking and repairing of dams will form part of the After LIFE Management Plan.

#### **"E" Actions – Public awareness and dissemination of results**

##### **E1: Land manager training course**

###### **Activity Description**

This action was necessary to disseminate information about the skills and experience required to restore raised bogs and to promote awareness and understanding of the LIFE project to the managers who attended.

###### **Action Report**

Land Managers Training Days were held as follows:-

Year 1	1 <sup>st</sup> Oct 2004	Blanket Bog project and sites in Co. Mayo
Year 2	12 <sup>th</sup> July, 2006	Lakeside Manor Hotel and Killyconny Bog
Year 3	18 <sup>th</sup> June 2007	Moylough Properties at Lough Key and Cloonshanville Bog
Year 4	22 <sup>nd</sup> Sept 2008	Hodson Bay Hotel and Carn Park Bog

These training days were attended by staff from Coillte, NPWS, IPCC, Forest Service and Fisheries Boards. The training consisted of an Indoor session in the morning with PowerPoint presentations by the Project Manager, Ecologist and PR Manager. In the afternoon trainees were given the opportunity to visit a project site to see first hand the work being carried out on the project sites.

A handout was prepared and all project promotional material distributed at these training days. (Brochure, DVD, Results booklet)

###### **Comments**

These information days and visits proved most beneficial in terms of promoting the project and its objectives. Positive feedback was received from individuals and groups over the years, and a selection of photographs of some groups at various sites can be viewed at **Appendix No. 7 – Land Managers Training Course - PowerPoint presentation and handout from course held in June 2007.**

## **E2: Project Website**

### **Activity Description**

This action was necessary to disseminate information about the project, its objectives, actions and expected results, as it is capable of reaching a national and international audience.

### **Action Report**

The project website [www.raisedbogrestoration.ie](http://www.raisedbogrestoration.ie) has been upgraded on a couple of occasions, the latest being during the later part of year 4. It contains information about the background to the project, project objectives, actions and results, it has maps showing the location of the project sites and information about each of them. The website also contains details about demonstration sites and how to get to them. Facts about bogs for children, what "LIFE" is, and information in relation to project publicity over the years. Some pre restoration and post restoration photographs, annual progress reports, links to other projects, can all be downloaded from the website.

In the Project promotion section browsers will find information and presentations from our "End of Project Conference" held on the 8<sup>th</sup> & 9th May 2008 which can be viewed and downloaded if required, photographs of visitors to the sites, various field days held, etc.

The website contains details of the ecological monitoring carried out on each of the sites over the 4 year period by the project ecologist. Details can be found from the 122 dipwells / walrags showing water level readings, and from the 70 quadrats showing changes in vegetation on the sites over the 4 year period.

### **Comments**

Most recent additions to the website (before and since 30<sup>th</sup> Sept, 20008) are the site by site ecological reports from the project ecologist, photographs of various promotions / events, information on the project demonstration sites, the project brochure, layman's report/ Results Booklet. The Final Report, and the Water Quality Monitoring Report will soon be available for download.

In the most recent upgrade of the website our designer has provide us with a weekly report of browsers. The project website has been browsed by users from The USA, Russia, Australia, Jamaica, etc. See **Appendix 8** for one of these weekly reports.

This action is complete but the website will continue to be available as part of the After LIFE management plan.

**Appendix No. 8 - Sample of week report sent by website designers indicating site usage, visitors overview, traffic sources overview, search engines used, etc.**

### **E3: Project Information Brochure**

#### **Activity Description**

20,000 copies of the project brochure to be produced and distributed to a large number of stakeholders both national and international.

#### **Action Report**

A sample of stakeholders who received brochures is outlined in the following table. A more complete list is available **at Appendix No. 9.**

<b>Excerpt from brochure distribution list</b>	
	<b>Comments</b>
All Coillte Staff	
All National Parks and Wildlife Service Staff	Emailed
All Forest Service Staff	Emailed
Heritage Officers	Working with Local Authorities in counties in which we have project sites
Irish Peatland Conservation Council	1,000 brochures sent out to all on their mailing list
ENFO – Information Office of the Dept of the Environment, Heritage and Local Government	Available to visitors in front office and to visitors to Coillte's Healthy Habitats Exhibition held during July / Aug '08
Libraries	Counties where we have project sites
Universities and Colleges	Which have environmental courses
Other LIFE Projects	Who have visited our project or whom our project staff have visited
Available on the project site	To download
End of Project Conference	All delegates
International Peat Congress	Attended by 600 delegates worldwide

#### **Comments**

Approximately 19,000 brochures have been distributed to date. As a result of the distribution of the project brochure, there was great interest in the project - from schools, non-governmental organisations, as well as requests for bog walks, visits to project sites, additional information, DVD, Results booklet, etc.

**See Appendix 9 - Project Brochure / Distribution List**

### **E4: Project results booklet / Layman's Report**

#### **Activity Description**

Provides for 10,000 copies of the project results booklet which were to be produced in layman's language to provide information on the key objectives, actions and results of the raised bog restoration project.



## **Action Report**

10,000 Copies of this booklet were produced and available in time for the End of Project Conference. The booklet has been distributed as opportunities present themselves – field days, meetings, etc. Approx 5,000 have been distributed to date.

## **Appendix No. 10 Results Booklet / Distribution list.**

### **E5: Annual bog walk**

#### **Activity Description**

Bog walks were organised on both of our demonstration sites in July / August in years 2, 3 and 4 of the project as programmed. Participants were given an information pack including information about the project objectives, actions, and expected results and information about the particular site they were visiting.

#### **Action Report**

<b>Location of walk</b>	<b>Date</b>	<b>Comments</b>
Cloonshanville Bog – site No. 8 (demo site)	10 <sup>th</sup> September, 2005	In conjunction with Heritage week
Killyconny Bog site No 9	1 <sup>st</sup> September, 2006	In conjunction with Heritage week
Lough Ree Bog site No. 5	30 <sup>th</sup> July, 2006	As part of Lough Ree Environmental Summer School / Int. Bog Day!
Carn Park Bog site No. 11	29 <sup>th</sup> July, 2007	International Bog Day
Cloonshanville Bog site No. 8	30 <sup>th</sup> July, 2007	Organised with Frenchpark Tidy Towns Committee
Coolrain Bog site No. 14	27 <sup>th</sup> August, 2007	Found the rare Goat Moth on this walk
Carn Park Bog site No. 11	7 <sup>th</sup> August, 2008	Advertised locally
Cloonshanville Bog site No. 8	8 <sup>th</sup> August, 2008	PR Manager did interview on local Radio – Ros FM attended by Frenchpark Tidy Towns Committee
Coolrain Bog site No. 14	25 <sup>th</sup> August, 2008	With Heritage Office as part of Heritage Week
Coolrain Bog site No. 14	27 <sup>th</sup> Sept, 2008	With IPCC part of Discovering Wildlife Workshop (Heritage Officer – Catherine Casey)

#### **Comments**

These bog walks specifically targeted people living in around the sites, the walks were well advertised locally and were well attended. These walks were also used as an opportunity to distribute project promotional material i.e. project brochure, website address, DVD and results booklet as they became available.

**See Appendix 11 – Photographs of local communities attending bog walks at project demonstration sites.**

## **E6: Media Publicity Campaign**

### **Activity Description**

Communication of the project objectives was seen as a key action. Publicity was gained through general newspaper articles, radio interviews, by attendance at various events / conferences, bog walks with local communities and through promotion of the project on websites e.g. raised bog project website [www.raisedbogrestoration.ie](http://www.raisedbogrestoration.ie) and on Coillte's website and on links pages of other organisations' websites.

The 1<sup>st</sup> table below details all media publicity by year for the four years. – Selected press cuttings are available as an appendix. **Appendix No.12.** Other events / meetings promotions organised / attended are listed following these tables.

The 2<sup>nd</sup> table below lists all of the events attended / organised / carried out by the PR Manager / project staff to promote the Restoring Raised Bog in Ireland LIFE Project during the 4 year period.

In addition to the above a DVD was produced "Bringing the Bogs back to LIFE", with one of Coillte's other LIFE Projects Restoring Active Blanket Bog in Ireland. This DVD provides the viewer with information about the restoration of raised bog and blanket bog on Coillte's estate under our two LIFE projects. This DVD was launched at ENFO headquarters in Dublin on 30th January, 2008 by Mary Wallace TD., Minister of State at the Department of Agriculture, Fisheries and Food with special responsibility for Forestry.

**A copy of the DVD accompanies this report.**

**Media Publicity 2004 – 2008**  
**Restoring Raised Bog in Ireland Project No. LIFE04 NAT/IE/000121**

Media Method / Subject covered	Audience National / International	EU LIFE funding Acknowledged
<b>Year 1 - 1/10/2004 to 30/09/2005</b>		
Peatland News – Spring 2005 Edition Informing readers of the “Restoring Raised Bog in Ireland” LIFE project ( <b>Appendix No. 12</b> )	National & International	Yes
Roscommon Herald 7 <sup>th</sup> Sept, 2005 Information on the RRBI Project and Bog Walk at Cloonshanville Bog	National	Yes
Westmeath County Council ‘Nature in Westmeath’ A Wildlife Habitat Guide Informing readers of restoration work on the 2 bogs in Co. Westmeath (sites No. 11 and 12)	National	Yes
Coillte Website <a href="http://www.coillte.ie">www.coillte.ie</a> Environment/nature_conservation/lifenature_projects Information about the Restoring Raised Bog in Ireland project and Coillte’s other LIFE Projects	National & International	Yes
Coillte Contact Magazine Winter Edition 2004 2 page article giving the background, objectives, actions, and expected results of the project 2 <sup>nd</sup> Article on same edition gives details of project staffs visit to the LIFE Workshop in Holland 4 – 8 Oct, 2004 ( <b>Appendix No. 13</b> )	National	Yes
Coillte Annual Reports & Accounts 2004 Gives details of the project no of sites, location of sites,	National ...	Yes

<b>Media Method / Subject covered</b>	<b>Audience National / International</b>	<b>EU LIFE funding Acknowledged</b>
update on works carried out to date on the sites		
The Restoring Raised Bog in Ireland Project website operational <a href="http://www.raisedbogrestoration.ie">www.raisedbogrestoration.ie</a> Browsers have access to a wealth of information about the project	National & International	Yes
<b>Year 2 - 1/10/2005 to 30/09/2006</b>		
Roscommon Champion 4 <sup>th</sup> July, 2006 Bog Walk at site No. 5 as part of the Lough Ree Environmental Summer School	National	No
Bog Walk at site No. 5 as part of the Lough Ree Environmental Summer School	National	No
Official Programme for the Lough Ree Environmental Summer School. Theme "Exploring the theme of Boglands"	National	No – mentions EU /SAC
Irish Examiner 5 <sup>th</sup> August, 2006 'Our hidden treasure' tells reader of value of raised bogs – habitat, archaeological etc and informs reader about the Restoring Raised Bog in Ireland Project	National (Appendix No. 12)	Yes
Anglo Celt - 24 <sup>th</sup> August, 2006 Informs readers of the project and bog walk at Killyconny bog, site No. 9 on 1 <sup>st</sup> Sept, during Heritage Week	National (Appendix No. 12)	Yes
Anglo Celt - 31 <sup>st</sup> August, 2006 More in-depth information about the Restoring Raised Bog in Ireland Project and bog walk on 1 <sup>st</sup> Sept, 2006	National (Appendix No. 12)	Yes
Coillte's Social & Environmental Report 2004-05 Details the work to be carried out under the project, sites involved, etc	National ...	Yes

<b>Media Method / Subject covered</b>	<b>Audience National / International</b>	<b>EU LIFE funding Acknowledged</b>
Coillte Contact, Summer Issue 2006 Details of visit by IPCC staff (Irish Peatland Conservation Council) to Coolrain bog – site No. 14 and to see plastic dams in operation. ( <b>Appendix No. 13</b> )	National	Yes
Coillte Contact, Autumn Issue 2006 Article on the Ploughing Championships, Coillte exhibition includes the LIFE Projects	National	No
<b>Year 3 - 1/10/2006 to 30/09/2007</b>		
Irish Examiner - 4 <sup>th</sup> June 2007 Article on turf cutting, damage to raised bogs. Article informs readers of the Restoring Raised Bog in Ireland project. ( <b>Appendix No. 12</b> )	National	No, but mentions SAC's
Roscommon Herald – 24 <sup>th</sup> July 2007 Advertising bog walk at Cloonshanville Bog – field day and information meeting. ( <b>Appendix No. 12</b> )	National	Yes
Leinster Express 15 <sup>th</sup> August, 2007 Informs readers about the Restoring Raised bog in Ireland project and invitation to attend Bog walk to Coolrain Bog, site No. 14 as part of Heritage Week. ( <b>Appendix No. 12</b> )	National	Yes
Leinster Express 22 <sup>nd</sup> August, 2008 List of events for Heritage Week including Bog walk at Coolrain Bog, site No. 14	National	No
Laois Voice 7 <sup>th</sup> September, 2007 Informs readers about the Restoring Raised Bog Restoration Project and of finding of the rare goat moth during the walk at Coolrain bog to celebrate Heritage Week	National ...	Yes

<b>Media Method / Subject covered</b>	<b>Audience National / International</b>	<b>EU LIFE funding Acknowledged</b>
The Heritage Council Newsletter on their Website 5 <sup>th</sup> September, 2007. Informs readers about finding the rare goat moth caterpillar on Coolrain Bog restoration site No. 14 during a walk on the bog during Heritage Week.	National and International  <b>(Appendix No. 12)</b>	Yes
Laois Nationalist 19 <sup>th</sup> September, 2007 Informs readers about finding the rare goat moth caterpillar on Coolrain Bog restoration site No. 14 during a walk on the bog during Heritage Week	National	Yes
Coillte Contact, Winter Edition 2006 Features an update on the project, and advising them that work is well under way on the demonstration sites for the project i.e car parks, boardwalks <b>(Appendix No. 13)</b>	National	Yes
Coillte Contact, Spring 2007 Article on the Bioforest Project, informs readers of the Coillte's 3 LIFE projects and gives website addresses for each	National	Yes
Coillte e-Newsletter No. 14 - March 2007 Gives readers an update on the project sites and the demonstration sites <b>(Appendix No. 13)</b>	National	Yes
Coillte Annual Report & Accounts 2006 Reports progress on the project during the year	National	Yes
<b>Year 4 - 1/10/2007 to 30/09/2008</b>		
Irish Farmers Journal 3 <sup>rd</sup> November, 2007 Informs Readers about Coillte 2 Restoration Projects – Blanket Bog and Raised Bog. <b>(Appendix No. 12)</b>	National	Yes
Galway Independent 12 <sup>th</sup> December, 2007	National	Yes



<b>Media Method / Subject covered</b>	<b>Audience National / International</b>	<b>EU LIFE funding Acknowledged</b>
<p>Informers readers of Coillte's 3 LIFE EU funded Restoration Projects – Priority Woodlands, Blanket Bog and Raised Bog</p> <p>Midland Tribune 12<sup>th</sup> December, 2007</p> <p>Informers readers of Coillte's 3LIFE funded Restoration Projects – Priority Woodlands, Blanket Bog and Raised Bog</p>	National	Yes
<p>Connacht Tribune 14<sup>th</sup> December, 2007</p> <p>Informers readers of Coillte's 3 LIFE EU funded Restoration Projects – Priority Woodlands, Blanket Bog and Raised Bog</p>	National	Yes
<p>Nenagh Guardian 15<sup>th</sup> December, 2008</p> <p>Informers readers of Coillte's 3 LIFE EU funded Restoration Projects – Priority Woodlands, Blanket Bog and Raised Bog</p>	National	Yes
<p>Leinster Express 12<sup>th</sup> December, 2007</p> <p>Informers readers of Coillte's 3 LIFE EU funded Restoration Projects – Priority Woodlands, Blanket Bog and Raised Bog</p>	National	Yes
<p>Irish Examiner 18<sup>th</sup> February, 2008</p> <p>Article on the tradition of turf cutting in Ireland, loss of both blanket bog and raised bog habitat. Launch of the DVD 'Bringing the Bogs back to LIFE' and information about Coillte's EU LIFE funded projects to restore blanket bog and raised bog.</p>	National	Yes
<p>Clare People 19<sup>th</sup> February, 2008</p> <p>Article on the Launch of the DVD "Bringing the Bogs back to LIFE" by Minister Mary Wallace TD, Minister of State at the Dept of Agriculture, Fisheries and Food with special responsibility for Forestry (<b>Appendix No. 12</b>)</p>	National	Yes

<b>Media Method / Subject covered</b>	<b>Audience National / International</b>	<b>EU LIFE funding Acknowledged</b>
EU's LIFE Website – Events Section Launch of the DVD “Bringing the Bogs back to LIFE” launch by Minister Mary Wallace TD, Minister of State at the Dept of Agriculture, Fisheries and Food with special responsibility for Forestry. Website addresses, etc.	National and International	Yes
Roscommon Herald 19 <sup>th</sup> February, 2008 Launch of the DVD, details of the 3 restoration sites in Co. Roscommon, the EU LIFE funded project and the importance and formation of raised bogs. Photo of site Minister and site Manager	National	Yes
Midland Tribune 20 <sup>th</sup> February, 2008 Launch of the DVD, Coillte's other LIFE Projects and Coillte's SFM (Sustainable Forest Management). Information of where to get a copy of the DVD, etc.	National	Yes
EU's LIFE Website - Events Section Advertising the Restoring Raised Bog in Ireland's End of Project Conference on the 8 & 9 May, 2008, link to project website and opportunity to register for the conference	National and International	Yes
Website of the International Mire Conservation Group Calendar of Events for 2008 lists details of End of project Conference on the 8 & 9 May, 2009 and links to project website to register for the conference ( <b>Appendix No. 12</b> )	National and International	Yes
The Heritage Council Website – Events Section Giving details about the End of Project Conference on the 8 & 9 May, 2008. Gives address for the project website and opportunity to register for the conference.	National and International	Yes
Roscommon Herald 3 <sup>rd</sup> June, 2008 Information about the End of Project Conference held at the Landmark Hotel, speakers, details about the Restoring	National	Yes

<b>Media Method / Subject covered</b>	<b>Audience National / International</b>	<b>EU LIFE funding Acknowledged</b>
Raised Bog in Ireland project, threats addressed, etc. (photos from the Conference, Coillte / LIFE site Managers) ( <b>Appendix No. 12</b> )		
Tuam Herald 12 <sup>th</sup> June, 2008. Information about the project, and End of Project Conference, speakers presenting, etc. (Photos of Coillte / LIFE site Managers)	National	Yes
International Peatlands - 1/2008 Article on the Conservation and Restoration of Bogs in Ireland – some information about the restoration of 571 ha of raised bog, EU LIFE funding and the project website address. Similar information on Coillte's Blanket Bog restoration project. ( <b>Appendix No. 12</b> )	National and International	Yes
Kildare Times North 2 <sup>nd</sup> July, 2008 IPCC article seeking volunteers to work on a project on one of their sites in Co Kildare. Mentions the threat of extinction of active raised bog in Ireland, NPWS and Coillte's efforts to restore some of these damaged bogs.	National	No
CRANN, Irelands Tree magazine – Spring Issue 2008 Give readers some details Coillte's LIFE-Nature Projects, website addresses for each project. ( <b>Appendix No. 12</b> )	National	Yes
EU LIFE Website – Events Section Advertising Coillte's Healthy Habitats Exhibition at ENFO (part of the Dept of the Environment and Local Government) featuring the 3 EU LIFE funded projects, lunchtime lectures, etc. ( <b>Appendix No. 12</b> )	National and International	Yes
Irish Wildlife Trust Magazine – Summer 2008 Featuring an article about Coillte's 3 LIFE Projects, photographs, website addresses, Logos, etc. ( <b>Appendix No. 12</b> )	National and International ...	Yes

<b>Media Method / Subject covered</b>	<b>Audience National / International</b>	<b>EU LIFE funding Acknowledged</b>
Coillte Contact - Spring Edition 2008 Informs readers about the launch of the DVD – “Bringing the bogs back to LIFE”, End of Project Conference and the ENOF Exhibition – Coillte’s Healthy Habitats	National  (Appendix No. 13)	Yes
Coillte Group News Issue 3 2008 Gives details about Coillte’s Healthy Habitats Exhibition at ENFO 11 <sup>th</sup> July – 23 <sup>rd</sup> August, 2008 (Appendix No. 13)	National	Yes
Coillte Annual Report & Accounts 2007 Reports progress on the LIFE Projects	National	Yes

**Action E6 - Action Report - Project Promotion - (other than media publicity)**

<b>Project Year</b>	<b>Type of Promotional Event</b>	<b>Audience</b>	<b>Comments</b>
<b>Year 1</b>	PR Manager attend UCD Course – Wild Wet and Wonderful Bogs	Course attendants	
	PR Manager gave a PowerPoint presentation / handout on the RRBI Project to Coillte’s Social and Environmental Meeting in District W2	Social and Environmental Panel	Stakeholders from various organisations and local communities
	PR Manager held a Bog Walk at Curraghlehannagh Bog – Site No. 3 Group of French Forestry students	International audience	
	PR Manager contacted Heritage Officers working with Local Authorities telling them about the RRBI Project	Heritage Officers – Longford, Westmeath, Laois, Cavan, Galway, Roscommon and Meath	Aim to organise an event for Heritage Week 4 – 11 Sept
	PR Manager visited Corlea Bog Trackway	National and International	Well received, advised to leave

<b>Project Year</b>	<b>Type of Promotional Event</b>	<b>Audience</b>	<b>Comments</b>
	(OPW) interpretative centre re possible project promotion		brochures at the centre when they are produced
	PR Manager sent out information to County Councillor Frankie Keena re. RRBI Project	Local community, Athlone, Co. Westmeath	
	PR Manager advertised and organised a Bog Walk at Cloonshanville Bog, site No. 8	Frenchpark Tidy Towns Committee	In conjunction with Water Heritage Day / Heritage Week
	PR Manager booked space in the Coillte tent at the National Ploughing Championships – Cork	National and International	Largest agricultural show held in Ireland – rural communities
<b>Year 2</b>	PR Manager meet with Heritage Officers – copies of project brochure – Westmeath, Longford, Cavan, Galway	Local, national and international	
	Distribute project brochure – Belvedere House, Corlea Trackway, Library – Mullingar and Mullingar, East Coast Tourism, Clonmacnoise & West Offaly bog Railway,		
	PR and Project Manager met with Catherine O'Connell C.E of the Irish Peatland Conservation Council (IPCC) gave a PowerPoint presentation on the RRBI Project and distributed brochures	1,000 people on their mailing list	
<b>Year 2</b>	PR Manager carried out a Bog Walk as part of Lough Ree Environmental Summer School – bog Theme	Local and national audience	Enthusiastic audience
	PR Manager organised 'space' in Coillte Tent at the Tullamore Show	Local and National audience	2 <sup>nd</sup> largest agricultural show in Ireland held annually
	PR / Project Manager held a meeting with IPCC personnel to update them on progress on the RRBI project	Local	
	PR Manager met with Lee McDaid Conservation Officer with NPWS to organise	Local	

Project Year	Type of Promotional Event	Audience	Comments
	bog walk at Killyconny Bog (site No.9) during Heritage Week		
	PR Manager advertised and organised a Bog Walk at Killyconny Bog <b>Appendix No. 13</b>	Local	
	PR Manager met with Hilary Tully of Frenchpark Tidy Towns Committee re. Cloonshanville Bog – demo site, No. 8	Local	
	PR Manager attended the National Ploughing Championships-displayed backdrops, distribute brochures, and met the public, and to answer any questions they had about the project	Local, national and international	A lot of interest in the project
<b>Year 3</b>	PR and Project Manager attended the AGM of the Irish Peat Society.	Local and national	Informed attendees about the RRBI project and to distribute brochures
	PR Manager and site manger hosted a visit to Site No. 3 Bosnian / Hertzogvenian visit	International	They expressed an interest in applying for a LIFE Project
<b>Year 3</b>	PR Manager contacted the principal and visited Baylin National School close to Carn Park Restoration site No. 11 and provided information about the RRBI Project.	Local	The children in 5 <sup>th</sup> and 6 <sup>th</sup> class were invited to enter a poetry competition – to write a poem about Carn Park Bog !
	Contacted Hilary Tully, Frenchpark Tidy town, Councillor Frankie Keena, Athlone, re RRBI Project	Local	Local community involvement in the project
	PR Manager met with Frenchpark Tidy Towns Committee at Cloonshanville Bog	Local	Local people here very excited about the work being carried out at Cloonshanville Bog, and are vigilant that no dumping take place at the site.
	PR Manager met with John Fallon , National Wetlands Parkland, Co. Roscommon	Local and National	Interested in applying for LIFE Project to restore huge areas of



Project Year	Type of Promotional Event	Audience	Comments
			cutaway bogs no longer in production with Bord na Mona
	PR Manager was interviewed by Midlands Radio 3 – Peatlands Theme - organised by Bernie Guest, Heritage Officer, Co. Westmeath	Local and National	Hour long Radio programme with Peatlands as the theme.
<b>Year 3</b>	PR Manager visited the National Museum of Ireland – and asked them to display the project brochure in conjunction with Bog Bodies Exhibition – “Kingship and Sacrifice”	Local, National and international	Project Brochure displayed at the exhibition
	Project Staff met with turbary holders and local community – Site No. 12 Crosswood	Local	Turbary issues – agreed that not drain block perimeter drain
	PR Manager visited ENFO – Dublin City Centre office - Information centre of Dept of the Environment –to promote the RRBI project, display and distribute copies of project brochure	Local, national and international	Copies of the Project brochure displayed, and distributed to visitors to ENFO
	PR Manager met with Sile O'Connor, teacher of environmental studies for 6 schools in vicinity of Boyle, Co. Roscommon. Brochure, etc.	Local and national	Copies of brochure distributed
<b>Year 3</b>	PR Manager visited the Museum of Country LIFE, Castlebar, Co. Mayo also Cruachan Ri, Tusk Co. Roscommon archaeological interpretative centre and Strokestown House –	Local, national and international visitors	To promote the RRBI project they each agreed to display / distribute copies of our brochure
	PR Manager selected a winner of the Poetry Competition held at Baylin School National School – poem on Cam Park Bog. Present prize to winner – Aishling McCormack <b>Appendix No. 15</b>	Local, national and international	Photographs of this event posted onto the LIFE website – thanks to Maylin Campbell / Martin Petryll!
	Project Manager and PR Manager met with NPWS staff at Killyconny Bog	Local and national	NPWS carrying out some restoration work on bog area adjoining our project area



Project Year	Type of Promotional Event	Audience	Comments
	Production of DVD – Bringing the Bogs back to LIFE with sister project 'Restoring Active Blanket Bog in Ireland LIFE02 NAT/IRL/8490 <b>DVD Distribution List at Appendix No. 29</b>	Local, national and international	DVD has been distributed widely throughout the EU, and indeed worldwide as opportunities arose
	Project Poster and Brochure displayed at the International Association of Landscape Ecology in Holland	Local, national and international	Approx. 750 delegates from all over the world attended this huge event in Wageningen, Holland in July '07
	PR Manager advertised and organised a Bog Walk held in Carn Park bog – demo site in conjunction with International Bog Day 29 <sup>th</sup> July, 2007	Local, national and international	Visitors from Wales, Denmark and Jamaica attended this bog walk.
	PR Manager liaised with Nick Marchant, ecologist and Lawrencetown Community Group on their management plan for the restoration of a 14 ha bog donated by BNM at Ballinasloe, Co. Galway	Local	Advised on techniques we used and suppliers for plastic and dipwells.
<b>Year 3</b>	PR Manager organised a Bog walk at Coolrain Bog with the Heritage Officer, Catherine Casey in conjunction with Heritage Week	Local	Found the rare 'goat moth' on this walk – got loads of press coverage for the project as a result
	The Project Manager met with Florence Renou and UCD's Bogland Project (International Steering Group) visit to Cloonshanville Bog – Site No. 8	Local, national and international	Looking for sites to carry out monitoring on.
	UCC – Ecology Dept – circulate copies of project brochure and DVD to lecturers and students	Local, national and international	
	Project Manager and PR Manager attended	Local, national and international	Eanna ni Lamha carried a short

<b>Project Year</b>	<b>Type of Promotional Event</b>	<b>Audience</b>	<b>Comments</b>
	Discovering Laois Wildlife Workshop – gave copies of brochure / DVD to Eanna Ni Lamhna, TV presenter of nature programmes on National TV and Radio. Item on Mooney Goes Wild – National Radio		feature on the RRBI project on her Radio Programme – 'Mooney Goes Wild'
	PR Manager secured a 'Stand' in ENFO Tent at the Ploughing Championships in Tullamore	Local and national	Distributed all project promotional material
<b>Year 4</b>	Project staff attended the Restoring Active Blanket Bog in Ireland End of Project Conference	Local, national and international	85 delegates attended this important conference. Distributed all of our project promotional material, brochure, DVD. Backdrops also on display
	Project staff host a visit by EnTraCop – planners / decision maker from several European countries to Coolrain Bog site No. 14. Handout and promotional material given to all. This visit was organised by Tipperary Institute of Education	Local, national and international	Interested in seeing how Irish organisations work together to get funding for projects such as LIFE-Nature
	Project Manager and PR Manager attended the AGM of Irish Peat Society,. Invited to make a presentation at the International Peat Congress to be held 8 -14 June, 2008, delegates to visit Carn Park project site No. 11	Local and national	Distributed copies of the brochure and DVD
	PR Manager hosted a visit to Carn Park Bog by members of Lawrencetown Community Group who are carrying out restoration work on a raised bog in their locality.	Local and national	Prepared a handout, gave details of suppliers for dipwells, plastic, etc.
	Project staff organised the Official launch of the DVD – 'Bringing the bogs back to LIFE' by Minister of State at the Dept of Agriculture Food & Forestry Mary Wallace T.D. at ENFO	Local and national and international	The launch received a lot of press coverage and lots of request for copies of the DVD – particularly to schools

Project Year	Type of Promotional Event	Audience	Comments
	in Dublin City Centre. <b>Appendix No. 16</b>		throughout the country. Requests for DVD from across Europe.
<b>Year 4</b>	PR Manager attended the 'Wise Use of Wetlands' Conference hosted by Monaghan County Council, Heritage Office	Local and national	All project promotional material distributed to delegates
	PR Manager secured a 'Stand' and poster displayed at Environ Conference held in Dundalk IT College	Local, national and international	Great level of interest in the project
	Project staff attended the BurrenLIFE 'Farming for Conservation in the Burren' End of Project Conference	Local, national and international	All project promotional material distributed to conference delegates
	PR Manager was interviewed on Midland Radio 3 – informed listeners about the RRB1 Project, <b>(Interview on enclosed CD)</b>	Local and national	
	Met with Catherine Farrell of Bord na Mona re Bog Walk at Carn Park Bog. on 11 June, by delegates from the International Peat Congress to be held 8-14 June, in Tullamore	Local, national and international	Fantastic opportunity to promote the project and LIFE Funding
	End of Project Conference organised and held on the 8 & 9 <sup>th</sup> May, at the Landmark Hotel, Carrick-on-Shannon. Indoor session Day 1, visited Cloonshanville and Camderry Bogs on Day 2 Results Booklet / Laymans Report available to delegates <b>Agenda, attendance list, photographs from the Conference, website advertisements and press coverage – Appendix No. 17</b>	Local, national and international Presenters from Ireland and the UK. From organisations such as IPCC, NPWS, Peatland Restoration expert, local community representatives. Advertisements were placed on various websites including LIFE, The Heritage Council,	Good publicity gained for the project and LIFE funding. It was advertised on several websites, there were press articles and photographs published. The conference created lots of discussion on bog restoration between the various organisations attending the conference NPWS/IPCC/BNM etc.

Project Year	Type of Promotional Event	Audience	Comments
Year 4	Coillte Training Day held in conjunction with Biodiversity Week and Coillte's LIFE05 Team, PowerPoint presentation given and site visits to Durrow Priority Woodland and to Coolrain Bog	project website, etc Coillte staff	Well received, good participation
	PR Manager had a 'Stand' at IPCC's event at Lullymore for Biodiversity Week	Local and National	All promotional material distributed
	Presentation given by the Project Manager and project staff attended The International Peat Congress 10 June, in Tullamore <b>Paper submitted / PowerPoint presentation , given by the Project Manager. Programme / themes of the Congress, list of delegates attending , addendum to the proceedings-- Appendix No. 18</b>	Local, national and international	500 – 600 delegates from all over the world attended this congress. Project backdrops and all promotional material displayed in a prominent position in the hotel where conference was held.
	Delegates from the International Peat Congress visited Carn Park demonstration site	Local, national and international	All project promotional material Handout prepared for the visit. And all project promotional material distributed to visitors.
	PR manager visited schools and libraries in Co's Roscommon / Galway	Local	Copies of DVD, Results Booklet and Brochure distributed
	PR Manager and site manager hosted a visit from a group of National School Teachers for a walk at Carn Park Bog	Local and national	Handout prepared and all promotional material distributed for all the schools
	PR Manager made a Presentation at Coillte internal N3 District Meeting	Local and national	All promotional material distributed
	PR Manager on the RRBI Project and on the RPWHI Project in conjunction with other Coillte staff organised the 'Coillte's Healthy Habitats Exhibition' held at ENFO the	Local, national and international It was held in July and August – at a Dublin city centre location	This event was advertised widely in Dublin, and on various websites – ENFO, LIFE Project websites, Dublin Tourism, LIFE

Project Year	Type of Promotional Event	Audience	Comments
	Information Centre (Dept of the Environment and Local Government) Dublin City Centre Offices. <i>Featuring Coillte's 3 LIFE Projects – Restoring Active Blanket Bog in Ireland, and Restoring Raised Bog in Ireland and Restoring Priority Woodland Habitats in Ireland</i>	during peak holiday season.	website, EU Office in Dublin, etc. It featured weekly lunchtime lectures. All 3 projects promotional material was distributed, DVD watched. The projects received very positive feedback. ENFO said it was the most popular exhibition they had ever held.
<b>Year 4</b>	<b>Appendix No. 19 – Website advertisement, programme of lunch time lectures, comments and Photographs from ENFO Exhibition</b>		
	PR Manager visited the Phoenix Park Visitors Centre in Dublin	Local, national and international 30,000 visitors annually	They agreed to display all project promotional material
	PR Manager was interviewed on local Radio Ros FM to promote the project and Bog walk organised for Friday 8 <sup>th</sup> August.	Local and national	Bog walk well attended by local people
	Bog walk at Coolrain Bog with Laois Heritage Officer, Catherine Casey	Local	Well attended, held during Heritage Week
	PR manager gave a presentation and promoted the project from the EU Tent (Barbara McMahon) at the National Ploughing Championships, Kilkenny	Local, national and international	This event was well attended. All project promotional material was displayed / distributed.
	PR Manager hosted a visit and Bog Workshop held at Coolrain Bog in conjunction with the IPCC and Catherine Casey, Laois Heritage Officer	Local	Fantastic workshop identifying various insects, cocoons and plants, layers of the bog, making crafts and explaining the ecology of the bog.
	<b>Appendix No. 20 – Bog Workshop – including pond dipping, identification of species, etc</b>		All project promotional material was distributed at this event.
	Project staff hosted a visit by the Danish Municipality visit to Carn Park and Lough Ree Bogs	International	Very interesting visit and exchange of ideas. All project promotional material was

Project Year	Type of Promotional Event	Audience	Comments
Year 4	PR Manager hosted a visit from 3 <sup>rd</sup> year students – Environmental Science from The National University at Galway to Cloonshanville Bog	National	distributed to the visitors Very interesting visit, may lead to future monitoring of water and vegetation by the university meeting organised between Coillte / NUIIG and NPWS 2.2.'09 to progress.
	<b>Technical Article</b> - Dr Steve Davis, Dept of Archaeology, University College Dublin, carried out research on Testate Amoebae which are indicator species found on raised bogs. He produced a report of his finding (see appendix) after examining cores taken on 4 of the project sites. Dr Davis has registered to present a paper at the 3 <sup>rd</sup> National Conference on Ecosystem Restoration to be held in Los Angeles, California July 20 – 24 July, 2009.	International audience  <b><u>Appendix No. 14</u></b>	This paper titled Restoring Raised Bog in Ireland : Prospects and palaeoenvironmental perspectives. Will take a closer look at the results of his findings on the 4 restoration sites.



## **Comments**

**LIFE and Natura Logos were displayed on all promotional material produced, and handouts prepared for project events / promotions throughout the 4 years of the project.**

Publicity for the project, its objectives and actions continued throughout the project – year 4 was particularly busy as the PR campaign gathered momentum. Experience gained on the different techniques used to complete the restoration work, has been interesting and educational for our stakeholders. We are still receiving requests for presentations and field visits on the project – these requests will be met as part of our After LIFE Plan.

### **E7: Interpretative displays and boardwalks**

#### **Activity Description**

This action required that interpretative display signs be erected at the two demonstration sites for this project. These signs give visitors to the sites information about the project such as project background, site specific details, overall site locations, the LIFE and Natura logo and the project website address. They include some illustrations showing formation of raised bog from lake to bog, and some photographs of raised bog vegetation.

#### **Action Report**

There have been many visitors to the demonstration sites over the four years, they include study tours, university students, ecologists, foreign visitors, other LIFE Projects, community groups and the general public who have all enjoyed the benefits of hearing about and viewing the project and its benefits to nature conservation.

The original signs have deteriorated somewhat, the PR Manager has been in contact with the supplier who has agreed to supply replacement signs free of charge for both demonstration sites. They are due to be delivered at the end of January, 2009.

**See Appendix 21 – Photograph of Interpretative Display Signage and boardwalks**

### **“F” Actions – Overall project operation and monitoring**

#### **F1: Project Management**

##### **Activity Description**

The project's supervision and administration costs came under this action which included project manager, site supervision and office administration. A project management group was also established to steer the project and to evaluate progress over the 4 years.



## Action Report

To this end, 16 successful Project Management Group (PMG) meetings were held. These meetings took the format of an indoor meeting followed by a field visit (weather permitting) to view progress at various project sites. Site Managers often participated at these field meeting to elaborate on progress and to discuss any issues arising on the site. PMG meetings have been very useful forums for addressing issues, and for problem solving. The table below lists our project management group meetings.

<b>Project Management Group Meetings</b>	
<b>Year No.</b>	<b>Venue and details</b>
<b>Year 1</b>	1 <sup>st</sup> PMG Meeting - Creggan Court Hotel, 17 <sup>th</sup> February, 2005 Visit to Crosswood Bog - Site No. 12
	2 <sup>nd</sup> PMG Meeting - Creggan Court Hotel, 13 <sup>th</sup> April, 2005 Visit to Carn Park Bog - Site No. 11 demonstration site
	3 <sup>rd</sup> PMG Meeting - Bloomfield House Hotel, 1 <sup>st</sup> June, 2005 2 site managers attended and gave a short presentation about the work to be carried out on their raised bog restoration sites (Pat Brady and Frank Donlon)
	4 <sup>th</sup> PMG Meeting - Belvedere House, 21 <sup>st</sup> September, 2005
<b>Year 2</b>	1 <sup>st</sup> PMG Meeting - Belvedere House, 14 <sup>th</sup> December, 2005. Meeting held with Blanket Bog Project team.
	2 <sup>nd</sup> PMG Meeting - Belvedere House, 29 <sup>th</sup> March, 2006 Visit to Ardgullion Bog - Site No. 10
	3 <sup>rd</sup> PMG Meeting - White House Hotel, 30 <sup>th</sup> May, 2006 Site visit to Drumalough Bog - Site No. 7
	4 <sup>th</sup> PMG Meeting - Hudson Bay Hotel, 27 <sup>th</sup> September, 2006 Visit to Carn Park Bog. PAP members joined the meeting and accompanied us to the site.
<b>Year 3</b>	1 <sup>st</sup> PMG Meeting - Creggan Court Hotel, 13 <sup>th</sup> December, 2006 Visit to Carn Park Bog
	2 <sup>nd</sup> PMG Meeting - Grand Hotel Moate, 7 <sup>th</sup> March, 2007 Visit to Crosswood and Carn Park Bogs. Steve Davis, University College Dublin – Testate amoebae study also attended this meeting
	3 <sup>rd</sup> PMG Meeting - White House Hotel, 20 <sup>th</sup> June, 2007 Visit to Cloonshanville Bog
	4 <sup>th</sup> PMG Meeting - Lough Key Forest & Activity Park, 20 <sup>th</sup> Sept, 2007 Members of PAP joined the meeting and visited Cloonshanville Bog
<b>Year 4</b>	1 <sup>st</sup> PMG Meeting - Belvedere House, 11 <sup>th</sup> December, 2007
	2 <sup>nd</sup> PMG Meeting - Landmark Hotel, 24 <sup>th</sup> January, 2008
	3 <sup>rd</sup> PMG Meeting - Coillte Office, Mullingar, 8 <sup>th</sup> April, 2008
	4 <sup>th</sup> PMG Meeting - Hudson Bay Hotel, 30 <sup>th</sup> September, 2008 Members of the PAP joined the meeting and visited Camderry Bog

## **F2: Project Advisory Panel**

### **Activity Description**

A LIFE advisory panel was set up to advise the project management group (F1) as necessary on specific aspects of the working of the project.

### **Action Report**

Project advisory panel meetings and field trips were organised (see table below) at a variety of project sites to give panel members an overview of the restoration methodologies and a forum to discuss issues raised. Liaison was maintained with project panel members (see table below) and information exchanged at each meeting.

<b>Name</b>	<b>Organisation</b>
Caroline Hurley / Sarah Malone	Irish Peatland Conservation Council
Thomas Cox	Abbexleix Heritage Forum
Catherine Keena	Teagasc
Roselyn Dwyer	The Heritage Council
Noel McGloin	Eastern Regional Fisheries Board
Loreto Guinan	Meath County Council
Seinead Cummins	BirdWatch Ireland

The table below gives details of meetings held and project sites visited. The meetings were always informative and constructive, and provided a forum for discussion between the various organisations.

<b>Project Advisory Panel Meetings</b>	
<b>Date</b>	<b>Venue and details</b>
27 <sup>th</sup> September, 2006	Hudson Bay Hotel, visit Carn Park Bog – site No. 11 – demonstration site for the project
20 <sup>th</sup> September 2007	Lough Key Forest & Activity Park, visit Cloonshanville Bog – site No. 8 – demonstration site
30 <sup>th</sup> September, 2008	Hudson Bay Hotel and a site visit to Camderry Bog – site No 2

## **F3: Project Report**

### **Activity Description**

EU funding required reports each project year to the EU on activities during the year and progress by action.

## **Action Report**

Progress reports have been submitted to the European Commission for each year of the project. All reports submitted to the Commission were distributed to members of the Project Management Group and kept on file for reference; the reports are also available on the project website for download.

### **Activity reports delivered since the start of the project**

Progress Report Year I	30.09.2005	Submitted 30.11.2005
Progress Report Year II with Interim Report	30.09.2006	Submitted 28.03.2008
Progress Report Year III	30.09.2007	Submitted 30.11.2007
Progress Report Year IV with Final Report	30.09.2008	Submitted by 30.01.2009

## **F4: Procure the use of expert advice**

### **Activity Description**

This action required that a peatland ecologist with extensive research knowledge of LIFE funded work on afforested sites visit and evaluate each project site and complete a written report of his findings.

### **Action Report**

A peatland ecologist from the UK, Mr. Stuart Brooks, with extensive research experience and knowledge of LIFE-funded work on afforested sites was commissioned to do site surveys on the projects sites prior to operational work commencing. Mr. Brooks submitted his recommendations for each of the 14 project sites, which the project team found very helpful and as a reference tool. He also attended and made a presentation of his experiences restoring raised bog in the UK at the project's "End of Project Conference" in May 2008.

## **F5: Hydrology Monitoring**

### **Activity Description**

This action required that hydrological monitoring devices – walrags / dipwells were to be installed on the 14 project sites and readings to be taken monthly over the 4 years of the project, this information to be collated by the project ecologist. These walrags will provide valuable information regarding water levels at the sites pre and during the restoration project works.

## Action Report

As already outlined under action C6, 122 walrags have been installed on the 14 sites. An average of eight walrags were installed on each site, with smaller sites requiring only six and larger sites requiring twelve (**See Table below**). The aim of installing the walrags was to obtain information on the water regime in each of the sites, before restoration work began and to assess the impact of restoration measures on water levels over the life-time of the project. The walrags were inserted into the top 70cm of the peat to provide water-level information on all habitat types within each site (open high bog, cutover bog, young plantations and commercial plantations). The vegetation associated with each walrag was also recorded so that vegetation types can be associated with particular water regimes.

It has been noted that the intact areas of high bog have higher water-levels and less fluctuation throughout the year than damaged areas. Water-levels on all 14 sites fell during the summer months, but the reduction in water-levels was less on intact high bog. Tree-felling lead to a rise in water-levels on most project sites, which was most evident on Site 9 (Killyconny Bog). Drain-blocking has allowed the re-wetting of damaged areas, on which over time water-levels will rise to similar levels as the intact bog.

### Hydrological Monitoring Overview

Site No.	Site Name	SAC Code	County	Project Area (ha)	Walrag No.
1	Lough Lurgeen Bog and Glenamaddy Turlough	361	Galway	7.3	6
2	Camderry Bog	2347	Galway	13.8	8
3	Curraghlahanagh Bog	2350	Galway	40.7	8
4	Kilsallagh Bog	0285	Galway	27.9	8
5	Lough Ree	2310	Roscommon	49.0	12
6	Lisnageeragh Bog and Ballinastack Turlough	2916	Galway	27.1	8
7	Drumalough Bog	2338	Roscommon	43.2	10
8*	Cloonshanville Bog	0614	Roscommon	34.2	12
9	Killyconny Bog	0006	Cavan	11.6	6
10	Ardagullion Bog	2341	Longford	25.0	8
11*	Carn Park Bog	2336	Westmeath	132.2	12
12	Crosswood Bog	2342	Westmeath	42.7	8
13	Mount Hevey Bog	2332	Meath	58.2	8
14	Coolrain Bog	2337	Laois	56.5	8
<b>Total</b>				<b>571.2</b>	<b>122</b>

- Demonstration Sites

See Appendix No. 22 – Hydrology Monitoring Interim Report

**Appendix No. 23 – Shows site by site full Ecological Report covering hydrology and vegetation monitoring (Final Report)**

**F6: Vegetation monitoring**

**Activity Description**

Vegetation quadrats were laid down on all 14 sites in July 2005 by the Project Ecologist. Vegetation was monitored over the four years of the project.

**Vegetation Monitoring Overview**

Site No.	Site Name	SAC Code	County	Project Area (ha)	Quadrat No.
1	Lough Lurleen Bog and Glenamaddy Turlough	361	Galway	7.3	3
2	Camderry Bog	2347	Galway	13.8	3
3	Curraghelanagh Bog	2350	Galway	40.7	5
4	Kilsallagh Bog	0285	Galway	27.9	5
5	Lough Ree	2310	Roscommon	49.0	7
6	Lisnageeragh Bog and Ballinastack Turlough	2916	Galway	27.1	5
7	Drumalough Bog	2338	Roscommon	43.2	5
8*	Cloonshanville Bog	0614	Roscommon	34.2	7
9	Killyconny Bog	0006	Cavan	11.6	3
10	Ardagullion Bog	2341	Longford	25.0	5
11*	Carn Park Bog	2336	Westmeath	132.2	7
12	Crosswood Bog	2342	Westmeath	42.7	5
13	Mount Hevey Bog	2332	Meath	58.2	5
14	Coolrain Bog	2337	Laois	56.5	5
<b>Total</b>				<b>571.2</b>	<b>70</b>

The main purpose of the vegetation monitoring was to document the changes that have taken place following the felling of conifers and drain-blocking at the various sites. The vegetation monitoring involved the description of the vegetation composition and structure in 10m x 10m permanent quadrats within cleared areas of plantation and open bog habitat. There was an average of 5 quadrats per site, with some sites, which were quite uniform in vegetation cover, requiring only three quadrats, while more diverse sites required up to seven quadrats (**See Table above**). These 70 permanent quadrats have been marked out with stakes and in addition to vegetation surveys, a photographic record of each quadrat was taken annually to record the vegetation change over time. During the summer months of 2005- 2008,



the vegetation of the permanent quadrats was re-surveyed. The species and vegetation cover present in each quadrat was recorded. This allowed a comparison of the vegetation communities present on each site and an assessment of the change in these communities over the timescale of the project.

### Action Report

There was a marked difference in vegetation cover between the intact high bog and the conifer plantations. The main species to re-colonise following conifer clearance were Ling Heather, Purple Moor-grass and Bramble. Over time it is hoped that more bog species will colonise the clearfell areas and that bog vegetation can be encouraged as a result of re-wetting the bog through the drain blocking carried out in this project. As the peat gets progressively more waterlogged, it is anticipated that plant species indicative of wetter bog conditions such as *Sphagnum* spp., White-beaked Sedge (*Rhynchospora alba*) and Sundews (*Drosera* spp.) will gradually re-colonise and spread. In areas of older plantation which had closed canopy it is evident, that the re-colonisation of bog vegetation will take longer.

It has been noted that the recovery of raised bog vegetation at sites previously afforested by conifers is influenced by a number of factors. However, the most important appears to be the age and yield class of the conifer crop which was removed. As a conifer crop grows the combined effect of drainage, needle deposition and shading by tall trees all combine to kill off the native raised bog vegetation over time. Therefore, if an area can be restored before the trees have grown tall and achieved a closed canopy, then it follows that the prospects of vegetation recovery are much better. On this basis, the restoration sites where trees were removed could be divided into two main types, young plantation areas, where the trees have an open canopy and older plantation areas, where the trees were mostly between 25 and 35 years old and have formed a closed canopy.

Pre-restoration, the vegetation under the young plantation on the raised bog areas tended to be dominated by a dense growth of Ling Heather (*Calluna vulgaris*) with plant species typical of intact wet raised bog largely absent. The vegetation under the older plantation areas on the raised bog was typically dominated by a dense layer of conifer needles, accompanied by a sparse layer of mosses such as *Hypnum jutlandicum*, *Sphagnum recurvum* and *Polytricum commune*.

Post restoration unwanted natural regeneration of shrubs such as Downy Birch (*Betula pubescens*), Willows (*Salix* sp.) and Lodgepole pine (*Pinus contorta*) is occurring on sections of some sites. However, the problem is only thought to be significant on some sections of four sites (5, 10, 12 and 13). At these sites regeneration of deciduous scrub is occurring where the peat depth is shallow. In addition the natural regeneration of pine in clear-felled areas will be managed as part of the After LIFE Plan.

In conclusion this study has followed and documented the changes in vegetation composition at the project sites for the 4 years of the project. These observations suggest that raised bog vegetation is returning to the sites, albeit at different rates, depending on the age of the conifer plantation removed. Although the main plant species which have initially re-colonised are more typical of dried-out and disturbed

peatland habitats it is anticipated that the cover of these species will decline in favour of plant species typical of wetter, more ombrotrophic conditions in the future. The regeneration of *Sphagnum* mosses at Site 2 (Camderry Bog) and Site 9 (Killyconny Bog) has been very encouraging and a number of other sites are regenerating raised bog habitat. The continued monitoring of permanent plots within sites will reveal important information regarding the recovery of the raised bog habitat in the future.

**Appendix No. 23 – Shows site by site full Ecological Report covering hydrology and vegetation monitoring (final report)**

**F7: Mid-point and end of project mapping**

**Activity Description:**

This action required that GIS mapping of all sites take place at mid point and at the end of the project to monitor progress on tree removal and drain blocking on the project sites.

**Action Report**

GIS maps have been produced showing the extent of tree removal and drain blocking on the 14 project sites at the end of the project. The GPS location of the dipwells / walrags and the quadrats are also shown on these maps.

**Comment:**

These maps verify the extent of the main physical project actions carried out and represent a new baseline for these sites. Maps were generated by Coillte's GIS, and will be used to update Coillte's inventory of its estate. They will also be used in the context of the After LIFE Plan.

**See Appendix No – 24 Mid-point Project mapping**

**See Appendix No – 25 End of Project mapping**



# OVERVIEW OF TIME PLANNING: Project Years = 1/10/ 2004 to 30/09/2008

## Table Legend

✓ = original time planning schedule

▼ = actual implementation period

■ = action fully completed

Action Number/ name	Year 1				Year 2				Year 3				Year 4			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
<b>A. Preparatory actions, elaboration of management plans and/or action plans:</b>																
A1 Project visits to see other LIFE-Nature sites.	✓ ▼	✓ ▼	✓ ▼	✓ ▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	■
A2 Elaboration of action plans.	✓ ▼	✓ ▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	■
A3 Identify Safety Hazards and draw up a general safety plan for sites.	✓ ▼	✓ ▼	▼	▼	✓ ▼	▼	▼	▼	✓ ▼	▼	▼	▼	✓ ▼	▼	▼	■
A4 Survey of fence lines and enclosures.	✓ ▼	✓ ▼			▼	■										
A5 Land Survey.	✓ ▼	✓ ▼	✓ ▼	✓ ▼	▼	▼	✓ ▼	▼	▼	▼	✓ ▼	▼	▼	■		
<b>B. Purchase/lease of land and/or rights:</b>																
None																

Action Number/ name	Year 1				Year 2				Year 3				Year 4			
	*I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
<b>C. Non-recurring biotope management:</b>																
C1 Fell non-commercial.	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	▼	▼	▼	▼	▼	▼	■	
C2 Harvesting.	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	▼	■						
C3 Install dams.				✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	▼	▼	▼	■
C4 Fencing.	✓	✓	✓ ▼	✓ ▼	✓ ▼	✓ ▼	▼	▼	▼	▼	▼	▼	■			
C5 Build roads onto sites for safe access and the removal of trees.		✓	✓	✓		✓	✓	✓ ▼	▼	■						
C6 Install dipwells.	✓ ▼	✓ ▼	✓ ▼	✓ ■	✓	✓										
<b>D. Recurring biotope management:</b>																
D1 Remove natural regeneration.		✓ ▼	✓ ▼	✓ ▼	✓ ▼	▼	▼	▼	▼	▼	▼	▼	✓ ▼	✓ ▼	✓ ▼	✓ ■
D2 Removal of trespassing livestock.			✓				✓				✓				✓	
D3 Drainage pattern survey and inventory.	✓ ▼	✓ ▼	✓ ▼	✓ ▼	▼	▼	▼	▼	▼	▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	▼	■
D4 Fire prevention		✓ ▼	✓ ▼			✓ ▼	✓ ▼			✓ ▼	✓ ▼			✓ ▼	✓ ▼	■
D5 Refuse removal		✓ ▼	✓ ▼	✓ ▼	▼	✓ ▼	✓ ▼	▼	▼	✓ ▼	✓ ▼	✓ ▼	▼	✓ ▼	✓ ▼	✓ ■
D6 Vegetation control			✓ ▼		▼	▼	✓ ▼	▼	▼	▼	✓ ▼	▼	▼	▼	✓ ▼	■

Action Number/ Name	Year 1				Year 2				Year 3				Year 4			
	*I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
D7 Check/ repair dams					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>E. Public awareness and dissemination of results:</b>																
E1 Land Manager Training Day	▼	✓				✓		▼		✓	▼			✓	▼	■
E2 Project Website	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ■
E3 Project Information Brochure		✓ ▼	✓ ▼	✓ ■												
E4 Project Results Book															✓ ▼	✓ ■
E5 Annual Bog Walk								✓ ▼				✓ ▼			✓ ▼	✓ ■
E6 Media Publicity Campaign	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ■
E7 Site Interpretative Displays and Boardwalks				✓ ▼	✓	✓	✓	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ■
<b>F. Overall project operation and monitoring:</b>																
F1 Project management	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ■
F2 Project advisory panel				✓				✓ ▼				✓ ▼				✓ ▼ ■
F3 Project reporting					✓ ▼				✓ ▼				✓ ▼			✓ ▼
F4 Procure the use of expert advice	✓ ▼	■														
F5 Hydrology monitoring.	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ▼	✓ ■
F6 Vegetation monitoring.			✓ ▼				✓ ▼				✓ ▼				✓ ▼	■
F7 Mid-point and end mapping.									✓ ▼							✓ ■

## **7. EVALUATION AND CONCLUSIONS**

### **a. The process**

The restoration of raised bog habitat, through the removal of forestry plantations and the blocking of drains to restore hydrological levels.

### **b. The project management**

Coillte were the sole beneficiaries, there were no project partners. The PMG (including representative from the NPWS and the Forest Service) held quarterly meetings which were productive and positive, always proceeding on the basis of consensus. Day to day management involved various meetings of core project staff, particularly the project manager, PR manager, project accountant, project ecologist, EU Affairs Manager and site managers. A major added value aspect of the project has been the improvement of communications and cooperation between Coillte and NPWS at both local and national level.

### **c. Success and problems encountered**

#### **Successes**

(1) The felling/removal of coniferous forestry from 454.9 hectares of raised bog within SAC's which has initiated the recovery of raised bog vegetation and habitat. The target of 448.2 ha for this central project objective was more than achieved.

(2) The wind-rowing technique was successfully applied as an ecologically effective and cost-efficient way of clearing the majority of the bog surface of tree cover. This clearance of the surface facilitated important follow-up actions such as drain-blocking and removal of regenerating conifers.

(3) Monitoring of improved water levels and bog vegetation recovery at project sites has provided important data regarding the recovery potential of raised bog areas which supported differing ages of conifer crop. As well as demonstrating the successful achievement of this projects objectives, this information could be used to inform future strategy regarding raised bog restoration in Ireland and further a field.

(4) Working relations enhanced with NPWS, Forest Service, IPCC, Bord na Mona, Heritage Officers, Fisheries Boards and local communities as a result of project implementation.

(5) Dissemination of project objectives, actions and results was successfully carried out using a number of methods including project brochure, project website, project results booklet / layman's report, project site signage, DVD, End of Project Conference, media articles and radio interviews, field days, bog

walks, meeting with local communities, students, and attendances at conference and events. While these methods meet a variety of different needs, the most efficient and cost effective method of reaching a wide audience would probably be the project website, followed by the promotional DVD.

(6) Using experience gained in this project, Coillte has carried out restoration works (including drain blocking, and profiling of face banks) on the NPWS owned section of Killyconny Bog (Site No. 9).

**Appendix No. 26 Photograph showing face bank at Carn Park Bog – site No. 11**

**Problems encountered**

(1) Site managers were unable to block perimeter drain on some sites – No. 9, 10, 11, 12, 14 – as this could have adversely affected turbary (turf cutting) on adjoining areas outside of the project. The ultimate resolution of this issue depends on Government implementing existing legislation i.e Cessation of Turbary Scheme operated by NPWS.

(2) Very wet weather caused some project actions to be delayed, as the surface of the bogs became so wet that it was impossible to complete some operations. All work was completed within the timeframe of the project.

**d. Comparison against the project-objectives**

Table below shows achievement to end of project for the main physical restoration works.

Action	Area programmed	Area achieved	% achieved (Ha)
C1 – C2 Tree Removal	448.2 ha	454.9 ha	101.5%
C4 – Install dams*	427.1 ha	427.1 ha	100%
C4 – Fencing**	9,000 m	7,775 m	86%

\*Drain blocking was restricted on 4 project sites i.e boundary or main drains could not be blocked as they would negatively impact on adjoining turbary areas. It may be possible to block these when turbary has ceased on these bogs.

\*\* Fencing – 7,775 m of fencing were completed and site managers were satisfied that this was sufficient to adequately protect all sites from trespass.

**e. Environmental benefits, policy and legislation implications**

The conservation benefit for the Natura 2000 network and habitat types targeted is that there has been an improvement in the conservation status of more than 571ha of Raised Bog (active) and Degraded Raised Bog habitat. Since 1997 11,832 ha of 'high' raised bog has been proposed for designation in candidate SAC's in Ireland. Overall it is estimated that some 21,500 ha of raised bog habitat of conservation value remain in Ireland. These are among the most important remaining raised bog systems in Europe. The project has acted as a flagship demonstration of what can be achieved on a wider scale in Ireland, and other Member States subject to the availability of funding.

**f. Innovation, demonstration value, transferability**

The implementation of this project raised many challenges for project staff. An example of innovation used on the project was where one local harvesting contractors, who worked on a number of the project sites, imported an attachment for his machine - a Hitachi tracked excavator - to suit the work which needed to be carried out i.e. fell and windrow. The attachment for the Hitachi is of German manufacture - it is a hydraulic tree cutter which cuts trees (not large enough to harvest commercially) with a 'scissors action'. It was also capable of stacking the trees either side of the machine when cut, or it could place them under the machine (to form a brash mat), to protect the surface of the bog. The attachment was light weight and this was an important factor to be considered when working on the raised bog restoration sites. This contractor successfully carried out approx 100 ha of fell and windrow (C1) on 4 of the project sites.

General signage acknowledging EU LIFE funding was erected at each project site. Two of the project sites (No's 8 and 11) were selected as project Demonstration Sites where detailed information panels were erected, car parks provided and boardwalks constructed. These sites were the focus of the public awareness programme over the four year period of the project and will continue to provide a demonstration value thereafter (several visits have been hosted since project ended in September '08).

With regard to transferability, the project has been visited by the IPCC and other LIFE projects from Ireland, Finland, Latvia and Denmark. Both IPCC and NPWS have as a result of visiting our project sites used plastic piling similar to that seen on our sites to block drains. We have disseminated supplier names and details to other LIFE projects in Finland, Denmark and Latvia for plastic piling and dipwells. In addition to the above two Community Groups are preparing local restoration projects as a result of liaising with our project. The techniques used on this project are readily transferable both within Ireland and other Member States subject to the necessary funding being available.



At the end of 2008 Coillte submitted an application for funding to the EU for LIFE+ funding to carryout restoration on a further 636ha of raised bogs in Ireland. If we are successful in securing this funding, all of the techniques and experience gained in this project will be transferable to the follow-up project.

**g. Socio-economic effects**

In recent times, an increasing social awareness of the importance of nature conservation has prompted national efforts to conserve the best remaining raised bog habitat. In line with this, Coillte selected, for this major restoration project, those sites on its estate which had been identified as having the best nature conservation value. Every effort was made to involve local people as much as possible in the project, from working on sites to setting up interpretive meetings and demonstrations. In carrying out this work the local contractors/forest workers have also gained some understanding of the reasons

**h. The future**

Coillte is a private limited company in which all the shares are held by the State, so the long-term ownership of the project sites is assured. Coillte secured FSC certification for well managed forests in 2001, and has maintained this status since. In this context, ecology surveys took place to identify 15% of the estate to be managed primarily for biodiversity. All of the LIFE raised bog project sites will be managed within this 15% of the company's estate into the future.

Although not mandatory for projects financed in 2004, an After-LIFE Conservation Plan has been submitted with this Final Report at Appendix 27 This plan incorporates comments from NPWS who have also proposed additional joint monitoring on the project sites into the future. Coillte has agreed to meet with NPWS to progress this approach. Measures are also being taken to maximise the academic value of the project sites by facilitating their use by third level educational institutions for research purposes / monitoring. To this end a meeting has been organised with the NUIG and NPWS to discuss details.

Encouraged by the success of this project Coillte has submitted a follow up project "Demonstrating Best Practice in Raised Bog Restoration in Ireland" under the LIFE+ 2008 call for proposals. The new project, if approved, will apply the restoration techniques perfected in the original project on a further 636.1 ha of raised bog habitat .

**i. Long term indicators of the project success**

- It is expected that there will be a continued significant improvement in the ecological quality of the open bog areas.



- This will be due to project measures taken to gain control of areas and the re-establishing of natural water levels brought about by the removal of trees, drain blocking and clearance of invasive conifer regeneration.
- The ecological quality of 571.2 hectares of raised bog has been improved using these measures. There has been a measurable increase in actively growing raised bog species since ecological monitoring began at the start of the project.
- These improvements will continue to be demonstrated using data from 122 dipwells monitoring changes in water levels and data from 70 vegetation transects in periodic monitoring under the After LIFE Plan.
- Natural water levels on the raised bog area cleared of trees and on the open bog area will be re-established resulting in an improvement in habitat quality.

## 8. LAYMAN'S REPORT AND AFTER-LIFE PLAN

The Layman's Report and After-LIFE Plan are stand-alone documents. The After LIFE Plan has been supplied at **Appendix No. 27**. A Hard copy of the Layman's Report (Project Results Booklet) is attached and is also supplied at **Appendix No. 10** and is available for download from the project website [www.raisedbogrestoration.ie](http://www.raisedbogrestoration.ie))

## 9. COMMENTS ON FINANCIAL REPORT

The Financial Final Report is a separately bound document. The following table gives a summary of the project finances including the standard eight budget items, the final outturn and the percentage spend on each budget item.

Budget Item	Final Outturn €	Amount Budgeted	% Spent
1. Personnel	1,031,873	891,494	116%
2. Travel	118,051	135,461	87%
3. External assistance	801,595	767,417	104%
4. Durable goods	175,519	508,426	35%
5. Land purchase/lease	0	0	
6. Consumable material	23,082	41,650	55%
7. Other costs	15,000	19,830	76%
8. Overheads	135,409	135,722	100%
<b>TOTAL</b>	<b>2,300,529</b>	<b>2,500,000</b>	<b>92%</b>

The Personnel budget was the only cost exceeded by more than the permissible 10%. This was as a result of more management time being required to bring the project to a successful conclusion and Personnel costs having increased above that budgeted, when the project application was written in 2002/2003.

The Durable goods budget was under spent by 65%. This was as a result of the use of peat dams in preference to plastic dams, which resulted in substantial savings in the purchase of plastic piling. The PMG advised the project team of the best methods at all stages, as work progressed on the project sites. It was agreed that peat dams were the preferred option and the most cost effective method of carrying out the drain blocking action C3.

Overall, the level of expenditure arising under each budget category reflects the achievement of project deliverables, objectives, milestones and outputs. These are outlined in detail in Chapter 6 of this report. In conclusion, the project achieved or exceeded all its major physical targets and organised a highly effective public awareness and dissemination campaign for 92% of its approved budget.

## 10. APPENDICES (supplied on CD-ROM)

Appendix No.	Description of the Appendix
Appendix No. 1	Photograph of Visitors to and from the Restoring Raised Bog in Ireland Project
Appendix No. 2.	Sample of Site Action Plan and Photograph of consultation meeting with NPWS staff at site No. 9 Killyconny Bog
Appendix No. 3	Safety Plan and HIRA used by project staff
Appendix No. 4	Photographs – Project Actions Windrows – Part of Action C1 Peat and Plastic dams – Action C3
Appendix No. 5	Drainage Pattern Survey (Initial Report)
Appendix No. 6	Drainage Pattern Survey (Final Report)
Appendix No. 7	Training Course Project Summary / Land Managers Training Days – PowerPoint presentation and Handout
Appendix No. 8	Sample of weekly Report from website designers indicating site usage, visitors overview, traffic sources overview, search engines used, etc. <a href="http://www.raisedbogrestoration.ie">www.raisedbogrestoration.ie</a>
Appendix No. 9	Project Information Brochure / Distribution List
Appendix No. 10	Project Results Booklet / Layman's Report and Distribution List
Appendix No. 11	Photographs of local communities on Bog walks to demonstration sites No. 8 and 11.
Appendix No. 12	Samples of Project promotional press cuttings
Appendix No. 13	Laymans articles from Coillte Contact (in house magazine)
Appendix No. 14	Technical Article / Abstract submitted by Steve Davis, Dept of Archaeology, UCD, to the 3 <sup>rd</sup> National Conference on Ecosystem Restoration in Florida, 20- 24 July, 2009. Copy of original study carried out Testate Amoebae as bio-indicators of restoration progress on 4 project sites.
Appendix No. 15	Photograph of Aishling McCormack, winner of poetry competition, held at Baylin National School.
Appendix No. 16	Photographs, list of attendees, Agenda and other information from the launch of the DVD – "Bringing the Bogs back to LIFE" by Mary Wallace T.D., Minister of State at the

	Department Of Agriculture, Fisheries and Food with special responsibility for Forestry.
Appendix No. 17	Agenda, attendee list, photographs, website advertisements and press coverage of the End of Project Conference 8 <sup>th</sup> & 9 <sup>th</sup> May, 2008.
Appendix No. 18	Paper submitted / PowerPoint presentation made by the Project Manager to the 13 <sup>th</sup> International Peat Congress – 8 – 14 June, 2008 “After Wise Use – The Future of Peatlands” Programme / Themes of the Congress, list of delegates, addendum to the proceedings.
Appendix No. 19	Photographs from the ENFO Exhibition ‘Coillte’s Healthy Habitats’ – featuring the 3 LIFE Projects, Website advertisements of the Exhibition, programme for lunch time lectures, pages from the comments book.
Appendix No. 20	Photographs from the Bog Workshop held at Coolrain Bog in conjunction with Irish Peatland Conservation Council and Laois Heritage Officer
Appendix No. 21	Photographs of interpretative signage and boardwalks at the demonstration sites (No 8 and 11).
Appendix No. 22	Hydrology Monitoring (Interim Report)
Appendix No. 23	Final hydrology and vegetation reports for each of the 14 project sites, prepared by the Project Ecologist
Appendix No. 24	Mid-point Project Mapping
Appendix No. 25	End of Project Mapping
Appendix No. 26	Photograph of a ‘face bank’ after turf cutting on a raised bog
Appendix No. 27	After LIFE Plan
Appendix No. 28	Photographs of visitors to project sites
Appendix No 29	DVD Distribution List

Also supplied with the Final Report are copies of the :

- Project Information Brochure,
- the Results Booklet / Layman’s Report,
- the DVD – “Bringing the Bogs back to LIFE”
- and an Interview with the PR Manager on Midlands Radio 3 on 27<sup>th</sup> February, 2008.

