



Aran LIFE

2014-2018
LAYMAN'S REPORT



Patrick McGurn, Amanda Browne, Gráinne Ní Chonghaile

The sustainable management of the priority terrestrial Habitats
Directive Annex 1 habitats of the Aran Islands.

LIFE12 NAT IE 000995

Project location	Aran Islands, Co Galway, Ireland
Project start date	01/09/2013
Project end date	30/09/2018
Total Project duration	61 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

Name Beneficiary	Department of Culture, Heritage and the Gaeltacht
Contact person	Ms Sorcha de Brúch
Postal address	Na Forbacha, Co. na Gaillimhe (Galway), Ireland
Visit address	Na Forbacha, Co. na Gaillimhe (Galway), Ireland
Telephone	00353 91 503700
E-mail	sorcha.debruch@chg.gov.ie
Project Website	www.aranlife.ie

LIFE Funding

The total cost of the AranLIFE project is €2,597,685, 75% of which is funded by LIFE (the EU's financial instrument for supporting environmental, nature conservation and climate action projects). Co-funding for the project is provided by Department of Culture, Heritage and the Gaeltacht (DCHG) which is the co-ordinating beneficiary. Teagasc is the project's associated beneficiary. The project's co-funders are the Department of Agriculture, Food and Marine (DAFM), Fáilte Ireland, Heritage Council and Galway County Council.

The Project

The AranLIFE project was based on three islands off the coast of County Galway, Ireland: Inis Mór, Inis Oírr and Inis Meáin, collectively known as the Aran Islands. The main aims of the project were to demonstrate best management techniques to both maintain, and bring specific habitats to favourable condition by addressing the threats of land abandonment, undergrazing, intensification, loss of traditional management systems and associated loss of knowledge. The project also aimed to enhance understanding, appreciation and engagement of all the key stakeholders with the conservation of priority habitats on the islands and to provide recommendations on appropriate support mechanisms for farming that address the issues that threaten the status of the priority habitats of the islands.



The AranLIFE Project team (L to R): Louise Duignan (Teagasc funded PhD student), Patrick McGurn (Project Manager), Amanda Browne (Scientific & Technical Officer) and Gráinne Ní Chonghaile (Administration & Financial Officer).



The Habitats

The AranLIFE project has been working with three priority habitats on the three Aran Islands (“the islands”), which are all dependent on agricultural management:

- Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (important orchid sites) (6210*) (orchid-rich calcareous grassland)
- Limestone pavement (8240*)
- Machair (21A0*)

These farmed habitats are internationally important for nature conservation and are identified as Priority Habitats in the EU Habitats Directive. Approximately 75% of the landmass of the three islands is designated as SAC (Special Areas of Conservation) because of these species-rich farmed priority habitats.

Orchid-rich calcareous grassland and Limestone pavement form a mosaic across the islands and are the main focus of the farming system. These habitats make up between 63% to 89% of the SACs, on the three islands. Machair (21A0*) is flat coastal grassland that only occurs on the northwest coasts of Ireland and Scotland, the Aran Islands marking the most southerly end of their distribution globally.

While the future of these habitats is uncertain on the mainland, the conservation status of these habitats on the islands has improved over the past five years owing to the efforts of our 67 AranLIFE farmers removing scrub, building rain catchers and achieving optimal grazing which is vital to maintain these species-rich grasslands.



Orchid-rich grassland (6210*), Limestone pavement (8240 and Machair (21A0)

Issues and remedies

The targeted habitats are privately owned by Aran Island farmers, and farms range in average size from 6ha on Inis Óírr to 20ha on Inis Mór (compared to 32ha nationally) and consist of separate small fields surrounded by stone walls. Typically, the farms are not in one block but consist of many small fields surrounded by stone walls that may be scattered throughout the island. Herd size is low with most herds having less than 10 cattle.

The fragmented nature of the farms, poor access to some of the fields/habitats and cost of water installation means that it is easier for the farmer to concentrate livestock in parts of the farm with more productive soils and abandon the fragmented areas. Higher stocking rates can then be maintained with the application of inorganic fertiliser and herbicides to improve the agricultural yield (and digestibility) of the sward. This intensification has a detrimental effect on priority habitats whilst at the same time the abandonment of grazing on the other areas leads to their ecological degradation. There are no rivers or streams on the islands, and lack of water availability has been identified as one of the main reasons why fields are left ungrazed or grazed below the ecological optimum, this allows scrub to develop at the expense of the priority habitat.

Research from the AranLIFE project shows that specific conservation measures to keep the island grasslands in favourable condition are based on the continuation of traditional grazing. The winter grazing produces short turf grassland which allows wild flowers to flourish in the growing season. For the summer grazing, the combination of low fertility, rotational grazing and low stocking rates also promotes species diversity, although this is often somewhat lower than the winter grazed swards. Therefore conservation measures for the island are required to ensure optimal grazing and maintain low soil fertility. To aid in this practice, the main concrete actions implemented by the AranLIFE project were actions that aided in improving grazing management. These include:

• Improving access and grazing management



This was considered to be one of the most important recommendations to improve the island landscape and facilitate grazing on priority habitats by the island farmers. 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 small parcels of land is through a series of communal narrow boreens (laneways). Due to the current infrequency of use, they are prone to scrubbing up, mainly with briars (*Rubus fruticosus*) and blackthorn

(*Prunus spinosa*), and eventually become impassable, resulting in the cessation of grazing on the priority habitat they lead to. The agricultural return from clearing such scrub meant it was uneconomic but the ecological return, in terms of increased biodiversity was high. The boreens need to be kept open and clear of scrub to facilitate the movement of cattle so that the optimal grazing regime on priority habitat on fragmented parts of the farm can be maintained.

• Removal of encroaching scrub



A reduction or cessation of grazing has led to an increase in scrub, particularly briars (*Rubus fruticosus*), blackthorn (*Prunus spinosa*) and bracken (*Pteridium aquilinum*). Therefore initial removal of scrub and

bracken is the first step in the restoration of the priority habitats. Once the scrub is removed, these areas can be further enhanced by optimal grazing regimes.

• Provision of water for grazing livestock



The achievement of optimal grazing requires livestock to have access to sufficient water in appropriate locations. In the absence of rivers or mains water supply to all parts of the islands, an appropriate water infrastructure is required to maintain grazing. Historically, this was through the use of rain catchers. The economic return from farming small units means that when

these structures deteriorate, there is insufficient funding within the farm to justify their replacement. This means it is no longer possible to graze these fields, thus resulting in a decline in the conservation status of the habitat. Providing adequate water facilities for livestock is therefore vital in the conservation of species-rich grasslands.

• Correcting mineral imbalances in livestock



Initial good results were achieved from lick developed specifically to address deficiencies with assistance from local vet Máire Ní Chonghaile.

Healthy cattle are vital in any grazing management system and contribute to the economic feasibility of the enterprise. The AranLIFE project monitored the nutrient contribution of the forage over two years. In general mineral levels are low in grazed forage throughout the year and without supplementation mineral deficiencies are likely, particularly in Phosphorous, Copper, Cobalt and Selenium. Therefore, supplementation is required through use of mineral licks, concentrate supplementation or mineral boluses.

• Ensuring optimum grazing rates



Once the conditions limiting grazing are rectified and the seasonal quality of the forage established optimal grazing levels are then required to ensure favourable condition. This was achieved by working with the farmers to increase supply of grazing animals and recording grazing times. AranLIFE also measured the biomass output of the different grasslands as an aid in calculating optimum grazing rates.



The Methods

Farm Selection: choosing the most appropriate land

Using criteria to select the most suitable land to meet the project objectives, 67 farmers were selected to work with the project and complete actions to improve the conservation condition of the farms and record farm management actions.

Farm Plans: managing farm works over the lifetime of the project

Each farm was visited by the project team and a farm management plan was developed with the farmer. The plan included a farm map which highlighted the location where each action needed to be undertaken and details on scrub control (such as area and density of scrub to be cleared), boreens for clearance, position of water infrastructure, grazing and management regimes for priority habitats and also gave the associated costings for the completion of the work.



Each participating AranLIFE farmer was issued with a farm plan folder which detailed works to be completed on the farm and costings of this work.

Optimal grazing scores: a scoring system based on habitat quality

In order to assess the optimal grazing action 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 the optimal level, and was an opportunity to trial a results-based scoring system that could be used in future agri-environment programmes after the project ended and within the wider countryside. On-site demonstration days with the project farmers were used to improve the principles behind the scoring system and explained how field scores were allocated.

A score of 1 to 5 was given to the land parcels based on the condition of the habitat and which in turn related to the grazing and management regime. This was a visual assessment method, which was intuitive to non-ecologists and easy to apply in the field. This was supported and underpinned by the scientific monitoring across the range of habitats.

This simple scoring system enabled farmer self-assessment of grazing score to be trialled during the project.

The AranLIFE scoring system

Score 5

Represents good quality priority habitat. It is well managed with an appropriate grazing regime, which usually involves grazing to a short turf in winter, but may also involve a flash grazing during the summer if grass growth is good.

A score 5 has a high-species diversity with frequent positive indicator species, producing a colourful array of flowers during the summer months, including an abundance of orchid species. No fertiliser is applied to this grassland as doing so would reduce the species diversity significantly. Since the grazing intensity is at an optimum level, scrub and bracken encroachment is not an issue or has been rectified by cutting.

Score 5



Score 4

Is priority habitat that has a high-species diversity with frequently occurring positive indicator species. The grazing level is appropriate for the most part, however, scrub or bracken encroachment is an issue.

Score 4



Score 3b

Is priority habitat with reduced number of positive indicator species. It has low species diversity due to sub-optimal grazing levels, which favour a dominance of rank tall grasses, and a higher sward height in summer which shades out the herbaceous species typical of calcareous grassland. Scrub or bracken is an issue in these fields, which is also a consequence of the sub-optimal grazing regime.

Score 3b



The AranLIFE scoring system

Score 3a

Is priority habitat either not in agricultural use, where grazing is not occurring or where the grazing rate is so low that there is a substantial build-up of grass.



Score 2

Is semi-improved grassland with limited indicators of priority habitat.

The vegetation is grass dominated, with higher levels of fertility or more recently made grasslands.



Score 1

Is habitat that is not one of the habitats covered by the AranLIFE project.



Monitoring within the AranLIFE project

Monitoring impact of concrete actions

Monitoring the impact of the project was an important element of AranLIFE and a programme was developed to test effectiveness of the project actions and make recommendations that could be developed for other monitoring programmes in the Irish Rural Development Programme.



2014

Monitoring the effectiveness of twice yearly bracken cutting regime.

2018

Monitoring the impact of project actions on the conservation status of the priority habitats involved baseline surveys prior to action implementation, followed by the reassessment of monitoring locations later in the project. Monitoring the changes in vegetation following scrub control actions was used to assess if the developing vegetation equated to priority habitat quality following scrub removal and enabled assessment of effectiveness of different scrub control management regimes.

The monitoring programme also enabled the project identify the indicators which distinguish the different grazing score categories and refine the national species indicators to suit the Aran Island context.



2014

Example of scrub (in 2014) and the improved vegetation quality (in 2017) after scrub control actions.

2017

Monitoring on Machair

The AranLIFE project trialled the application of seaweed on Machair sites to address issues such as over-dominance of bryophytes and reduction in species-diversity. The sandy soil lands that occur on particular parts of the islands, such as the Machair, are free-draining and so have little capacity to retain nutrients for grass growth. The application of seaweed can be effective in supplying some plant nutrients and improving organic matter of soil which improves the water retaining capacity. All of these factors assist in vegetation colonisation of bare or eroded substrate and improves species and structural diversity of the vegetation.



The results of these trials indicate that the application of seaweed is having a positive effect of increasing vegetation cover in areas that are bare and exposed. Machair soils have poor water retention capabilities and hence are prone to leaching nutrients. The application of seaweed improves the water retention of the soil and adds organic matter which facilitates the colonising of bare sand areas and the development of vegetation cover, thereby increasing species and structural diversity.



The progression of vegetation over a five year period (2014 to 2018) on a damaged Machair site on Inis Meáin, following seaweed application.

Communication

A key objective of the project was to enhance understanding, appreciation and engagement by all the key stakeholders of the conservation of priority habitats on the Aran Islands. To achieve this, educational events with a strong emphasis on practical application and on field studies, were conducted. These events explained the biodiversity of the islands, 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 school children (primary and secondary), universities and the wider public (visitors, service providers and farmers from other High Nature Value farmland areas in Ireland).

The use of information sheets, public notice boards and other beneficial materials informed people of the AranLIFE Project and the importance of Natura 2000 sites. A wide range of nature guide booklets were produced to provide accessible information for participant farmers and the wider public.



Socio-Economic Study

The AranLIFE project actions have contributed towards maintaining one of Europe's unique landscapes, supporting a unique assemblage of its biodiversity and archaeological and cultural heritage, and its strong reputation as a tourism destination among domestic and international tourists. The socioeconomic analysis constitutes an economic appraisal of AranLIFE project actions, and includes both market and non-market benefits. Uniquely, the economic study estimates both demand for environmental public goods associated with AranLIFE project actions as well as their supply by Aran farmers.

Study findings reveal a high demand for landscape attributes associated with AranLIFE project actions, and a willingness to pay per person per year to conserve the karst limestone pavements, the orchid rich grasslands, the provision of walking trails using boreens across farm land and the maintenance of stone walls and archaeology.

Results from this study indicate that the continuation of farming produces a strong economic return in terms of other farm attributes such as the conservation of cultural and archaeological heritage and the maintenance of biodiversity and the karst landscape, which are all important public goods for the Island communities both at a local and national level.

By including cost of the different actions and administrative costs of the AranLIFE project, study findings indicate a strong economic rate of return of social investment per Euro of financial costs associated with the AranLIFE project actions. The findings reveal a strong demand and willingness to pay for recreational access yet many farmers are reluctant to engage in its provision. This issue should be carefully considered by the Island communities since it may have significant potential to win additional tourism income for the Islands over the longer term.



Achievements of the AranLIFE project

Worked with 67 farmers across the three Aran Islands to improve the conservation status of habitats of international importance.



Improved access to land parcels to facilitate management including grazing, by clearing 28km of breen and installing 40 gates and assisting access to approximately 460ha of land.



Scrub and bracken control management resulting in 91ha of scrub controlled.



Before

After

Enhancement of livestock management facilities through the provision of a water infrastructure consisting of 131 new water features installed, and 107 existing rain catchers repaired. This infrastructure secures the conservation of over 4,500,000 litres of rainwater annually and improves the grazing in approximately 474ha of land.



Identified the deficiencies in the forage and worked with the local veterinary surgeon to provide mineral supplementation specifically suited to the island forage.



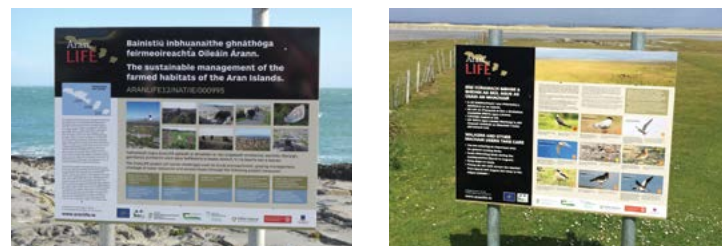
Implementation of optimal grazing plans on 1,011ha of land within the project, based on a result based approach to measure success.



Development of a simple scoring system that reflects the quality of the habitat and level of grazing achieved. The purpose of this is twofold, it encourages farmers to graze the land to a predetermined level and provides an opportunity to trial a results based output which could be used in future agri-environment programmes elsewhere. This simple scheme can be used in farmer self-assessment.



Erection of 4 noticeboards, one on each island outlining the AranLIFE work. An additional noticeboard was erected on Inis Mór highlighting the importance of the Machair, and the sensitivity of the bird species that nest there.



The production of a range of short videos detailing the biodiversity of the islands and the conservation issues that the Aranlife project dealt with.



Production of a range of informative booklets (entitled: Aran Islands: Plants of the farm; Butterflies and day flying moths of the farm; Birds of farms and villages, coastal birds and Historic monuments on the farm) calendars (700) and posters (1,206).

The Flora and Fauna of the islands information guides (over 11,000 have been produced) have been well received by locals and visitors. Four wildlife notice boards have been erected at the playground on Inis Oírr based on these Flora and Fauna guides. AranLIFE helped adapt the information to suit Inis Oírr. These notice boards were erected by Comhar Caomhán Teo, Inis Oírr with funding from Galway County Council through the Local Agenda 21 Environment Partnership Fund.



Produced 4 newsletters which have kept our farmers and the general public up to date with AranLIFE events and achievements.



The production of Best Practice Guides and Information sheets to encourage more effective ecologically sensitive management of additional land on the islands and for use in other areas.



A vibrant social media presence, with followers from all corners of the world. Our website has had 15,860 views. Our Facebook page has had 1,354 likes. Our posts have reached 133,687 accounts. Of the 35,447 that have visited the Facebook page, 6,209 have liked, shared or commented. Our Twitter account has 933 followers and with a potential reach of 164,616. A total of 222,705 have visited actual posts.



The team has conducted 84 educational events to date. These include field trips for local schools, presentations to university students, and guided walks.



Conducted 12 farmer demonstration days and a total of 20 farmer update meetings.



Over 25 new archaeological finds verified on the islands.



Successful development of a European Innovative Partnership (EIP) application called Caomhnú Árann, which will build on the work of AranLIFE.



Conclusions

The AranLIFE approach has been very successful. The use of a specialised team, with an independent identity, helped foster a good working relationship with both the participant farmers and the island communities. The farm plan approach was well received and proved to be an efficient way of detailing works. Each farm had a farm plan developed which outlined the work required and management advice on the different land parcels. From the farm plan the farmer could clearly identify the work required and the costings involved. Working with the farmers improving access, providing water facilities for livestock, clearing scrub and correcting mineral deficiencies in livestock are all vital elements of the continued grazing of the fields which is required to maintain the biodiversity of the priority habitats. The AranLIFE project model can be used as a template for other High Nature Value farming areas within Europe. The simplified scoring system proved to be effective and could easily be adapted for a results based agri-environment programme.

The AranLIFE project has been vital in highlighting the natural capital of the islands, liaising with stakeholders, working with the islands farming and non-farming communities, increasing the understanding of why agriculture is important to maintain these habitats and developing suitable policies to meet requirements. The additional services 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 as detailed in the socio-economic report. Disseminating this information is one of the important long term benefits both from an environmental, economic and social point of view, as without the AranLIFE Project there is a poor platform for highlighting such issues at a local and European level.



AranLIFE Project

AranLIFE12/NAT/IE/000995

The AranLIFE project has worked with farmers on the three Aran Islands to develop and promote traditional and sustainable farming practices to benefit the Islands' natural environment. It operated from 2014-2018 and funded through the EU LIFE Nature Fund (75% LIFE funding; 25% Irish project partners). The project focused on the farming practices that created the iconic Aran landscape and led to the designation of the islands' Natura 2000 sites (sites to protect habitats and species of European importance). It harnessed local farming knowledge and experience with the scientific expertise of project partners to overcome the challenges of island farming and to improve the conservation status of the Natura sites.

LIFE+ Nature and Biodiversity

LIFE+ Nature and Biodiversity is one of the main strands of the European Union's funding programme for the environment. It supports projects that contribute to the implementation of the EU's Birds and Habitats Directives, the Natura 2000 network and that contribute to the EU's goal of halting the loss of biodiversity.

Key project actions


- Farmer engagement
- Communication
- Demonstration
- Results-based scoring systems
- Monitoring effectiveness
- Socio-economic study


Key recommendations

- Effectiveness of the results-based approach for habitat management on the islands and in other HNV (High Nature Value) areas.
- Provides framework to base payments on the quality of the habitat produced.
- Importance of monitoring effectiveness (value-for-money, evidence-based decision-making, and ability to improve over time)
- Optimal grazing regimes need to be maintained on priority habitat on fragmented parts of the farm
- Providing adequate water facilities for livestock is therefore vital in the conservation of species-rich grasslands
- Boreens need to be kept open and clear of scrub to facilitate the movement of cattle
- Removal of scrub and bracken is the first step in the restoration of the priority habitats
- Supplementation is required through use of mineral licks, concentrate supplementation or mineral boluses to address deficiencies

www.aranlife.ie

aranlifeproject@gmail.com

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An Roinn Cultúir,
Oidhreacht agus Gaeltachta
Department of Culture,
Heritage and the Gaeltacht



An Roinn Talmhaíochta,
Bia agus Mara
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Fáilte Ireland
National Tourism Development Authority

An Chomhairle Oidhreacht
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