



LIFE Project Number
LIFE12 NAT IE 000995

FINAL Report
Covering the project activities from 01/09/2013 to 30/09/2018

Reporting Date
31/12/2018

LIFE+ PROJECT NAME or Acronym
AranLIFE

Project Data

Project location	Aran Islands, Co Galway, Ireland
Project start date:	01/09/2013
Project end date:	30/09/2018
Total Project duration (in months)	
Total budget	€ 2,597,685
Total eligible budget	€ 2,588,535
EU contribution:	€1,941,393
(%) of total costs	75%
(%) of eligible costs	75%

Beneficiary Data

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2. Executive Summary

The Aran Islands are located in the Atlantic Ocean off the west coast of Ireland in County Galway. There are three islands; Inis Mór, Inis Meáin and Inis Oírr, covering 43.3km² or 4,330 hectares, composed of glaciated, carboniferous limestone. The islands have supported farming communities for over 4,000 years, who in turn have left a rich cultural legacy dramatically seen in the spectacular great forts on the Islands, and the dense web of field walls and the rich biodiversity maintained by the High Nature Value (HNV) farming system. Under the EU Habitats Directive (92/43/EEC), 76% of the land surface of the Aran Islands is designated as Special Area of Conservation (SAC) which includes priority habitats such as Limestone pavement (8240*), Orchid-rich calcareous grassland (6210*), and Machair (21A0*). The SACs are IE001275 Inisheer Island, IE000212 Inishmaan Island and IE000213 Inishmor Island.

Whilst parts of the island are in favourable condition, changing agricultural practices threaten the conservation value of the islands' habitats. On the islands the average farm size is small and highly fragmented; typical farm size on Inis Oírr is 6ha, Inis Meáin 11ha, and Inis Mór 20ha, compared to 32ha nationally. Associated with the small farm size is low stocking rates; typical herd size is low, with most herds comprising fewer than 10 animals. Poor economic return from such small holdings is leading to a reduction in farming on the islands. Optimal grazing is critical in ensuring the presence of the distinctive flora associated with the priority habitats that the islands were designated for. A number of reports highlighted the issues leading to degradation of habitat and discussed ways of addressing the problems. The National Parks and Wildlife Service (NPWS), as the competent authority, with their government department, the Department of Culture, Heritage and Gaeltacht (DCHG), worked with local farmers and other stakeholders to put mechanisms in place to improve the conservation condition of the islands. This resulted in the AranLIFE project, a LIFE+ nature project on the sustainable management of the priority terrestrial Habitats Directive Annex 1 habitats of the Aran Islands. This EU co-funded project started in September 2013 and ran to September 2018. DCHG were the co-ordinating beneficiary, Teagasc the associated beneficiary with DAFM (Department of Agriculture, Food and Marine), Fáilte Ireland, the Heritage Council and Galway County Council involved as co-financiers.

The overall objectives of AranLIFE were as follows:

- To demonstrate best management techniques to both maintain, and bring sites to favourable condition by addressing the threats of land abandonment, undergrazing, intensification, loss of traditional management systems and associated loss of knowledge.
- To improve the conservation status of 1,011 hectares of priority habitats comprised of 218 hectares of Limestone pavement (8240*), 78 hectares of Orchid rich calcareous grasslands (6210*), 686 hectares of Limestone pavement (8240*)/Orchid rich calcareous grasslands (6210*) mosaic and 29 hectares of Machair (21A0*).
- To enhance understanding, appreciation and engagement of all the key stakeholders with the conservation of priority habitats on the Aran Islands.
- To recommend appropriate support mechanisms for farming on the Aran Islands that address the issues that threaten the status of the priority habitats of the islands.

To achieve the objectives, a number of actions were required, which formed the work programme of the AranLIFE project. Working with farmers on the island, the project addressed issues that affected grazing, including access improvements, removing encroaching scrub to return areas to grassland vegetation, supplying a water infrastructure to facilitate grazing livestock, correcting mineral deficiencies in the livestock diet and identifying the optimum grazing level to maintain species richness.

Associated with this work was raising awareness of the habitat types on the island, the species they support and the ecosystem services that they supply. This was achieved through a range of actions for schools, universities, tourists, farmers and the wider public.

Administrative part

The project was managed by DCHG, the co-ordinating beneficiary, who supplied technical and financial input. The associated beneficiary, Teagasc, also supplied technical and financial support throughout the project. Further information on each of the organisations is outlined in the organigramme at 4.1 below. DCHG managed the project using a specialised project team who dedicated all of their time to the project. The team consisted of a project manager, a scientific and technical officer and a financial/administration officer, who were all based on the islands. This team answered directly to a Project Steering Committee (PSC), who met regularly to review progress and offer advice. The steering committee comprised of a variety of stakeholders who had direct involvement with the islands or had specific expertise in project management. To aid on the advisory side, the project also included a Project Advisory Group (PAG) with whom the project team were in regular contact with for any expertise required on specific areas of management. The project team managed the day-to-day running of AranLIFE, including costings, purchase of equipment and approving payments. Records were maintained on all transactions based on the format required by the LIFE+ unit. All payments were approved through the Department's hierarchy as appropriate. Two signatures from the project team were required to certify all items of expenditure for payment. Costs were recorded in the General Ledger through Cost Centre, Subhead item and Project Code detail. This process allocated costs to each individual expenditure area. Funds lodged by co-financiers were recorded in a Suspense Account. This Suspense Account was used solely for the purposes of the AranLIFE project. At the end of the project all transactions were subjected to a full independent audit and were found to be compliant.

Teagasc were not directly involved in the administration of the AranLIFE project but took responsibility for the management of the services involving the PhD researcher. They worked with the Institute of Technology, Sligo who supplied the PhD researcher, and Teagasc met the costs involved as part of their financial contribution.

Technical part

The first major task for the project team was the selection of approximately 1,000 hectares of suitable habitat. This was achieved through a series of public meetings where all 220 farmers on the islands were invited. Once the details were explained to the farmers, they were invited to submit an expression of interest in working with the project and 98 farmers replied. The project could only accommodate a maximum of 70 farmers; therefore a suitable transparent selection procedure was developed. This required visiting the land of all the interested farmers to assess suitability.

Following the selection process, 68 farmers entered an agreement with AranLIFE to work with the team throughout the period of the LIFE project (one farmer later withdrew). Each of these farms had a bespoke farm plan developed, which outlined the work required and

management advice on the different land parcels. This work included access improvements, identification of areas of scrub for clearing, sites suitable for seaweed application and grazing requirements for the farm. From the farm plan the farmer could clearly identify the work required and the costings involved. Once the work was completed the farmer could make a claim for payment. The project team then inspected the work and payment was issued through DCHG's financial department, Financial Shared Services in the Department of Justice. The farm plans were updated regularly after discussions between members of the project team and the participating farmer.

In parallel, the project team instigated a monitoring programme to assess the project actions from an ecological, socio-economic and agricultural perspective. This work was delivered through a series of standard monitoring procedures, based on the action, by the project team and in conjunction with the PhD researcher and external assistance through National University of Galway in relation to part of the socio-economic work.

Dissemination actions

AranLIFE have played an active role in ensuring the details of the project were and still are widely circulated and the results of the project are readily available, producing a range of information material on both the project and wildlife associated with the islands. This has been achieved through brochures (11,500), noticeboards (4), portable pop-ups (5), posters (1,206), newsletters (1,400), layman's report (500), information sheets (1,800), best practice guides (1,500), radio and television interviews (20), newspaper and magazine articles (11), public information events (91), a project website and through social media. AranLIFE have also facilitated a range of visits from other organisations to look at the project and participated in a range of conferences, both in Ireland and within Europe.

Comments on the financial report

The overall cost of the project was originally estimated at €2,597,685 with an EU contribution of €1,941,393. From 1 September 2013 to 30 September 2018, the overall actual cost of the project amounts to €2,462,880.27. Based on this figure, the EU contribution amounts to €1,847,160.20. The financial breakdown of the project is detailed in Table 1 below.

Table 1. Financial Breakdown of Project Codes.

Category	€
Personnel	€945,594.88
Travel and Subsistence	€70,755.03
External Assistance	€1,223,958.83
Equipment	€17,016.74
Consumables	€42,531.00
Other Costs	€1900.78
Overheads	€161,123.01
TOTAL	€2,462,880.27

Total contributions from co-ordinating beneficiary, associated beneficiary and co-financiers (excluding EU) amount to €714,238.12 which includes a financial contribution of: €467,632.00 (coordinating beneficiary, associated beneficiary and co-financiers) and €126,825.98 (associated beneficiary direct payments) and a payment in kind to the value of €119,780.14 (coordinating beneficiary €59,277.99 and associated beneficiary €60,502.15). Therefore, the sum of the public organisations' contributions (as coordinating beneficiary

and/or associated beneficiary) to the project exceeds the sum of the salary costs of the civil servants charged to the project, by more than 2%.

Key deliverables and outputs

The AranLIFE project finished on 30 September 2018. The final results (outputs and quantified achievements) of the project are:

- An improvement in the conservation status of up to 1,021 hectares of priority habitats comprising 245 hectares of Limestone pavement (8240*), 136 hectares of Orchid rich calcareous grasslands (6210*), 567 hectares of Limestone pavement (8240*)/Orchid rich calcareous grasslands (6210*) mosaic and 72 hectares of Machair (21AO*).
- Tested and evaluated methodologies for the sustainable management and utilisation of priority terrestrial Habitats Directive Annex 1 habitats of the Aran Islands.
- The sustainable management and utilisation of 1,021 hectares of priority habitats on the Aran Islands, with the demonstration of the above techniques to the islands' farmers
- The distribution of best practice guides to encourage more effective ecologically sensitive management of a further 1,880 hectares of priority habitats.
- A raised awareness and appreciation amongst the island community and other stakeholders of the conservation importance of the natural heritage on their farmland by increasing the availability of information through the construction of a website, production of six information sheets, five best practice guides (listed in Action E.9) and the provision of 45 educational visits and 46 classroom based presentations.
- Information available to 220 farmers on the conservation techniques required in order to maintain and further enhance condition of priority habitats within their farms.
- Baseline information on the islands to aid in future reassessments
- Submission of recommendations on the support mechanisms that will be required to sustain the long-term delivery of the project objectives. The optimal management practices for the target habitats to relevant Government Agencies and Departments, for their use in the formulation of all relevant national and local policies. These include those within future Rural Development Programmes and Ireland's Habitats Directive Priority Action Framework.

During the term of the AranLIFE project, and in the three months since AranLIFE finished, there has been considerable activity undertaken to ensure that the momentum gained during the project is not lost. This has resulted in the development of a project to continue and build on the work of AranLIFE, Caomhnú Árann (Conserve Aran) with the title of "Managing the habitats of the Aran Islands to maximise their agricultural and ecological output". The project is funded within the Rural Development Programme (RDP) 2014-2020 under the European Innovation Partnership-Agri Operational group measure and has a budget of €1.4 million. The project commenced in December 2018.

3. Introduction

The AranLIFE Project, based on the Aran Islands Co. Galway, originated from the major stakeholder's concern for the future condition of habitats on the islands in relation to changing management practices. The stakeholders included locals, farmers, NGOs and government agencies. Farmers from the islands visited a LIFE project in the Burren (BurrenLIFE LIFE04 NAT/IE/000125) and felt there was the potential for a series of actions which would help the overall conditions of the SACs on the three islands. These SACs include IE001275 Inisheer Island, IE000212 Inishmaan Island and IE000213 Inishmor Island. Working together, the stakeholders developed an EU LIFE+ Nature proposal entitled "The sustainable management of the priority terrestrial Habitats Directive Annex 1 habitats of the Aran Islands". The project was approved in 2013 and commenced in September of that year and finished on 30 September 2018.

The objectives of the project were as follows:

- To demonstrate best management techniques to both maintain, and bring sites to favourable condition.
- To improve the conservation status of 1,011 hectares of priority habitats.
- To enhance understanding, appreciation and engagement of all the key stakeholders with the conservation of priority habitats on the Aran Islands.
- To recommend appropriate support mechanisms for farming on the Aran Islands that would address the issues that threaten the status of the priority habitats of the islands.

The project was aimed at the three main habitat types found within the SACs which were deemed to be in an unfavourable or declining condition. The original estimated areas of habitat types included 218 hectares of Limestone pavement (8240*), 78 hectares of Orchid rich calcareous grasslands (6210*), 686 hectares of Limestone pavement (8240*)/Orchid rich calcareous grasslands (6210*) mosaic and 29 hectares of Machair (21AO*). This equates to approximately 30% of the total area designated within the SAC.

The condition of these habitats is dependent on the continuation of grazing, associated with specific management requirements that the characteristic flora and fauna depend on. To achieve the objectives, the project instigated a range of actions. These included concrete actions on the ground and actions to raise awareness at both national and international level.

The concrete actions included the reintroduction of specific management systems that are integral for the sustainable management of the priority habitats, such as access improvements, provision of water infrastructure for grazing livestock, scrub and bracken control and targeted optimal grazing. Parallel with these concrete actions, the project instigated awareness raising, education activities for locals, schools, universities and the wider public. In addition the AranLIFE project identified how social, economic, ecological and agricultural aspects of the island interlink within an island economy.

The longer term results of the project include not only an improvement in 1021 hectares of priority habitat, but also the supply of facilities, such as water infrastructure, improvement of access, to ensure grazing continues which is vital in maintaining the ecological integrity of the habitat in the longer term. The dissemination of information regarding habitat management and education of the public on the importance of such habitats also contributes to their long

term management through supplying advice to farmers and raising awareness of the importance of the different habitat types.

With the farmplan approach and grassland scoring system AranLIFE have also demonstrated how support mechanisms can be implemented to sustain the long term delivery of the project objectives and the optimal management practices for the target habitats. The initial after LIFE programme, Caomhnú Árann will further trial this over the next three years, and the results can be used in the formulation of national and local policies, including those within future Rural Development Programmes and Ireland's Habitats Directive Priority Action Framework.

4. Administrative part

4.1 Description of the management system

The project started in September 2013 and the co-ordinating beneficiary (DCHG) worked with the associated beneficiary (Teagasc) to formally establish the Project Steering Committee (PSC). In order to avoid slippage in delivering the project, DCHG with the assistance of the PSC implemented the recruitment process by which the AranLIFE project team was established.

In mid-November 2013, the posts of Project Manager (PM), Scientific Officer (SO) and Financial & Administration Officer (FO) were advertised in the national press and in accordance with Public Appointments Service (PAS) guidelines. 47 people applied for the posts: 18 PM, 15 SO and 14 FO. Three separate interviews boards were convened under independent chairmanships and following a competency based interview process in line with best practice, the following staff were appointed on the 13th of January 2014: Dr Patrick McGurn (PM), Dr Amanda Browne (SO) and Gráinne Ní Chonghaile (FO).

Since their appointment, and throughout the duration of the project, the project team were responsible for the day-to-day management of the project, as detailed in the application. The first year of the project involved the main preparatory A actions, gathering the necessary information, office provision, public meetings, developing selection criteria, site selection and the production of farm plans outlining all works to be completed. In addition, the project team put in place the necessary framework for the actions D, E and F. The concrete actions C started in late 2014 and on completion were inspected by the project team prior to payment with this process continuing to the end of project.

Teagasc dealt with administering the procedures to require the services of a PhD researcher. The PhD student, Louise Duignan, began work on 1 September 2014 and contributed to actions A.5, D.1 and D.2. Louise worked directly with the project team, but was under the management of Teagasc and Institute of Technology, Sligo, the Higher Education Institute responsible for supervising and awarding the PhD. Louise was present throughout the duration of the project.

The management structure and administration procedures were as set out as in the application with DCHG being the co-ordinating beneficiary and Teagasc the associated beneficiary. The co-financiers, DAFM (Department of Agriculture, Food and the Marine), Galway County Council, Heritage Council and Fáilte Ireland met their financial contributions as per the application.

The relationship between the project team and the overall project management structure is represented in an organigramme (Fig. 1). There was a change from the original application where the PhD researcher was included as part of the project team. Feedback from the Inception Report (08/08/14)) advised that the status of the PhD researcher be changed from Personnel to External Assistance. After discussions with the EU monitor, it was determined that a modification request was not required as the cost was less than 10% of both categories. The time associated with the PhD researcher was, therefore, excluded from Personnel costs and included as a cost to Teagasc, and formed part of their financial contribution.

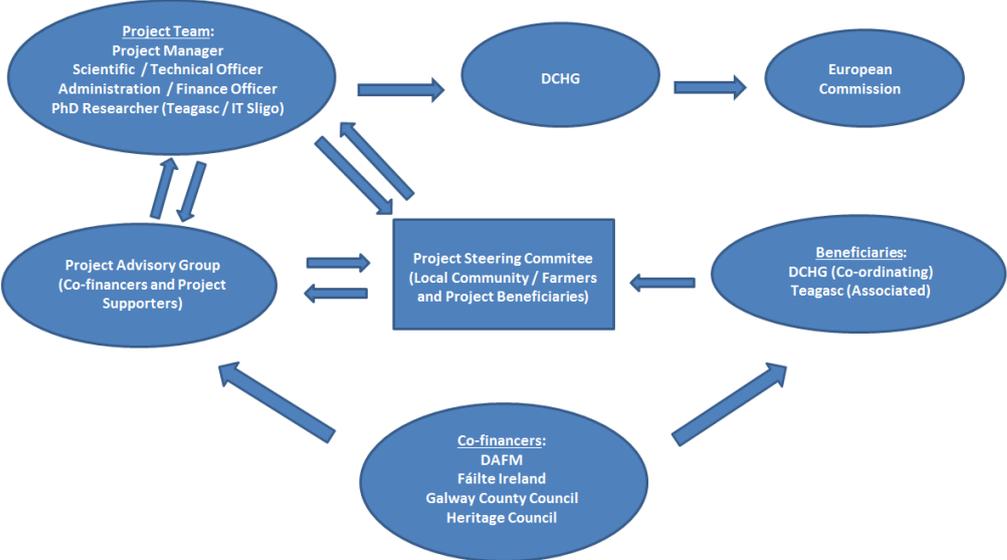


Figure 1. An organigramme of the AranLIFE Project Management Structure.

The roles of each organisation outlined in the organigramme are as follows:

Department of Culture Heritage and Gaeltacht (DCHG)-the co-ordinating beneficiary is a Government Department encompassing a number of agencies that oversees the protection and presentation of Ireland’s heritage and cultural assets. The National Parks and Wildlife Service (NPWS) the competent authority for Natura 2000, is an agency within DCHG.

In the initial application, the co-ordinating beneficiary was called Department of Arts Heritage and Gaeltacht (DAHG). Due to internal changes the departments name was changed first to Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAHRRGA) then later changed to DCHG. The Department’s remit did not change and so, despite name changes, there was no change in co-ordinating beneficiary. As per the Common Provisions, DCHG is financially responsible to the Commission for the full implementation of the project measures. To achieve this, it employed a full-time project team who were solely responsible for the implementation of the project and employed only for the duration of the project. The project team consisted of a Project Manager, a Scientific/Technical Officer and a Financial/Administration Officer and their roles were as follows:

Project Manager: the project manager was responsible for the overall project operation and its day to day management, reporting directly to DCHG. The main responsibilities included liaison between the project team, project participants, Project Steering Committee and Advisory Group; management of the project team; overseeing

implementation of all project actions, monitoring, dissemination and reporting activities.

Scientific/Technical Officer: the scientific/technical officer was involved in project operation and monitoring of all concrete conservation actions in line with project objectives and expected results. The scientific/technical officer provided information for, and participated in, the delivery of the reporting and dissemination actions.

Financial/Administration Officer: The project administration and financial officer was responsible for day to day operation of project administration and finances including maintenance of up to date financial records for all project actions. Main responsibilities included administrative support to project manager and scientific/technical officer; management of projects databases, general office administrative duties; application of necessary financial and system controls; preparation of monthly and annual financial reports for project manager; communications with stakeholder and delivery of project in the Irish language.

The project team was responsible for financial management recording for the LIFE project, but the monetary transfers were managed by DCHG's Finance Division. DCHG supplied technical expertise in two ways. Firstly, Departmental staff were directly involved in administration procedures, supplying technical information on procurement, health and safety, legal advice where required. Secondly, technical advice in respect to habitat management, Natura 2000 requirements, scientific reporting methodologies was supplied by NPWS. Members of DCHG and NPWS were on the Project Steering Committee and Project Advisory Group along with the project team.

Teagasc (Associated Beneficiary): Teagasc is the national body providing integrated research, advisory and training services to the agriculture and food industry and rural communities. They supplied technical advice and finance to the project. Teagasc were not directly involved in the administration of the AranLIFE Project but took responsibility for the management of the services involving the PhD researcher. They advised the project on a range of issues including agricultural, ecological and animal health topics. Teagasc did not benefit financially from the EU contribution as they are a public body. In the original application, a symbolic value of €10 was entered for the amount of EU contribution requested by Teagasc. This agreement still applies. Teagasc was represented on the Project Steering Committee and Project Advisory Group. Partnership agreements between Teagasc and DCHG have already been sent to the LIFE unit with the inception report.

DAFM, Heritage Council, Fáilte Ireland and Galway County Council: These organisations were all co-financiers to the project and not involved in its administration. They were represented on the Project Advisory Group and supplied technical advice to the project if required but such advice was not costed as payment in kind.

The Gantt chart (Table 2) illustrates the comparison between the schedule of proposed work as described in the project application and the actual work completed during the life of the project.

Table 2. Gantt chart outlining variations between actual work and proposed work during the project life.

Tasks/ Activities		2013		2014				2015				2016				2017				2018								
		3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T					
Action A1: Project Start Up-project team, infrastructure	Proposed		■	■																								
	Actual	■																										
Action A2: Stakeholder consultation and site selection	Proposed			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■									
	Actual			■																								
Action A3: Farm Management Plans	Proposed			■	■	■	■																					
	Actual			■																								
Action A4: Development of complementary feedstuffs to rectify mineral deficiencies associated with grazing pastureland within the project area	Proposed							■		■				■	■													
	Actual							■																				
Action A5: Profiling the grazing potential of Aran pastureland to achieve favourable conservation status of priority habitats	Proposed				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■									
	Actual							■																				
Action A6: Collation of Project information on appropriate databases	Proposed			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■									
	Actual			■																								
Action C1: Improve access to land parcels to facilitate management including grazing	Proposed						■	■		■	■	■		■	■	■		■	■									
	Actual							■																				
Action C2: Scrub and bracken control management	Proposed				■	■	■		■	■	■		■	■	■		■	■										
	Actual				■																							
Action C3: Enhancement of livestock management facilities through the provision of a water infrastructure	Proposed			■	■	■	■	■	■	■	■	■	■															
	Actual							■																				
Action C4: Implementation of optimal grazing plans	Proposed				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■									
	Actual												■															

Tasks/ Activities		2013		2014				2015				2016				2017				2018				
		3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	
Action C5: Purchase and distribution of necessary health supplements for grazing animals	Proposed							■		■		■		■		■		■						
	Actual							—————																
Action C6: Nutrient management of priority grasslands	Proposed					■	■	■	■	■	■	■	■	■	■	■	■	■	■					
	Actual					—————						—————												
Action D1: Evaluation of the impact of project actions on conservation status of priority habitats.	Proposed					■	■	■	■	■	■	■	■	■	■	■	■	■	■					
	Actual					—————																		
Action D2: Evaluation of the socio-economic impact of project actions.	Proposed					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
	Actual					—————																		
Action D3: Evaluation of the agricultural impact of project actions	Proposed					■	■	■	■	■	■	■	■	■	■	■	■	■	■					
	Actual					—————																		
Action D4: Annual payment to Aran Islands' farmers for additional works associated with project monitoring	Proposed					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
	Actual							—————																
Action E1: Website Development	Proposed					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
	Actual					—————																		
Action E2: Media Campaign	Proposed		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
	Actual			—————																				
Action E3: Educational Programme including Public Information meetings	Proposed			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
	Actual			—————																				
Action E4: Demonstration Farms	Proposed						■	■	■	■	■	■	■	■	■	■	■	■	■					
	Actual							—————				—————						—————				—————		
Action E5: Conferences, seminars and workshops	Proposed					■		■	■	■														
	Actual							—————				—————										—————		

Tasks/ Activities		2013		2014				2015				2016				2017				2018			
		3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T
Action E6: Project Reporting	Proposed					■	■			■	■							■	■				
	Actual			■					■				■								■		■
Action E7: Publications and presentations	Proposed									■	■	■	■										
	Actual																						
Action E8: Information Sheets, best practice guides addressing stakeholders	Proposed						■			■	■			■	■			■	■				
	Actual			■					■				■								■		■
Action E9: Information material, boards addressing general public	Proposed			■			■	■				■				■							
	Actual			■			■	■				■				■							
Action E10: Provide advice to government authorities on supports needed for agri-environment activities on the island post 2013	Proposed			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Actual			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Action F1: Establishment and operation of Project Steering Committee and Advisory Group	Proposed			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Actual			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Action F2: Project office operation and personnel management	Proposed			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Actual			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Action F3: Financial Management	Proposed			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Actual			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Action F4: Networking with other projects including LIFE projects	Proposed				■					■			■			■							
	Actual			■						■			■			■							
Action F5: Independent audit	Proposed																				■	■	
	Actual																						■
Action F6: AfterLIFE Conservation Plan	Proposed																				■	■	■
	Actual																						■

4.2 Evaluation of the management system

The administration and management of the AranLIFE project worked well, and is being used as a template for approaches elsewhere. A range of farmer-led projects being undertaken across Ireland have taken an AranLIFE approach as a result of direct contact and through contact with the competent authorities dealing with these groups. A team dedicated solely to the project eliminated any issue regarding time allocation in terms of financial reporting yet they still had the backup services of a major government body in DCHG. The project team approach also helped build a rapport with the farming community on the islands which aided greatly in the delivery of the project.

Financial recording within the project had a two tier approach. The project team allocated and processed all costs, recorded them accordingly. Payment through DCHG allowed a further financial check. No problems were encountered with this approach. DCHG contacted the co-financiers each year for their financial contribution and the main partner, Teagasc, was fully aware of the overall implementation of the programme. As Teagasc received no financial contribution from the programme there were no issues when it came to financial allocation. AranLIFE communicated regularly with the EU Monitor, when any guidance was required and this was an important reason for the successful management and implementation of the project.

5. Technical part (maximum 50 pages)

5.1. Technical progress, per task

A: Preparatory actions, elaboration of management plans and/or of action plans

Action A1: Project Start Up-project team, infrastructure

Action	Target	Foreseen Due Date	Result	Comment
A1	4 person project team and office set-up	13/01/2014	3 person project team working with PhD student (Teagasc)	3 person project team started 13/01/2014, finished on 30 th September 2018. The PhD researcher started in September 2014.

This action was required to ensure the effective and timely delivery of project actions. DCHG employed a three person team and a PhD researcher was supplied through Teagasc external assistance (Fig. 2). The project team were employed on a fixed-term temporary whole-time contract for the duration of the project. A project office was established on Inis Oírr within the first four months of the project and the project was administered from this office for its duration. There were some unforeseen difficulties experienced as the Public Appointment Services (PAS), a central government recruiting agency, were not in a position to assist. The recruitment process had to be implemented and managed by DCHG. This resulted in higher level of time involvement from DCHG than originally anticipated, but ensured there were no delays in starting the project.



Figure 2. The AranLIFE team, (l to r) Louise Duignan, PhD student with IT Sligo/Teagasc, Dr Patrick McGurn PM, Dr Amanda Browne SO and Gráinne Ní Chonghaile FO.

Action A2: Stakeholder consultation and site selection

Action	Target	Foreseen Due Date	Result	Comment
A2	12 meetings	30/09/2018	20 meetings completed	68 farmers agreed (1 withdrawal)
	70 farms	31/08/2014	70 of 98 farms selected	

This action involved the different stakeholders working together to implement the project and to selecting the farms that were to be involved in the project. It started with the establishment of a 15 person Project Advisory Group and a 10 person Project Steering Committee incorporating the different stakeholders. Meetings were held initially by DCHG on each island to inform farmers about the project. Once the project team was in place, a further three meetings were held. 98 expressions of interest were received. Each of the 98 farms, comprising 1200 land parcels, were visited. Using predetermined selection criteria, seventy farmers were selected, and 68 agreed to proceed (one later withdrew from the project). Throughout the term of the project the AranLIFE team held a total of 20 farmer meetings to inform the farmers of the project and give advice on specific topics.

The selection of the project area took longer than originally expected. The number of farms expressing an interest was higher than originally envisaged in the application, and for full transparency a robust selection criteria was necessary. In addition, each land parcel's suitability had to be assessed, and time difficulties were encountered arising from inter-island travel, particularly during the winter because of reduced boat services. Travelling time between islands can be as long as 5 hours for a return trip. However the additional survey work during farm selection enabled information gathering on a further 240ha of SAC designated land in terms of present condition status.

Action A3: Farm Management Plans

Action	Deliverable	Foreseen Due Date	Result	Submitted to EC
A3	70 farm plans (1011 hectares)	31/12/2014	68 farm plans (1021 hectares)	3 examples out of 68 submitted in Midterm Report (Annex 7.2.4)

Farm plans were to be developed for each participant, outlining the work to be undertaken as part of the project. To aid in the effective delivery of this action, a three day training programme was completed by the project team with High Nature Value Services Ltd who worked on the BurrenLIFE project. A working relationship was maintained throughout the project.

From the 70 farms chosen in Action A2, 68 agreed to work with the LIFE project. As these farms included sufficient area to meet the project’s objectives, it was decided not to look for additional farms. One farmer later withdrew due to personal reasons, leaving 67 farms participating in the project.

Each farm was visited by the project team and a bespoke farm management plan was developed with the farmer. The plans included a land use and resource map of the farm and a description of the project actions to be undertaken. The farm plan included details of:

- Land designated under Nature 2000
- Farmer’s land parcels
- Location and costs of any access improvements (Action C1)
- Location and costs of water infrastructure (Action C2)
- Location, area and costs of any scrub removal (Action C3)
- Map indicating grazing score and associated advisory notes (Action C4)
- Siting of agreed areas of land for application of seaweed where applicable (Action C6)

Along with the farm plan, the project team drew up a “Terms and Conditions” for the project, signed by the participant and the project manager. The “Terms and Conditions” outlined the legal status of the project, the obligations of the participant and the project team and technical details on the work involved. Ensuring a legal binding contract with the farmers within the farm plan was beyond the scope of the expertise within the project team. DCHG supplied legal expertise to develop the “Terms and Conditions”. While this did cause a slight delay in the process, it ensured a greater awareness between the farmer participants and the project team regarding each person’s responsibility.

The farm plans were completed by December 2014, enabling work to start. However, the fact that many of the actions could only be completed outside the bird nesting season (1 September to 28 February) caused some delays and time lag implications. Work continued on the farm plans throughout the duration of the project as additional work was added and changes in grazing scores were recorded.

The original plan was to develop plans to cover 1011 hectares of priority habitat; in covering 1021 hectares, the project did, therefore, meet the target area covered under the management plans. The areas of habitats classified are detailed in Table 3.

Table 3. Area of Habitat Types Mapped under the Project

SAC	Habitat	Project Mapped to date
IE000213 Inishmor Island.	Limestone Pavement (8240*)	183.90
	Calcareous Grassland (6210*)	49.51
	Machair (21AO*)	55.04
	Mosaic (8240*/6210*)	421.06
IE000212 Inishmaan Island	Limestone Pavement (8240*)	33.49
	Calcareous Grassland (6210*)	36.43
	Machair (21AO*)	17.61
	Mosaic (8240*/6210*)	105.36
IE001275 Inisheer Island	Limestone Pavement (8240*)	28.19
	Calcareous Grassland (6210*)	50.32
	Machair (21AO*)	
	Mosaic (8240*/6210*)	40.85
Totals (Aran Islands)	Limestone Pavement (8240*)	245.58
	Calcareous Grassland (6210*)	136.26
	Machair (21AO*)	72.65
	Mosaic (8240*/6210*)	567.27
		1021.76

Action A4: Development of complementary feedstuffs to rectify mineral deficiencies associated with grazing pastureland within the project area

Action	Deliverable	Foreseen Due Date	Results	Submitted to EC
A4	Report on mineral deficiencies	30/09/2018	Report	Mineral deficiencies of Aran Island Livestock: Annex 7.2.2
	Report on suitable supplements	30/09/2018	Report	Suitable mineral supplements for grazing livestock on Aran Islands: Annex 7.2.3

This aim of this action was to ensure that the imbalances in animal nutrition were identified to deliver successful grazing and implementation of the grazing plans. It was run in conjunction with Action C5, and developed from information collected under Action A5.

Based on the information gathered from individual farmers, and working in tandem with the local veterinary surgeon, a mineral supplement containing phosphorous was developed for use the islands. Commercial mineral supplementation commonly available contained zero phosphorous, the deficiency of which was shown to be one of the limiting factors in animal performance on the islands. A number of participants fed these purposely manufactured supplements to determine their suitability and there progress monitored under Action D3.

While the results, in terms of animal performance were good, issues with phosphorous blood testing detailed in Action D3 limited effective monitoring. As a result of the work carried out by AranLIFE, the local veterinary surgeon now only stocks the supplements containing phosphorous. More detailed supply methods will form part of the after LIFE project, Caomhnú Árann.

Action A5: Profiling the grazing potential of Aran pastureland to achieve favourable conservation status of priority habitats

Action	Target	Foreseen Due Date	Result	Comment
A5	490 vegetation samples 70 forage mineral samples	30/09/2018	570 samples taken (including 76 forage mineral samples)	Extra analysis required.

Action	Deliverable	Foreseen Due Date	Result	Submitted to EC
A5	Grazing Report	30/09/2018	Grazing Report	Forage quality of semi natural grasslands of the Aran Islands. Annex 7.2.4a Grazing Report: Annex 7.2.4b

An assessment of the nutritional content of the grazed forage of the priority habitats was required to establish whether levels were sufficient to maintain the grazing animal. Combining this information with the target grazing levels required to achieve favourable conservation status of these habitats was essential to ensure the development of a sustainable grazing system on the islands' priority habitats. 33 out of the 68 farms were selected for monitoring by the PhD researcher. Within this, 25 farmers were selected for more detailed monitoring. For each of these, two management units (50 management units sampled in total) within the SAC were selected to encompass the range of variation in conditions across the AranLIFE farms.

375 forage samples (analysed for dry matter, crude protein and fibre) were collected during sampling periods: March 2015, late-May/early-June 2015, August 2015, late-November/early-December 2015, late-January/early-February 2016, March 2016, May 2016, August 2016, November 2016 and January 2017.

Collection times were aimed to coincide with the start of growing season (early March), peak growing season (May), and senescence (winter). On some occasions, individual samples could not be taken as the area was completely grazed out. In total, 372 samples were analysed for oven dry matter (DM), crude protein (CP), ash, acid detergent fibre (ADF), neutral detergent fibre (NDF). During the sampling periods March 2015, June 2015 and January/early-February 2016, the 50 sites were also analysed for their forage mineral content. A total of 76 samples were analysed for Ca, P, Mg, Mn, Cu, Fe, Na, Zn, K, Pb, Mo, Se and Co. A total of 50 soil samples were analysed for P, Mg, Ca, Na, K, Cl, CAB, Mn, Cu, Zn, Se, Co, I, Fe, Al, Mo, S and Pb.

In addition, between June 2015 to June 2017, an assessment of the net primary production was completed over 9 sites, using movable cages under standard technical procedures. At each site, three metal exclusion cages of 1m × 1m × 0.4m were located within representative grassland community types. Cages were moved according to grazing frequency. In total 195 samples were taken.

Actual grazing days in the 50 management units were recorded by the farmer and the PhD researcher, giving a total of 522 grazing records which were tabulated detailing grazing date, duration, number of grazers and grazer type.

Action A6: Collation of Project information on appropriate databases

Action	Target	Foreseen Due Date	Result	Submitted to EU
A6	Collation of Databases	30/09/2017	Database Set	Screen shot of database details: Annex 7.2.5

This purpose of this action was to collate a database of all information available and produced through the duration of the project. The necessary databases were obtained from all the relevant stakeholders, including farm business data, i.e. name and address of farmers on the islands, LPIS data, historic monument data, designated area data, records of ecological data and land classification data.

These were incorporated into a specific AranLIFE GIS programme for daily use by the project team. A further database of the location of boreens on the islands was available and, to aid in the implementation of Action C1, was digitised by an outside body. All of the necessary map licences and satellite imagery were obtained. All information gathered by the project team regarding the workings of the project was stored on databases, which were regularly updated throughout the life of the project. Information from outsourced databases was overlaid with the databases created and maintained by the project team.

The project team worked in liaison with NPWS to ensure that all information collected fitted into their data management requirements, and with the National Biodiversity Data Centre. At the end of the project, all habitat information and works completed was incorporated into a GIS data base. The technical end of this work was completed by an outside contractor and presented to NPWS to aid them in future and for use in future afterLIFE programmes.

Table 4. List of databases compiled and used by the project to date

GIS databases created by the project and updated constantly by the project team
Scrub to clear
Boreens to clear
Water supply
Grazing scores
Monitoring (relevés, transects, seaweed plots, forage sampling)
Ineligible areas
External GIS databases used and overlain with project databases for daily management of the project
National Monuments 2014
LPIS Dec 2012
SAC boundaries
Focal points and views
Bóithre, Toibreacha & Carcaireacha Inis Mór, Mná Fiontracha (Digitisation of this data was commissioned by the project)
2014 Rare & Protected species records

C. Concrete conservation actions

Action C1: Improve access to land parcels to facilitate management, including grazing

Action	Target	Foreseen Due Date	Result	Comment
C1	60km boreen clearance, reduced to 30km	30/09/2018	28km	Over-estimation in application but still meet target of 460 hectares with improved access

Action	Deliverable	Foreseen Due Date	Result	Submitted to EC
C1	Scrub control Report	30/09/2018	Scrub control Report completed	Scrub Control Report: Annex 7.2.6

The fragmented nature of the farms on the island, and the small parcel size, means that the grazing period for a particular parcel of land may be short. Access to these parcels of land is through a series of communal narrow boreens (narrow pathways). Due to infrequency of use, they are prone to scrubbing up, mainly with *Rubus fruticosus* and *Prunus spinosa*, and eventually become impassable. This can result in the cessation of grazing on priority habitat as the agricultural return doesn't reflect the work involved in clearing them. As these boreens are communal, identifying them at the farm plan stage proved problematic. AranLIFE mapped the existing boreens on the islands to identify all the farmers involved. From that and from farmer discussion and field visits the project team were able to concentrate on the boreens with access problems.

A number of issues did arise in undertaking this action. The access problems outlined in the LIFE application were not as widespread as originally indicated. In addition, the repair work on one of the main boreens (Bóthar na gCrag) on Inis Mór was completed by the local Council and has now been resurfaced, negating the need for AranLIFE project involvement. In some cases the problems were different than simply scrub encroachment of the boreen through lack of use. Rather, the scrub development was a symptom of other issues such as poor surface, the boreen being too narrow or issues due to wall degradation. An amendment was therefore requested in the midterm report. This would allow for a reduction in the length of boreens the associated money would be transferred to Action C3, and for works to address other access issues, including provision of gates, construction of turning points within boreens and improvements in points of access. Under this action a total of 28km of boreens were cleared, 4 specific access improvements were made and 50 gates installed, resulting in improved access to over 460ha.

Continuing this action after the end project will be carried out by the farming population. In addition AranLIFE are in communication with the local FÁS scheme, a Community Employment programme, which can assist in any work required in maintaining boreens.



Figure 3. Work in progress on two boreens on Inis Mór as part of the AranLIFE project

Action C2: Scrub and bracken control management

Action	Target	Foreseen Due Date	Result	Comment
C2	91ha to be cleared	30/09/2018	93ha	

Action	Deliverable	Foreseen Due Date	Result	Submitted to EC
C2	Scrub control Report	30/09/2018	Report Completed	Scrub Control Report: Annex 7.2.6

Declining agricultural activity, land abandonment and undergrazing has led to an encroachment of scrub, particularly *Rubus fruticosus*, *Prunus spinosa* and bracken, *Pteridium aquilinum* on priority habitat. This action, which aimed to introduce controls and management, was necessary as the removal of scrub and bracken is the first step in the restoration of the priority habitats. A total of 93ha of the proposed 91ha of scrub was cleared under this action.

The area of scrub for removal was identified on the participating farm by the Project Manager or Scientific Officer, and its removal was discussed with the relevant farmer. The cover of scrub within an area was mapped and the area calculated and classified as light (15-40%) medium (41-75%) or dense (76-100%). The cost of removal was then based on the classification. This proved to be a cost effective method of classification and provided baseline information for the monitoring programme in Actions D1 and D2.

Whilst it was envisaged that there would be some scrub removal using tractor mounted mowers, this turned out not to be feasible due to the small nature of the fields and high level of rock within a field. Hand tools, including petrol trimmers, were the main method used and in some cases a variety of other different tools were required. The majority of the farmers invested in petrol trimmers to aid with the process. As part of Action E4, AranLIFE bought in outside expertise to deliver safety courses and to demonstrate different cutting methods to aid the farmers involved.

The time window for scrub clearance was limited due to work only being permitted outside the bird nesting season (1 September to the 28 February), and the harsh Atlantic winters limited work within the cutting period. In the first and third winter, a large percentage of the work was carried out but weather conditions in the second winter (2015/2016) were particularly harsh and this reduced the amount of work completed. An agreed extension to the project allowed additional time to complete works.

There was an underspend on this action. In the original application, the costings were for clearance of all dense scrub. However the project paid out on light and medium scrub clearance, and at a lower cost. Despite any underspend the overall target area of 91km was exceeded, with 93km of scrub cleared.

Apart from weather difficulties, there were no problems/drawbacks associated with this action. Regrowth was an issue on some sites, but farmers worked on this by recutting, targeted grazing (sometimes using goats) and herbicide treatment, and these variables were monitored as part of Action D1. The project limited the use of herbicides due to local negative reactions, and worked with the farmers to ensure targeted use. Since the start of the project, the Sustainable Use of Pesticides Directive (Directive 2009/128/EC) came into force,

meaning the AranLIFE team were not qualified to advise on herbicides. As the cost and time involving in qualifying was restrictive, therefore the project made use of resources and expertise within Teagasc and DAFM when required, as their staff had the necessary approvals. The farmers involved will continue with this work after the end of the project.

The project also looked at determining acceptable levels of scrub within a land parcel that doesn't affect the overall integrity of the priority habitat (Action D1).



Figure 4. Before and after, scrub control completed on a land parcel by participant farmer.

Action C3: Enhancement of livestock management facilities through the provision of a water infrastructure

Action	Target	Foreseen Due Date	Result	Comment
C3	125 water features	30/09/2018	146 new, 112 repaired water features	

The project identified that a lack of water is a major issue preventing optimal grazing of the priority habitats, and surmised, therefore, that supplying additional water facilities was necessary. Poor water supplies mean livestock are removed before the area is fully grazed leading to increased scrub cover and eventually cessation of grazing. The nature of the fragmented farms means that supplying or repairing water facilities was not economic from an agricultural return, but vital from an ecological aspect.

The figures included on the original application were 125 water infrastructure units (25 rain catchers and 100 pasture pumps). These numbers proved to be insufficient as the demand for rain catchers was far higher than anticipated. In addition, the pasture pumps were unsuitable due to the low water volume associated with springs. The construction of traditional rain catchers was considered to be the most feasible option. A change in expenditure was requested and approved in the mid-term report increasing the potential costs from €78,000 to €167,275.

The grazing requirements of the site were discussed with the farmer during the farm plan stage and the availability of water in each field was noted. Where it was deemed that the present infrastructure was insufficient, a new or repaired structure was included in the farm plan. Additional raincatchers were added at different stages as the project progressed.

In total, the project constructed 146 new raincatchers (Fig. 5) and repaired a further 112, giving a total of 258 structures. A construction plan for new raincatchers was developed and issued to farmers for guidance, but participants were allowed to design their own structures to suit conditions, within the agreed size limit. This allowed the farmers freedom to come up with the best suitable option for their farm, leading to more innovation.

Work on this action was delayed as the project team needed to liaise with planning authorities and NPWS to address any concerns regarding planning permission and possible loss of habitat as a result of construction works. In terms of the planning issue, new structures were deemed to be exempt providing they were outside pre-determined Focal View Point areas. In order to avoid habitat loss, careful consideration was given to their footprint and for each raincatcher, screening concluded that the benefit achieved through habitat improvement greatly outweighed any potential habitat loss. This placed an additional workload on the project team and delayed the start of work.

The facilities supplied are permanent and will last for over 30 years, so will continue to allow optimum grazing of the priority habitats after the end of the project. The provision of a water infrastructure supplied approximately 2,200,000 litres of rainwater annually for grazing livestock. At present, drinking water is shipped to the islands from the mainland. The transport costs for the equivalent volume is in the region of €47,000; the work completed by farmers in the AranLIFE project resulted in positive economic savings.



Figure 5. Top photo, a newly constructed raincatcher funded by the project built on Inis Meáin, bottom photos, before and after shot of a restored raincatcher on Inis Mór.

Action C4: Implementation of optimal grazing plans

Action	Target	Foreseen Due Date	Result	Comment
C4	1011ha priority habitat	30/09/2018	1015ha mapped	Optimal Grazing Guidelines Report: Agricultural practices and the quality of calcareous grassland habitat on the Aran Islands Annex 7.2.7

This delivery action was necessary to bring the targeted habitats on the farms to a favourable conservation condition. This was achieved by grazing with livestock, and grazing plans were a necessary management tool to meet the project's objectives. Whilst the costs of this action were allocated to fall in the second half of the project, work began early, starting with the production of the farm plans.

From an early stage in the project, details of the grazing required were discussed with the farmers, and over 1000 parcels of land were assessed by the project team, grazing requirements noted and advice given. From those assessments, and linking with the monitoring work in D1, the project developed a basic scoring system that reflected the quality of the habitat and level of grazing achieved. The purpose of this was twofold, it encouraged farmers to graze the land to a predetermined level, and was an opportunity to trial a results based output which could be used in future agri-environment programmes after the project ended and within the wider countryside.

Training days were held with the farmers under action E4 to demonstrate the results required. In 2016, each land parcel was visited again by the Project Manager or the Scientific Officer and checked to ensure adequate grazing, and then scored to reflect the overall quality of the sward (Fig. 6). While this assessment was intuitive, it was based on the presence or absence of indicator species as listed in the national monitoring methodologies of assessing the conservation status of priority habitats, and subsequently tested using transects and plots as described in '*Report of ecosystem functions restoration resulting from the project actions.*' Overall scores did improve within the life of the project, indicating that this approach was successful.

The major disadvantage to this action was the time involved assessing each land parcel. This was exacerbated by the large number of individual fields and the fragmented nature of the farms. This action went slightly over budget (12%) due to the unforeseen time taken to score each individual land parcel on these highly fragmented farms. The simplified scoring system trialled as part of this action attracted a lot of interest as it forms the basis of an outcome based agri-environment scheme that could be applicable to other areas, and which could address the issues of more generic based agri-environment schemes. The afterLIFE project, Caomhnú Árann, will continue to develop this approach to improve design of agri-environment programmes within future Rural Development Plans.

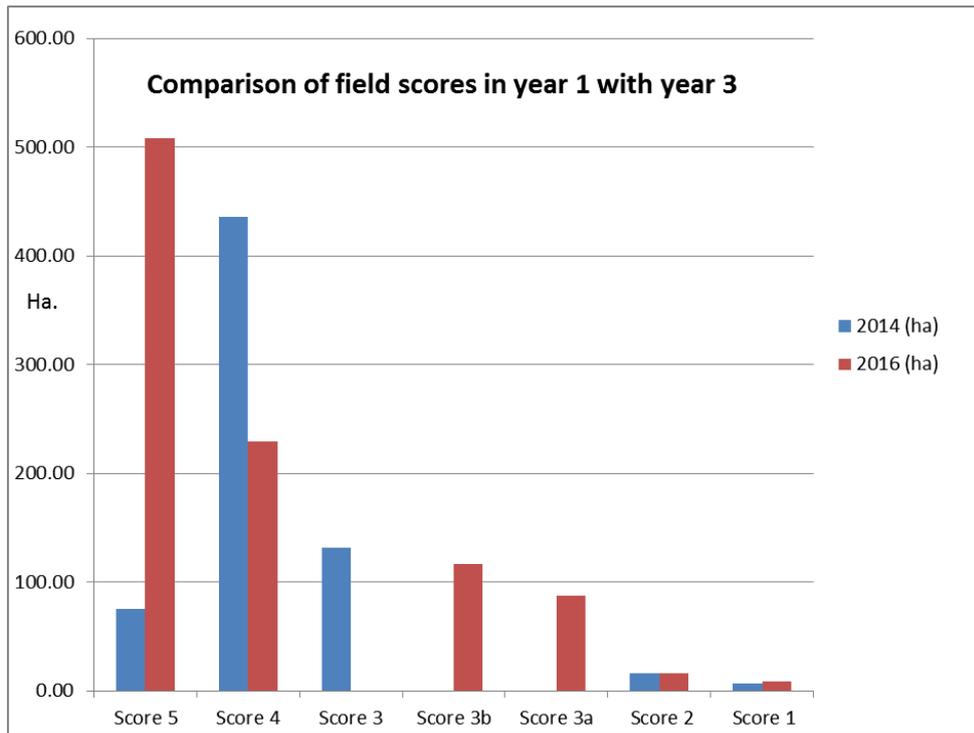


Figure 6. Graph outlining changes in field scores over 3 year period. Score 3 was split into grazed land, 3b, and ungrazed land, 3a, for 2016.

Action C5: Purchase and distribution of necessary health supplements for grazing animals

Action	Target	Foreseen Due Date	Result	Comment
C5	Correction of mineral deficiencies	30/09/2018	Specific mineral supplement developed for island farms	

This measure was necessary to correct identified mineral deficiencies, which affect the health of grazing animals. The work followed on from the results obtained in Action A5, which showed the grassland forage were particularly deficient in Selenium, Cobalt, Copper, and Phosphorous, and this was reflected in the blood sampled in Action D3.

The deficiencies in trace elements, Selenium, Cobalt, Copper, were easy to rectify using mineral licks and specific boluses, which are administered to the livestock and widely used by the farmers. Rectifying phosphorous deficiencies has proved more problematic. Phosphorous deficiency is not an issue in Ireland in general as it is supplied through general grassland fertiliser. This behaviour is limited in occurrence on the islands and doesn't occur within the SAC area. No commercial supplements containing phosphorous were available to purchase, so the local veterinary surgeon worked with a local supplier to include phosphorous into mineral supplements. These were trialled on a number of farms and the results were monitored in Action D3.

One drawback the project encountered was the suitability of analytical procedures in determining baseline information and potential changes for phosphorous. Blood sampling is detailed in Action D3, however all anecdotal evidence for phosphorous to date is positive, with cattle no longer showing depraved appetite (a symptom of phosphate deficiency) and the use of the mineral supplement is widespread across the island on all farms.

Blood sampling of the herd prior and after the supply of mineral licks showed an improvement; rectifying the mineral deficiencies for Co, Se and Cu. Therefore farmers will continue with recommendations after the end of the project. The afterlife project Caomhnú Árann will develop this further looking at additional innovative ways of addressing phosphate deficiency taking into account the ecological sensitivities of the islands.



Fig. 7 Purpose made mineral supplement containing phosphorous livestock on the islands.

Action C6: Nutrient management of priority grasslands

Action	Target	Foreseen Due Date	Result	Comment
C6	Collection and spreading of seaweed on 20ha Machair, 30ha calcareous grassland	30/09/2018	Improvement in 33ha of Mahair (seaweed, rabbit control and grazing)	Calcareous grassland unsuitable for seaweed application, target reduced. Rabbit damage on Machair grasslands was also an issue and control was necessary.

Action	Deliverable	Foreseen Due Date	Result	Submitted to EC
C6	Best practice guide	30/09/2018	Best Practice Guide	Report on seaweed application submitted in Midterm Report: Annex 7.2.8a, with update Annex 7.2.8b and details of rabbit control report: Annex 7.2.8c

This action was instigated due to areas of Machair grassland becoming extremely nutrient poor and dominated by moss, particularly *Rhytidiadelphus squarrosus*, with an associated drop in plant diversity. Grassland productivity also declined, and production was so low that grazing was not worthwhile, resulting in further loss in biodiversity.

In the original application, the sites were to include calcareous grassland and Machair. However after the initial assessment it was concluded that seaweed application on calcareous grassland would lead to nutrient enrichment and biodiversity loss, and so applications were only applied to Machair grasslands.

The first phase of seaweed application began in March/April 2015 and continued in 2016 and 2017. As these sites are known lapwing nesting areas, great care was taken to avoid areas where lapwings were active. Initially seaweed plots were approximately 20m x 10m. Seaweed collected from the strandline was applied to plots, by hand, by the participating farmers. The

selection of plots for seaweed application was primarily based on the farmer's input as to where the forage available for cattle was particularly low and the moss cover high. Areas showing obvious signs of damage through erosion with areas of bare sand were also selected. In total an estimated area of 6ha benefited through seaweed application, and a further 27ha benefited from rabbit control and targeted grazing.

The predicted area included calcareous grassland; this was deemed to be detrimental to the overall ecology of the site and therefore not included. The main issue for the delay in starting this action was that the Annex II snail species, *Vertigo angustior*, is a qualifying interest species of Inis Mór SAC, and it was necessary to understand how the application of seaweed would affect (positively or negatively) *V. angustior*. A survey of *V. angustior* to accompany the seaweed trials and vegetation survey of Machair on both Inis Mór and Inis Meáin was conducted first. This *Vertigo* survey was conducted by a research student, Neil Browne, under the supervision of Dr Evelyn Moorkens (Ireland's National Expert) and provided mollusc survey and identification training for the Project Manager and Scientific Officer.



Fig. 8 Neil Browne and Dr Evelyn Moorkens completing a mollusc survey on Machair on Inis Meáin

With no seaweed applications on calcareous grassland, the overall area treated was less than estimated in the original application. The overall cost of spreading has been higher than anticipated, as it is very labour intensive process, with seaweed being collected by hand on the beach and spread by hand in the field. This action was very weather dependent as there are only a few sites on each island where seaweed can be safely collected.

On the largest site there was a problem with rabbit infestation, leading to a high level of grazing and damage to the overall habitat. The benefit of seaweed application in some areas was therefore questionable without some method of rabbit control. Rabbit control took place on one site as part of the project.



Fig. 9 Effect of rabbits on Machair vegetation, area on left had exclusion cages. Heavy grazing by rabbits leads to loss of vegetation.

The results of the project demonstrate the effectiveness of seaweed application, particularly in damaged areas. This action is not seen as an annual occurrence but likely to occur when the Machair becomes impoverished again.

D. Monitoring of the impact of the project actions

Action D1: Evaluation of the impact of project actions on conservation status of priority habitats.

Action	Target	Foreseen Due Date	Result	Comment
D1	400 quadrats (200 baseline, 200 repeat)	30/09/2018	416 relevés, including 99 repeated relevés. 38 grazing plot transects consisting of 380 grazing score quadrats. 16 transects assessing scrub regrowth with paired relevés and repeats 2017 and 2018	A greater no of quadrats required to cover the monitoring of all actions.

Action	Deliverable	Foreseen Due Date	Result	Submitted to EC
D1	Report on habitat management	30/09/2018	Report	Habitat Management Report: Annex 7.2.9

National assessment methodologies were adapted for the evaluation of the impact of project actions on the conservation status of priority habitats. Work was carried out by the AranLIFE team and the PhD researcher working through Institute of Technology, Sligo.

Representative monitoring and vegetation survey (Actions C1, C2, C3, and C4)

Representative monitoring sites were selected across project sites where concrete conservation actions were undertaken and to monitor the effects of the various actions on the target habitats. These relevés were also useful in determining typical vegetation of priority habitats on the island and how they compare with national inventory descriptors.

Vegetation surveys were carried out using 2 x 2m permanent quadrats to record change in percentage frequency of species over time. Baseline data was collected prior to the commencement of project actions, with a representative 25% sample resurvey in Year 3 and Year 4. The initial baseline survey took place in August and September 2014. Ideally this work should have commenced in May 2014, however the time taken to survey farms as part of the farm selection process took up a significant amount of the first half of the field season of 2014.

This meant that the initial baseline work was undertaken before farm plans were agreed, so the exact format of work planned for each land parcel was not yet known. However relevé location was targeted to areas with specific issues such as undergrazing and or scrub encroachment. Additional baseline relevés were taken in Year 2, within mapped scrub patches that were due to be cut in the following scrub cutting period.

416 Relevés/Quadrats were recorded throughout the 3 islands (Table 5). Repeat relevés account for 99 of this total which were resurveyed in 2017 and 2018 field seasons.

Table 5. The distribution of relevés throughout the three islands.

	No. of relevés	Grassland & Grassland/Pavement mosaic	Pavement	Machair
Inis Meáin	150	60	3	87
Inis Mór	159	100	4	55
Inis Oírr	107	100	7	

Scrub and bracken cutting monitoring (Action C2)

Transects combined with paired relevés (one in scrub and one in control area nearby) were used to analyse effectiveness of scrub cutting actions. Transects (ranged from 15m to 70m in length) spanning scrub patches and incorporating a 1m² quadrat every 5m, in which the number of stems and percentage cover of target scrub species and bracken were recorded. This transect was combined with paired relevés, located within scrub patch, and outside in vegetation deemed to be in optimum condition. The paired relevés provide information on the quality of the vegetation. Sixteen transects were established (32 relevés) on the three islands. These combined transects and relevé approaches were targeted at monitoring the effectiveness of the scrub and bracken control measures (Action C.2). Transects and associated relevés were repeated in year 4, and two transects associated with bracken cutting were repeated in year 5.

Nutrient management of priority grasslands monitoring (Action C6)

One hundred and fifteen relevés were recorded as part of the ‘seaweed treatment of Machair’ monitoring program. Twenty-two of these relevés have had 2 consecutive years of recording in year 2 and year 3. A further 10 relevés were resurveyed in year 4. These relevés monitor the potential impact of seaweed application on Machair habitat (Action C.6). Further vegetation analysis was completed to assess the impact of rabbits on the Machair at Trá Mór, Inis Mór, using exclusion cages. This involved 20 paired 1m² quadrats (one located inside exclusion cage and one in similar vegetation outside the cage). This analysis was conducted in 2017 and repeated in 2018.

Optimal grazing scores assessment (Action C.4)

The optimal grazing score assessment was based on the presence / absence of highly positive and positive indicator species for the priority habitats as defined in the National Monitoring Methodologies. To verify and test the grazing score of a field, ten 1m² quadrats were randomly selected in a transect across the land parcel and the presence/absence of positive and negative species as well as other species in quadrat were noted. A representative relevé was also taken; this allowed comparison of how the vegetation assigned to different scores aligned with the national criteria for assessing conservation status. A total of 38 grazing score assessment transects were recorded.

Fixed point photography (FPP) (Action C.1, C.2, C.3, C.4)

A series of FPP photos were taken of each relevé location, as well as before and after scrub cutting actions, to monitor the redevelopment of vegetation following scrub cutting. FPP was also used to document the indirect impact that the development of water infrastructure services, and improvement in access through the projects actions had on improving habitat quality. FPPs were also taken to record the impact of seaweed application on plots with Machair on Inis Meáin and Inis Mór, and these are included in the appendix of the Machair report.

Monitoring sites selected (detail) (PhD)

25 farms selected for detailed monitoring under A5. Two management units within the SAC were selected on each of the 25 farms, to encompass the range of variation in conditions across the AranLIFE farms. 50 management units were sampled in total.

Remote sensing was used to estimate the extent of vegetation cover and limestone in these areas. Major categories of scrub cover were defined and mapped. Grazing data on these areas was recorded over the duration of the project.

Project actions evaluated by the PhD researcher included scrub removal and retreatment across a variety of scrub types on the islands. 50 transects and 100 quadrats were undertaken in Summer 2016, and were repeated in Summer 2017. These covered a range of scrub types (blackthorn, briars, briars & blackthorn, hazel) and treatments (goats, selective herbicide use, recutting only and no treatment). In addition to this, 18 quadrats were taken to record the effects of burning of scrub on site after cutting.

General habitat condition assessments were undertaken by the project team during the farm planning process across all 68 project farms, and assigned scores using the scoring system previously outlined. Detailed habitat assessments were undertaken by the PhD researcher in summer 2017 on 50 management units. Site management practices, including grazing on these 50 units, were continuously monitored and recorded. The landscape context in terms of adjacent scrub cover and field access were recorded and mapped using GIS in 2017.

59 vegetation quadrats were taken in the management units where forage analysis and ANPP was assessed. In each quadrat the percent cover abundance of each plant species was recorded. Additional vegetation structural variables (e.g. % plant litter, % herbaceous vascular plant, % bryophytes, sward height) and environmental attributes (e.g. median soil depth, aspect, slope, and altitude) were also recorded.

Action D2: Evaluation of the socio-economic impact of project actions

Action	Deliverable	Foreseen Due Date	Results	Submitted to EC
D2	2 reports	30/09/2018		Ecosystems Services Report: Annex 7.2.10 Socio-Economic Report: Annex 7.2.11

This action aimed to highlight the ecosystem services provided by the priority habitats of the Aran Islands and the socio-economic benefit of these services. The work was undertaken by the PhD researcher and by members of Faculty of Economics in the National University of

Galway (NUIG). The latter were awarded the work after tendering based on procurement procedures.

Analysis of farm finances showed that farming on the islands was not capable of supplying an income equivalent to the average industrial wage and off farm employment, where available, was a major contributor to income. Many farm households have made significant investments in tourism and have become increasingly dependent on income from tourism. Tourism, agriculture and landscape are thus inextricably linked, and farming underpins the Aran Island economy in two ways; through the sale of agricultural produce and by supporting the tourism economy through its landscape. Landscape externalities are therefore important in contributing to the future of the Aran Islands economy and development as well as to the welfare of individual households.

The study examined the public good and tourism values associated with AranLIFE conservation actions using a valuation technique (Choice Experiments) to estimate the value of the positive externalities generated by the AranLIFE conservation actions using limestone landscape, orchid rich biodiversity. By surveying tourists visiting the island, it was found they placed a high value on the Aran Islands landscape, and the landscape represents an important reason for their visit to the Islands. The survey estimated the aggregate benefits provided by the limestone pavements and the orchid rich biodiversity are in the region of €59 and €83 per hectare per year respectively.

The positive Willingness To Pay (WTP) values stated by the respondents suggest that the Aran Islands landscape carries significant value and thus deserves to be well protected. From an economic perspective, AranLIFE project actions yielded a high rate of return on public investment (382%).

The farm survey revealed that conservation actions involving maintaining biodiversity orchid rich grasslands had an associated cost, and would require an annual payment of €160 per hectare to fully justify extra expense (extra time involved with sensitive management). Where the cost was not available (agri-environment measures, market), it was likely farmers would intensify or reduce farming activity both affecting the ecological integrity of the site.

Action D3: Evaluation of the agricultural impact of project actions

Action	Target	Foreseen Due Date	Result	Comment
D3	140 soil samples Herd check results from 25 sites Yield and disease assessment from 70 project sites	30/09/2018	126 soil samples taken 105 animals tested out of 26 herds	This action is integrated with Action A5 and action D2. Reliability of existing soil testing procedures on the high alkaline soils resulted in analytical errors. The lack of variability in soils means that the targeted level of soil testing is not required

This action was to investigate the agricultural impact of the project actions, and is linked with Actions D1 and D2 as the economic, ecological and agricultural elements of the project are all interlinked. Some of the information required for this action was, therefore, collected as part of another action, for example, stocking rate data, animal health and yield assessments.

The first aspect of this action was a baseline blood testing of a selected number of animals

within the project. This work was tendered through standard procurement procedures and awarded to Máire Ní Chonghaile, a local veterinarian. A total of 105 animals from 26 herds were blood tested for Ca, Mg, P, Cu, and Se. The original application had included testing for Co, I and Fe but from local expert knowledge, and known inaccuracies in sampling using blood as a determinant, it was decided sampling for these was not cost efficient.

Using the result of baseline blood sampling, the project was able to develop actions A4 and C5. Results of the baseline blood samples are shown in Annex 7.2.12. The project experienced issues under this action related to present analytical methods being unsuitable. In the blood sampling, phosphorous results were not identified as particularly low despite clinical signs of deficiency and forage sampling under Action A4 indicating that phosphorous deficiency should be an issue. Phosphorous status is somewhat difficult to measure in animal tissues. Serum and urine phosphorous concentrations can aid in diagnosing deficiency, but with mobilization of bone phosphorous to maintain serum concentration, significant drops in serum and urine may take weeks to develop. In addition serum should be separated from the red/white blood cell clot within one to two hours of collection, which is not possible in an island situation.

Soil analysis was also a part of this action. Very low soil fertility is known to reduce overall biodiversity and agricultural output. Assessment of optimum soil fertility was required to ensure that nutrient management (Action C.6) was carried out effectively to optimise ecosystem functioning. Initially, the project was working to determine the soil nutrient status of 140 fields in year 1 and year 4 of project. The project completed 125 soil samples on a range of grassland types. The soil sampling also proved to be problematic. The cost of soil sampling is part of Teagasc’s contribution to the project; Morgan’s test is used by that organisation to measure phosphorous.

The results of the initial soil samples completed were not indicative of what was expected; fields expected to be low in nutrients were indicating high base levels. Further investigation highlighted that Morgan’s test was more appropriate for acidic soils, and the high pH soils of the islands were unsuitable. To investigate further, the project team sent identical samples for testing under Olsen’s method and results indicated low fertility. These samples had to go to an outside agency with the costs being covered by the project.

Action D4: Annual payment to Aran Islands' farmers for additional works associated with project monitoring

Action	Target	Foreseen Due Date	Result	Comment
D4	Records returned by farmers	30/09/2018	Records Completed by farmers	

The success of the project depended on the co-operation of the participating farms. Actions A2, A5, C4, D1, D2 and D3 all required additional time input by the farmer to be successful. With the majority farmers working part time this additional time represented a financial loss. Therefore to ensure full commitment and participation and to prevent the project becoming an unnecessary burden on the farmers, a financial resource was allocated to compensate part of any lost income as a result.

Participant farms noted the time associated with a range of different tasks undertaken by or with the project team. These included:

- time involved in developing and updating the farm plan, liaising and helping AranLIFE project team, advisory visit regarding field scoring
- time required in maintaining herd movement records and grazing records
- time involved in general monitoring, attending update meetings, information day
- time required to herd cattle to facilitate blood sampling
- time required for additional monitoring work with PhD Researcher, including maintenance of grazing trial cages, economic data records, additional grazing monitoring

At the end of each year, the farmer returned a monitoring sheet, and associate records, outlining the different tasks they were involved in. To ensure value for money, the project team developed guidelines for the likely time involved to ensure no over claiming. Once the monitoring sheet was returned, the hours were checked to verify that they corresponded with project team records, and any recording records were to a suitable standard. Payments were then made under the standard procedures as outlined in the Financial Management under Action F.3.

The project team have found that the time farmers commit to the project was greater than that claimed. Whilst originally the maximum payment was limited to €750 per annum, in reality no payment exceeded more than €735 per annum, payments ranged from €0 to €735, and the average annual payment amounted to €276.

F. Overall project operation and monitoring of the project progress

Action F1: Establishment and operation of Project Steering Committee and Advisory Group

Action	Target	Foreseen Due Date	Result	Comment
F1	Establishment of PSC and PAG 20 and 8 meetings respectively		18 meetings of PSC 5 meetings of PAG	Lower level of PAG meetings as individual contacts were made throughout the LIFE project to date

The Project Steering Committee (PSC), comprised a cross-section of the relevant stakeholders. The committee supported the project team and oversaw the delivery of project actions as detailed in the project application and in adherence to the Commons Provision. The Project Advisory Group (PAG) was a way of assembling people with specific expertise to aid in the management of the AranLIFE project.

The PSC met 17 times during the project, and there were 5 meetings of the PAG. The project team met with individual members of the PSC and PAG on numerous other occasions, to discuss particular issues where there was specific expertise. At the PSC, the project team and associated beneficiary gave an update of the work done and outline the work for the next time period. All financial information was presented and signed off. The PAG meetings were based on discussion and knowledge transfer.



Figure 10. The AranLIFE project team and members of the Project Advisory Group on a field meeting on Inis Meáin.

Action F2: Project office operation and personnel management

Action	Target	Foreseen Due Date	Result	Comment
F2	Effective project and personnel management	Sept 2013	Delivery of AranLIFE project.	
	Establishment of project office		Established project office	

This action was to ensure the effective running of the project and delivery of project actions. The project office provided a dedicated workspace for project staff, housed project equipment and facilitated community involvement and acted as a centre for information dissemination for the project.

A suitable project office, from which the day to day aspect of the AranLIFE project was run, was established on Inis Oírr by the AranLIFE project team. The office was equipped with the necessary equipment. Durable goods purchased include: one office personal computer, two tough pads for field work, two laptops suitable to manage GIS systems, two waterproof cameras and a colour printer/scanner. These were all catalogued and labelled with the LIFE logo. A multimedia projector and a colour printer suitable for A3 pages were supplied by DCHG, and not directly purchased by the AranLIFE project. Personnel Management was in line with the Irish Civil Service, with the AranLIFE project team adhering to DCHG management template in terms of travel and subsistence, procurement, time recording and personnel development.

Project equipment will continue being used in nature conservation work, as it will be used on the islands for the project following AranLIFE, Caomhnú Árann.

Action F3: Financial Management

Action	Target	Foreseen Due Date	Progress to Date	Comment
F3	Full financial management accountability	Sept 2013	Fully compliant	

Financial Management was a vital aspect of AranLIFE project to ensure proper and efficient financial management accountability. The financial management administration procedures were as follows:

- financial responsibilities were assigned to the management of the project with corresponding accountability
- reporting arrangements were established in line with these financial responsibilities
- funds lodged by co-financiers or payments in respect of the project were recorded in a separate Suspense Account. This Suspense Account was used solely for the purposes of the AranLIFE project
- all payments were approved through the Department's hierarchy as appropriate. Two signatures from the project team were required to certify all items of expenditure for payment

- costs were recorded in the General Ledger through Cost Centre, Subhead item and Project Code detail. This process allocates costs to each individual EU designated expenditure areas

Action F4: Networking with other projects including LIFE projects

Action	Target	Foreseen Due Date	Progress to Date	Comment
F4	Networking with other groups	01/01/2014	Visited 2 similar EU LIFE projects and participated in LIFE events	LIFE+ Monti della Tolfa (LIFE08 NAT/IT/000316): Annex 7.2.13 2 LIFE projects in Estonia Life to Alvars (LIFE13/ NAT/EE/000082) and URBANCOWS (LIFE10/NAT/EE/000107): Annex 7.2.14

It was useful for this project to learn from others past successes and failures and to find the information and expertise exists with regard to the most appropriate management of priority habitats to be targeted by this project. To achieve this, the project networked with a range of other projects across Europe.

On a national level, the AranLIFE project addressed three publicity events to encourage other LIFE applications. The project worked closely with former staff of BurrenLIFE (LIFE04/ NAT/IE/000125) through farm visits and meetings to gain from their experiences and visited their after LIFE project with some of our participant farmers.

The project also hosted a visit from the KerryLIFE (LIFE13 NAT/IE000144) group to explain the project and to give advice on the management of a LIFE project. The project was also in contact with MachairLIFE (LIFE08/NAT/UK/000204), a LIFE programme run by the RSPB in Scotland for help with Action C6, who supplied some technical information.

In June 2014 the project hosted a visit co-ordinated by the ASTRALE group and comprising EU LIFE monitors who were able to identify similar projects within Europe. From their recommendations, the AranLIFE project team visited a LIFE project in Italy called LIFE+ Monti della Tolfa (LIFE08 NAT/IT/000316) in March 2015. The project team also visited two LIFE projects in ESTONIA one on calcareous grasslands (LIFE13/ NAT/EE/000082) and one on coastal meadows (LIFE10/NAT/EE/000107).

AranLIFE were also hosts for visits from LIFE projects within Europe, these included a reciprocal visit from two Estonian LIFE projects (LIFE13/ NAT/EE/000082 and LIFE10/NAT/EE/000107). Following this, employees of the various government agencies in Estonia also visited the project in 2017 to look at the ongoing work. AranLIFE also hosted a visit for a Polish LIFE project to visit the islands Ponidzie LIFE (LIFE13 NAT/PL/000038) entitled "*The Conservation of Valuable Habitats in Ponidzie*".

The AranLIFE project was also presented at a number of LIFE conferences, these were:

- Urban Cows project Conference (LIFE10/NAT/EE/000107), Estonia in 2016
- RICOPRI LIFE Conference (LIFE09 NAT/IT/000118) Italy (in conjunction with LIFE+ Monti della Tolfa visit)
- LIFE Capacity Building Conference (LIFE14 CAP/SI/000012) Slovenia 2017

In addition to other LIFE projects, AranLIFE has hosted visits from the Ulster Wildlife Trust on a fact finding visit prior to their involvement in a LIFE project (LIFE14 NAT/UK/000467) and farmers from a limestone area in Co Fermanagh, Northern Ireland. The Project Manager also gave a presentation to the directors of Ulster Wildlife Trust to explain the LIFE programme using Aran as an example.

The Project Manager and Financial Manager also attended two courses in England run by the LIFE Monitoring group NEEMO, on developing an exit strategy and on managing risk. These courses also offer a great opportunity to network with LIFE programmes in Ireland and Britain and aided in the management of AranLIFE.

The AranLIFE website contains links with the different websites of all the LIFE projects visited.

Action F5: Independent audit

Action	Target	Foreseen Due Date	Result	Comment
F5	Full Independent Audit	30/09/2018	Full Independent Audit	Independent Audit Report: Annex 8.6

This action is required by LIFE+ Nature to verify the financial statements produced as part of the project. It checked on the respecting of national legislation and accounting rules and certified that all costs incurred respected the LIFE standard administrative provisions. The coordinating beneficiary, DCHG, tendered for the work with the contract awarded to Mazars Ireland, a firm specialising in audit and assurance, consultancy, corporate finance and tax. The project team supplied all the necessary information to Mazars after the completion date of the project. The auditor found the financial report was a true and fair view of the expenses, income and investment of the project.

Action F6: AfterLIFE Conservation Plan

Action	Target	Foreseen Due Date	Result	Comment
F6	AfterLIFE Conservation Plan	30/09/2018	After LIFE project	AranLIFE after LIFE plan: Annex 7.2.15a, Annex 7.2.15b

During the term of the AranLIFE project, and in the three months prior to the delivery of the final report, there has been considerable activity undertaken to ensure that the momentum gained during the project is not lost. This has resulted in the development of a post AranLIFE project, Caomhnú Árann (Conserve Aran) with the title of “*Managing the habitats of the Aran Islands to maximise their agricultural and ecological output*”. The project is funded within the Rural Development Programme (RDP) 2014-2020 under the European Innovation Partnership-Agri Operational group measure and has a budget of €1.4 million.

Full details on the afterLIFE conservation proposals are outlined in the AranLIFE after LIFE plan.

5.2 Dissemination actions

5.2.1. Objectives

Dissemination of information to raise public awareness and provide technical advice to farmers and environmental managers was an important part of the AranLIFE project and was contained under Section E of the project. The objectives for AranLIFE were:

- to provide suitable information to raise awareness of the ecological importance of the islands
- to provide information to a wider audience of the present threats and possible solutions in the management of the islands' habitats
- to provide a source of information to the islanders so they can further learn about the types and flora and fauna on their island
- to increase knowledge in the scientific and policy arena on the ecological makeup of the island and the effects of specific management techniques and policies on them.

These objectives have been achieved at a broad level through the use of a website and social media and at a local level through public meetings, farm walks and information guides. On a national and international level we have facilitated college visits, undergraduate studies, information meetings combined with farm walks and by engaging in conferences both national and international.

A breakdown for the output of each activity within Action E is detailed below with a complete list of deliverables (Table 7) at the end of section 5.2.2.

5.2.2. Dissemination: overview per activity

Action E1: Website Development

Action	Deliverable	Foreseen Due Date	Result	Submitted to EC
E1	Website	Spring 2014	Will continue after project	www.aranlife.ie

A website was developed by the project team in 2014/5 to provide a dissemination platform for the AranLIFE Project (Fig. 12). The project team looked at a number of website designs and opted for a locally based designer who was fluent in Irish and had knowledge of Natura 2000 sites. Once the website was established, the content of the site was maintained by the Financial/Administration Officer rather than by the designer, as had been stated in the original application. The designer was contracted to do an overhaul on the site in early 2017 and 2018. This reduced the overall cost of the website.

The website is linked to an AranLIFE Twitter and Facebook account which helps keep the site up to date. Details can be found at www.aranlife.ie. The website contains links to the EU LIFE page, all the beneficiaries and co-financiers and to other LIFE projects that the project is in contact with. Throughout the duration of the project there were in excess of 16,600 visits with hits from over 113 countries. The website will be maintained by the co-ordinating beneficiary / afterLIFE project after the end of the project until its activity drops below a pre-determined usage level.

The project also maintained social media accounts through Facebook and Twitter, posting news about the project regularly. 114 tweets and 190 Facebook posts on specific items were released through these outlets and as a result obtained 1399 likes on Facebook and 962 followers on Twitter. The posts on Facebook reached 139,285 accounts, of which 36,443 have clicked on for further information and 6,587 of those visits have liked, commented or shared the AranLIFE posts. Through the Twitter account there was a potential audience reach of 167,752 people of which 23,547 visited the post.

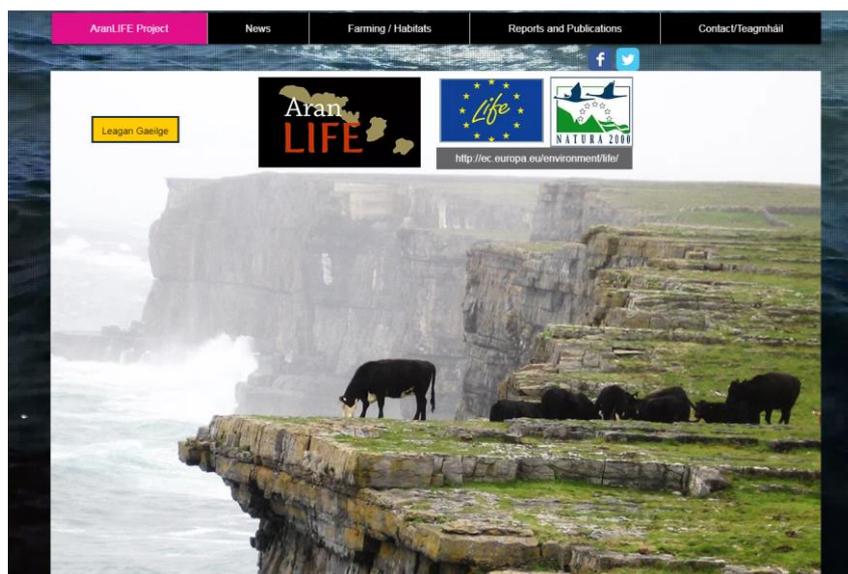


Figure 11. Home page of the AranLIFE website

Action E2: Media Campaign

Action	Deliverable	Foreseen Due Date	Result	Submitted to EC
E2	Media campaign	September 2013		List of media activities: Annex 7.3.2

Publicising the project was important in terms of building local awareness, understanding and support. It also promoting broader recognition and acceptance of the importance of farmers in maintaining the priority and other Annexed habitats of the Aran Islands, and of the benefits of the Natura 2000 network.

The initial project launch took place in June 2014 attended by the relevant stakeholders including Dinny McGinley TD, Minister of State in the DCHG and Seosamh Ó hÁghmaill, Secretary General of DCHG (Fig. 13). The proceedings were broadcast on a national TV station, TG4. The project was also highlighted in three national broadsheets, the Irish Times, the Irish Examiner and the Irish Independent. AranLIFE featured in the media with 13 radio interviews and 3 television interviews and a further 9 newspaper articles and 4 magazine articles including one in Canada. Teagasc, our associated beneficiary, have also participated in 4 radio interviews regarding the AranLIFE project.

In relation to the production of DVDs, after a tender process, the project awarded the contract to CrowCrag productions. They produced a range of 5 short film topics covering aspects of the AranLIFE Project work and the habitats involved. The project opted for this format rather than a longer piece as it was uploaded easily on to different social media sites with better targeting.

However 250 copies of DVD were also produced which contained the 5 different films. In addition, a short film was made to highlight the project at the National Ploughing Championships, Europe's largest outdoor event. The video was played in the NPWS exhibition which an estimated throughput of 5,000 people, including the President of Ireland, Michael D. Higgins, who took a copy of the projects *Flora and Fauna* booklets. The short promotional video, along with all the other videos produced by AranLIFE can be viewed at on AranLIFE YouTube channel:

https://www.youtube.com/channel/UCQ_JAiUQfI_iGX_z9eACiqA

Action E3: Educational Programme including Public Information meetings

Action	Target	Foreseen Due Date	Result	Comment
E3	54 educational events	13/01/2014	91 educational events	Higher number given due to higher demand, list of educational events: Annex 7.3.3

Enhancement of understanding, appreciation and engagement of all the key stakeholders with the conservation of priority habitats on the Aran Islands was a key, and successful, objective of the project. Planned educational initiatives, with a strong emphasis on information of practical application, and on field studies were initiated. These events aimed to explain the biodiversity of the islands and the role of farming in maintaining that biodiversity, as well as its significance at a national and international level.

The main target groups were the islands' farmers and the local community, local schoolchildren (primary and secondary), universities and the wider public (visitors, service providers and farmers from other High Nature Value farmland areas in Ireland).

The project originally envisaged a total of 54 planned events to achieve this action. However such events proved to be in high demand and the project team were regularly asked to meet groups, and deliver talks both nationally and internationally. In total, the team have participated in 91 different events ranging from guest lecturing at universities to addressing NGO groups with political representatives present.



Figure 12. A field trip for all primary schools, with teachers and some parents, on the three islands on Inis Meáin run by the AranLIFE Project.

Action E4: Demonstration Farms

Action	Target	Foreseen Due Date	Progress to Date	Comment
E4	12 demonstration events	30/09/2018	12 demonstrations events	Project opted for demonstration sites rather than demonstration farms, as this was best for demonstration purposes

The purpose of the demonstration farms was to give farmers the opportunity to see conservation management activity in practice, and to encourage discussion around relevant issues. In the original application it was envisaged that 3 demonstration farms (one per island) would be established, and that they would deliver a minimum of 12 demonstration events.

Demonstration events have taken place on farms, but the project team decided that the demonstrations would occur on the most suitable sites rather than specific farms. This was a better approach as it gave more choice and allowed the best sites for demonstrating examples of best activities. In total 12 demonstration days were completed with attendance of over 80% of the farmers (Fig. 15). Demonstration days included:

Scrub Cutting: types of tools available, scrub identification and overall safety

After cutting treatments: Dealing with regrowth through cutting and selective herbicide treatment

Habitat management: Assessing site condition, plant identification, field scoring

After LIFE programmes: Farm visits to well managed grasslands in the Burren area and how local agri-environment programmes can work

General habitat and grazing management: visited habitats and demonstrated varying levels of grazing management.

This approach proved to be a successful way of enabling knowledge transfer between the farmers themselves, and between the project team and the participating farmers. In addition to these, the AranLIFE team spoke at 3 Knowledge Transfer Meetings to both participant and non-participant farmers on the islands, talking about habitat management and the project.



Figure 13. Dr Amanda Browne discussing habitat management with farmers on Inis Meáin.

Action E5: Conferences, seminars and workshops

Action	Target	Foreseen Due Date	Result	Comment
E5	1 international conference 4 workshops and follow-on reports	Summer 2016 2014-2017	Conference 4 workshops completed	Conference Proceedings Report Annex: Annex 7.3.8 Reports submitted in Midterm Report: Annex 7.3.4, Annex 7.3.5, Annex 7.3.6, Annex 7.3.7

A further commitment made as part of the project was to organise one major conference and a series of four annual workshops. In the application the conference was planned for the summer of 2016 but after discussions with our EU Monitor and EU LIFE unit it was decided that this was best left to the end of the project. As a result the conference was held in September 2018.

A total of four workshops were held. The topics of the workshops were varied, but were aimed at discussion among a group of experts on specific issues that the project had to deal with. The workshops included:

- Best options for meeting livestock water requirements (Annex 7.3.4).
- Animal Health workshop (Annex 7.3.5).
- Biodiversity Inventory for the island and management issues (Annex 7.3.6).
- AranLIFE Project: Results to date and afterLIFE actions (Annex 7.3.7).



Fig 14. Dr Thomas Van Rensberg presenting results from the socio-economic study at the AranLIFE conference.

Action E6: Project Reporting

Action	Deliverable	Foreseen Due Date	Result	Submitted to EC
E6	Inception report, 2 midterm reports, layman's, final report, 4 newsletters	2014-2017	Inception report, progress report, midterm report, progress report, layman's report, final report, 4 newsletters	Layman's report: Annex 7.3.1a, (Annex 7.3.1b Irish language version) Newsletters: Annex 7.3.9, Annex 7.3.10, Annex 7.3.11, Annex 7.3.12

This action purpose is to inform the EU LIFE unit of the progress and achievements of the project through the submission of project reports. In the application, this included an inception report, two mid-term reports and a final report. However after discussions with the EU Monitor and EU LIFE unit this was changed to an inception report, a progress report, a mid-term report and a final report. Due to the time extension required and agreed with in the midterm report, a further progress report was submitted in September 2018 to meet the requirement of 18 months between reports as detailed in the Common Provisions.

Four newsletters were also produced as part of this action, (Spring 2015, Annex 7.3.9, Spring 2016 Annex 7.3.10, Summer/Autumn 2017 Annex 7.3.11 and Summer 2018 Annex 7.3.12). These newsletters were available to the public and also sent to each participant farmer and were issued in Irish and English.

Action E7: Publications and presentations

Action	Target	Foreseen Due Date	Result	Comment
E7	2 research papers, 4 conferences	30/09/2018	AranLIFE presented at 10 conferences	High interest from conference organisers for details of project, travel costs met by organisers in most cases.

This purpose of action is to disseminate the project findings and to promote its work to researchers from across the EU. Publication of two research papers and a presentation on details of the project at four conferences, two national and two international were required to fulfil this Action. Detailed in Table 6 is the conference where presentations were given by AranLIFE. These were all mainly based on requests and conference costs were met by organisers.

Table 6. Summary of National and International talks given at conferences

Conference	Title of talk	Presenter
National		
Teagasc Biodiversity Conference; Farmland Conservation with 2020 Vision. October 2015	Investigating the composition and management of calcareous grasslands of the Aran Islands (abstract Annex 7.3.13)	Dr Amanda Browne
Teagasc Biodiversity Conference; Farmland Conservation with 2020 Vision. October 2015	The Forage quality of semi-natural calcareous grasslands of the Aran Islands	Louise Duignan
Irish Ecological Association. 1 st Ecology and Evolution Conference. Institute of Technology Sligo. November 2016.	Ecologically-rich Economically – poor. (abstract Annex 7.3.13)	Dr Patrick McGurn
International		
British Ecological Society-Agriculture Group April 2015, Queen’s University Belfast	AranLIFE project – Working with farmers to conserve the priority habitats of the Aran Islands. (abstract Annex 7.3.13)	Dr Amanda Browne
Management & Conservation of dry grasslands in Natura 2000 sites. The LIFE+ RI.CO.PR.I. project and comparison with other similar LIFE+ experiences. Rome, March 2015.	The dry grasslands of the Aran Islands, Ireland.	Dr Patrick McGurn
Urbancows Conference. Parnu, Estonia, September 2016	The AranLIFE Project	Dr Patrick McGurn
Burren Winterage School. Working with Nature – a farmer centred approach. October 2016	Engaging and motivating ‘farmers for nature’	Dr Patrick McGurn
The future of upland farming beyond the CAP, RSPB, Wales March 2017	The AranLIFE approach	Dr Patrick McGurn
IFAH Annual Conference Brussels October 2017	Healthy Animals and the Environment	Dr Patrick McGurn
LIFE farming – environmentally sustainable agriculture Slovenia May 2018	AranLIFE-Farming on the Edge	Dr Patrick McGurn

There was insufficient time to publish papers based on the results obtained by AranLIFE and the presentation of this report. Two peer reviewed conference papers were published during the programme for international conferences and associated posters presented at the conferences. These were for the European Grassland Federations (EGF) General Meeting held in Sardinia on "*Sustainable Meat and Milk Production from Grasslands*" in 2017 and their General meeting in Cork in 2018. The references for the papers are:

McGurn P., Browne A., Ní Chonghaile G., Duignan L., Moran J., Ó hUallacháin D. and Finn J.A. (2017). Semi-natural grasslands on the Aran Islands, Ireland: ecologically rich, economically poor. 19th EGF Symposium on "Grassland resources for extensive farming systems in marginal regions: major drivers and future scenarios", Alghero, Sardinia (Italy) Grassland Science in Europe, vol 22, 197-199.

https://www.europeangrassland.org/fileadmin/documents/Infos/Printed_Matter/Proceedings/EGF2017.pdf (Annex 7.3.32.1) Research Paper (Annex 7.3.32.2)

Duignan L., Ó hUallacháin D., Finn J.A., Browne A., McGurn P. and Moran J. (2018). The agronomic and biodiversity value of semi-natural grassland types under different grazing management. 20th EGF Symposium on "Sustainable meat and milk production from grasslands" Cork, Ireland, Grassland Science in Europe, vol 23, 160-162.

https://www.europeangrassland.org/fileadmin/documents/Infos/Printed_Matter/Proceedings/EGF2018.pdf (Annex 7.3.32.3) Research Paper (Annex 7.3.32.4)

Two additional papers are now being developed resulting from the work undertaken by Teagasc in association with IT Sligo and from the socio-economic work undertaken by NUIG.

Action E8: Information Sheets, best practice guides addressing stakeholders

Action	Deliverable	Foreseen Due Date	Result	Submitted to EC
E8	6 information sheets 5 best practice guides	30/09/2018	6 information sheets 5 best practice guides	6 Info sheets 5 Best practice guides (links below)

This action aimed to produce a series of information sheets and best practice guides that clearly demonstrate which techniques and actions work in the specific project context. The information contained within these publications will assist conservation management both on the islands and in the wider context. Six Information Sheets and five Best Practice Guides have been produced.

Information sheets

1. AranLIFE Information Sheet: Bracken Control - Annex 7.3.14
2. AranLIFE Information Sheet: Island Farming and its Associated Biodiversity - Annex 7.3.15
3. AranLIFE Information Sheet: Herbicide Use - Annex 7.3.16
4. AranLIFE Information Sheet: Mineral Supplements – Annex 7.3.17
5. AranLIFE Information Sheet: Construction or Raincatchers and Tanks – Annex 7.3.18
6. AranLIFE Information Sheet: Scrub Management – Annex 7.3.19

Best Practice Guides

1. Best Practice Guide: Bracken Control – Annex 7.3.20
2. Best Practice Guide: Farming with Conservation – Annex 7.3.21
3. Best Practice Guide: Sustainable Grazing Management – Annex 7.3.22
4. Best Practice Guide: Nutrient Management of Machair – Annex 7.3.23
5. Best Practice Guide: Scrub Management – Annex 7.3.24

The information sheets and Best Practice Guidelines were distributed amongst all the farmers on the island and will be available through the competent authority for Natura 2000, NPWS. They will also be used as part of the afterLIFE project.

Action E9: Information material, notice boards addressing general public

Action	Deliverable	Foreseen Due Date	Result	Submitted to EC
E9	Promotional material 3 public signs	October 2014	4 public signs erected, 11,500 brochures	Brochures: Annex 7.3.25, Annex 7.3.26.1, Annex 7.3.26.2, Annex 7.3.26.3, Annex 7.3.26.4, Annex 7.3.26.5 Calendars: Annex 7.3.27.1, Annex 7.3.27.2

This action was to disseminate general promotional material among the local community, tourists and the wider public, and includes the production of information sheets, public notice boards and other beneficial materials that inform people of the AranLIFE Project and the importance of Natura 2000 sites. The first step was the erection of three notice boards, one on each island, outlining the objectives of the project and incorporating the LIFE logo. An additional notice board was also erected for the Machair at Trá Mór, Inis Mór dealing with specific bird species on Machair.

To provide accessible information for participant farmers and the wider public, a range of pamphlets were produced. One was an information leaflet giving details of the project and was used for visitors, meetings and was available in locations around the islands (Annex 7.3.25). Additional leaflets were produced as a series on wildlife on the farm: plants of the farm (Annex 7.3.26.1), birds of the farms and villages (Annex 7.3.26.2), coastal birds of the farm (Annex 7.3.26.3) and butterflies and moths (Annex 7.3.26.4) and Historic Monuments on the farm completed after the archaeological survey under Action C3 (Annex 7.3.26.5). Due to a high demand for these, additional print runs were necessary. Other promotional material produced included a series of pop-up notice boards which the project team used at events attended. The LIFE logo and Natura 2000 logo is incorporated on all our material.

This type of information has been well received by locals and visitors, as a result we helped Inis Oírr Co-op produce a further 4 notice boards on flora and fauna of the island. These have been very warmly received by locals and visitors alike. Inis Meáin Co-op is planning to produce similar boards. The flora and fauna booklets are very popular with tourists and tourist guides on the island and the project have supplied the templates to Fáilte Ireland, our co-funder, for use in the future. We also produced two educational calendars that highlighted features and farm management on the islands (Annex 7.3.27.1 and Annex 7.3.27.2), which were distributed to the schools and participant farmers.

Action E10: Provide advice to government authorities on supports needed for agri-environment activities on the island post 2013

Action	Deliverable	Foreseen Due Date	Completion Date	Submitted to EC
E10	Written recommendations to PSC	2014-2018		Caomhnú Árann report (Annex 7.2.15b) Workshop report (Annex 7.3.7) and Recommendations on Habitat Assessments Protocol Report (Annex 7.3.30)

This aim of this action is the provision of written recommendations, based on the project's findings, that will set out a range of support measures to effectively support the habitats after the end of the project. Throughout the project, the team were pro-actively involved with the main government bodies responsible for agri-environment policy, DAFM (a co-funder) and NPWS (part of the co-ordinating beneficiary).

Both departments visited the islands on fact finding missions in relation to the project and invited the Project Manager to their consultation meetings on both the Rural Development Plan and devising Locally led Agri-environment Schemes. The AranLIFE project have provided input into three such consultation exercises. The project team have also worked with other interested parties, EFNCP (European Forum for Nature Conservation and Pastoralism), SLIGO IT, RBAPS (Results Based Agri-environmental Payment Schemes) programme to discuss similar approaches when developing future policy for Ireland's High Nature Value farmland.



Figure 15. AranLIFE project manager Patrick McGurn discussing the project with Minister for Agriculture, Food and Marine, Michael Creed.



Figure 16. AranLIFE project manager Patrick McGurn with the European Commissioner for Agriculture and Rural Development, Phil Hogan.

Table 7. List of Deliverables

List of Deliverables	Delivered to date	Policy after AranLIFE
Use of LIFE logo	Used on all printed materials	N/A
Erection of Noticeboards	4 erected, one on each island, 2 on Inis Mór	Signposts to remain in place in immediate future
Website	Created in April 2014	Website will continue for immediate future replaced with after LIFE project Caomhnú Árann
Social media used	Facebook, Twitter ongoing	Will cease after project but replaced with afterLIFE project Caomhnú Árann
(e)mailing lists	N/A	N/A
Audio-visual products	Produced 6 information video clips and one full length DVD (250 copies) and uploaded to YouTube account	Maintained on YouTube account and linked to website. Also shown in Knowledge transfer meetings to all farmers on the islands
Photographs	N/A	N/A
Brochures, handouts, leaflets	11,500 brochures: Annex 7.3.25, Annex 7.3.26.1, Annex 7.3.26.2, Annex 7.3.26.3, Annex 7.3.26.4, Annex 7.3.26.5; 1206 posters: Annex 7.3.28.1, Annex 7.3.28.2, Annex 7.3.28.3; 4 portable pop-ups: Annex 7.3.29.1, Annex 7.3.29.2.	Majority distributed but remainder available through tourist information offices and Caomhnú Árann
Publications: handbooks	700 calendars (Annex 7.3.27.1, Annex 7.3.27.2, 4 newsletters (1,400 copies), 6 info sheets (1,800), 5 best practice guides (1,500)	Majority distributed but remainder available through Caomhnú Árann
Reports: Inception, Progress, Midterm, Final & Layman's version)	Inception report, 2 Progress reports, Midterm report, Layman's Report, Final Report	Sent to EU and main reports available on website
Press cuttings overview	9 newspaper articles (Annex 7.3.2) 4 Magazine articles	N/A
TV, Radio interviews	17 radio interviews, 3 TV interviews (see details Annex 7.3.2)	N/A
54 planned educational events	91 to date (see Annex 7.3.3)	Project staff are continuing to deliver talks post the project timeframe
12 demonstration events	12 demonstration events	N/A
4 workshops	4 workshops to date	N/A
2 research papers, 4 conferences	Research papers (Annex 7.3.32.2, Annex 7.3.32.4) List of conferences attended detailed in Table 6.	
AfterLIFE Plan	Plan produced (see Annex 7.2.15a, Annex 7.2.15b)	Implementation of AfterLIFE plan

5.3 Evaluation of Project Implementation

The project implementation was successful with a good working relationship between the project team, DCHG and Teagasc. The Project Steering Committee worked well with all stakeholders involved including representatives from the participating farmers. This combination of administrators, agriculturists and ecologists ensured an eclectic approach when it came to problem solving. A dedicated project team was a very positive aspect of the project, allowing full commitment to the running of the project with its own identity but with the administration resources of a major government body.

The approach in gaining commitment from the participating farmers to complete the work through the use of a farm plan, with the works documented was successful. There was a lot of additional work required in the selection of the farms, but was a positive aspect in that a large number of farmers were willing to work with the project.

One of the unforeseen circumstances was the time involved for staff operating between three different islands particularly in the winter when the ferry schedule is reduced. From the office to the furthest farm was a 5 hour return trip in the winter. This added an extra work load on the project team. A further issue was the time-frame for completing works outside the Bird Nesting Season. For this project this means breen clearance (Action C1) and scrub control (Action C2) could only occur from 1 September to the 28 February. Coupled with this was the harsh Atlantic winter of 2015/16 which reduced the amount of work completed and left us behind schedule, and result a time extension was required.

As the Islands are also designated Gaeltacht regions, with Irish as the first language, a bilingual approach was required. Whilst allowance for this was considered in the overall costings, in reality, the time burden was also increased, though aided greatly in that one of the project team was fluent in Irish.

The islands also have with a high density of archaeological features and a high number of qualifying interests within the Natura 2000 site which increased the overall workload and caused delays in starting some actions particularly action C1, C3 and C6. This was aided by personnel on the Project Advisory Group as they provided a route of contact in addressing the concerns involved.

Overall the project implementation went well, the delays as a result of the issues stated left the project behind schedule and therefore a time extension was necessary to ensure the project was fully implemented. This was granted by the EU LIFE unit at the midterm review.

There were four amendments from the original application. Two were requested from the EU LIFE unit and two were requested from the AranLIFE project. The EU LIFE requested amendments included changing the cost code under action C3 for the construction of a water infrastructure from Equipment costs to External assistance and moving the costs involved for the PhD student from personnel to External assistance, a modification request was not required as the cost was less than 10% of both categories.

The amendments request by AranLIFE included a time extension to the project and a reduction in the spending in Action C1 and associated movement of funds for increased expenditure in action C3. With regards to the first amendment, there were delays in some

actions mainly due to weather conditions, the extra time involved in working on three separate islands, the bi-lingual nature of the work and obtaining the necessary consents involved. As a result, the overall work programme was behind and the project had concerns about meeting the objectives.

In the mid-term report, AranLIFE requested a time extension, which was permitted. Without this extension the project would not have completed the works successfully and the full objectives of the project would not have been met.

The project identified that the lack of access to water was the main issue preventing optimal grazing of the priority habitats, and the main action that had to be addressed to ensure optimal grazing after the end of the project. Therefore AranLIFE applied to modify the action to improve the water infrastructure (C.3), increasing the total spend on this action to €206,401, (originally €100,876). The additional funding was transferred from an under spend of External Assistance in Action C1, as the access problems outlined in the LIFE application were not as widespread as originally indicated. This amendment was approved and allowed the construction of a larger water infrastructure, improving the long term viability of the project.

5.4 Analysis of long-term benefits

5.4.1. Environmental Benefits

a. Direct / quantitative environmental benefits

The work to date is having immediate benefits in terms of restoration of the habitat. The purpose of the C Actions was to get the conditions right for the optimum grazing of the habitat to maintain the priority grassland, and remove encroached scrub to facilitate habitat regeneration. Immediate visual effects are the removal of the scrub, opening up of boreens and the installation of water infrastructure; these capital works facilitated the major investment needed for restoration.

Maintenance of these features is now much more feasible, and is expected to provide benefits for decades to come. In addition to the immediate visual aspects listed, AranLIFE delivered other long-term benefits to the grassland system through grazing management advice, animal health, and the demonstration of best practice to current and coming generations of farmers; passing on of knowledge to next generation. The project team worked closely with the farmers, learning from them details of habitat management and also showing the farmers different aspects of the priority habitats of which there was genuine interest in. The combination of all these measures is having an overall positive effect on the Natura 2000 habitats.

b. The work is also already feeding into present policy both for the management of Natura sites and Ireland's Rural Development Policy, which will affect agricultural policy for most of the coming decade. Any impacts on policy are long-lasting. The existing work shows that the present agri-environment scheme is not delivering adequately for specific habitat types and this project offers an alternative cost effective model that is being adopted into specific locally led programmes.

For the Natura 2000 policy, the work has amassed a lot of information on the composition of the habitat types, effects of different management and developed improved habitat condition

assessment when detailing favourable condition status. Such work is not specific to Natura 2000 sites but also allows improvements outside SAC areas that still have valuable habitat in need of restoration/management.

5.4.2. Long-term benefits and sustainability

a. Long-term / qualitative environmental benefits

Ireland's off shore islands have, and will have, uncertainty in the future. Isolation, limited employment prospects, a very extensive agriculture system, challenges relating to provision of services and adverse climate conditions all add to the uncertainty in the future.

There has been a continuous decline in the number of inhabited islands. However the habited islands are important aspects of Ireland's cultural and natural capital. To improve the long-term perspective, the AranLIFE project has been key in highlighting the natural capital of the Islands through liaising with stakeholders, working with the islands farming and non-farming community, increasing the understanding of why agriculture is important to maintain these habitats and developing suitable policies to meet the islands' particular requirements.

Through the socio-economic report, AranLIFE has highlighted that the additional services resulting from this agricultural system are of greater value than the livestock produced to the overall economy in terms of tourism and the genetic resource of the island. The project has demonstrated that that agriculture on the Aran Islands are a great example of the how the system provides a range of ecosystem services in addition to food production. Dissemination of this information is one of the important long term benefits both from an environmental, economic and social point of view. The AranLIFE Project there has provided a strong platform for highlighting such issues at a local and European level.

The project worked with farmers on over 1000 hectares of priority habitat, improving the overall condition and created the necessary infrastructure for continued grazing though provision of water, improved access and removal of scrub which has improved eligibility for other policy supports (Pillar 1 payments). The project also highlighted that designated land may not necessarily be a disadvantage.

The scoring system used by AranLIFE showed how agri-environment schemes could be outcome based which would benefit them greatly if adopted in future policy. For the farmers themselves, it means that they continue to manage these sites but understand how different management practices can improve or damage priority grasslands. For the policy makers it gives concrete evidence that such approaches can work, with a clear set of targets and outcomes. Future agricultural support mechanisms can be tailored to the need of the islands helping ensure their long term future.

The continuation of the optimal grazing (Actions C.4) is a central goal of the project and will be necessary to ensure that the improved status of the priority habitats is maintained or enhanced. The combination of actions C.1, C.2, C.3, C.5 and C.6 remove the threats that have resulted in inappropriate grazing management allowing, in some areas, the recommencement of grazing activity and more targeted grazing in other areas.

The Best Practice Guides produced as part of the project will inform the farmers and other stakeholders of the appropriate methods for the optimal grazing of these areas. Actions C.5 (resulting in the use of animal health supplements) and C.6 (resulting in recommendations on the nutrient management of grasslands) concern the development of good agricultural practices and their merits were monitored and demonstrated to the farmers.

The farmers see the benefits of continuing these actions as they improve the economic effectiveness of the farm management enterprise. Dissemination of information through Actions E.1, E.2, E.9 and E.10 will also be continued after the programme through DCHG, NPWS and Teagasc improving the long term impact of the work.

5.4.3. Replicability, demonstration, transferability, cooperation:

While the project has now been completed, it has gathered a lot of technical information, administration and procedural details that will be applicable elsewhere. In recognition of that, AranLIFE have been asked, and delivered talks within Ireland and wider Europe on how co-operation between stakeholders can lead to the formation of a LIFE project to address particular issues and how the methodology we have used could work elsewhere.

Within Ireland, 23 local led European Innovation Partnerships have been approved. The AranLIFE approach is applicable to these groups and AranLIFE have had contact with a number of them. We expect these requests to continue and Caomhnú Árann will continue to help local groups when possible. This also applies to the beneficiaries, DCHG and Teagasc, as the experience gained from the AranLIFE means they can advise elsewhere.

5.4.4. Best Practice lessons

AranLIFE did engage with, and replicate many of the best practices used in other LIFE projects, particularly BurrenLIFE. The use of a separate project team was important in giving the project a separate identity with the farmers and as a result the team was seen as separate from designation bodies. The project team were based in the project area with the project office situation on one of the islands, and so had a strong engagement with the farming community at a group and individual level.

This approach works very well for a locally based project in terms of good working relationship but also help on the ground as farmers are willing to help the project outside their project commitments. Linking some payments to an outcome based approach (Action C4 *Implementation of optimal grazing plans*) was best practice as it reflected the quality of the habitat and gave the farmer a better understanding of what the project was wanting to achieve. In addition, having 67 different farmers carrying out a range of works allowed innovation as farmers took a different approach and through monitoring, AranLIFE could identify best practise enabling them to document it in the Best Practise Guides.

5.4.5. Innovation and demonstration value

As this is a demonstration project, there are no specific innovation aspects, it has relied mainly on demonstrating best management practices learned from the existing farmers but overall EU funding has had a large impact on the sites restoration to a more favourable condition. There have been some innovative findings, these include:

- Working with the local veterinary surgeon the project was able to document the deficiency in phosphorous in grazing livestock and implement measures to reduce it

- The project has also designed a simple outcome based agri-environment programme based on field monitoring that could be trialled on the islands and are applicable to other areas.
- The use of seaweed as a fertiliser on Machair in a grazing situation and its effects on biodiversity. Initial results suggest that this may be an innovative method of restoring eroded coastal grassland vegetation.

AranLIFE was also able to present details of the project to a wide audience having hosted 91 groups, spoken at 10 conferences and with a website/social media presence that potential reached to up on 307,037 people (167,752 Twitter and 139,285 Facebook). Therefore a project on a small area with a 3 person team had a very wide audience.

5.4.6. Long term indicators of the project success

The project will leave a greater area of SAC in a more favourable condition and improve the information available in determining what the potential is for the SAC and best methods of recording favourable condition. On the islands, the project has improved the overall knowledge of habitat management, species identification. On the mainland the project has raised awareness of the importance of the islands' natural capital within a European context.

In the implementation of the project the protocol used means there are a range of indicators that will be beneficial in future assessments of the project success. These include:

- Field score. Using the AranLIFE scoring system gives a baseline for any future assessment. Each land parcel included in the project received a 1-5 score with five being top quality priority habitat. All of this information is digitally mapped within the AranLIFE database. Future assessments can look at the score using the scoring procedure and any changes in the conservation status can be identified. This is a good measure to determine the area of SAC in favourable condition.
- The field scoring system also gives details of area that was actively grazed at the end of the project, the grazing management practices and the associated stocking rates for the participant farms.
- Indicator species. The AranLIFE monitoring programme identified the typical species content of pastures finding differences than those documented in National Methodology reporting, improving future habitat assessment for the islands.
- The areas of scrub cleared, AranLIFE has digitally mapped the total areas of scrub cleared, detailing information on the type of scrub and its density.
- The length of boreens cleared, AranLIFE has digitally mapped the total length of boreens cleared, gates constructed and improvements in boreen construction.
- The provision of water infrastructure, AranLIFE has digitally mapped the location and type of water infrastructure constructed.
- 416 relevés recording vegetation cover, species present and other environmental variables.

6. Comments on the financial report

All monetary transactions were made through one account. Teagasc are the co-ordinating beneficiary they do not benefit financially from the EU contribution; all monetary costs incurred by Teagasc are paid out through the AranLIFE account, managed by the co-ordinating beneficiary. Financial report for co-ordinating beneficiary can be found under Annex 8.4.1b and for the associated beneficiary under Annex 8 .4.2b.

6.1. Summary of Costs Incurred

Table 8. Summary of Costs Incurred

PROJECT COSTS INCURRED			
Cost category	Budget according to the grant agreement*	Costs incurred within the project duration	%**
1. Personnel	952,327	945,595	99.29%
2. Travel	73,214	70,755	96.64%
3. External assistance	1,325,686	1,223,959	92.33%
4. Durables: total <u>non-depreciated</u> cost			
- <i>Infrastructure sub-tot.</i>	0	0	
- <i>Equipment sub-tot.</i>	16,300	17,017	104.40%
- <i>Prototypes sub-tot.</i>	0	0	
5. Consumables	57,616	42,531	73.82%
6. Other costs	3,200	1,901	59.40%
7. Overheads	169,342	161,123	95.15%
TOTAL	2,597,685	2,462,880	94.81%

*) If the Commission has officially approved a budget modification indicate the breakdown of the revised budget. Otherwise this should be the budget in the original grant agreement.

***) Calculate the percentages by budget lines: e.g. the % of the budgeted personnel costs that were actually incurred

At 30 September 2018, the project is 100% complete. In comparison, current expenditure is at 94.81%, €2,462,880 from an overall budget of €2,597,685.00. The project had a small monetary underspend but have met all of the project objectives.

1. ALP001 Personnel: 99.29% (€945,595 of €952,327) budget spent; actual salaries €819,518.11, but including co-ordinating beneficiary and associated beneficiary payment in kind expenditure is €45,994.88.

2. ALP002 Travel & Subsistence: 96.64% (€70,755 of €73,214) budget spent. Actual travel and subsistence €51,807.69, but including associated beneficiary payment in kind expenditure is €70,755.03.

3. **ALP003 External Assistance:** 92.33% (€1,223,959 of €1,325,686) budget spent. The underspend relates to some unfinished concrete works, reduced blood sampling and soil sampling costs.
4. **ALP004 Durable Goods – infrastructure:** not applicable
5. **ALP005 Durable Goods – equipment:** 104.4% (€17,017 of €16,300) budget spent on equipment. Actual equipment expenditure €13,811.52, but including associated beneficiary payment in kind contribution expenditure is €17,016.74.
6. **ALP007 – Consumables:** 73.82% (€42,531 of €57,616.00) budget spent on consumables. Actual consumables expenditure €40,852.49, but including associated beneficiary payment in kind contribution expenditure is €42,531.00. The consumables underspend relates to action A6 collation of project information on appropriate databases which many were provided for at no cost by the co-ordinating beneficiary.
7. **ALP008 – Other Costs:** 59.40% (€1,901 of €3,200) budget has been spent. Actual other costs expenditure €1,430.78, but including associated beneficiary payment in kind contribution expenditure is €1,900.78. The underspend relates to conference fees which were not applicable.
8. **ALP009 – Overheads:** 95.15% (€161,123.01 of €169,342) budget has been spent, based on 7% of eligible direct costs, as per Common Provisions, *overheads are eligible at flat-rate funding of a maximum of 7% of the total amount of eligible direct costs actually incurred.*

6.2. Accounting system

The accounting system operated as follows:

Financial responsibilities were assigned to the management of the project with corresponding accountability

- reporting arrangements were established in line with these financial responsibilities
- funds lodged by co-financiers or payments in respect of the project were recorded in a separate Suspense Account. This Suspense Account is used solely for the purposes of the AranLIFE project
- all payments were approved through the DCHG’s hierarchy as appropriate. Two signatures from the project team were required to certify all items of expenditure for payment and approval for payment. All invoices had the LIFE+ project identifier printed on either by the supplier or stamped by the administration. In order to record time appropriated to the project by the project team (100%) and the beneficiaries (payment in kind), monthly time sheets were kept as per the template in the LIFE+ toolkit. The timesheets were checked and approved by the project manager. The project manager’s timesheets were verified by DCHG. All these records were maintained in digital and paper format.
- costs were recorded in the General Ledger through Cost Centre, Subhead item and Project Code detail. This process allocated costs to each individual EU designated expenditure areas. Table 12 details the codes identifying the project costs in the analytical accounting system.

Table 9. Table of Codes identifying the project costs in the analytical accounting system

Cost Centre - Business Unit		Project Code - further level of description	
Description	Code	Description	Code
Aran LIFE Project	E6050	Personnel	ALP001
		Travel & Subsistence	ALP002
		External Assistance	ALP003
		Durable Goods - Infrastructure	ALP004
		Durable Goods - Equipment	ALP005
		Land purchase/long-term lease/one off compensation payments	ALP006
		Consumables	ALP007
		Other Costs	ALP008
		Overheads	ALP009

AranLIFE Project – Extract from Chart of Accounts

6.3. Partnership arrangements

All monetary transactions were through one account. Teagasc are the co-ordinating beneficiary they do not benefit financially from the EU contribution; all monetary costs incurred by Teagasc are paid out through the AranLIFE account managed by the co-ordinating beneficiary. Therefore the co-ordinating beneficiary enters the information in the financial tables.

6.4. Auditor's report/declaration

DCHG drew up terms and references to appoint an independent auditor which then went through the government procurement procedures. Following procurement process DCHG awarded Mazars the contract as the appointed auditors to undertake the independent audit on the AranLIFE project. See auditor's report Annex 8.6.

Appointed Independent Auditor Details:

Mazars

Harcourt Centre, Block 3 Harcourt Road, Dublin 2 - Ireland

www.mazars.ie

D.4	Monitoring payment	8,255	0	73,860	0	0	0	0	0	0	82,115
E.1	Website development	6,810	0	5,429	0	0	0	0	0	0	12,239
E.2	Media campaign	16,019	188	16,240	0	0	0	0	0	0	32,447
E.3	Educational programme	30,606	1,827	3,934	0	0	0	0	6,603	0	42,970
E.4	Demonstration farms	12,020	1,027	4,223	0	0	0	0	0	0	17,270
E.5	Conferences, seminars, workshops	38,569	4,118	19,827	0	0	0	0	0	0	62,514
E.6	Project Reporting	44,377	1,388	8,690	0	0	0	0	5,259	470	60,184
E.7	Publications and presentations	13,274	5,824	14,740	0	0	0	0	0	529	34,367
E.8	Info sheets, best practice guides	15,307	0	0	0	0	0	0	9,564	0	24,872
E.9	Info material, noticeboards	25,750	391	0	0	0	0	0	10,106	0	36,247
E.10	Advice to agri-environment authorities	7,704	1,565	6,778	0	0	0	0	0	0	16,047
F.1	Establishment of PAG / SG	47,146	9,435	2,972	0	0	0	0	0	0	59,552
F.2	Project office operation & management	46,981	1,615	27,689	0	17,017	0	0	0	0	93,302
F.3	Financial management	71,208	15	0	0	0	0	0	0	0	71,223
F.4	Networking with other LIFE projects	19,813	6,980	1,199	0	0	0	0	0	0	27,992
F.5	Independent audit	7,801	0	13,592	0	0	0	0	0	0	21,393
F.6	AfterLIFE Conservation Plan	8,173	313	0	0	0	0	0	0	0	8,486
Overheads			0	0	0	0	0	0	0	0	161,123
	TOTAL	945,595	70,755	1,223,959	0	17,017	0	0	42,531	1,901	2,462,880

Table 11. Discrepancies between Table 10 and the summary of costs per action set out in the grant agreement (form FB or R2).

Action no.	Short name of action	Total per Grant Agreement	TOTAL	Variance	Comment
A.1	Project Start-up	14219.00	39393.99	-25174.99	Personnel and travel set-up costs were under-estimated as they time involved in the recruitment process was increased due to a public service moratorium in 2013.
A.2	Site Selection	28537.00	48050.18	-19513.18	Costs were greater due to the increased time involved in visiting the fragmented farms on the Aran Islands during the selection process.
A.3	Farm Plans	81313.00	69533.19	11779.81	Time involved in grant agreement over-estimated.
A.4	Develop Complementary Feedstuff	17748.00	4444.59	13303.41	Costs involved in grant agreement over-estimated, as this action is linked with C.5 and time was not double-counted for when both actions were covered.
A.5	Profiling grazing potential	54185.00	55457.19	-1272.19	n/a
A.6	Collation of databases	60970.00	46583.07	14386.93	Costs involved in grant agreement over-estimated, as the co-ordinating provided the majority of otherwise costly maps and licences free of charge.
C.1	Improve access	133723.00	108883.83	24839.17	Costs involved in grant agreement over-estimated, reduced time as less boreens were mapped than originally envisaged and some of the concrete works were not finalised.
C.2	Scrub / Bracken control	500818.00	450823.07	49994.93	Costs involved in grant agreement over-estimated as all scrub costed at the high density, some of the mapped concrete works were not finalised due to work only being permitted outside the bird nesting season (1st March to the 31st August) and the harsh Atlantic winters limited work within the cutting period.
C.3	Provision of water infrastructure	206401.00	169641.11	36759.89	Concrete works were originally delayed due to <i>planning requirements</i> , as time involved in building structures took longer than envisaged and due to weather constraints, farmers did not finalise all the structures mapped.
C.4	Implementation optimal grazing plans	291140.00	325295.86	-34155.86	The over-expenditure does not relate to payments to farmers but relates to the unforeseen greater time involved in scoring all the individual land parcels on highly fragmented farms.

C.5	Purchase health supplements	14416.00	7831.73	6584.27	Costs were less than envisaged due to set-backs caused by the suitability of analytical procedures.
C.6	Nutrient management seaweed	39727.00	37175.57	2551.43	n/a
D.1	Evaluate impact of project actions	126413.00	142255.57	-15842.57	Time involved in monitoring the impact of project actions was under-estimated in grant agreement due to a greater no of quadrats being required to cover the monitoring of all actions.
D.2	Evaluate socio-economic impact	85360.00	53927.33	31432.67	Costs were over-estimated in grant agreement as the time input required from the project team was over-estimated, the majority of work undertaken by PhD and NUIG.
D.3	Evaluate agricultural impact	58094.00	39240.90	18853.10	Costs were over-estimated in grant agreement, due to reduced number of soil samples required and lower blood sampling costs.
D.4	Monitoring payment	94500.00	82115.18	12384.82	Costs were less than envisaged in grant agreement due to a lower time input requirement from the project team; envisaged payments to farmers were met.
E.1	Website development	26920.00	12239.39	14680.61	Costs were less than envisaged in grant agreement due to lower costs of website maintenance and
E.2	Media campaign	31780.00	32447.22	-667.22	n/a
E.3	Educational programme	36576.00	42970.22	-6394.22	Personnel costs were slightly higher than envisaged in the grant agreement as there was a huge demand for educational events and therefore the project team delivered more than the original number anticipated.
E.4	Demonstration farms	34743.00	17269.94	17473.06	Although the target number of demonstration days were met, costs associated with time involved in holding demonstration days was over-estimated in the grant agreement.
E.5	Conferences, seminars, workshops	40800.00	62514.46	-21714.46	Personnel costs associated with the time involved in organising such a large and successful conference were under-estimated in the grant agreement.
E.6	Project Reporting	76632.00	59713.66	16918.34	As a high portion of the reporting has been done after the project end date of 30.09.18, therefore this time has not been included under eligible personnel costs.
E.7	Publications and presentations	52223.00	34836.54	17386.46	Personnel costs associated with the time involved with this action were over-estimated in the grant agreement.

E.8	Info sheets, best practice guides	37064.00	24871.71	12192.29	Personnel costs associated with this action were over-estimated in grant agreement as a lot of the time spent on this action overlapped with time associated with project reporting.
E.9	Info material, noticeboards	15560.00	36247.27	-20687.27	Personnel costs associated with this action were under-estimated in grant agreement as the time involved in collating data for inclusion in noticeboards and information booklets was much greater than initially envisaged.
E.10	Advice to agri-environment authorities	12390.00	16046.76	-3656.76	The slight overspend relates to percentage of allocation of PhD time across actions.
F.1	Establishment of PAG / SG	77173.00	59552.40	17620.60	Personnel costs were over-estimated in the grant agreement due to a reduced number of required meetings.
F.2	Project office operation & management	63460.00	93301.60	-29841.60	Personnel costs were significantly under-estimated in the grant agreement, with only 5 days allocated to AFO under this action, greater time input involved.
F.3	Financial management	75212.00	71222.67	3989.33	n/a
F.4	Networking with other LIFE projects	18313.00	27992.31	-9679.31	Costs were under-estimated in the grant agreement due to an increased number of visitors from other LIFE projects and due to additional unforeseen LIFE networking events.
F.5	Independent audit	21933.00	21392.98	540.02	n/a
F.6	AfterLIFE Conservation Plan	0.00	8485.77	-8485.77	No costs were included in grant agreement, in reality the project team inputted time on an AfterLIFE Conservation Plan.
	Overheads	169342.00	161123.01	8218.99	Overall reduced expenditure resulting in overall lower overheads costs.
	TOTAL	2597685.00	2462880.27	134804.73	

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