



THE ARAN ISLANDS, HUMANS, FARMING AND WILDLIFE

INTRODUCTION

The Aran Islands consists of three islands, Inis Mór, Inis Meáin and Inis Oírr, located at the mouth of Galway Bay, on the west coast of Ireland approximately 43.3 km² or 4,330 ha in size. The islands' geology is mainly karst limestone dating from the Viséan age of the Lower Carboniferous, formed as sediments in a tropical sea approximately 350 million years ago. Human involvement with the Aran Islands dates to at least the Middle Stone Age (Mesolithic - between 6 and 10 thousand years ago) when they were visited by hunter-gatherer groups coming from the coast of Clare. Continuous inhabitancy and natural forces have all shaped the appearance of the islands to its present form, an agricultural landscape denuded of trees and subdivided into a mosaic of fields described by Tim Robinson in his book *Stones of Aran* (1986) as an “*incredible jigsaw puzzle of little fields where farmers clear their stoney patches and mark their every increasing subdivision of their holdings by building walls*”.

The 2016 population was 762 people on Inis Mór, 281 on Inis Oírr and 185 on Inis Meáin (CSO, 2019). There are presently over 200 farm businesses on the islands, so agriculture is an important part of island life.

Figure 4.1

Facing page:
Moving cattle on Inis
Meáin, Aran Islands.



From left:

Figure 4.2

The AranLIFE project area – The Aran Islands, located at the mouth of Galway Bay, on the west coast of Ireland.

Figure 4.3

Winter grazing on Inis Mór, the grass is left ungrazed during growing season to supply a standing crop to graze during the winter

The agricultural system that has developed involves cattle grazing part of the farm during the growing season, and the remainder is left to allow excess grass to grow which is then grazed in the winter as a standing crop. The summer grazing tends to be on deeper soils closer to the dwelling houses and is grazed from calving time (March/April) to late Autumn/Early winter. The winter grazing is left ungrazed during this period to build up a bank of grass for grazing in the period November to March/April. Any excess grass on the summer grazing was traditionally made as hay, allowing some fodder supplementation in the winter, although this practice has declined as it is economically more favourable to purchase hay from the mainland.

This *winterage* practice was likely widespread in Ireland at one stage and in agricultural terms the standing crop is known as foggage, but this system has changed over the years because of the ascendancy of hay and then silage conservation. It is now mainly limited to the Aran Islands and the Burren, where the drier limestone grasslands and limestone pavement are less prone to poaching. It is an efficient farming system; no cattle housing or slurry storage is required and the system takes full advantage of compensatory growth (animal growth may be lower than expected for some months due to under-nutrition; later, the liveweight gain of the cattle will be greater than expected due to good nutrition in the available forage). However, associated



with this system is a low stocking rate and high labour requirement which limits the financial returns from the land.

Although the system is similar to that practiced in the Burren, the Islands are much smaller in extent than the Burren and farm sizes are smaller with little recourse to more productive land as they have in the Burren. In addition, the dense network of field walls and highly fragmented farms mean the system is based on a rotational grazing system, in which the cattle are confined to a small area of land and moved regularly to different fields. The Burren approach is based more on set stocking, with cattle grazing over larger areas of land over a longer time period. The Aran's rotational grazing system means utilisation of grass is good but there is a high labour requirement particularly due to the high number of fields. For example, one 32-hectare farm on Inis Mór has 43 different parcels of land scattered across the island made up of 158 fields. Details of the average farm size and estimated stock numbers from the 2010 agricultural census are shown in Table 4.1. Based on these figures and using standard cow equivalent figures the average stocking rates for the island is 0.4 LU/ha. A more recent study by AranLIFE on a random selection of 25 farms found the average stocking of 0.44 LU/ha suggesting that the census stocking rate is an accurate reflection for the islands.

Figure 4.4
Summer grazing
on Inis Oírr

Table 4.1

AGRICULTURAL CENSUS FIGURES FOR THE ARAN ISLANDS

(CSO, 2010)

| AGE STRUCTURE OF FARMERS | | | | | | | |
|--------------------------|------------|------------|--------------|--------------|--------|------|--------|
| Under 35 | 35 to 44 | 45 to 54 | 55 to 64 | 65 and over | | | |
| 8 | 9 | 53 | 56 | 99 | | | |
| FARM SIZE | | | | | | | |
| <10ha | 10-20ha | 20-30ha | 30-50ha | 50-100ha | >100ha | | |
| 92 | 99 | 2 | 12 | 2 | 0 | | |
| LIVESTOCK NUMBERS | | | | | | | |
| Bulls | Dairy cows | Other cows | Other cattle | Total cattle | Rams | Ewes | Horses |
| 27 | 0 | 661 | 1027 | 1715 | 12 | 220 | 63 |

The farming economy of the Aran Islands was traditionally supplemented through fishing, and the sea was an important resource for fuel, food and fertilizer with traditional cropping systems, mainly potatoes, for home consumption. In more recent years, off-farm employment in the tourist industry has replaced fishing for many families as over 250,000 tourists visit the islands every year.

Sales of livestock vary on farms; some farms sell the calves at weaning stage in October only keeping an occasional replacement heifer while others keep the calves over winter and sell them in the following year. Cattle buyers (known locally as “cattle jobbers”) come to the Islands and buy the cattle before exporting them to Ireland’s mainland for finishing (O’Sullivan and Godwin, 1978). Cattle breeds also vary on farms. Shorthorn was the predominant breed but with a higher demand and financial return for continental cattle, breed type has switched to more continental types such as Charolais and Limousine.

With small farm size and low average stocking rate, sales of agricultural produce is limited. Based on the census figures, 40% of the farms are < 10 hectares and the average beef cow herd size is 3 cows. The islands have all the characteristics of High Nature Value (HNV) farming: low inputs of pesticides and fertilizers; limited cultivation; low stocking rates and; a high percentage of semi-natural vegetation (Albrecht et al., 2007; Bignal and

McCracken, 2000; EEA, 2004). With low potential for livestock sales, there is a high reliance on subsidies on the farm. However, subsidy payments through Pillar 1 of the Common Agricultural Policy (CAP) are also low as they are based on historic claims. CAP support is generally much lower for HNV farms than other farms, where the historic Single Payment System is applied (Keenleyside et al., 2014). In 2014 the average Single Farm Payment for the three islands was €108 per hectare compared to a national average of approximately €270.

ISLAND ECOLOGY

The islands contain 17 different habitats types that are increasingly rare in Europe and listed in the EU Habitats Directive. These include Coastal lagoons (1150*), Fixed coastal dunes with herbaceous vegetation (grey dunes) (2130*), Machair (21AO*), Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (important orchid sites) (6210*) and Limestone pavement (8240*), Reefs (1170), Perennial vegetation of stony banks (1220), Vegetated sea cliffs of the Atlantic and Baltic coasts (1230), Embryonic shifting dunes (2110), Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) (2120), Dunes with *Salix repens* ssp. *argentea* (*Salix arenariae*) (2170), Humid dune slacks (2190), European dry heaths (4030), Alpine and Boreal heaths (4060), Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*) (6510), Turloughs (3180*), Submerged or partly submerged sea caves (8330). Six of these habitats are classed as priority habitats (*).

Based on Halada et al. (2011) nine of the 17 habitat types are fully or partly dependent on agricultural management. This is reflected in the National Parks and Wildlife Service (NPWS) site synopsis that the islands are of 'major scientific importance owing to the range of outstanding karstic carboniferous limestone and coastal habitats, and the number of rare and threatened species found thereon. The cultural heritage of the islands (and in particular the continuation of traditional low-intensity farming practices) is intrinsically linked with its scientific interest' (NPWS, 1997). The main habitat types found are the Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia) (important orchid sites) (6210*) and Limestone pavement (8240*). These two habitat types form a mosaic across the islands and are the main focus of the farming system.

The farming system of winter and summer grazing conserves the biodiversity of the grasslands. The winter grazing produces a short turf and in the springtime, herbs such as *Gentiana verna* (Spring gentian), *Geranium sanguineum* (Bloody cranes bill), *Lotus corniculatus* (Birds foot trefoil) and *Galium verum* (Lady's bedstraw) flower and fill the fields full of colour. Free from grazing in the summer months, they then set seed and thus the seed bank and species-richness of the fields is conserved and enhanced.

As well as the diversity of plant species on the islands there are also interesting species that are frequently found on the islands but are rare or absent elsewhere. There are plants at their most northerly limit of their distribution and are more associated with Mediterranean regions of France and Spain e.g. *Neotinea maculata* (Dense flowered orchid), *Ophrys apifera* (Bee orchid), *Rubia peregrina* (Wild madder).

There are also Arctic-Alpine plants and plants with restricted distribution within Britain and Ireland, such as *Rhodiola rosea* (Roseroot), *Gentiana verna* (Spring gentian), *Euphrasia salisburgensis* (Salzburg eyebright) and *Saxifraga rosacea* (Irish saxifrage). These species are found in high-altitude meadows in mainland Europe but occur close to sea level here. An anomaly of the Aran Island flora is that these 'typical' arctic alpine plants may occur alongside plants typical of Mediterranean regions. There are species with a limited distribution in Ireland and Britain, e.g. *Ajuga pyramidalis* (Pyramidal bugle), *Helianthemum oelandicum* (Hoary rock rose), *Astragalus danicus* (Purple milk vetch) and *Allium ampeloprasum* var. *babingtonii* (Babington's leek). These species occur on the Aran Islands and few other places within the country, for example *Astragalus danicus* (Purple milk vetch) only occurs on the Aran Islands within Ireland. There are also some plant species that have died out elsewhere due to intensification of agricultural practise e.g. *Lolium temulentum* (Darnel) is a rare grass species that occurs as an arable weed in the rye crops on Inis Meáin.

Along with the rich floral diversity, the Aran Islands also support a great variety of butterflies that feed and depend on the grassland plants. Twenty-one species of butterfly occur on the Aran Islands, a significant proportion of the national total of 31 species. These include *Cupido minimus* (Small blue butterfly) which is endangered nationally. The caterpillar of this butterfly feeds on the flowers of *Anthyllis vulneraria* (Kidney vetch) which occurs frequently on the islands. The caterpillar of the *Erynnis tages* (Dingy skipper), which is a near threatened species, feeds on *Lotus corniculatus*

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Figure 4.5
Species rich Calcareous grassland with limestone pavement out crops on Inis Meáin

Figure 4.6
Astragalus danicus (Purple milk vetch) on Inis Meáin

Figure 4.7
Bombus muscorum, var *allenellus*, a form of the species which is unique to the Aran Islands



(Bird's-foot-trefoil). Wall brown, also an endangered species nationally, is common on the islands and its caterpillars feed on the native grasses.

The Aran Islands has its own variety of bumble bee, *Bombus muscorum*, var *allenellus*, that has only been recorded on these islands. Also found on the Machair grasslands is the rare snail, *Vertigo angustior* (Narrow-mouthed whorl snail). This species can occur on a wide variety of sites however the exact micro-climate that it requires is very strict and it is sensitive to drainage, changes in grazing and management. This species is on Annex II of the EU habitats Directive and is considered threatened within Europe.

The bird life associated with the farming system is also vibrant. *Vanellus vanellus* (Lapwing) a Red listed bird species are found nesting on Machair grassland on the islands whilst their numbers are declining elsewhere. Important numbers of terns (*Sterna paradisaea* (Arctic tern), *Thalasseus sandvicensis* (Sandwich tern) and *Sternula albifrons* (Little tern)) have been recorded breeding on the islands, these species over winter on Antarctic pack ice (*Sterna paradisaea*) and west coast of Africa (*Thalasseus sandvicensis* and *Sternula albifrons*) and return to the Aran Islands to breed in Summer. *Anthus pratensis* (Meadow pipit) and *Alauda arvensis* (Skylark) are also common throughout the islands. The grazing system is favourable for ground nesting birds which have suffered in other parts of Ireland. The winter grazing also leaves a favourable habitat for *Pyrrhocorax pyrrhocorax* (Chough), a member of the crow family with a distinctive red beak, as it requires short turf grazed grasslands to forage for insects and grubs. *Pyrrhocorax pyrrhocorax* is on Annex I of the EU Birds Directive and has been included in the Red List of Birds of Conservation Concern in Ireland (Newton et al., 1999).

Taken from the book "Farming for nature: the role of results based payments."
Further details and references quoted can be found at:

<https://www.teagasc.ie/environment/biodiversity--countryside/farming-for-nature/>