Ireland's Eco Holiday Experience

Filleadh ar do Dhúchas!

Nature in Ireland's Gaeltacht

An illustrated guide to the Natural History of the Gaeltacht

Pádraig Ó Briain

GaelSaoire
SCÍTH SA GHAELTACHT
HOLIDAYS IN IRELAND'S GAELTACHT

Ireland

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SCÍTH SA GHAELTACHT
HOLIDAYS IN IRELAND'S GAELTACHT

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Foreword
by Professor Michael Guiry

The Gaeltacht, or Irish-speaking areas of Ireland, are located in some of the most scenic parts of the country. They are for the most part, coastal and rural inland areas making them ideal sanctuaries for a wide range of plant and animal life.

This 'Nature in Ireland's Gaeltacht' book offers a brief tour of the seven Gaeltacht regions and shares with readers interested in nature a rare opportunity to pause and reflect on the beauty and diversity of the natural world.

Published by GaelSaoire, this book is an outline of the complexity that abounds in nature. It gives a potted history of how habitats were originally formed and gives a flavour of the wide variety of plants and animals which colonised these areas. To the ardent nature watcher it gives insights and background. To the novice it helps to guide the way through the fascinating Natural History of Ireland.

Although Ireland is a small country the Gaeltacht has many unique features. This book looks at the geological history of Ireland from glaciers in the ice age, to how the land was re-colonised by plants and animals, the spread of peatlands and the stabilisation of soft coastal systems.

Because most of the Gaeltacht areas are on the coast they offer ideal platforms for observing marine wildlife. This book gives the best vantage points for observing the impressive seabird colonies around the coast of Ireland as well as where to catch glimpses of whales, dolphins and seals.

Within the Gaeltacht there are two National Parks, one Forest Park, tracts of some of Europe's best-preserved peatlands and coastal systems together with a myriad of wildlife habitats. Clochar na gCon Bog in Galway is a prime example of lowland or Atlantic blanket bog and was declared a nature reserve in 1999. Glenveagh is the biggest National Park in Ireland with 16,500 hectares and contains within it the two highest mountains in County Donegal.

The Gearagh in Cork is the last extensive alluvial woodland in Ireland or Britain.

I welcome this publication and believe that it will be of interest and assistance to anyone wishing to find out more about the natural world in Ireland and, more specifically, in the Gaeltacht.

I heartily recommend a visit to the Gaeltacht to view nature at its most spectacular and I recommend this book as the perfect companion.

Is mise le mór mheas.
Michael Guiry

Clár

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Chapter 1

Brief History of Ireland's Geology

Stair

Geology of the Gaeltacht

The geology of Ireland is complex and interesting. The oldest rocks found in Ireland are off the coast of Donegal in Inishtrahull and in North Mayo. These date back some 1,750 million years.

Ireland not only has cultural but geological links with Newfoundland and Scotland. Rock strata in Connemara have been correlated with Newfoundland indicating that the two were at one time joined.

In general terms there are four prominent rock types to be found in the Gaeltacht or Irish speaking regions of Ireland.

1. Old red sandstone can be found in the southwest – Kerry, Cork and Waterford.
2. Granite, schist, and quartzite predominate in the west and northwest – Galway, Mayo, and Donegal.
3. Carboniferous limestone, sandstone and shale are the main rock types in the midlands – Meath.
4. The Aran Islands are a geological extension of the Burren. The Burren and the Aran Islands consist of karstic limestone (named after a region in the former Yugoslavia) interspersed with bands of shale and clay. The limestone is full of fossils with good examples of brachiopods and coral. The layers of shale are less resistant to weathering and form convenient shelves on the cliffs on which seabirds may nest.

Geology of North West Ireland

The Caledonian Mountain building

There is a long mountain chain running from Newfoundland through Northwest Ireland and Northwest Scotland and into Scandinavia. These are known as the Caledonides after Caledonia, which is the

Latin for Scotland. There are good examples of the rock formations in this region.

To understand how the Caledonian Mountains were formed we must go back to a time where the countries of the world were in very different positions than they are today. The continents of Europe, North and South America, Asia, Africa and Australia did not exist. Instead, there was a super-continent called Rodinia, which afterwards broke apart to form two land masses:

Laurentia – modern North America, Northern Europe and Siberia.

Gondwana – modern Africa, Southern Europe, India, Antarctica and Australasia.

The Iapetus Ocean, the precursor of the Atlantic Ocean, separated these two land masses.

During the Precambrian Period (approximately 700 million years ago) Northwest Ireland and Scotland were part of Laurentia while Southern Ireland was contained in Gondwana along with Southern England and Wales.

During the Ordivician period (510 – 430 million years ago) Laurentia and Gondwana collided and this collision led to mountain building in the region. During this time the island of Ireland, as we know it today, was formed. A line running roughly from Galway Bay on the West Coast and Clogherhead North of Drogheda on the east coast marks the location where the two sections of Ireland were forced together.

The Caledonian mountains are composed of Dalradian sediments. The Dalradian rock group is named after the Dál Riada, a powerful kingdom in North Antrim in Northern Ireland. Dalradian rocks are metamorphosed sedimentary rocks that were originally deposited in inter-tidal and marine environments.

Geology of Southern Ireland

The geology of Southern Ireland is predominantly old red sandstone. During the Precambrian Period Southern Ireland was attached to England and Wales in Gondwana. As stated earlier, during the Ordivician Period, Laurentia and Gondwana collided, forming the island of Ireland.

In the Devonian Period old red sandstone was deposited in the Munster basin which extends from Kerry in the west to the Comeragh mountains in County Waterford in the East. Old red sandstone sediments were laid down by river systems in desert conditions.

Similar old red sandstone sediments were deposited in the late Silurian to Devonian periods in the Dingle basin in County Kerry.

Kerry Geology

Older rocks in the Silurian to lower Devonian periods 408 million years ago occur in the Dingle Peninsula at Dunquin, Bulls Head and Annascaul. These are sedimentary rocks (mudstone, siltstone and sandstone) that are rich in fossil brachiopods, coral (colonial and solitary), gastropods, trilobites, bivalves, and cephalopods. Rocks from the sandstone formation at the end of the Ivereagh peninsula have yielded fossils of ancient fish.

Quaternary Geology

During the Quaternary period Ireland was glaciated after which it was re-colonised by vegetation. Man first arrived in Ireland around 9,000 years ago. The spread of peatlands together with the stabilisation of soft coastal systems also happened since the last glaciation.

Glaciation

Ireland was very heavily glaciated in the past during the Quaternary Period. During the Quaternary Period, 1.6 million years ago until the present, there has been warm (interglacial) periods alternating with cold (glacial) periods. The presence of glaciers in Ireland can be seen in a variety of features:

1. **Striae** – (scratches made by stone embedded in the base of glaciers dragged over rock). Examples can be seen on rocks in the Rosses North of Dungloe in County Donegal. They are also very visible on the soft limestone of the Aran Islands.
2. **Erratics** – (Non-native rocks transported by glaciers from one region and deposited where the ice stopped). There are granite erratics on peaks of the quartzite Errigal. On the Aran Islands there are some very fine examples of granite erratics carried south from Connemara, which contrast sharply with the karstic limestone.
3. **U-shaped valleys** – (valleys sculpted by moving glaciers) Examples include Glenveagh in County Donegal and the Gap of Dunloe in County Kerry.
4. **Corries** – (depressions left in the mountains from retreating glaciers). There are a number of exquisite corrie lakes to be found in Achill, County Mayo. For example Lough Nakeeroge East which is the lowest corrie lake in Ireland and Lough Bunafreeva West which lies 457 metres/1,500 feet above sea level.
5. **Nunataks** – (mountains which remained partially ice free during the glaciation of Ireland). The two largest mountains on Achill are Slievemore (672 metres/2,204 feet) and Croaghan (668 metres/2,192 feet), both are believed to have been

Nunataks during the Ice ages. Other Nunataks include Slieve League at 600 metres.

Peatlands

Peat is a soil that consists of partially rotten remains of dead plants which have accumulated on top of each other in waterlogged conditions over the millennia. It consists of sphagnum moss along with roots, leaves, flowers and seeds of heathers, grasses and sedges. Occasionally the trunks and roots of trees such as Scots Pine, Oak, Birch and Yew are also present.

There are three types of peatlands or bogs in Ireland:

- **Fens** are flat bogs that are found around lake margins and in waterlogged areas where there is a supply of mineral rich waters. (Raised bogs develop on top of fens when the mineral-rich water supply is cut off.)
- **Raised Bogs** are dome shaped bogs which have developed in former lake basins in midland counties. Their nutrient supply is obtained from rainfall.
- **Blanket Bogs** consist of a carpet of peat extending over large areas of land. Their nutrient supply is obtained from rainfall. There are two types of blanket bogs:
  (i) Lowland blanket bogs which are found in low-lying (below 200 metres/476 feet) areas of western counties.
  (ii) Mountain blanket bogs which are found in mountainous areas (above 200 metres/476 feet) throughout the country

Formation of peat

Soil micro-organisms need oxygen in order to break down dead plants completely. The breaking down

process is called "decomposition" and can be summarised as follows:

Dead plants + Oxygen + Soil Microbes =
Carbon Dioxide + Water + Energy.

Waterlogged soils are very poor in oxygen so complete decomposition of dead plants cannot take place. The dead plant remains accumulate as peat and its energy is trapped and concentrated which makes it ideal for use as fuel. Partial decomposition of dead plants produces organic acids which further hinder the work of soil microbes in decomposition.

In Ireland two factors contribute to the existence of peatlands.

High Rainfall

The West, Southwest and Northwest of Ireland experience over 175 rain-days each year. Lowland blanket bogs are found extensively in these high rainfall areas. Mountain blanket bogs occur in upland areas throughout the country which experience 175 – 200 rain days a year.

Poor Drainage

At the end of the last ice age, about 10,000 years ago, the central lowlands of Ireland were left with many poorly drained basins of calcareous (calcium rich) boulder clay. Water accumulated in these basins creating lakes which gradually became totally overgrown with fen vegetation and infilled with fen peat. As the depth of peat grew, the plants on the surface soon became cut off from the mineral rich water below. Bog mosses and plants that could survive on the few nutrients which were present in rainfall

replaced the nutrient-demanding fen plants. The fen peat below prevented the rainwater draining away, while the bog mosses soaked it up like a sponge.

A climatic change about 4,000 years ago resulted in high rainfall and high humidity levels in Ireland, particularly in Western counties and in mountainous areas. Under such conditions soil minerals, such as iron, were leached out from the surface layers of the soil, and in extreme cases this led to the development of the impermeable iron pan lower down in the soil. Rainwater was thus prevented from draining away. The soil became permanently waterlogged and peat started to accumulate.

Dune Systems

Although Ireland is a small country it has a very long coastline due to numerous indentations. It has a myriad of coastal habitats and features.

The modern coastline stabilised around five thousand years ago. Modern beaches and sand spits like Dooey in Donegal were formed as sand dunes. Peninsulas such as Horn Head, also in Donegal and Claggan Island in County Mayo are Tombolos – (Islands connected to the mainland by sand spits).

Sand dunes occur when there is a combination of a large amount of sand, wind to move it and a place where it can accumulate. Dune systems are a complex mix of the physical and biological environment.

Irish dune systems are divided into three categories:

1. Sand Hills.
2. Well-structured dune ridges.
3. Sand plain systems or machairs.

We will look at the latter two in more detail further on in the course of this book.

Dún na nGall

Chapter 2
Donegal

Gaeltacht Islands

Gweedore Bay and its Islands

There are many small Islands situated in Gweedore Bay. These include Inishsirrer, Inishmeane, Gola, Umfin, Inishfree Lower, Cruit and Owey. The Geology of these islands is Granodiorite. There are large intact stretches of machair grassland and sand dunes on the Islands together with large areas of sandflats off the coast which are exposed at low tide.

Sea Pink.

Important on the Islands are rare plant species including Slender Najas, Shining Sicklemoss and Petalwort. These islands are also home to a number of birds including the Common and Arctic Tern, Storm Petrel, Chough and Barnacle Geese. The two largest islands off the Donegal coast are Aranmore and Tory.

Aranmore

Aran Island or Aranmore is located 4km west off Burtonport in Donegal and is approximately 18 kilometres square in area. The cliffs that rise to 150 metres/492 feet are exposed and are composed of resistant quartzite which is metamorphosed sandstone.

The vegetation of the cliffs is tolerant of exposure to high salinity like the Sea Campion, Sea Mayweed, Roseroot, Common Scurvygrass and Rock Sea Spurrey.

Saline tolerance

East of Torneady Point, one can see higher cliff vegetation merging into Alpine heath which is found along the tops of the cliff. Also present are Juniper, Bearberry, Crowberry, Pale Butterwort and Filmy Fern.

Lady's Bedstraw.

Dry Heath also appears on the West of the Island with Heather, Wood Rushes, Heath Bedstraw and Tormentil. The rare Harts Saxifrage can be found on the cliffs in the only known location for this plant in Ireland.

The Peregrine Falcon and Chough (the latter's population estimated at 13 breeding pairs), are important as their numbers are considered to be high in this area.

Seabirds such as Fulmars (887 pairs), Great Black-Backed Gull (79 pairs), Lesser Black-Backed Gull (8 pairs), Herring Gull (78 pairs), Kittiwake (36 pairs) and Shag (55 pairs) can be found on the cliffs.

Tory

Tory Island is located 11km north of Bloody Foreland in Donegal. It is about 4km long and 1km wide and consists mainly of igneous granite except for a section of quartzite where dramatic cliffs occur.

Three protected habitats lagoons, sea cliffs and stony banks make Tory Island an area of high conservational importance.

Thrift, Red Fescue, Scurvygrass, Sea Mayweed, English Stonecrop, Sea Plantain and Buck's Horn Plantain form part of the cliff vegetation. Of noteworthy interest is Scot's Lovage found on the east of the island. The preferred habitat of this dark green perennial is maritime cliffs and rocky shores. This plant favours remote and inaccessible areas and is on the red data list as a protected species.

Tory's bird life is its most important ecological feature. Chough, Corncrake, Peregrine Falcon, Little Tern and Storm Petrel breed here. These are all

protected species which avail of the sanctuary that Tory gives them. Other birds such as the Dunlin, Tree Sparrow and Arctic Tern breed in smaller numbers.

The Corncrake is a rare bird on a worldwide scale and is rapidly declining in Ireland. Its preferred habitat is hay fields which are severely threatened with the demise of traditional farming methods and the advent of silage-making. Tory's low level intensity of farming together with the absence of predators like foxes makes the island an ideal breeding ground for Snipe, Lapwing, Redshank, Oystercatcher, Common Gull and Wheatear. The cliffs in Tory support large seabird colonies. Puffins are abundant on the island, as are Razorbill, Guillemot, Kittiwake and Fulmar. There are smaller numbers of Shag, Herring and Great-Backed Gull.

Peregrine Falcon.

There are also a number of Grey Seals which are seen around the coastline of Tory Island.

Corncrake.

Dooey and Horn Head

The modern coastline stabilised around 5,000 years ago. Modern beaches and spits like Dooey were formed as sand dunes. Peninsulas such as the nearby Horn Head are Tombolos, which are islands connected to the mainland by sand spits. Dooey is composed of sand resting on a gravel base. It has ridges of naturally cemented sand (duncrete) together with well sorted fine shelly sand that has a high calcium carbonate content made up of lime derived from shells.

There is an absence of well-defined foredunes which means there is just sufficient sand to keep the

structure from disappearing. Dooey is shaped this way due to its location in relation to wave conditions.

A combination of wind and tidal action drive a cycle of sand movement. The dunes are stable by virtue of the vegetation they support. This vegetation consists mainly of Marram Grass which stabilises the dunes. There are also a number of ecologically important species including Harebells, Devil's Bit Scabious, Wild Thyme, Lady's Bedstraw, Primrose and Couch Grass.

Harebells have bell-like flowers that are pale blue in colour. They grow in dry grassy places and are common on the North and West coasts of Ireland. The flowers emerge in July and August. Wild Thyme is a small undershrub with purplish-rose coloured flowers. It has small leaves that are hard and sometimes hairy. It grows

Otter.

in dry and sunny places near the coast. It flowers from June to August.

Mink.

Mammals of note on Dooey include Otter, Common Seal and the Grey Seal. The Otter is a carnivore or meat eater and is in the same family as the Badger, Stoat, Mink and Pine Martin. It has a long slender body and a flat head together with webbed feet which suit its semi-aquatic lifestyle. It also has a thick coat to protect it against the cold. The home of the Otter is called a "holt". Otters are usually nocturnal and shy and are therefore not seen very often. Their diet is very varied and consists of fish, eels, frogs, Crayfish, birds and young mammals like Rabbits, Mice and Voles.

There are two types of seal species found on

Dooey, the Common, or Harbour Seal and the Grey Seal. They can stay submerged for great lengths of time. Seals spend up to 80% of their time submerged when at sea. Their diet include fish, squid and crabs. To stay warm in their environment they have a thick fur coat, as well as blubber layers that are commonly up to 6 cm thick. Seals are excellent swimmers with streamlined bodies and webbed flippers which act as powerful paddles and rudders.

Important invertebrates like the Grayling, Common Blue, Dark Green Fritillary and Six-Spot Burnet moths which are abundant are also found on the sand spit.

Six-Spot Burnet Moth.

Bird species that use Dooey include Brent Geese, Ringed Plover, Red-Breasted Merganser, Sanderling, Wigeon, Corncrake, Lapwing, Chough, Dunlin and

Oystercatcher. Dooey is a important site in Northwest Donegal for Golden Plover with a maximum of 600 birds recorded in October 1992. Other noteworthy species that can be seen on the sand spit include the Meadow Pipit and Skylark which breed on the dune.

South Donegal

Glencolumbkille and the Gaeltacht area of south Donegal contain a mixture of mountains and spectacular sea cliffs. Slieve League and Slieve Tooey are two of the most prominent mountains in the region.

Slieve League.

Slieve League contains very high and steep sea cliffs which rise to a height of 609 metres/2,000 feet. It is composed predominantly from Quartzite

together with Carboniferous sandstone and conglomerates. Only some of the less-steep slopes are vegetated with heather and bracken. Most of the cliffs are too sheer to support vegetation. Slieve League is noteworthy, however, not for the abundance of its flora but for its rarities.

On the northern slopes of Slieve League there is a north-facing corrie containing the corrie lake, Lough Agh. Around this lake there are fine examples of Alpine plants.

Slieve Tooey rises to a height of 461 metres/1515 feet and like Slieve League is composed of quartzite. It dominates the northern half of the Slieve League peninsula. The area is important due to the presence of Greenland White Fronted Geese, Golden Plover and Choughs as well as Common and Grey Seals. Noteworthy plants growing in the region are Lesser Thayblade, Creeping Willow and a number of fern and lichen species.

In the middle of county Donegal there are a number of noteworthy wetland habitats. Gweebarra Bay which is situated over a geological fault is an area of spectacular beauty. The intertidal mud and sand flats are an important bird habitat especially for feeding waders. There are also extensive areas of dune and machair systems. The dunes are dominated by the sand fixing marram grass and contain other species like Yarrow and Violets. The machair have abundant orchids especially the Fragment Orchid, Frog Orchid and Marsh Helleborine.

The wildlife sanctuary Sheskinmore lies between Portnoo and Ardara. The area consists of partially sand filled freshwater lagoon and machair grassland.

Sheskinmore is an internationally important site for the wintering Barnacle and Greenland White-Fronted Geese. This region also contains extensive tracts of intact lowland and coastal bog interspersed with a large number of lakes. The area is vegetated for the most part with Black Bog-Rush, Bog Myrtle, Purple Moor-Grass, Heather and Cottongrass. Also noteworthy in the Lettermacaward area is deciduous woodland containing Oak, Hazel and Downy Birch.

Glenveagh National Park

The park, in county Donegal, contains one of the two largest Red Deer herds in Ireland with around 500 animals. They are contained within a 40 kilometre fence. The Deer live on the high ground during the summer and move to the lower sheltered ground in

Glenveagh Castle.

winter. The largest herd of native Red Deer lives in Killarney National park. Unlike Killarney the Glenveagh herd is not of native Irish stock but was introduced from stock in England and Scotland.

Glenveagh is the biggest National Park in Ireland with 16,500 hectares and contains within it the two

Pygmy Shrew.

highest mountains in Donegal Errigal at 750 metres/ 2460 feet and Sliabh Snacht at 683 metres/2240 feet. The hills contain plant species like Purple Moor Grass, Tormentil, Bog Asphodel and Pink Lousewort. There are outstanding gardens to be found in the park, which is beside the castle. Both gardens and castle are open to the public. Woodlands of Oak and Birch are also present within the park. Birds frequently seen in upland areas in the park include the Meadow Pipit,

Stonechats, Red Grouse, Ravens and Peregrine Falcon. Woodland birds in the park include Siskins, Treecreepers, Wood Warblers and Crossbills. The Park contains large areas of intact bog which attract breeding Curlew and Dunlin in summer. White-Fronted Geese winter here.

Mammals in the park include the Red Deer, Otter, Badger, Mink, Stoat, Pine Martin, Fox, Long-Tailed Field Mouse, Hare, Leisler's Bat, Pipistrelle, Natterers, Whiskered Bat, Daubenton's Bat and Pygmy Shrew. Mink are not indigenous to Ireland. They are feral American Mink, which first came to Ireland on fur farms in 1951. The first recorded escape occurred in 1961. By the 1980s they were considered to be widespread throughout the country (Smal 1988). Mink have a varied diet and live in and around water preying on birds, mammals and fish.

The Golden Eagle

Decline

Through human intervention and loss of habitat Golden Eagles became extinct in Ireland by 1912. The Irish language word for eagle is 'Iolar' and many old placenames such as Meenanillar (Mín an Iolair) in Donegal indicate the traditional presence of the Golden Eagle in Ireland. English language placenames like Gleneagles in Kerry are also evidence of their existence in times past.

Reintroduction

Summer 2001 saw the beginning of an ambitious five year programme to reintroduce the Golden Eagle to Glenveagh National Park in Donegal. In conjunction

with the Scottish Raptor Study Groups and under special license from Scottish Natural Heritage, wild Golden Eagle chicks were removed from their nests in Scotland, when they were 5 to 6 weeks old, and released in Glenveagh National Park. They were placed in specially designed avian cages, containing artificial nest platforms and perches. The birds here fed through a secure hatch and sleeve so that no human contact could take place. Human imprinting, during the programme, will be avoided at all costs.

Golden Eagle.

The survival rates of the released eagles were expected to increase after the first winter/spring in their new habitat, mirroring the losses in wild population. Golden Eagles do not normally mature and attempt to breed until they are 4 to 5 years of age but

enough birds will be released, over the 5 years of the programme, to ensure that a sufficient number of the species survive to form a viable breeding population.

There will be a detailed project review after three years to review the known survival rates and consider the total release numbers necessary. It is hoped the released birds will first attempt breeding in 2005 or 2006. Research indicates that County Donegal could hold 7-10 pairs of Golden Eagles, the northwest of Ireland (Galway to Donegal) could hold 22-30 pairs and Ireland may eventually have 50-100 pairs. It is hoped that the re-introduction of Golden Eagles will not only restore a magnificent species but will also help promote the conservation of all large Irish raptors and our uplands in general.

Already the eagles have started to move out from the Park and have been tracked to various sites in the county.

Chapter 3
Mayo
Maigh Eo

Inishkea Islands

The Inishkea Islands are the two largest islands situated off the West coast of the Mullet peninsula. The North Island is low lying and dominated by machair which is a vegetated plain of blown shell sand. (Richie 1976)

Grey Seals.

Vegetation dominated by Plantain Sward as well as Red Fescue, Smooth Meadow-Grass, White Clover and Daisy. There is also a small lake, Doon Lough, at the northern end of the island which is vegetated with Common Reed and Mare's-Tail.

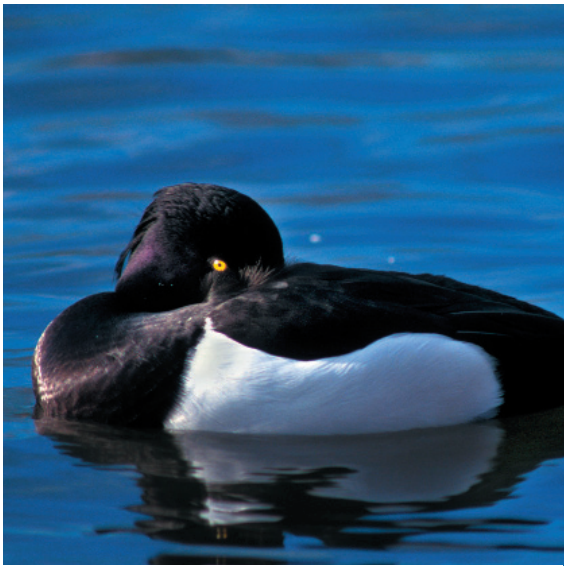
The South Island is covered by machair in the northern part, with a heath-covered hill in the south, and with Heather, Heath-Grass, Devil's-Bit Scabious, Sheeps Bit and Creeping Willow. The islands are of ornithological interest for their breeding seabirds and

especially for their three tern species – the Arctic, Common and Little Tern. Gulls on the islands include great black-backed, lesser black-backed, herring, common and black-headed.

The Arctic Tern is said to see the most daylight of any bird in the world. It winters near the ice pack of Antarctica while some also nest North of the Arctic circle. The Common Tern arrives in late April or May and departs for the West coast of Africa in mid September. It is known to sailors as the sea swallow because of its long forked tail. Other breeding birds include Oystercatcher, Lapwing, Ringed Plover, Redshank, Snipe and Dunlin while Barnacle Geese winter on the island. This is an internationally important site for them. They also make use of the neighbouring islands, the Duvillauns and Inishkeeragh. There are also internationally important numbers of wintering Golden Plover. Other waders include Sanderling, Purple Sandpiper and Turnstone.

The Inishkeas and neighbouring islands are important breeding sites for the Grey Seal. This majestic creature is the larger of Ireland's two seal species. The population consists of between 700 – 900 seals, which is about a third of the breeding population in Ireland. There are a number of important areas for bird life in County Mayo. The most important are Termoncarragh, Annagh Marsh, Illaunmaistir and the Inishkea Islands. Termoncarragh is located 7 km west of Belmullet in Northwest Mayo. It comprises about 24 hectares of coastal freshwater lake and extensive reedbed, situated in machair grassland. Its bird life is of national importance for breeding waders and wintering waterfowl which include Whooper Swans, Greenland White-Fronted Geese, Barnacle Geese,

Wigeon, Teal, Mallard, Tufted Duck, Pochard and Scaup. The Barnacle Geese commute between Termoncarragh and the Inishkea Islands in winter. Up to 1,000 Golden Plover winter on Termoncarragh. Breeding birds include Lapwing, Snipe, Dunlin, Whinchat, Sedge Warbler and Reed Bunting. Because this is such an important reserve belonging to BirdWatch Ireland viewing is only allowed from the surrounding roads.



Tufted Duck.

Annagh Marsh is located west of Belmullet, and south of Termoncarragh Lake, on the Mullet peninsula. It is a 7 hectare site of coastal machair with waterlogged, brackish marsh and grassland. Grazing by cattle is regulated for the benefit of breeding birds. It is renowned for its breeding waders (Snipe, Dunlin, Lapwing, Curlew). Red-Necked Phalaropes bred here

in the past. Dabbling Ducks and Whooper Swans can be seen in winter, commuting from Termoncarragh Lake. Because this is such an important reserve belonging to BirdWatch Ireland viewing is only allowed from the surrounding roads. Illaunmaistir is located 19 km west of Ballycastle on the North coast of Mayo.

It is a small steep-sided island rising to about 100m/330 feet. It is of national importance as a summer haven for Puffins, Storm Petrels and other seabirds. A small flock of Barnacle geese visits in winter. **Viewing:** The reserve is inaccessible but can be viewed from the mainland.

Achill

Achill at 57 square miles is Ireland's largest offshore island. It is connected to the mainland by a bridge. Achill was once home of the White-Tailed Sea Eagle, which, it is believed, gave Achill its name. The last Golden Eagle disappeared from Achill about 1912.

The two largest mountains on Achill are Slievemore 672 metres/2,204 feet and Croaghan 668 metres/2,192 feet. There is still some debate but these were thought not to have been covered during the last glaciation (Midlandian). Therefore they contain a relict flora with Artic, Alpine, Lusitanian, and North American species that were eliminated by the ice in other areas of the country. Achill abounds with striking glacial features, the most prominent being corries. Lough Nakeeroge East is the lowest corrie lake in Ireland and only experienced walkers should go there as it involves a rigorous walk over Croaghan.

Lough Bunafreeva West is 1,500 foot above sea level. Lough Acorymore is the biggest and most accessible corrie

lake and is used as the island's reservoir. The geology of Achill ranges from quartzite mountain peaks to lowland valleys of schist which are metamorphosed mudstone.

The island of Achill is divided by a fault which runs from Dugort on the north to the Minnaun cliffs on the south. To the east of the fault there is a low area with hummocky glacial terrain whereas to the west there are smooth mountain slopes. Two thirds of the island is covered by peat which is typical lowland blanket bog. Plant species include Bog Cotton, Heather and several varieties of carnivorous Sundew. Arctic Alpine species include Mountain Avens, Bearberry, Spring Gentian, Irish Eyebright, Ling, Crowberry and Juniper. Achill head contains Sea Plantain, Buck's-Horn Plantain, Rock Sea-Spurrey, Sea Pearlwort, Mouse-Ear, Allseed, Sheeps Fescue and Common Bent.

Achill coastline.

Mayo National Park

Situated in Ballycroy, Mayo National Park is in the middle of one of the largest areas of blanket peatland in Europe with spectacular views of the barony of Erris, Achill, and the Inish Cé Islands. This living landscape has a unique flora and flora.

Machair

Machair Grassland.

There are extensive tracts of machair in Mayo's Gaeltacht stretching from Garter Hill in Erris to Keel Lough in Achill. Termoncarragh Lough, Inishkea North and Keel Lough mentioned previously also have an abundance of machair.

Machair is unique to northwest Ireland and western Scotland. The name comes from the Irish "Machaire" which

means a plain stretch of level ground. Machairs are formed when a rigid dune system is eroded due to wind and grazing giving a grassland sward. This is kept like this due to the action of grazing animals. Machairs are composed mainly of shell fragments and have a high calcium carbonate content giving the machair an alkaline quality.

Wilde Thyme.

There are certain core machair species according to Dr Tom Curtis who has done extensive work in this subject. They include Daisy, Bird's Foot Trefoil, Lady's Bedstraw, White Clover, Ribwort Plantain, Red Fescue, Spreading Meadow Grass and Sand Sedge.

Machairs are characterised by a need for a cool oceanic climate (with wind playing a major role) and rely on livestock grazing for their existence. Livestock would have traditionally grazed on the machair in

winter allowing a wide variety of wildflowers to thrive in the summer.

In early to mid June the Machairs are awash with the colour of Daisies, Thyme and some orchids as well as the beautiful nitrogen fixing Birds-Foot Trefoil.

Machair are extremely important habitats for breeding waders like the Lapwing, Dunlin, Ringed Plover and Oystercatcher. Barnacle Geese also graze on the machair during the winter

Sheskin Nature Reserve

Ireland can boast nearly 200,000 hectares of actively growing bog and fen in the country. Throughout Europe, peatland habitats have vanished due to the exploitation of the peat reserves and reclamation of the land for agricultural use. Bogs and

Common Cottongrass.

fens support a wide variety of both plant and animal life, so much so that Ireland's bogs are a priority for conservation. Knockmoyle/Sheskin blanket bog is located to the north of the Bord na Móna works at Bellacorick, between the Oweninny River on its eastern margin and Sheskin Lodge and the ruined settlement of Sheskin on the western margin. It ranges from 90 – 120 metres above sea level and covers an area of 1,200 hectares. Knockmoyle/Sheskin has a peat depth varying from 2m to 7m. The peat contains some bog moss but is rich in the remains of Deer Sedge, Bog Cotton, Purple Moor Grass and Black Bog Rush which gives the peat a dark black colour.

Flora:

Different habitats on the bog include flat bogs, hummock, hollows, pools and small lakes, islands, and streams and flushes.

Flat Bog – Contain grasses and sedges, Purple Moor Grass, Deer Sedge, Bog Cotton and the Black Bog Rush. It also contains plants such as Milkwort, Lousewort and Tormentil.

Hummock – (driest area of bog) Contains Cushion Moss, Silver Haired Moss and Bog Moss as well as Ling Heather, Cross leaved Heath and Purple Moor Grass.

Hollows – Contain algae, liverworts, Black Moss, Cross-Leaved Heath, Purple Moor Grass, Deer Sedge, Bog Cotton, Bog Myrtle and Sundews as well as Bog Asphodel, Cladonia (lichen) and Black Bog Rush.

Pools and small lakes – Contain the Bog Bean, Pondweed and Sedges.

Islands – Contain Ling Heather, Bell Heather and Crowberry.

Streams and Flushes – Contain carnivorous plants such as Sundews, Bladderworts and Butterworts.

Tourmakeady and Lough Mask

The Gaeltacht area of Tourmakeady touches on the beautiful shores of Lough Mask. Lough Mask is situated in County Mayo and with an area of 8,000 hectares is the sixth largest lake in Ireland. The lake can be quite deep, particularly on the west side which, owing to the glacial trench, has a maximum depth of 58 meters. Most of the islands are situated on the east and southeast of the lake, these are also the shallowest parts of the lake. The land bordering the periphery of the lake consists of blanket bog to the west and lowland grassland to the east. The soils near the southwest of the lake are mainly peaty gleys and grey brown podzolics are located to the north.

Grey Heron.

Carboniferous limestone is the predominant rock underlying the eastern part of the lake with Silurian and Ordovician sandstones, shales and igneous rocks underlying the southwest and northwest areas.

The main duck species that use the lake to breed are the Tufted Duck, Red Breasted Merganser and Mallard. Both Little and Great Crested Grebes can be seen in this area. In the summer the great Northern Diver, although not reported to breed, frequents the lake. Along secluded parts of the shore the motionless silhouette of the Grey Heron can be spied waiting for fish to make a final and fatal move in the shallows. Waders summering on this lake that have been recorded are Oystercatcher, Common Sandpiper, Ringed Plover, Lapwing, Redshank, Dunlin and Whimbrel. The Lesser Black-Backed Gull has been recorded in large numbers. Both Common and Arctic Terns have also been observed on the lake.

Lough Mask is also utilised during the winter months by waterfowl and waders alike. The Tufted Duck winters here in such numbers that the lake is deemed an area of national importance. Species that winter here, which are considered regionally/locally important, are the Mute Swan, Whooper Swan, White Fronted Goose, Wigeon, Teal, Mallard and Lapwing.

Other birds of note in this region are birds of prey, for example, Merlin and Kestrel. A sight that would not be easily forgotten, if chanced upon, is that of a pair of tumbling Ravens high in the air performing their courtship display.

Chapter 4
Galway

Gaillimh

The Aran Islands

The three Aran Islands, Inishman, Inisheer and Inishmore, are situated approximately 10 kilometres off the south coast of County Galway. The Aran Islands represent the western extremity of the carboniferous

Granite Erattics on the Aran Island's.

limestone, which stretches from the east to the west of the country. Geologically, it is an extension of the Burren of County Clare. The islands are composed of upper carboniferous limestone strata, interleaved with layers of shale and clay. Because of its geological similarity with the Burren, it follows that its wildlife will be similar. There are a few exceptions, the alpine plant species, the Mountain Aven, is not found on any of the islands. To compensate for this, Inishmore has a greater abundance of Irish Saxifrage and also

Babingtons Leek is found in greater numbers than on the floristically renowned Burren. In fact, the islanders once used Babingtons Leek as a substitute for garlic and this leads to speculation that it was once horticulturally grown on the island.

Dry heath, alpine heath and lowland hay meadows all occur in Inishmore, but it is the dry calcareous grass lands which thinly cover parts of the limestone pavement, that stands out as regards the species' richness and colour. The numerous stone walls that criss-cross the Island hem in these grasslands. It is the rich magenta of the petals coupled with the turquoise anthers of the Bloody Cranes Bill that makes this plant the most colourful and beautiful of all the island plants. It can be seen in flower from late May to September, depending on how mild the preceding winter has been. The famous Spring Gentian bursts into blue bloom in the latter stages of April and May. Not all the species of wild flower come into bloom in the early part of summer. The Knapweeds, both greater and common, wait until late in the blooming season to show off their purple colours. The small white flowers of Eyebright, with its bronze coloured leaves and stem, are also seen in the latter half of the flowering season. Where one finds Eyebright - Wild Thyme cannot be far away, for it is the plant juices of Wild Thyme that the Eyebright preys ons. Blue Moor Grass is present in abundance along with Wood Sage growing in the crevices of the cracked limestone pavement. Caraline Thistle and the Burnet Rose are also part of this wildflower community. The leaves of this rose change to a maroon colour in autumn when most of the flowers have gone to seed. Orchids can also be admired in these

grasslands with the Early Purple Orchid, the Common Spotted Orchid and Dense Flowered Orchid being some of the examples.

On an island where the predominant rock is limestone it can be puzzling to see heather plant communities on the limestone pavement. Both Ling and Bell Heather can be seen growing on lime free hummocks. Purple Moor Grass, Black Bog Rush and the Heath Spotted Orchid are other plants that grow in such areas.

On the mainland of Ireland, agricultural practises have dramatically changed in the past century. The improvement of seed selection and the introduction of herbicides greatly improved the productivity of the wheat fields, often at the expense of the arable weeds that added so much colour to the countryside. This change in farming was so comprehensive that two arable weeds, Darnell and Cornflower, were thought to be extinct in the 1980s. However, they were recently discovered growing in the rye fields of Inishmore along with other arable weeds such as Smooth Brome and Bristle Oat.

The coastal habitats that surround the islands are as rich as they are diverse. The habitats range from embryonic dunes to machair, the latter habitat is characteristic of the west and north west of Ireland. Outside of Ireland they are only found on the western coasts of Scotland. Machair is a form of grassland that is characterised by a relatively level, mature coastal sand dune plain. Machair is composed of grassland vegetation influenced by grazing and a low frequency of sand binding grasses such as Maram grass. Other coastal habitats include sea cliff and the perenial

vegetation of stoney banks. Rare plants that are found in these areas are Purple Milk Vetch, Sea Kale, Hairy Violet and the Bee Orchid.

Bee Orchid.

Along the coasts of Inishmore a wealth of bird life can be observed. Ringed Plover and Lapwing use the machair as a breeding habitat. Along the cliffs of the south and western shore the birds take advantage of the differential erosion rates of the limestone and the shale. Because the latter erodes at a faster pace ledges are formed on the cliff face which provide, along with other topographical features, excellent nesting sites for Guillemot, Fulmar, Razorbill, Shag, Herring Gull, Greater Black-Backed Gull and Kittiwake. Little Terns, Arctic Terns and Sandwich Terns all breed in this area. The Chough, a member of the crow family, with its

curved red bill can be seen flying over the cliffs and probing the coastal grass land for grubs and other invertebrates. The birds of prey that frequent this island are also noteworthy. Peregrine Falcons, Merlins, Kestrels and Sparrow Hawks hunt for their prey both on and about the island.

The sight of Common Seals sunning themselves on the northern shores is also a segment of Aran's wildlife, which makes it so special. Dolphins and porpoises can be observed fishing the waters around the island. In years gone by the men of the island used to hunt for the huge and mysterious Basking Sharks but this activity has been abandoned due to falling numbers frequenting the area.

Clochar na gCon Nature Reserve

Clochar na gCon Bog

Clochar na gCon Bog is situated to the west of Galway city near Spiddal in County Galway. Over 824 hectares of this bog is owned by the Irish Peatland Conservation Council, Dúchas, Údarás na Gaeltachta and a local Co-op, Comharachumann Shailearna Teoranta. Together, these bodies have dedicated the use of this bog to educational and amenity purposes. Clochar na gCon Bog is a prime example of lowland or Atlantic blanket bog and was declared a nature reserve in 1999.

A comprehensive survey of the area by the Irish Peatland Conservation Council revealed some interesting facts, some that were hitherto unknown: In total 192 plants, animal and bird species were recorded on the bog. It was also shown that it was not just Atlantic lowland bog that make up the 824 hectares.

Eight vegetation types were also identified including sloped blanket bog, dry rocky heathland, lakes, streams and deciduous Oak woodland.

Clochar na gCon.

The breeding birds of Clochar na gCon

Eleven breeding birds were recorded during the survey and some of them are quite rare throughout Ireland as breeding species. Although the Golden Plover is a widespread and numerous winter visitor few remain to breed. Ireland forms the southern limit of their breeding range as they usually breed in the tundra near the Arctic Circle. Most of these wading birds nesting in Ireland are confined to high mountain slopes but some like the seven pairs recorded in Clochar na gCon Bog, can successfully breed on blanket bog near sea level.

The characteristic zigzag escape flight of another wader, the Snipe, can be witnessed, if one is fortunate to encounter it when walking through the heather. The Red Grouse, is primarily a moorland bird confined to Britain and Ireland and is a subspecies of the Willow Grouse. Unlike the latter the Red Grouse does not procure white plumage for the winter. This grouse is also known to breed on blanket bog and can be seen on Clochar na gCon Bog. The Merlin, the smallest of Ireland's raptors, likes the densely vegetated islands of loughs for breeding. One pair was recorded breeding on a lake island in this bog. These fast flying raptors patrol the countryside of Connemara locating small birds for themselves and their young. It attacks small birds in the air and usually hunts Skylarks and Meadow Pipits. The Merlin tries to catch its prey by dropping on

In bog pools the Bladderwort and the Butterwort lure invertebrates to their death. As well as Bog Cotton, other sedges add to the plant life of the area such as Deer Sedge, Whitebeak Sedge and Carnation Sedge.

Frogs, Foxes, Butterflies and Beetles are among the host of other animals that live here and contribute to

Merlin.

the wild beauty of the bog landscape.

Lough Corrib

Lough Corrib is situated in county Galway and has a total surface area of 17,000 hectares, making it second only to Lough Neagh in terms of magnitude. The lake is 43 kilometres long and lies nearly nine meters above sea level. The shoreline, especially on the west and east sides of the lake, is highly indented. There is reputed to be one island for every day of the year.

The main bedrock of the lake is carboniferous limestone, which is the western extremity of the great limestone plain of central Ireland. Between Oughterard and the northwestern region of Upper Lough Corrib, the rock substrata consists of a mixture of Dalradian metamorphic rocks. The limestone nature of the lake gives rise to many important wetland plant communities, especially in the lower lake, for example where the reed swamps are locally dominated by Common Reed, Great Fen Sedge, and Common Club Rush.

Plants to look out for, while on the eastern shore of the lake are Hard Rush, the Blunt-Flowered Rush and the Grass of Parnassus. Marsh Thistle, along with a host of orchids all thrive on the lime rich soil. The orchids include the Fragrant Orchid and both the greater and lesser Butterfly Orchids. It is difficult to find woodland in Ireland that has not been influenced by man and his practices, but on some of the large sandstone islands which are found in the northern part of the lake, woodlands containing Sessile Oak, Rowan and Aspen, can be still seen today. Holly and Hazel form the spare shrub layer, and often grow to a height of seven meters.

Lough Corrib is internationally renowned for the quality and quantity of its trout. The angling reaches a peak every year around May when the larval mayfly rise, en masse, to the surface and transforms into the sub-imago or dun. With their newly developed wings and help from the prevailing wind they leave the surface of the water and are blown onto the banks of the lakes. The mayfly then undergoes a second transformation into the adult or full imago. The adult does not have the ability to feed so all its energy and attention, for the rest of its short life, is dedicated to

finding a mate. The trout gorge on these abundant insects and the anglers take full advantage of the situation and endeavour to catch a fish in the frenzy. There are also well-known Salmon and Pike fisheries.

Lough Corrib is home to various bird populations that breed through the summer and also to vast numbers of birds which spend the winter both upon it and along its shores. Internationally important numbers of Pochard, (a diving duck), winter here, other species with nationally important numbers that winter here are Coot, Mute Swan, White-Fronted Geese, Cormorant, Tufted Duck, Wigeon, Teal, Mallard, Lapwing, Dunlin and Curlew. The vast flocks of Pochard and Coot can be seen at the southern end of the lake near Menlough Quarries. Other good views of the wintering birds can be obtained at Mount Ross bay and to the south west of Headford.

Both the Little and the Great Crested Grebe breed on Lough Corrib in small numbers. A duck primarily adapted to a fish eating way of life, the Red Breasted Merganser, is found breeding throughout the lake. The ducklings of Mallard and Tufted can be seen in the summer feeding on the abundant fly life on the water surface. The latter species also dive for invertebrates on the lake floor as they mature. Perhaps the jewel in the crown of breeding waterfowl of Lough Corrib is the Common Scoter. Contrary to its name, it is not that common with less than 100 pairs distributed over a handful of breeding sites in Ireland. This duck spends the winter along the coasts of Ireland and only comes inland to breed. The population on Lough Corrib, estimated at just over 30 pairs, forms the most southerly-breeding site for the species in Europe. The male, not to be confused

with any of Ireland's ducks, is predominately black in plumage with a yellow/orange bill. The female is brown with conspicuous pale cheeks that can be picked out at considerable distances. The male has usually left the lake by July leaving the female, as is the norm in ducks, to rear the ducklings on her own. These birds can be seen in spots along the west and northwestern shores. The Common and Arctic Tern pursuing airborne insects are not an unusual sight on the lake. The Lesser Black-Backed Gull, Herring Gull, Common Gull and the Black Headed Gull all can be seen on the lake during the breeding season. Wading birds find suitable breeding habitat along the lake's shores and on the islands. These include the Common Sandpiper, Redshank, Curlew, Snipe and Lapwing. Along with breeding and wintering birds, Lough Corrib is along the migrating route for other birds. Whimbrel, known locally as the May bird, is recorded from mid April to mid June on spring passage over Lough Corrib to their breeding grounds and they can be seen again on their return flight in August and September. Dunlin, in full breeding plumage, can be seen en route over the lake during May and June. In times of heavy fog, the lough can be used as a navigational aid for many passerines (songbirds). On one foggy day in October 1964 up to 1,842 Redwings and 1,300 Fieldfares, along with other songbirds, were recorded per hour on the lake.

Ireland holds one of the more important remaining Otter populations in western Europe. These sleek mammals eat crayfish, fish and frogs primarily, but also can take birds and other mammals when their preferred prey items are in short supply. Otters are shy elusive animals and, if one is lucky, patient and quiet, they can be spotted

on Lough Corrib. Another member of the mustelid family, the feral American Mink, has become settled on the lake in recent years amid fears of the potential impact it might have on the constituent breeding waterfowl.

Twelve Bens.

Connemara National Park

The Park's visitor centre at Letterfrack, County Galway, which was opened in 1980, is the gateway to over 2,000 hectares of National Park whose habitats include vast tracts of blanket bog, heathland and grassland. The geology, which underlies these spectacular sites, consists primarily of schist and quartzite. The visitor centre gives valuable information on the rich wildlife of this region through exhibitions of west of Ireland blanket bogs along with an audio-visual

introduction to the Park and nature trails. During the summer nature mornings aimed at children and guided walks of the park are available. Connemara National Park boasts an impressive spectrum of elevations ranging from sea level to the rugged and exposed heights of Benbaun, Bencullagh, Mucknacht and Benbrack, which form part of the Twelve Bens mountain range.

Heathers form a huge asset to the wildlife inventory of Connemara both within and without the National Park. Along with the familiar species like Ling, Bell Heather and Cross-Leaved Heather some botanical gems can also be discovered. Such a gem would be the Irish Heather that can be found on Errisbeg, near Roundstone, starting to flower as early as January to reach its blooming climax in March and April. This is the most southerly of Irish heather colonies in Ireland with the main strongholds for this species to be found in Northwest Spain and Portugal. The lowland blanket bog near Errisbeg is one of the few sanctuaries of Mackey's Heath. Outside of Ireland, plants like the Irish Heath can be found in Northwest Spain. This Heath can be confused with the more common Cross-Leaved Heath but the clear pink flowers of Mackey's Heath, which can be seen in July and August, distinguishes it from the more common species.

In the National Park one of the most elegant of all heathers is found in good numbers. Known as St. Dabeoc's Heath it is recognised by its large bright purple urn shaped flowers, which are much larger than the other heaths growing in the region.

The bogs of Connemara National Park provide an excellent example of western blanket bog. Purple Moor Grass grows in clumps all over the bog and it is this grass

which provides the overriding colour for much of the year.

As is common in all bogs, nutrients are a limiting factor for many plants. Some plants have overcome this difficulty by evolving a carnivorous nature. Example of this remarkable phenomenon can be see in the guise of the Sundew plant and the Butterwort which trap the abundant insect life to gain much needed nutrients in order to grow and reproduce. Along with a variety of Orchids other bog species can be seen in abundance, for example the Bog Myrtle, Bog Cotton, Milkwort and Lousewort.

As already mentioned Connemara National Park holds four mountains of the Twelve Bens mountain range. It is on mountains like Benbaun, Bencullagh, Mucknacht and Benbrack that a host of plants usually found in Arctic countries can be spotted in this unique countryside. On the exposed quartzite heights the

Bell Heather.

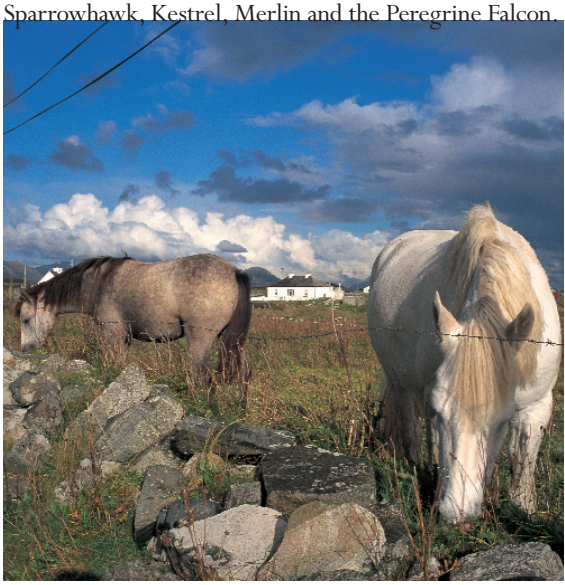
common heather, Ling, rarely grows more than 20 centimetres due to the harsh conditions of the area. The black berries of the Crowberry can be observed before the leaves of the Bilberry are shed. The Bilberry, unlike other heathers is a deciduous plant and renews its leaves each year. Bearberry, another member of the heath family with its stout low lying form is common in areas over 400 meters and its scarlet berries can only be seen on the Bens in the Connemara region.

The mountain Juniper is the only conifer growing at such heights in the Bens. The bright yellow colours of Tormentil and Hawkweed when in flower are common sights on the mountains. Beneath the shelter of the heather there is a whole new world to delight in. This world is a microcosm of lichens liverworts and mosses with many interesting oddities occurring. Perhaps the most noteworthy is the Leafy Liverwort, which also is found in the southern hemisphere and on a mountain range just north of the Equator in Africa. The ferns of this region should not be overlooked, as there are prime examples of arctic-alpine flora. Due to the high lime content of some schists on the mountains of the Twelve Bens a niche is available for some of these ferns. Examples include the delicate Green Spleenwort, the Brittle Bladder-Fern, the Beech Fern and the Holly Fern. The latter only grows sparingly in the west of Ireland and is restricted to the northwestern and central Scottish highlands.

Three arctic alpine species of saxifrage add a delicate beauty to the flora of the Twelve Bens. The Purple Saxifrage, a lime loving flower, is restricted to the lime rich schist of some of the peaks of the area where they contribute an abundance of purple to the area from late February to May. The white flowers with red anthers of

the Starry Saxifrage are evident on damp rocks and by mountain streams. The Irish Saxifrage, common on the limestone pavements of the Aran Islands and to a lesser extent on the Burren pavements, is much rarer on higher altitudes of the mountains. This is by no means an exhaustive inventory of the plants of the region merely an attempt to stir curiosity in the reader's mind. Other plants that deserve a mention are Roseroot, St. Patrick's Cabbage, Dwarf Willow, Thrift and the Alpine Saw-Wort.

Red Deer are currently being introduced into the park along with pure-bred Connemara Ponies which will greatly improve the park in regards to the range of wildlife to be admired. Birds to look out for are the Meadow Pipits, Skylarks, Stonechats, Chaffinches, Robins and Wrens. Birds of prey can be spotted in the park soaring high in the air, these include the Sparrowhawk, Kestrel, Merlin and the Peregrine Falcon.



Connemara Ponies.

Chapter 5

Kerry

Ciarraí

The Blasket Islands

The Blasket Islands are situated at the end of the Dingle Peninsula. There are six main islands the largest of which is the Great Blasket Island, whose last inhabitants left in 1953. The other five are Inishtooskert, Inishanbro, Tearaght, Beginish and Inishvickillane. Inishvickillane contains an introduced herd of native Red Deer placed there in the 1970s to maintain the genetic purity of the Kerry herd, i.e. to stop them cross-breeding with Japanese Sika Deer. The Islands are located between 7 and 12 km from the mainland, Beginish in contrast is a low lying island 2 km from the mainland.

Grey Seal Pup.

The geology of the islands is predominantly old red sandstone with some volcanic and Silurian rocks on Inishvickillane and Beginish.

The Blasket Islands contain a large population of around 600 grey seals, which breed on boulder beaches and in caves on the Islands. They can often be seen hauled out on the beach on the Great Blasket or in the sound between the Island and Beginish.

The Blasket Islands are vegetated by plants typical of an exposed western island, such as Rock Samphire, Tree Mallow, Rock Sea Spurrey, Thrift, Sea Campion, Sea Plantain, Buck's Horn Plantain, Kidney Vetch and Birds Foot Trefoil.

The seas around the Blasket Islands have well developed reef communities including kelp, sponge and hydroid communities and are a delight to dive on.

The Blaskets are of the utmost importance for their breeding seabirds. Noteworthy are the breeding populations of Storm Petrels, of which there are over 40,000 pairs and Manx Shearwater of which there are up to 5,000 pairs. These two birds belong to the same family as the Albatross and possess tube shaped nostrils at the base of their beak and have an excellent sense of smell which helps them to find food and their burrows at night time during the breeding season. These two bird populations are of international importance as regards numbers.

Of national importance there are, on some of the Blasket Islands, significant numbers of Puffin (around 5,000 birds), Fulmar, Shag, Lesser Black-Backed Gull, Great Black-Backed Gull, Kittiwake, Razorbill and Black Guillemot. The islands have colonies of protected Arctic Tern. The rare Leach's Petrel has bred on the Blaskets in the past.

The Skelligs

The Skelligs are ideal for bird watching. Their remoteness has attracted large colonies of seabirds which give them international importance. Landing is not permitted on Little Skellig and is restricted on Skellig Michael. For further information on sailings contact the Skelligs Experience.

The Skelligs.

Little Skellig is located approximately 11 km south-west of Valentia Island. A small precipitous rocky island rising to 134 m (440 feet), is 7 hectares (17 acres) in area.

Birdlife

It regularly holds a spectacular total of 23,000 pairs of breeding Gannets, one of the largest colonies in the world and obviously of international importance. This

number may have risen in recent years as counting has not been carried out recently. Gannets select a nesting site in February. Their large nests are composed of flotsam of every kind. They lay one egg in April and the young bird will migrate in November. Gannets are excellent divers plummeting into the sea from a height of around 30 metres. The Little Skellig is dominated by Gannets but is also home to small populations of Razorbills, Guillemots, Kittiwakes and Fulmars.

Skellig Michael, the bigger of the two islands is located approximately 11 km south-west of Valentia Island. The island is 18 hectares (44 acres) in area.

Birdlife

Puffins arrive from March to mid April from the North Atlantic and depart again in August. They nest in holes in the ground and frequently use rabbit holes which they force the rabbits to vacate.

Razorbills stay on the Skelligs from March to August. Razorbills lay one pear shaped egg on the cliff ledge. The shape of the egg is designed in order to prevent it rolling over the edge.

Guillemots, which are similar to Razorbills albeit less offensive, lay a single pear shaped egg in mid May on a rocky ledge.

Kittiwakes are very noisy birds. Their call sounds like their name kit-i-wake. Kittiwakes stay on the Skelligs from March to August. Each female lays a clutch of three eggs in late May .

The Storm Petrel is the smallest European seabird. It lays its one egg at the end of June. There is a large breeding colony on Skellig Michael, but the birds are seldom seen during the day.

Manx Shearwater breed in burrows. The birds which winter in South America, and summers on the Skelligs where it lays its one egg at the end of April.

There are 38 species of flowering plants found on Skellig Michael, all of which are typical of maritime rocky habitats. Sea Campion is the most common plant found and Sea Pink to a lesser degree. Also found on the island are Rock Sea Spurry, Scentless Mayweed, Common Sorrel, Common Orache. Within the shelter of the beautifully conserved monastic dwellings on the island one can find Scarlet Pimpernell, Common Pearlwort and English Stonecrop. The large colony of Gannets on Little Skellig only permits eight species of plants to grow.

Puffin.

Puffin Island

Puffin Island is located 7 kilometres south-west of Valentia. As its name suggests, this island full of spectacular cliffs is important for its Puffin colony.

It is of international importance for its seabird colonies, most notably its Puffins (5,000 – 10,000), Manx Shearwaters (c.20,000) and Storm Petrels. There are also several hundred pairs of nesting Razorbills, Guillemots and Kittiwakes.

Viewing: Day visits to the island from Valentia can be arranged by contacting Des Lavelle (Tel: +353 (0)66 76124). Written permission is required from Birdwatch Ireland for longer stays.

Cummeragh River Bog

This is a valley bog comprising some 49 hectares and can reached via a minor road/track off the road from Waterville to Derrianna Lough and Coshcummeragh. The Cummeragh River Bog is a slightly domed valley bog that, as its name suggests, is encircled by the Cummeragh River.

The bog contains well developed pool systems with numerous bog islands (bog island are important as they act as havens for native climax vegetation as they have been untouched for centuries). The pools contain the Yellow Water Lily and are fringed by tall Black Bog Rush. The bogs contains considerable amounts of Black Bog Rush together with typical heathers, grasses and sedges with the White Beak Sedge being prominent.

Fauna of note include Otter which hunt in the Cummeragh River, as well as Fox and Hare. Birds found on the Cummeragh reserve are Mallard, Meadow Pipit, Skylark and Snipe.

Large-Flowered Butterwort in flower.
Carnivorous bog plant – insects are trapped on mucus on the leaves . They are later digested by enzymes. The Butterwort engages in this activity in order to gain minerals and elements in scarce supply on the bog. It flowers from early May late June every year.

The Flora of the Dingle and Ivereagh Peninsulas

The two Kerry peninsulas have a similar climate and therefore a similar plant life, and will therefore be taken as a single unit. Kerry has a mild humid climate characterised by cool summers, mild winters and high rainfall spread throughout the year. One of the main reasons for this is the effect of the Gulf Stream on West Coast of Ireland. The Kerry peninsulas contain, as well as common European species, Lusitanian, North American and Arctic/Alpine flora.

Lusitanian species are those plants whose normal range is Northwest Spain and Portugal examples of which include the Strawberry tree (one of Ireland's rarest native species), Large-flowered Butterwort and St Patrick's Cabbage. Mountain habitats contain Bilberry and Crowberry, Purple and Blue Devil's Bit Scabious, Harebell, Wild Thyme, Alpine Sawwort and Alpine Hair Grass. On Mount Brandon on the Dingle Peninsula one can find Starry Saxifrage, Irish Saxifrage, Mountain Sorrel, Alpine Scurvygrass, Roseroot and Alpine Lady's Mantle which is only found only on mountain cliffs in Kerry and Wicklow. May and early June is a great time to see Kerry's flora when the Large-flowered Butterwort is in flower. Also in bloom is the Irish Spurge, an Atlantic species confined in Ireland to the southwest. The milky sap of the Irish Spurge was used in

Harebell.

days gone by to cure warts. The Kidney Saxifrage are also found on the peninsulas.

The Killarney Fern was quite common last century, but was almost picked to extinction. It is one of the filmy ferns and lives in damp areas in altitudes up to 500 metres. It is found on both peninsulas, but is more prolific on the Ivereagh. The Killarney Fern is now a protected species.

The Birdlife of the Dingle and Ivereagh Peninsulas

All year residents

The Chough is an important breeding bird on both peninsulas. Chough are internationally very scarce. Chough numbers are very strong around the Brandon mountain range. Other residents include the Peregrine Falcon, the Raven and the Rock Dove.

Winter

Birds that come in the winter from the Arctic and inland Europe include the Great Northern Diver, Common Scoter and the Surf Scoter.

On the beaches you will find Oystercatchers, Ringed Plover, Sanderling, Curlew, Redshank, Grey Plover, Dunlin, Bar-Tailed Godwit, Turnstone, Greenshank, Common, Black Headed, Black Backed and Herring Gulls. There are also rare gulls like the Glaucous and Iceland Gulls.

Marshes, reedbeds and freshwater sources provide a chance to see Teal, Mallard, Wigeon, Shellduck, Snipe, Hen Harrier and Golden Plover. In meadows, sand dunes and fields we see Lapwing, Fieldfares, Redwing, Merlin, Snow Bunting and mixed Finch flocks.

Spring and Autumn migrations

Birds from beaches, sand dunes, marshes and estuaries include Curlew, Sandpiper, Whimbrel, Ruffs and Black-Tailed and Bar-Tailed Godwits.

Off headlands one can see migrating Shearwaters, Petrels, Skuas and Gulls. From scrub and copses small land birds like Warblers, Hoopoes, Shrikes and Red Eyed Vireos are visible. Good birdwatching areas include Ventry Harbour, Smerwick, Feothanach, Dingle Harbour and Trá Beag.

Hen Harrier.

The Fauna of the Dingle and Ivereagh Peninsulas

Fungie and other cetaceans

Fungie, the dolphin, has made his home in Dingle Harbour since 1983 and during that time has become

accustomed to human swimmers, divers, canoeists and windsurfers as well as every variety of boat. He was given the same name as a local fisherman. Fungie is possibly a social outcast among dolphins. Current theories from the National University of Ireland Cork suggest that Fungie originated from the resident group of dolphins in the Shannon estuary.

Fungie at play.

Fungie is Ireland's first dolphin to develop a social relationship with humans. This is a very rare event worldwide and gives us a chance to observe one of these magnificent creatures at close quarters. There are a myriad of ways to see Fungie above and below the water surface.

Fungie is a fully grown, possibly middle aged, male Bottlenose Dolphin and weighs in at around

one-quarter tonne (500 lbs). He measures in the region of four metres (13 feet) long.

Other Cetacean sightings around Dingle

Many of the best whale watching spots are in Gaeltacht areas. Places like Cape Clear in Cork, the Blaskets Islands in west Kerry, and west of the Aran Islands are excellent whale and dolphin watching sites. Good look-out points are invariably in remote and lovely locations. Bottlenose and Common Dolphins are a familiar sight in the bay as are Harbour Porpoises.

Smerwick Harbour.

Natterjack Toad

The Natterjack is Ireland's only toad species and it is confined to the Dingle and Ivereagh peninsulas

in Kerry. It has also been introduced to two different nature reserves in County Wexford. There is still some debate as to how the Natterjack came to Ireland and why they are restricted to Kerry. It has a classification as an endangered species. Natterjack toads require open sandy areas with short vegetation and access to shallow spawning ponds. Natterjacks are nocturnal and therefore difficult to observe. They have a long mating season that stretches from April to June.

Natterjack Toad.

Natterjacks have few enemies due to a poisonous substance in their skin which is advertised by a yellow dorsal stripe.

Red and Sika Deer

Killarney National Park contains the largest Red Deer herds in Ireland with approximately 700 deer. They have the distinction of being the only wild herd of native Red Deer in Ireland whereas other populations have been re-introduced from English and Scottish herds. Red Stags (Irelands largest land mammal) can stand up to 120cm high at the shoulder when fully grown and can weigh up to 190kg. A large male may possess 18 – 20 points on his antlers although 14 – 16 is more common. The rutting season is in late September and early October. Males can be injured as they try to attract and defend a harem of females. Antlers are cast in the Spring and calves are born in early June.

Red Deer.

Killarney National Park

The National Park covers over 10,000 hectares and as mentioned earlier contains the largest Red Deer herds in Ireland with approximately 700 Deer. The park contains a wide variety of different habitats from woodlands, lakes and rivers to mountain and moorland. The three lakes within the park have a large population of Brown Trout as well as Arctic Char and Killarney Shad.

The Park contains the largest area of ancient Oakwoods in the country which is comprised mainly of Sessile Oak which favours the acidic soils found over old red sandstone. Most of the trees in the Oakwoods are about 200 years old. It also contains ancient yew woodlands as well as swamp woodland on the shores of Lough Leane. The Oakwoods of Killarney National Park abound with wildlife with an understorey of Holly and a herb layer of Woodrush and Bilberry. Bird life includes Chaffinch, Goldcrest and Wren with mammals like the Woodmouse, Fox, Badger, Red and Sika Deer, Pine Martin and Red Squirrel.

Chapter 6

Cork

Corcaigh

Cape Clear

Cape Clear island is the most southerly point of Ireland except for Fastnet Rock. It enjoys a mild Oceanic climate and Lusitanian flora. The island's geology is predominantly that of old red sandstone. The island has various caves, blowholes and stacks. Cape Clear is rocky with little soil depth (derived from the Munsterian glaciation) and leached moorland soils making up a large proportion of the island.

Cape Clear.

Fauna

Cape Clear Bird Observatory was founded in 1959 on the northern harbour of the island. The island is famous for its bird life, both its breeding population (Chough, Black Guillemot and Rock Dove) and its migrant and vagrant population. Migrants and vagrants are a common sight on the Island.

The Ornithological Year

From January until Mid March Little Auk, Thrushes, Snipe, Lapwings and Curlew can be seen. Vagrants include Glaucous and Iceland Gulls and Firecrest. Between Mid March and May is a good time on Cape Clear for bird watching between departing winter visitors and large numbers of spring migrants. Manx Shearwater pass in their thousands. Another attraction is the breeding seabirds.

June to July sees the ending of the spring migration. In July there is large sea passage of Manx Shearwater peaking at 10,000 per hour late in the month as well as large movements of Great and Cory's Shearwater. Vagrants like the Red-Footed Falcon, Little Swift and White-Throated Needletail appear at this time.

From August to mid September there is the sea passage of Storm Petrels, Sooty Shearwaters and Great Skuas. Other birds include Sabine Gulls, Grey Phalaropes, Soft-Plumaged and Bulwer's Petrel, Woodchat, Red-Backed Shrike and Red Eyed Vireos.

Late September and October brings the Autumn passage which sees a number of *passerine vagrants* on the island such as the Yellow-Rumped Warbler, Rose-Breasted Grosbeak and Indigo Bunting.

During November and December there is a passage of Finches as well as large numbers of Auks and Fulmars.

Lizards

The Common Lizard, Ireland's only native lizard, can be found between Loch Ioral and Faill Chua. Lizards are found in open, sunny, undisturbed and well-drained habitats, but can also tolerate the wet conditions of bogs. They may be seen from March to October and optimum

times for observing them are between 8.30am and 11.00am and between 4.00pm and 6.30pm.

Common Lizard.

Mammals

Grey Seals can be seen from June to October on the island. Other mammals include Ireland's smallest, the Pygmy Shrew, as well as the Long Eared Bat, Pipistrelle and Rabbit. Mink and Otter are also found on Cape Clear. Whales and dolphin can be seen usually between April and September and include Minke Whale, the Humpback Whale, Porpoise, Risso's Dolphin and the Common Dolphin.

Invertebrates of interest are Grasshoppers, Whirligig Beetles on Loch Ioral and Dragonflies. Butterflies include the Wall Pararge, Dark Green Fritillary (late July and August), Red Admiral and Painted Lady.

The Gearagh
Habitat

Long Eared Bats.

The Gearagh is an ancient alluvial forest situated in flat-bottomed valley on the river Lee. It is situated on a stretch of about 7 kilometers between the Lee bridge found 1.5 km south of Macroom and the Dromcarra Bridge. It is of the utmost importance to preserve this habitat as it is the only extensive alluvial woodland in Ireland or Britain. The eastern part of the valley was flooded after extensive tree felling in1954 by the E.S.B for the Lee Hydroelectric scheme in which about 60% of the woodland was flooded, only ghostly tree stumps remain on the eastern part of the Gearagh.

The Gearagh is subject to unpredictable flooding during the operation of the dam thus it is highly dangerous

and not really accessible. It is advisable to stay on the causeway walk. Several hectares of original woodland, however, remain intact. These consist of wooded islands separated by a network of channels of 2 to 6 meters in width. These alluvial woodlands are similar to woodlands along the River Rhine near Strasbourg. The main tree species of the Gearagh are Sessile and Pedunculate Oak, which vary from 15 to 18 metres in height as well as Ash, Downy Birch and Grey Willow. The understorey is made up of Hazel, Hawthorn, Spindle, and various Willows with a herb layer dominated by Ramsons.

The Gearagh.

Other flora on the wetter spots include Marsh Marigold, Golden Saxifrage, Common Marsh-Bedstraw, Water Mint, Marsh Ragwort, Marsh Violet, Rough Horsetail, Shield-Fern. Hawkweeds, Purple Mints and

Fescues which attract butterflies like the Tortoise- Shells, Peacocks and Meadow Browns. A noteworthy species in the Gearagh is Mudwort. Almost 90% of the Irish population lies in the Gearagh. This short green perennial's preferred habitat is rivers, lakes, reservoirs and turlough margins. The rare Mudwort occurs in large swards on the mudflats along the reservoir in the Gearagh.

The Gearagh supports fauna like the Otter and many invertebrates like Dragonflies, Banded Demoiselle, Blue Tailed Damselfly, Azure Damselfly, Beautiful Demoiselle, Variable Damselfly, Common Darter, Emerald Damselfly, Four-Spotted Chaser, Brown Hawker and Keeled Skimmer. There is a wonderful walk which takes you around the area passing an island which has been given the apt name of "Butterfly Island" by local people. There is an important wintering bird population in the Gearagh with Whooper

Pink Heath Spotted-Orchid.

Swans, Wigeon, Teal, Mallard, Tufted Duck, Golden Plover and Dunlin. Great Crested Grebe and Tufted Duck breed in small numbers and there is also a flock of Greylag Geese.

St. Gobnait's Wood

In Ballyvourney there is a superb woodland walk through St. Gobnait's Wood. The main tree species in this woodland are Silver Birch, Hazel, Oak and Holly. Hard Fern and the Lusitanian plant St Patrick's Cabbage, which possibly survived here during the Ice age, making it a relict species and are also found here. The woodland gives way to moorland where you will find Frothen bushes, Heather and Meadow Sweet which are in bloom from June to August. It may be possible to catch a glimpse of the Pink Heath Spotted-Orchid. Also to be found is the Heath Milkwort, the Yellow Bog Asphodel, Yellow Primroses, Purple Dog Violets and White Stichwort.

Fauna

Hares reside in the wood as do squirrels. There are two species of hare found in Ireland, the Brown Hare which was introduced from mainland Europe and the Blue or Irish Hare, which can also be found in Scotland and Scandinavia. The Irish species is different in that it does not have a white winter coat. Hares are much larger than rabbits and stand more upright. Their home is called a "form" and consists of an oval of flattened vegetation. Since they don't make burrows they can live in much wetter places than rabbits.

There are also two species of squirrel in Ireland, the smaller native Red Squirrel, which is being displaced by the North American Grey Squirrel.

Invertebrates in the woodland include butterflies like the Tortoise-Shells, Peacocks and Meadow Browns.

Birds in St. Gobnait's wood range from Jays, Grouse, Woodcock and Harriers, Owls, Kestrels, Long-Tailed Tits, Chaffinches and Wrens.

Gougane Barra Forest Park

The Park is situated 5 km west of Ballingeary on the R584 to Bantry and has drive around facilities.

Habitat: The whole area is composed of old red sandstone. Characteristic layering of sedimentary rocks can be seen in the cliffs around Com Rua at the head of the Gougane Barra Valley. Gougane Barra Lake lies in a rock basin.

Gougane Barra Lake

Main Tree Species: The park comprises 142 hectares which was virtually treeless until an aforestation programme began in 1938. Sitka Spruce

and Japanese Larch were planted as they thrive in poorer soils and stand up well to exposure.

Other Flora: On the drier slopes there are Fringe Grasses such as Bents and Fescues, with Heather and Ling abundant on the drier knolls and rock outcrops. Most slopes contain Purple Moor Grass while on wetter areas one can find Bog Mosses and Cotton Grasses together with sedges and rushes which flourish well here as does Fox's Cabbage, Butterworts and Sundews and Lichens.

Fauna: The park and surrounding area have a number of the mustelidae which are musk bearing animals. In the park are Otter, Stoat and Badger. The European Badger is the largest member of the mustelidae to be found in Ireland. Badgers are mainly nocturnal with adult males weighing on average 12Kg (26lb) and measuring 75cm, with the tail adding an extra 15cm. Females are slightly smaller and lighter. Their legs are short but extremely strong. Badgers appear grey from a distance but have a darker underside. The Badger is easy to identify with its white head and black stripes. This is thought to be a warning sign as badgers are ferocious fighters. There are 200,000 badgers in the Republic of Ireland with a further 50,000 in Northern Ireland. They occur in every county and prefer a mixed habitat of small wood, hedges, dry sandy banks or hills for their setts.

Birds to be found in the park are Goldcrest, Chaffinch, Siskin, Sparrowhawk, Woodcock, Willow Warbler, Pied and Grey Wagtail, Stonechat, Meadow Pipit, Stock Dove, Cuckoo, Thrush, Spotted Flycatcher, Common Sandpiper and Starling. On the lake Cormorants, Herons, Moorhens and Mute Swans occur.

Chapter 7

Waterford

Port Láirge

Ring

Helvic Head – is a refuge for fauna and is important nationally for its seabird colonies together with heath vegetation on, and above, the cliff top.

The coastal heath is dominated by Bell Heather, Ling and Autumn Gorse. Other species include Bent, Sweet Vernal Grass, Wood Sage, St. John's Wort, Mouse-Eared Hawkweed and Goldenrod. In the eastern part of the site the heath is dominated by Burnet Rose and grass species. The heath merges into the cliff vegetation but also into dry grassland especially at Ardmore Head. Here the grassland vegetation is dominated by Cocksfoot, Bentgrasses, Bramble, Black Knapweed and Wild Thyme.

At the north of the site are small patches of scrub with species such as Hawthorn, Sycamore, Bramble and

Helvic Harbour.

Bracken. The understorey consists of Ramsons, Wild Celery and Nettles.

Helvic Head.

Birds

The seabirds of Helvic Head breed on the lofty cliffs of the head. Their numbers seem to have increased this century. The Kittiwake a gregarious bird whose population is above 1,000 and forms over 1% of the total Irish population and therefore of national importance. There are large numbers of Guillemots (1,000) together with smaller numbers of Razorbill (60), Gulls, Shags and Fulmars. Other seabirds seen at the head are Gannets, Great and Arctic Skuas and Black and Sandwich Terns. Cory's, Great, Sooty and Manx Shearwaters can also be observed.

At Helvic Pier, especially in winter, you can see rare birds like Glaucous, Iceland and Mediteranean Gulls. Helvic Heads land birds include the Lesser Whitethroat and Yellow-Browed Warbler, Goldcrests and Chiffchaff, Kestrels, Sparrowhawks, Merlin, Choughs, Ravens, Rock Pipits, Stonechats and House Martin. Helvic head is a good place for observing cetaceans such as the Common Porpoise and Killer Whales. Basking Sharks can also be seen.

Fauna

Dungarvan Bay – this is the most important ornithological area in Waterford especially in winter where many species of waders use the mudflats for both feeding and roosting. Important species include Brent Geese and Black-Tailed Godwits. Dungarvan Bay contains extensive mudflats and saltmarshes. Its shape is that of a circular basin which is almost enclosed by a long sand spit called the Cunnigar.

On the seaward side of the Cunnigar Eel grass grows which is important for wild fowl especially Wigeon and Pale Bellied Brent Geese. Pale Bellied Brent Geese nest in Arctic Canada and Greenland and escape the harsh winter by wintering in Dungarvan and other Irish estuaries. The mudflats exposed at low tide are important feeding areas for a large amount of waders who are escaping their breeding grounds near the Arctic.

Waders including Turnstone, Ringed Plover, Dunlin, Redshank, Black and Bar-Tailed Godwits, Curlew, Lapwing and Redshank have differing bill lengths which enable them to feed on prey at different levels and so minimize competition.

Oystercatchers feed on the cockles found in the

sand which they will often carry to harder ground to prise open and eat the contents. In the deeper waters of the bay you can see Cormorants, Red Breasted Mergansers and other diving birds. High tide is a good time for bird watching here, as all the birds are concentrated together by the rising tides.

The Cunnigar.

Ardmore Head

Ardmore can be found to the west of An Rinn along the coast. There is a beautiful cliff walk known as St. Declan's cliff walk which offers some great birdwatching opportunities.

Dry coastal heath is the dominant habitat. There is an abundance of heather as well as Bell Heather, Western Gorse, Wood Sage and Bent grasses. In the eastern part of the site the heath is dominated by

Burnet Rose and grass species. The heath merges into the cliff vegetation but also into dry grassland especially at Ardmore Head. Here the grassland vegetation is dominated by Cocksfoot, Bentgrasses, Bramble, Black Knapweed and Wild Thyme. This site contains cliffs up to 40m. The cliffs are well indented and have many small ledges suitable for breeding seabirds.

Six species of seabirds are found on the ledges. The most numerous bird is the Kittiwake with a population of about 800 pairs nesting (population of national importance). Other seabirds seen at Ardmore head are Fulmar (38 pairs), Shag (6 pairs), Herring Gull (78 pairs), Great Black Backed Gulls (2 pairs), Razorbill (7 individuals) and Guillemot (6 individuals). There are also several pairs of Chough which is a protected species.

Chough.

Chapter 8
Meath

An Mhí

Rath Cairn

Rath Cairn and Baile Ghib in County Meath act as an epicentre for some very interesting and important wetlands. Rath Cairn unlike any of the other Gaeltacht areas is surrounded by raised bogs and fens. Wetlands are of great value because of the unique flora and fauna that they contain. Some great examples of raised bogs and fens are found in the midlands and there are good examples in County Meath. Raised Bogs are dome shaped bogs which have developed in former lake basins in midland counties. Their nutrient supply is obtained from rainfall. Common animals include invertebrates (animals without a vertebrae or backbone) such as the Cranefly, Damselfly, Dragonfly, Emperor Moth and the Black Slug.

Long Leaved Sundew.

There are also vertebrates (animals with a vertebrae or backbone) like the Common Frog, Common Lizard, Irish Hare and Fox.

Bog Aspodel.

Common birds on raised bogs include the Red Grouse, Snipe, Curlew, Meadow Pipit and Skylark. Pipits feed mainly on insect larvae especially caterpillars. Pipits are sometimes mistaken for the Skylark, as both are drab in colour. Their behaviour and calls are quite different however. The Pipit normally flies to a height of 20 metres or more, spreads its wings and "parachutes" to the ground. Skylarks are also found on the bog. They are similar in appearance to the Meadow Pipit, but can be distinguished because they fly to much greater heights and remain aloft for long periods.

Jamestown Bog

Jamestown Bog is the nearest bog to Rath Cairn. It consists of 180 hectares of cutaway raised bog and is surrounded by Coillte (state owned) forests. Jamestown will give you a good idea of the habitat and character of raised bogs.

Fens are flat bogs that are found around lake margins and in waterlogged areas where there is a supply of mineral rich waters. (Raised bogs develop on top when the mineral-rich water supply is cut off.)

Scragh Bog is a 16 hectare fen found in County Westmeath just 7 kilometres northwest of Mullingar. It harbours a diverse wildlife and is of international scientific importance for a number of relict species that it contains in significant quantities. Extreme care should be taken if visiting the bog. The quaking edge of the fen is particularly dangerous. Do not visit the site on your own.

The fen is composed of Bog Bean, Marsh Cinquefoil, Water Horsetail, Bog Cotton together with various sedges. Important species on the fen include Wintergreen, which grows on the base of Willow and Birch trees. It has evergreen leaves and white flowers in mid-summer. There are several important sedges on the fen and the most widespread is the Slender Sedge, Tussock Sedge, Mud Sedge and Black Bog Rush. The rare and protected Slender Cottongrass, together with two species of orchid, the Marsh Spotted Orchid, and Narrow-Leaved Orchid.

Scragh Bog attracts a number of animals including the Common Frog and bird life such as Coot, Moorhen, Sedge Warbler and Reed Bunting which build their nests in the Reedbeds. Other birds to be found on this fen are Snipe which breed in the area, Wren, Dunnock, Robin,

Blackbird and Song Thrush. Grey Herons hunt on Scragh Bog as do Kestrels and Sparrowhawks. Scragh Bog abounds with invertebrate larvae of the Caddis Fly, Mayfly, Dragonfly and Damselfly. Butterflies include Speckled Wood, Meadow Brown, Ringlet, Small Heath, Small Copper, Common Blue, Marsh Fritillary, Peacock, Orange Tip, Brimstone, Wood White and Small Tortoiseshell. Moths include the Emperor Moth, Eyed Hawk, Oak Eggar and Fox Moth.

Scragh Bog.

The geology of Meath consists of lower and upper carboniferous limestone with grey brown earths. This results in particularly good agricultural land. Rath Cairn is an agricultural area which gives us an excellent opportunity to explore the wildlife associated with this man-made habitat.

Hedgerows

Hedgerows are one of Irelands most important habitats. They harbour a rich diversity of Irish flora and fauna. Hedgerows are manmade structures that date from the 18th and 19th Century. Hawthorn was commonly used to create hedgerows due to its quick and dense growth. Blackthorn a tough and prickly species was planted to prevent movement of cattle and to provide shelter. Although originally intended as boundaries of farmlands and town lands they soon became naturalised and now are a wealth of natural history.

Some of the main floral constituents are Hawthorn, Blackthorn, Ash, Elm, Willow, Hazel and Holly. Other species that you might come across include Crab Apple, Elder, Gorse and Wild Cherry. In the midst of all this activity you will also find creepers such as Bramble, Honeysuckle, Ivy and Clematis.

Herbaceous plants that occur in hedgerows include Cow-Parsley, Foxgloves and Hogweed, Herb Robert, Goosegrass, Primroses, Lady's Smock and Violets.

Many insects feed on this vegetation. These include butterflies like the Orange-Tip butterfly which feeds on Lady' Smock and the Peacock Caterpillar and Tortoiseshell which feed on nettles. The caterpillars of the Hedge Brown and Speckled Wood feed on several types of grasses.

Birds that are typical of Irish hedgerows are Wrens, Sparrows, Blackbirds, Song Thrushes, Yellowhammer, Bullfinches, Chaffinches, Fieldfares and Redwing. The Hedgerows provide these birds with a safe haven.

Many mammals use hedgerows for food, shelter and protection. Mammals range in size from Field Mice and Pigmy Shrews which reside in the undergrowth to Rabbits, Badgers who use hedge banks for their sets,

Foxs and the aptly named Hedgehogs that feed, breed and even hibernate in the hedgerows.

At the top of the food chain the Barn Owl, Fox and Stoat prey on the smaller mammals and birds. The Stoat is indigenous to Ireland. It is an inquisitive and interesting animal which mostly hunts at night. It has a varied habitat and diet and is highly adaptable.

Fox Cub.

Gardens

There are a number of exquisite gardens to be found in the locality, these include:

Ballinlough Castle Gardens,
Clonmellan, Co. Westmeath.
Take the N52 between Kells and Mullingar and the Gardens are situated 3km from Clonmellon.

The Gardens are open from 1st May – 30 September. The 17th century castle is perched on a hill overlooking two lakes and visitors can enjoy the gardens as well as lakeside and woodland walks. The walled garden contains herbaceous borders, a lily pond, rose garden, soft fruit garden and orchard. From the walled garden, a white door leads to the lakeside walks. The small lake which was dug during famine times contains Swans, Coots and Moorhen.

The woodlands abound with the songs of Thrushes and other common woodland birds and the woodland is bordered by Ivy, Bluebells, Foxgloves and Wild Garlic with its refreshing smell. There is a tea room, toilets, parking, and wheelchair access.

Butterstream Gardens, Trim, Co. Meath.
Open from the 1st April until the 30th September from 11.00 until 18.00 found on the western outskirts of Trim. On the western outskirts of Trim, this Garden has been developed single-handedly by its owner since the 1970s.

Grove Gardens and Tropical Bird Sanctuary, Fordestown, Kells, Co. Meath.
Open from the 17th March until the 30th September from 10.00 until 18.00 halfway between Kells and Athboy on the R164. The main feature of the gardens is the Clematis walk containing over 300 species of flowered hybrids and herbaceous Clematis. The rose garden has over 400 species of French, English and modern Roses. The tropical bird sanctuary houses a large variety of rare breeds of bird in purpose built aviaries.

Appendix 1
Geological Time Scale

Clár Ama

AGE (million years)	EON	ERA	PERIOD
1.6	PHANEROZIC	CENOZOIC	Quaternary
65			Tertiary
135		MESOZOIC	Cretaceous
205			Jurassic
250			Triassic
290		UPPER PHANEROZIC	Permian
355			Carboniferous
410			Devonian
438		LOWER PHANEROZIC	Silurian
510			Ordivician
544			Cambrian
1000	NEOPROTEROZOIC		PRECAMBRIAN
1600	MESOPROTEROZOIC		
2500	PALAEOPROTEROZOIC		
4000	ARCHAEAN		
4600	PRISCOAN		

EVENTS RELATING TO THE GAELTACHTS
Arrival of man. Bogs Spread of Vegetation Serious of ice ages.
North Atlantic ocean starts to open
Mountain building –SW Ireland Limestone Deposition
Red bed sedimentation in Dingle. Caledonian mountain building. Semi-desert conditions in the Munster basin. Galway granites + associated plutons. Donegal granites were introduced during the late Silurian and early Devonian (420 – 390mya)
Closure of Iapetus Ocean continental collision Fossils in Dingle. Caledonian mountain building. Volcanism in Dingle
Placoderm Fossils (Ballinscelligs)
Opening of Iapetus Ocean
Rifting of Rodinia. Deposition of Dalradian Sediments Formation of Rosslare Complex gneisses
Oldest rock in Ireland – Rosslare Complex
Oldest known rocks on Earth
Formation of Solar System

Appendix 2

Maps of the Gaeltacht

Mapaí

Dún na nGall
Donegal
Béal Feirste
Belfast
Maigh Eo
Mayo
An Mhí
Meath
Gaillimh
Galway
Baile Átha Cliath
Dublin
Gaillimh
Galway
An tSionna
Shannon
Ciarraí
Kerry
Port Láirge
Waterford
Corcaigh
Cork
Corcaigh
Cork

Donegal

Mayo

Galway

Kerry

Cork

Waterford

Baile Uilcín
Wilkinstown
CEANANNAS
N3
Baile Ghib
Gibstown
N52
Cill Bhearaigh
Kilberry
AN UAIMH
Navan
Baile Átha Buí
Athboy
N51
Ráth Chairn
Rathcairn
BAILE ÁTHA TROIM
Trim

Meath

Appendix 3

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Appendix 4

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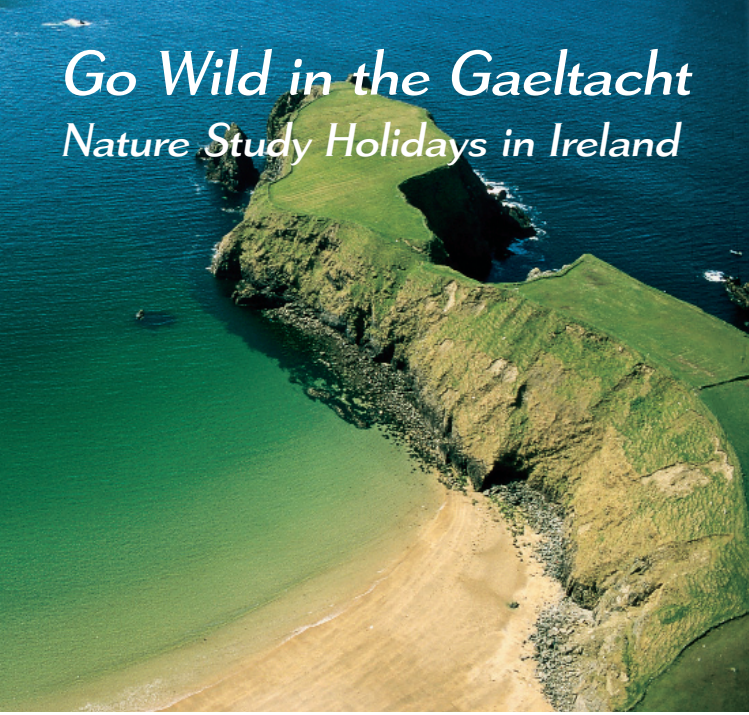
Pádraig Ó Briain



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