

# Report of the Erris Survey

August 1990 - May 1994



## Part V

A Community Response Project.

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## **The Environment of Erris**

# The Environment of Erris

'I have left these mountains, and never shall I enjoy the unalloyed excitement, the calm, luxurious solitude, which I found among their wastes. What has reinement to offer me in exchange? Will the overstocked preserve replace the moorland chase, with its silver lake,

W.H. Maxwell's  
WILD SPORTS OF THE WEST

A Natural History by Philip Lydon 16/6/94.

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## The Topography and Drainage of Erris.

The barony of Erris occupies roughly 230,000 acres of land in the north-western corner of county Mayo.

The landscape of the barony can be divided as follows,

(See sheet 6 : North Mayo, half inch map published by the Ordnance Survey Office, Dublin).

### i)The Erris Uplands

The towering peaks of Dalradian quartz which form the Nephinbeg range appear as a barrier enclosing the lowland coastal areas of Erris. This barrier extends from Maumakeogh (1247 ft) in the north-west to Slieve Fyagh (1080 ft) and Nephin Beg (2065 ft) in the central area to Corruan Hill (1715 ft) in the south west. The massive Corruan Fault which is probably a southwest extension of the Donegal Leanann Fault moves between Nephinbeg and Corslieve down to Corraun Hill dividing the uplands of the Nephinbeg range with the lowlands of Ballycroy (Sleeman 1992). It appears from the sharpened peaks of many of the higher mountains of the Nephin Beg range that they were not fully covered by ice at any stage (Synge 1968). However the localised formation of glaciers on many of these mountains sides resulted in the creation of distinctive corries.

Gaps and cols in the Nephinbeg mountain chain (especially to the south) allowed ice sheets from central parts of Ireland to enter the lowlands of Erris and deposit glacial drift there. However the presence of end-moraine features such as ridges of kame terraces (e.g east of Ballycroy) indicates that the mountain chain played a role in preventing a more recent glaciation of the Erris lowlands.

### ii)The Erris Lowlands

The Erris lowlands mainly consist of roughly 120,000 ha (Doyle 1990) of bog-land found to the west of the Nephinbeg range. Underneath the bogs of Erris lie Pre-Cambrian gneiss, schist and quartzite rocks (Sleeman 1992). A further layer, consisting of locally derived boulder drift lies on top of the bed-rock. The age of this boulder drift is largely responsible for the featureless appearance of the Erris boglands. Landforms such as moraine ridges which are normally associated with areas which have underwent glaciation have been eroded away leaving

a flat landsurface (Synge 1968). This poorly drained landscape in combination with the maritime climate of the area allowed blanket peat to form.

### iii)The Erris Coastline

The jagged appearance of the Erris coastline in general is due to differences in rock hardness, the eroding power of the Atlantic waves and the west/south west prevailing winds, and the presence of a number of geological faults along the coast. Many areas of the coastline of Erris are still being eroded. A rapid steepening of the submarine shelf occurs a few kilometres off the west coast of the Mullet with an area of very deep water occurring roughly 50 kilometres out to sea where the "Erris Trough" is located (at least 1500 Ft below sea level) (Naylor and Shannon 1982).

#### The Northern Erris coastline

This area of coastline which is dominated by cliffs extends from Rinroe point to Benwee Geeraun Point. The highest cliffs are to found between Broadhaven and Belderg and are composed of erosion resistant, light coloured metasediments of Precambrian quartzites and psammites (Sleeman 1992). The highest cliffs of the area are at Glinsk hill near Belderg at 1,002 feet, with a cliff at Benwee Head having been measured at over 800 feet. Huge sea stacks (300ft) known as the Stags of Broadhaven are visible off this north coast.

#### The Broadhaven and Blacksod Bay coastline Areas.

Broadhaven Bay extends from Benwee Head on the Erris mainland and Erris Head on the Mullet, down as far as Belmullet town where it is connected by a cut channel to Blacksod Bay. It is a heavily silted bay which includes "Sruwaddacon Bay" into which the Glenamoy river flows.

Blacksod bay is a prime example of a landscape being affected by the underlying geology as faultlines are found in this area which in some part explain the great depth of the bay (Max, Long and MacDermot 1992). This bay extends from east of Achill in the south to as far north as Belmullet town, with the mainland of Erris being to the east and the Mullet being to the west in its more northern half. The heavily silted area of Tullaghan bay is found in the larger Blacksod bay, where the Owenduff and Owenmore rivers enter the sea.

In the Broadhaven and Blacksod Bay areas there is little evidence of elevated beaches or shorelines although there are some signs of terraces or notches, and shingle-ridges which all occur at low levels (Herries Davis and Stephens 1978). There is a proliferation of marine deposition features in this eroded coastline. In both of the bays, low cliffs have been cut out of the blanket peat of the area.

### The Mullet Peninsula

The Mullet consists of lowlying areas of land which are underlain by schists and gneisses. At the northern end of the Mullet lies a large body of Pre-Cambrian schist with sea cliffs and hills which are composed of quartz and gneiss. At the southern end lies Caledonian granite which forms Termon Hill. The northern end of the Mullet is covered by blanket peat while wind blown sand is extensive on the western seaboard in the southern three quarters of the Mullet, with unstable low sand dunes known as "Machair" being common.

### iv)The Islands of Erris

The coastline off Ballycroy contains the islands of Inishbiggle and Annagh Island which are composed mainly of schist. The other main islands off Erris include the Inishkeas off the west coast of the Mullet, and the Duvillaun to the south-west of Termon on the southern end of the Mullet. Both of these islands along with Kid Island off Benwee Head in the north-west, are composed mainly of erosion resistant schist. Inishglora and Eagle Island off the west side of the northern end of the Mullet are composed of gneiss (Max, Long and MacDermot 1992).

### The Drainage of Erris

The maritime climate of the Erris area with its high rainfall (yearly mean over 1101mm (Meteorological service) combined with the predominance of soils with a tendency to waterlog (peats) has led to the development of an interesting drainage pattern.

The simplified drainage pattern in the Erris area is the collection of water in streams in the mountain range to the east of the Barony. These then act as tributaries to the main rivers of the area i.e. the Owenduff, the Owenmore, and the Glenamoy rivers. These rivers then drain into the bays in the west of the barony. The Glenamoy river drains into

Sruwaddacon Bay in the northwest, while the Owenduff and the Owenmore rivers drain into Tullaghan bay to the southwest of near Ballycroy. Carrowmore lakes acts as a major water reservoir in the area as it is strategically placed in the centre of Erris between upland areas. The river Muinhin flows from this lake to the south-west where it joins the Owenmore river.

The glaciation of the Erris area has had a profound affect on its drainage as the poor drainage characteristics associated with the widespread glacial till allows waterlogging of many areas to occur. The drainage pattern in Erris has also been affected by the glacial features which have been formed in the NephinBeg mountain range area such as in the area surrounding Maumratta where there are glacial lake terraces and Corries (Synge 1968). Both of these structures act as stores of water. The Owenmore river which plays a major role in the drainage of Erris follows its present course through the Glenco Pass in the Nephinbeg range as this pathway was cut by meltwaters from the main ice sheet to the east (Whittow).



# The Geology and Glaciation of Erris

## The Geological History of the Erris Barony

The geology of Erris (See Maps G.1 and G.2) is amongst the most interesting and complex in the world and plays a crucial role in the diverse character of the area.

The basic bed-rock geology of the area can be divided up into four sections.

### 1) PRE-DALRADIAN, PRECAMBRIAN THE ERRIS COMPLEX

These are metamorphic rocks, and can further be divided into

#### a) The Annagh Division,

This consists mainly of gneiss rocks containing basic and pegmatitic dykes.

#### b) The Inishkea Division,

This formation consists of psammitic and semi-pelitic schists.

### 2) DALRADIAN SUPER GROUP

This group is composed of schists which are metamorphosed marine sediments.

The group is further divided into the following

#### a) Grampian group

#### b) Appin Group

#### c) Argyll Group

### 3) CALEDONIAN INTRUSIONS

This is represented in the Erris area by

- a) The Termon Granite.

### 4) CARBONIFEROUS

This group of sedimentary rocks in the Erris area can be further divided as follows

- a) Glencullin river formation
- b) Minnaun formation
- c) Downpatrick head

### PRE-DALRADIAN, PRECAMBRIAN THE ERRIS COMPLEX

The Annagh division.

The western and south western areas of Erris contain some of the oldest rocks in Ireland. The rock material found in the Mullet and Doolough areas of the Erris complex was formed 1900 and 1350 million years ago respectively when it was extruded as magma from the mantle of the Earth. Intrusions occurred in 1300 and 1220, of the igneous parent rocks of the present day grey gneiss and dark gneiss of the Mullet and Doolough areas. Between 1220 and 1090 million years ago, further intrusions occurred of ultra basic dykes which now are represented by pods. During this period partial melting occurred in certain areas to form the parent rock of granitic gneiss. 1090 million years Bp as a result of early or pre-Grenvillian rifting, the intrusion of the igneous parent material of the Doolough granite gneiss occurred. This time also marked the onset of the Grenvillian Orogeny. Between 1090 and 1000 million years Bp the intrusion of granite gneiss and the connected melting of rocks occurred, while during this time pink gneiss was formed through the addition of potassium feldspar. The end of the Grenvillian Orogeny occurred in 1000 million years Bp. Pegmatitic granite dykes were intruded during this time, while 850 million years Bp small scale metamorphism and deformation occurred.

The similarity of the rocks of the the Mullet and Doolough with those of the eastern seaboard of north America and Greenland have led some geologists to believe the these areas were once joined and were torn apart when the Atlantic ocean began to to open up 200 million years Bp.

### The Inishkea Division.

These metamorphic rocks are mainly present in southwestern areas of Erris and are thought to be part of the lower Dalradian sequence. The original type of rock from which these schists were formed is believed to have been "Greywackes" which are formed from the deposition of eroded materials into the borders of continental shelves and oceanic trenches which would provide the necessary deep water environment. This deposition and sedimentation is believed to have occurred between 650 and 950 million years ago.

The dominant rocks of the Inishkea division are flaggy to fissile, pale grey micaceous psammitic and semi-pelitic schists which are fairly uniform in appearance and contain Feldspar which consists of coarse grained grey crystals. Sedimentary bands of whitish coloured Calc-Silicate and greyish looking heavy mineral bands are present in the rock.

The remains of Doleritic dykes which have been metamorphosised are represented by Amphibolite sheets and lenses at Kildun and Scotch Port along with occasional granitic pods.

### THE DALRADIAN SUPER GROUP

The majority of the rocks in Erris belong to this succession. These metamorphic rocks are also found to extend in a northeasterly fashion through Donegal. The rock types are divided into three main categories in this area.

The Grampian rocks are the oldest in this succession and consist mainly of quartzites and psammitic schists and also contains pelites and semi-pelitic schists.

The younger Appin group contains similar rock types with some marbles and carbonaceous pelitic schists.

The Argyll group is the youngest in the succession and consists mainly of mica schists and psammites along with psammitic, pelitic and semi-

pelitic wackes, and some metavolcanics.

### Formation of the Dalradian Supergroup

750 millions years Bp the magma from the mantle at a hot-spot under the area that we now know as Erris began to swell upwards and sideways and cause the overlying continental crust to stretch and thin. This stretching resulted in the gradual sinking of the surface land. The dykes in the Annagh and Inishkea Divisions possibly resulted from the magma rising at this time through the crust to the surface. Some of this magma reached the surface as volcanic material while some cooled before reaching the surface to form dolerite.

This subsidence of the land led to the creation of a sea which predates the present Atlantic ocean and extended from the west coast of Ireland to what is now northern Scotland and may have been in contact with the edges of the present day north American continent.

The creation of the new seabed combined with its continued sinking, led to the deposition of huge amounts of sand and mud. Much of this material was eroded from land near the coast and transported to the sea by large rivers systems where it was deposited on a offshore shallow marine shelf and in estuaries.

The Dalradian period in Erris is thought to have been marked by a warm climate as traces of tropical organisms have been found in marble rock from the area dating from this time. However there is reason to suggest that following this (in the late Precambrian), weather conditions deteriorated as glaciers formed and were responsible for the deposition of material leading to the creation of a boulder mix. This boulder mix consisting of Dolomitic marble and granite rocks of various sizes has been located in Briska and Doogort.

The process of marine shelf sedimentation resumed following this glacial period. It was however occasionally disrupted by volcanic activity.

Following this however the process of sedimentation speeded up rapidly and changed in nature. Significant earthquake activity near the boundaries of the faulting area combined with an increased rate of subsidence caused large amounts of mud and sand to slide off the shallow marine shelf and be carried far out to sea by the resulting under water turbidity currents. As the mixture of mud, water and sand

moved further out to sea it lost energy and deposited its material in the form of an under water delta or fan. Greywackes formed in these areas as the coarse rock mixture consisting mainly of sandstones and mud was compacted. These were set-apart by fine mudstones which gradually formed during less volatile periods.

These rocks when metamorphosised became psammitic, pelitic and semi-pelitic wackies.

During this period of rifting and instability in the ocean basin crust, volcanic activity resulted in the extrusion of laval material into the coastal water which formed basalt.

The Dalradian sea-basin stopped growing in size as the underlying earth's crust stopped thinning and stretching. Around 590 million years bp, the adjacent tectonic plates stopped moving further apart and began to move closer together again. This led to the compression and deformation of the Dalradian rocks, a process that was to continue sporadically for the next 200 million years. As these rocks were compressed they began to fold and were pushed upward to form mountains. The lower down sedimentary material in the convergence area was pushed downward in to the earth's crust. This material was subjected to huge pressures and high temperatures and this led to the formation of schists as the sedimentary material was metamorphosised. The movement of the sedimentary material deep in to the crust led to the intrusion of magma in various parts.

The Grampian, Appin and Argyll rocks are groups of foldings which were affected by the various covergences of the crustal plates. During each period of these convergences the rocks were folded and refolded leading to the complex rock structures that are visible to-day in the Dalradian supergroup.

The relevant periods of continental convergence which affected the Dalradian supergroup are as follows

#### 1) The Grampian Orogeny

During this first orogeny (period of mountain building) most of the rocks of the Dalradian were folded to a large extent and many were schistosised.

## 2) The Athollian Orogeny

During this orogeny many folds were refolded and rocks were subject to schistosity. The pre-Dalradian Annagh and Inishkea divisions were also folded during this orogeny. As a result of the Athollian Orogeny the rocks of the Dalradian were forced to great depths in the earth's crust and were therefore subject to a high degree of metamorphism in the form of high temperatures and high pressure.

Due to the amount of pressure and temperature that the rocks of the Dalradian supergroup were put under during these convergences of crustal plates, faulting and sliding of the rocks occurred and resulted in the formation of rock slabs which were subject to a considerable amount of movement during later convergences.

## 3) The Caledonian Orogeny

During this orogeny further folding occurred and the rocks of the Dalradian were uplifted. The reduced temperatures and pressures which resulted from this led to the formation of new minerals.

## 4) Other deformation events.

Later deformations (400 million Bp) of the Dalradian schists occurred after the reduced temperature and pressure levels led them to become more brittle and subject to fracture faulting such as in the case of the Blacksod bay fault.

## CALEDONIAN INTRUSIONS

This period in geologic time is represented by the granite pluton which was intruded at Termon at the southern end of the Mullet 400 million years Bp. It is a pale coarse grained granite and mica is visible at its boundaries.

## CARBONIFEROUS

The middle-eastern portion of Erris is covered by a sedimentary rock known as carboniferous sandstone. This sandstone was formed (360 mil. yrs. Bp) as a result of the advances and retreats of a warm tropical sea which was positioned to the south of Erris.

The Maam and Glencullin river formations are the oldest of the Carboniferous sandstones and were formed when the sea which was covering the southern half of Ireland had yet to advance as far north as Erris. These red sandstones were formed in desert-like climatic conditions by major river systems depositing sand interbedded by mud and silt deposited during sporadic periods of heavy rain and flooding.

The Glencullin (and Maam) river formations are overlain by the younger Minnaun, (along with Capnagower and Moy) formations. These mixtures of grey sandstones and siltstone were laid down by rivers which carried them there from areas to the north-west.

To the east of these formations is the Downpatrick formation which consists of a variety of inter-bedded rocks a) mudstones and siltstones which originated in coastal aquatic marine conditions, b) limestones which were formed from the remains of dead organisms such as shells in an off-shore aquatic environment and are interbedded by shales and c) siltstones and sandstones which were originated from deposition by river systems.

(The above text is based largely on the following publications 1. (Max, Long and MacDermot 1992), 2. (Sleeman 1992), 3. (Long 1992).

## THE QUATERNARY PERIOD IN ERRIS

### Glaciation in Erris

The process of glaciation that the Erris area (See Map Q.1) has undergone in the past has had a crucial impact in the formation of its unique landscape, from its huge tracts of open bogland to its sculptured mountains.

The glaciation of the Erris region can be divided into two categories

#### 1) The Older Drifts

These date from the "Riss" glaciation (Synge 1968) which was the third major Pleistocene glaciation in Alpine Europe. The drifts have not yet been dated on an absolute timescale (Synge 1968).

#### 2) The Younger Drifts

These date from the "Wurm" glaciation phase which was the fourth and

final Pleistocene glaciation in Alpine Europe (It reached a maximum 17,000 years B.P) (Synge 1969).

### The Older Drifts

The older drifts of Erris occupy much of the barony of Erris to the west and north of the boundary marked from Ballycastle as far south as Ballycroy. These drifts lack many of the features normally associated with glaciation such as eskers and drumlins indicating that these drifts are relatively old compared to most of those found in Ireland. The unusual, sometimes vertical position of the stones in the subsoils is consistent with the process of frost-heave indicating that the area has been subject to a periglacial environment (Synge 1968).

The majority of Erris drift consists of gniess and quartzite derived material with some boulders in the north being composed of sandstone and conglomerate material and granite boulders from Termon on the Mullet being found in the Inishkea islands area. These erratics combined with the presence of rock striae indicates that the ice-flow direction was roughly from the south-west. It is possible that the some of the mountain peaks in the area may not have been glaciated as the erratic upper limit declines in a north-westerly manner (Synge 1968).

### The Belderg Drifts

A younger drift which occurs between Ballycastle and Belderg overlies the Erris drift. This drift occurs very locally and contains few stones and appears to consist mainly of marine fragments such as shells. It is possible that this material originated from meltwater plumes and through ice rafting from the outer limits of ice bodies associated with the Donegal bay area (McCabe 1986).

### The Younger Drifts

The Barony of Erris is surrounded by a ring of hills, and mountains from Ballycastle to Mulranny. These mark the extent to which the ice-sheet of the last major glaciation (known as the Wurm phase) period in Ireland extended into north-west Mayo from the east and south. As no newly formed glacial landforms associated with major glaciation periods occur to the west of this boundary, it appears to suggest that the uplands acted as a boundary to the moving ice. To the south however the younger drift extends inside the coastal mountain ring as far north as Ballycroy. It is likely here that the glaciers were able to move



through the gaps in the mountains in Mulranny and the Achill sound.

The limit of the ice boundary in the Nephinbeg region is marked out by "pluck" marks on the bed-rock of the mountains. The western limit of the ice is also marked by the polished appearance of some of the bed-rock in the margin areas caused by movements of the overlying ice. End-moraines mark the northward progress of the ice in the Ballycroy area as well as in areas in the Nephinbeg region. Other glacial features which can be found near the Ballycastle-Mulranny ice margin includes meltwater channels near Aghoo in the North-east, eskers to the east of Bellacorick, and kame terraces and glacial lake terraces near the south-eastern ice boundary. The height to which the ice extends varies from 1250 feet to the east of Erris (as seen from polished rock on Nephin) to 650 feet (as seen on Cnoc an Chartuain to the south of Erris). This indicates that the glacier was sloped north-east to south-west.

### Corries in Erris

The cold climate periods which led to the advance of the huge ice-sheet across Ireland also caused glaciation corries to develop locally.

The majority of corries which are present in Erris are to be found in the Nephinbeg range.

Some of the corries present in the Nephinbeg range are thought to predate the Wurm glacial as they have a high content of scree (Nephin beg 2,065 ft). It likely however that ice from later glacial phases covered some of these higher corries as many have little signs of moraine deposits.

There is evidence to suggest (Synge 1968) that some of the corrie glaciation of the Nephinbeg mountains may have occurred around the time of the last general glaciation. This is suggested in the south-eastern area of Nephin Beg (Doo Lough) where the moraines of local glaciers meet with the moraines of the last general ice sheet of the Wurm phase.

Some of the younger corries in Nephinbeg formed before the last general glaciation reached its peak and continued to hold glaciers for many years after the main Wurm ice sheet had retreated.

### Sea level change in Erris.

While it is thought that isostatic depression was more important than eustatic sea level fall in the early deglacial phase (ca 17ka) (McCabe 1986) in the area of the Erris coastline, more detailed knowledge of isostatic and eustatic changes in the local region is not yet known (McCabe 1986).

## Description of Rock Types in Erris

The following rock type descriptions are those found in (Long 1992), and (Sleeman 1992) (See Map G.1).

### PRE-DALRADIAN, PRE-CAMBRIAN THE ERRIS COMPLEX,

These are metamorphic rocks, and can further be divided into

#### The Annagh Division.

This consists mainly of Gneiss rocks

Individual rock types within the Annagh Division.

#### HU ANNAGH DIVISION (UNDIFFERENTIATED)

Foliated orthogneisses derived from a sequence of trondhjemitic, granodioritic and granitic igneous precursors with localized migmatization and potassium metasomatism. All are deformed to a variable degree, and metamorphosed and intruded by several ages of ultramafic and basic dykes. Among the earliest gneisses, mafic lithologies may represent either intrusive or volcanic basic rocks, and there are possibly some limited metasediments. Likely to revert to being known as "Annagh Gneiss Complex" if Inishkea Division is Dalradian. See descriptions of individual components. Other minor components not individually listed include quartzo-feldspathic phyllonite, ultramafic dykes, and epidosite (rock very rich in epidote) lenses. For metabasite dykes see Metadolerite(H).

HS

DOOLOUGH(PER-ALKALINE)  
GRANITE GNEISS

Pinkish, non-porphyroblastic, weakly foliated granite with rare sporadic mica (muscovite or greenish biotite) or horn-blende. General lack of micas distinguishes this from the adjacent biotite gneisses. Occurs as several sheetlike intrusions.

HG

GRANITE GNEISS

Generally discrete granite bodies originally intruded into grey, dark or granitic gneiss, now deformed and metamorphosed, and with a surrounding zone of Pink Gneiss.

HP

PINK GNEISS

Strongly banded, pink granite gneiss, often rich in mafic minerals. gas resulted from potassium metasomatism (of earlier gneisses) related to intrusion of Granite Gneiss. Now deformed and metamorphosed.

HC

GRANITIC GNEISS

Migmatic granitic gneisses formed by partial melting of Grey and Dark Gneiss precursors, with subsequent metamorphism and deformation. Occurs as sheets and net-veins of grandioritic and trondhjemitic composition. Generally too small to be shown individually on Map.

HM/IM

CR-MICA SCHIST

Chromium-rich schist with emerald green chrome-micas. Believed to represent a tectonic schist derived from a mixture of rocks with a metasomatic character.

HD

#### DARK GNEISS

Dark green amphibolitic gneisses originally of basic volcanic or basic dyke rock origin, sometimes garnetiferous, and now deformed and metamorphosed.

HR

#### GREY GNEISS

Foliated pale grey gneisses with alternating light feldspathic and dark micaceous bands. Mainly represents metamorphosed and deformed grandioritic and trondhjemitic plutons, with some metasediments.

#### The Inishkea Division

This formation consists mainly of psammitic and semi-pelitic schists.

Individual rock types within the Inishkea Division.

IK

#### INISHKEA DIVISION (UNDIFFERENTIATED)

Biotite-muscovite-plagioclase feldspathic semi-pelitic and psammitic schists, with minor garnet in semi-pelites. The plagioclase (commonly oligoclase) is porphyroblastic in some areas and non-porphyroblastic in some others. Lithological banding varies from conspicuous to indistinct. Thin grey heavy mineral bands on Inishkea North and South and on southern Mullet. Occasional calc-silicate bands, especially on Inishkea North and South, southern Mullet, Scotch Port and Gubastuckaun. Very rare epidosite (rock very rich in epidote) lenses (Kinrovar). Amphibolites are metamorphosed basic dykes and not part of the Division.

IB

#### STAGS OF BROAD HAVEN SHIST

Biotite-muscovite-plagioclase feldspathic semi-pelitic schist. Non-porphyroblastic? Minor calc-silicate bands.

IC

#### CARRICKLAHAN SCHIST

Biotite-muscovite-plagioclase feldspathic semi-pelitic schists with porphyroblastic oligoclase. Minor garnet. Biotite-rich pelitic lenses. Conspicuous lithological banding.

IG

#### GUBASTUCKAUN FORMATION

Fairly uniform non-porphyroblastic garnet-biotite-muscovite feldspathic semi-pelitic-schists.

IL

#### NAKIL FORMATION

Dominantly biotite-muscovite-plagioclase feldspathic semi-pelitic schists with oligoclase porphyroblasts. Psammitic bands near top. Two horizons rich in heavy mineral bands provide gradational way-up younging evidence. Lower heavy mineral band horizon contains calc-silicate bands.

IP

#### SCOTCH PORT SCHIST

Non-porphyroblastic, weakly banded, biotite-muscovite-plagioclase feldspathic semi-pelitic schist, with minor garnet.

IR

#### KINROVAR SCHIST

Pelitic, semi-pelitic and feldspathic semi-pelitic schists. Calcareous varieties of these also occur. The schists are variously of homogeneous or banded appearance. The plagioclase feldspar (ranging from albite to oligoclase/andesine) is commonly porphyroblastic. Presence of small granitoid pods and lenses, and lensoid epidote (rock very rich in epidote).

IT

## TIRAUN SCHIST

Biotite-muscovite-plagioclase feldspathic semi-pelitic with oligoclase porphyroblasts; minor epidosite (rock very rich in epidote) lenses, and pelitic streaks rich in biotite. Weak lithological banding. Minor garnets.

## DALRADIAN SUPER GROUP

This group is composed of metamorphic rocks and can be further divided into the following

### The Bangor succession

This group succession contains the following rock types

### Argyll group

BC

## BANGOR/CORSLIEVE FORMATION

White of pale orthoquartzites, quartzites and quartzitic psammities, commonly banded, with graded bedding and cross-stratification

BCc

## CARRAFUL MEMBER

Banded cross-bedded psammitic schists

BCo

## OWENMORE MEMBER

Interbedded quartzites, psammitic and semi-pelitic schists

BCK

#### BELLANUMERA K-FELDSPAR CLAST MEMBER

Abundance of pink potassium feldspar and pink granitoid clasts (up to 2.5 centimetres) in quartzite matrix. Strictly, it should probably be regarded as representing the uppermost part of the Briska Border Bed Formation.

BK

#### BRISKA BOULDER BED FORMATION

Interbedded sequence of mixtites (tillites), white and pale quartzites, and semi-pelitic schists. Clasts in mixtites range up to about 40 centimetres maximum dimension. Granitoid clasts are commoner than quartzite clasts. The mixtite matrix is a brown weathering semi-pelitic or psammitic schist. Granitoid boulders are of both deformed and non-deformed varieties. Potassium feldspar is reported to be absent from granitoid clasts. Represents a glacial sequence.

Bkd

#### BANGOR RESERVOIR DOLOMITIC SCHIST MEMBER

Description uncertain. Name is probably indicative of the presence of calcareous schist interbeds, or calcareous mixtites, or both. There may or may not be mixtites in the Member.

BKb

#### BANGOR CHURCH BANDED MEMBER

000 7392 B

Description uncertain. Name is suggestive of (fine?) banding which could refer to varved units, but more likely refers to coarser lithological banding. There may, or may not be mixites in the Member.

Leobh...  
Mayo...



## Appin group

SL

### SRAHLAGHY LIMESTONE FORMATION

Banded and massive marble with calcareous schists. Whitish marble weathers blue-grey.

IN

### INISHDERRY FORMATION

Interbedded white quartzites and pale psammitic schists with calcareous, graphitic, dark pelitic and semi-pelitic schists. Some pebble beds occur in quartzites.

IS

### INVER SCHIST FORMATION

Dark, graphitic, semi-pelitic schists with inter-bedded dolomitic marble and subordinate quartzite schists. Quartzite is absent.

BP

### BALLYBEG PART LIMESTONE FORMATION

Calcareous semi-pelitic schists with inter-bedded dolomitic marble and subordinate quartzite schists.

DD

### DOON-NA-DELL SCHIST FORMATION

Dominantly semi-pelitic schist. Largely a tectonic schist; i.e. highly sheared during deformation.

KA

#### KANFINALTA FORMATION

Pale coloured quartzites, with dark feld-spathic and non-feldspathic psammitic and semi-pelitic schists, locally calcareous, with dolomitic marble and calc-silicate bands.

BE

#### BELLAGARVAUN FORMATION

Cross-laminated white quartzites and ortho-quartzite, weathering shades of very pale green of pinkish brown. Micaceous partings and pelitic interbeds. Some gritty and calcareous beds.

PC

#### POLLACAPPUL FORMATION

Calcareous, graphitic semi-pelitic schists, locally with discontinuous dolomitic marble pods and thin quartzites. Three named members distinguished in the Srahlaghy area of the north east.

PCb

#### LUGNALETTIN BLACK SCHIST MEMBER

Black graphitic pelitic schists

PCi

#### GLENAGH RIVER LIMESTONE MEMBER

Massive and banded grey micaceous marble and calcareous schists.

PCs

#### GLENCALRY SCHIST MEMBER

Greyish semi-pelitic mica schists.

## Grampian or Appin group

SY

### SRAHLAGHY QUARTZITE FORMATION

Massive pale-coloured vitreous quartzites, lacking heavy mineral bands, and with cross-bedding locally preserved.

BM

### BENMORE FORMATION

Similar to Broad Haven Formation psammities, but lacks rusty brown (tan) colour and is generally more quartzitic and less feldspathic. Rare very thin heavy mineral bands and thin orthoquartzite bed. A single known occurrence of a quartzite pebble bed. Cross-bedding is common.

BN

### BROAD HAVEN FORMATION

Monotonous sequence of massive to banded white to rusty brown (tan) quartzitic psammities. Rare heavy mineral beds are commoner in upper parts of Formation. General upward change from quartz-rich to less quartz-rich psammitic schists. Thin semi-pelitic schist near top. Cross-bedding common.

BG

### BELDERG FORMATION

Banded grey to creamy coloured psammitic schist with subordinate semi-pelitic schists. Some psammities are locally quartzitic. Cross-bedding is common.

DN

## DOONAMO FORMATION

Basal part comprises dominantly semi-pelitic schist, dolomitic near base, and upward becoming finely interbedded with psammitic schist. Lack of heavy mineral bands and calc-silicate schists. Sequence passes up into micaceous psammitic schists with thick semi-pelitic schist bands containing heavy mineral bands. Overlain by creamy white and grey micaceous psammitic schists with some semi-pelitic schist containing heavy mineral bands. All psammites are generally flaggy, with sporadic cross-bedding.

DNq

## AUGHERNAGALLIAGH QUARTZITE MEMBER

Quartzitic psammite with some heavy mineral bands and rare calc-silicate bands.

### West Achill succession (Duvillaun Islands)

This group succession contains the following rock type

#### Grampian group

DV

## DUVILLAUN FORMATION

Sequence of alternating semi-pelitic, feldspathic semi-pelitic psammitic schists. Cross-stratification locally apparent. lithological banding common. Uppermost member contains heavy mineral bands and calc-silicate bands. Fully divided into 7 named members (not shown on map).

## South Corruan/west Nephin beg succession

This group succession contains the following rock groups,

### Appin Group

CS

#### CULLYDOO FORMATION

Dominantly thinly banded white quartzites and psammitic and feldspathic psammitic schists. Units of interbedded white quartzites and commonly subordinate semi-pelitic schists. Cross-bedding in quartzites. Transition units at base and at top. (Note: this description excludes eastern areas with the Srahmore Quartzite member and Srahmore Quartzite and Schist Member).

CSq

#### SRAHMORE QUARTZITE MEMBER

Dominantly banded white quartzites and pale psammitic and feldspathic psammitic schist. Not differentiated or absent in west.

CSs

#### SRAHMORE QUARTZITE AND SCHIST MEMBER

Dominantly thinly banded white quartzites, with semi-pelitic schists. Not differentiated or absent in west.

### Grampian group

AN

#### ANAFFRIN FORMATION

Generally a monotonous sequence of psammitic lithologies ranging from psammitic and feldspathic psammitic all with fairly common cross-stratification and grading. Sporadic heavy mineral bands and calc-silicate bands.

ANq

#### GLENNAMONG MEMBER

Feldspathic pelitic and semi-pelitic schists, commonly with plagioclase porphyroblasts, and rarely calcareous. May equate with Old Road Member.

#### East Achill-North corraun sucession

This group sucession contains the following rock groups,

#### Appin Group

AS

#### ASHLEAM BAY FORMATION

Black graphitic pelitic schists with inter-bedded dolomitic marble, non-graphitic semi-pelitic schists and pale quartzites.

AQ

#### ASHLEAM BRIDGE QUARTZITE FORMATION

Pale pebbly quartzite interbedded with black graphitic pelitic schist

AD

#### ASHLEAM BRIDGE DOLOMITIC FORMATION

Buff to white dolomite with brecciated beds, dolomitic pelitic and psammitic schists, and graphitic pelitic schist interbeds. Uppermost portion (6 metres) comprises interbedded thin feldspathic semi-pelitic and feldspathic psammitic schists with abundant biotite.

AT

## ALANTIC DRIVE SCHIST FORMATION

Brecciated limonite-stained quartzitic basal portion, overlain by highly schistose very thinly bedded pale quartzite and feldspathic psammitic schists. Chloritic partings and thin pelitic interbeds are common.

Grampian or Appin group

SA

## SALIA FORMATION

Grey-green feldspathic psammitic and feldspathic semi-pelitic schists with minor quartzite bands. Local cross-bedding.

SAa

## ANNAGH MEMBER

Semi-pelitic and feldspathic semi-pelitic schists

SR

## SRAHEENS LOUGH FORMATION

Psammitic schist with subordinate semi-pelitic and feldspathic semi-pelitic schists.

### East Nephinbeg Sucession

NG

## MIDDLE NEPHIN GROUP (UNDIFFERENTIATED)

Pebbly quartz grits (quartz wacks), metadolerite basic metavolcanics, banded psammitic schists, and marbles.

NE

## NEPHIN FORMATION

Dominantly vitreous orthoquartzites, quartzites and feldspathic quartzites, some feldspathic psammitic schists, all usually white, creamy or generally pale coloured, and with common cross-stratification. Coarse grit bands, and heavy minerals bands are present.

## IGNEOUS INTRUSIONS

These igneous rocks are represented in the Erris area by

F

## FELSITE

Flinty, cream-white, minor intrusive possibly of lamprophyric affinity, with very fine grained felsic groundmass and conspicuous phenocrysts of plagioclase and quartz. Possibly related to similar dyke associated with Termon Granite also to Feldspar Porphyry of SW Ox Mountains.

D

## DOLERITE AND GABBRO

Dykes are commonly silica-poor dolerites with analcime and olivine. The larger bodies are coarser grained with gabbroic composition. The Killala Gabbro, west of Killala Bay, comprises a range of lithologies.

T

## TERMON GRANITE

Aplitic, biotite and muscovite granite, with increase of biotite, and presence of beryl-bearing pegmatites, in marginal areas. Aplites common in marginal zone, both within and outside granite.



## H

### METADOLERITE (INTRUSIVE- CALEDONIAN OR OLDER)

Metamorphically altered (retrogressed) intrusive Caledonian (or older) dolerite dykes of sills comprising mainly hornblendic amphibole and plagioclase feldspar, with or without chlorite, and variably schistose. This excludes basic metavolcanic rocks which are treated separately as either formation of members.

## Y

### GRANITIC DYKES (ASSOCIATED WITH TERMON GRANITE)

Aplitic microgranite dykes. Two occur on the north coast of Duvillaun Beg and one on Leamareha Island. NOTE: Three Lamprophyric (group of dark coloured rocks rich in mafic minerals) dykes believed associated with the Termon granite have been shown as being simply "dolerite". They are probably Devonian. Of these dykes, two are spessartite (rock with large hornblende of pyroxene crystals in groundmass of plagioclase feldspar, plus minor minerals) and occur on the Mullet coast west of Elly Bay, and one is a plagiophyre (plagioclase porphyry) occurring on the NE Mullet coast immediately west of Duveel point.

## CARBONIFEROUS

This group of sedimentary rocks in the Erris area can be further divided as follows

### Glencullin river formation

#### GL CARBONIFEROUS SANDSTONE

These consist of red, often pebbly (vein quartz) sandstones, interbedded with siltstones and mudstones.

### Minnaun Formation

#### MN CARBONIFEROUS SANDSTONE

These are a mixture of grey sandstone and siltstone

### Downpatrick Head Formation

#### DK CARBONIFEROUS SANDSTONE

It is a sequence of interbedded rock types comprising: nearshore marine mudstones and siltstones; alluvial and deltaic sandstones and siltstones; and fully marine bioclastic limestones interbedded with calcareous shales.

# The Soils of Erris

## Distribution and age.

The distribution of soils in Erris (see map S.1) is controlled to a large extent by the presence of boulder till deposited during periods of glaciation. The majority of older soils which occur in Erris are to be found to the north or west of a glacial till boundary line which stretches from Ballycroy in the south-west to Mulranny in the south, to Ballycastle in the North. These soils are more likely to have formed on relatively old drift which was deposited in the "Riss" phase of glaciation (Synge 1968).

Soils occurring to the east or south of this line are likely to have formed on glacial drift which was deposited in the last major glacial phase which ended about 10,000 yrs Bp, and are therefore likely to be of more recent origin. The effect of glaciation on the soils of Erris is masked to a certain extent by the very extensive covering of peat which began to form roughly seven thousand years ago.

## Factors Influencing Soil Formation in Erris

### Parent Material

Most of the Parent-Material from which the soils of Erris were formed were derived locally. The deposition of glacial material in Erris has had a crucial effect on soil composition in the area as its presence has greatly affected the formation of podzols and peats in the area. The presence of weathered till has also increased the uniformity of the soils present.

### Climate

The windy maritime climate (Meteorological service) of Erris is reflected by the presence of the dominant blanket peat soils, and the windblown sand deposits of western coastal areas. The deposition of the boulder till which has played so large a role in soil formation in Erris was directly related to variations in climatic conditions as was the development of the gleys and podzols of the area (through heavy precipitation).

### Vegetation

Vegetation has played a huge part in the formation of the peat soils of Erris, through the processes of growth and decay. Animal organisms

such as earthworms, insects and micro-organisms have all been necessary for the break down of the parent material throughout area and its transformation into soil containing profiles. The growth of conifers and heath vegetation have influenced the podsolisation of soils in Erris. The spread of blown sand in the area is controlled to a large extent by the vegetation.

### Topography

The influence of topography in soil formation in Erris is very clear from examining the the soil types of the area. The flatness of topography in many parts of Erris has encouraged water logging to occur, and this in turn has led to the formation of peat and gleyed soils. Heavier levels of precipitation in the more upland areas of Erris means that the peats of these areas are more prone to podsolisation than those at lower elevation. The upland topography in eastern areas of Erris, played a role in preventing the wide spread deposition of more recent glacial deposits, and this has had a major influence on soil development.

### Man's Influence

The arrival of Neolithic farmers roughly 5000 years ago is thought to have marked the onset of a phase of peat formation in certain parts of Erris as they removed the forest vegetation (Mitchel 1972). In more recent times the cutting away and drainage of large areas of blanket bog has changed the soil composition in some areas of Erris. The overgrazing in certain upland areas by livestock has affected plant growth and therefore peat formation.

## Soil Types Found in Erris

The following is an outline of the main soil groups (Foras Taluntais 1974) which are found in Erris (see map S.1).

### BLANKET PEAT

This soil type is dominant in Erris and covers over two thirds of its surface. It represents Ireland's largest area of unbroken bogland.

The bed-rock underneath the boglands are mainly quartzites, schists and gneisses and this has been overlaid by glacial till which is "Riss" in age. This glacial till contains a podzolised upper horizon and an impervious, iron-humus pan lower in the horizon which leads to poor drainage. There is evidence to suggest from buried wood-peat layers that a period of growth of pine trees occurred before the initial development of the peat. This has been dated by Malmer (quoted by Doyle 1983) as occurring 7110 Bp. It appears that in the period following this, peat began to form in areas previously dominated by pine forests due to a deterioration in climatic conditions.

The poor drainage of the existing soil, when combined with the fact that the area had a maritime climate with greater precipitation than evaporation created the conditions necessary for the formation of blanket peat. This was due to the slow rate of decay of the plants which grew there. As the amount of waterlogged organic matter (which was low in nutrients) that was present began to grow, the plant-life growing there had to depend on rainfall for nutrients. The ombrotrophic bog-species, (such as Sphagnum) which were most able to adapt to these conditions, became dominant.

Around 4290 years B.p (Malmer quoted by Doyle 1993), it is believed that a further period of woodland pine growth came to an end, and another phase of peat development began. It has been suggested (Mitchell 1972) that the activities of early Neolithic farmers, along with a deterioration in climate played a role in initiating peat formation at this time through their practise of clearing the land of trees. This would allow waterlogged conditions to develop more easily, and peat to form.

The peat varies in depth from 1.5m to 7m (Doyle 1990).

## Soil Type Occurrences

903 Aughty

904 Aughty Cutover

909 Glenamoy

910 Glenamoy Cutover

911 Gweesalia

## HILL AND MOUNTAIN SOIL ASSOCIATIONS

Apart from blanket peat, these are the most common types of soils in Erris, and occur mainly in south-eastern areas where the Nephinbeg range is located. The low temperatures and high levels of rainfall experienced in these upland areas lead to the formation of blanket peat which is prone to podsolisation.

### Soil Type Occurrences

A4 Hill peat

A4r Hill peat

B3r Plateau peat

C5r Peaty Iron-Pan Podzol

F4 Peaty Podzols

F4r Peaty Podzols

## DRY PODZOL

Dry podzols in Erris are mainly found in a very broken pattern from near Dooncarton in the North to Castlehill in the south-west. They formed in these area as a result of the high rainfall levels causing the leaching of materials such as humus or iron from the upper parts of the profile to lower down. They tend to develop on acid geological parent material.

## Soil Type Occurrences

155 Killnageer

### WET PODZOL

This soil type occurs sparsely throughout Erris in areas such as Carrowteige and Inishbiggle. It differs from dry podzols of the area in that it has a higher moisture content due to higher levels of organic material.

## Soil Type Occurrences

183 Beltra

185 Drumsleed

185p Drumsleed Peaty Phase

187 MassBrook

187p Massbrook peaty phase

187b Massbrook bouldery phase

### BROWN EARTH

This mature, well drained soil type is rare in Erris and occurs only in parts of Doohoma.

## Soil Type Occurrences

169 Dooyork

### GLEYS

## Soil Type Occurrences

This poorly structured soil type occurs in Erris mainly in the vicinity of Belmullet town, and in the southern section of the Mullet. Gleys are associated with conditions of poor drainage where waterlogging may occur.

174 Belmullet

## COMPLEXES

### Soil Type Occurrences

These are soil formations which can not be placed in any one category as they consist of more than one soil type.

188 Bellacorick-Glenamoy

In these areas of central and eastern Erris, there has been extensive cutting away of the overlying blanket bog.

191 Glenamoy-Aughty

This soil formation is found mainly in south-western parts of Erris.

## MISCELLANEOUS LAND UNITS

3 Alluvium

The majority of Alluvium, which consists mainly of sand and silt is to be found in the Erris area was deposited by the major river systems in their lower stages. Examples include the areas immediately around the Owenmore and Owenduff rivers.

4 Tidal Marsh

This type of wetland is only present in Erris on the west side of Fahy Lough.

5 Blown Sand

This type of land type can be found in many coastal areas in the west of Erris and especially the Mullet. It consists of sand which has been deposited by the wind and upon which soil has not yet formed.



# The Climate of Erris

## Introduction

The climate of an area is a vital component in its natural history affecting the topography, soils, drainage and the composition of the plants and animals (including humans) present.

The climate of Erris is an excellent example of a maritime climate defined by relatively high rainfall all year round and little seasonal variation in temperatures (8.7 C). The area is often subject to relatively strong winds, prevailing from the south-west (Meteorological service).

### The History of recording of climate in Erris.

The position of Erris on the western seaboard of Europe means that it occupies a position of great importance in predicting weather conditions for Ireland, and western Europe. This is due to the prevailing westerly winds and proximity of the Atlantic ocean.

During the early 19th century climatic recordings began to be made at a number of locations and continuous monitoring began at the Ordnance Survey Office, Phoenix park in 1830. (Rohan 1986)

In the Erris area the earliest known weather records are from the 1850's while in 1902 wind, temperature, rainfall and pressure averages for the period 1866-1895 for Belmullet were published. Telegraphic reporting from a station at Blacksod point began in 1900 and was continued until 1956.

The late 19th century saw the standardisation of results and the extension of recording stations across the country.

The Irish Government took over control of the observing station network in 1937 from the British Meteorological Office.

In 1956 the construction of a meteorological station at Belmullet was completed in accordance with the Meteorological services policy of improving the network of recording stations at that time.

The station has recorded wind, temperature, weather conditions, pressure, cloud and rainfall amounts continuously since then on an hourly basis (Meteorological service).

## Climatic Changes in Erris

The many changes which have occurred in the climate of the Erris are mirrored by developments in the natural history of the area.

Through the examination of rock formations (traces of algae activity in Dalradian rocks in Ballycroy (Sleeman 1992) there is evidence to suggest that the area in which Erris is presently positioned had a warmer and more moist climate for a large part of its history than that which exists today.

However evidence of the presence of a boulder mix in Doogort dating from a slightly later period (late Pre-cambian 500-600 Million years Bp) indicating glacial conditions shows that climate of Erris underwent many changes in the past (Sleeman 1992).

The formation of many of the rocks on which Erris is based were affected by climatic conditions such as carboniferous sandstones in eastern areas of the Barony.

These rocks contain materials which originated through the growth of vegetation or the erosion of older rocks, processes which are affected by climatic conditions.

The main climatic events which affected Erris as we know it today began 15,000 years B.C. (Manley 1952) years ago with the beginning of the final retreat of the great Ice sheets across Europe. As the climate gradually warmed up in the following centuries, hardy plants such as birches were able to spread further north and colonise areas which had previously been dominated by tundra and heath vegetation.

In the decades before 11,000 B.C. the British Isles had relatively low precipitation during the spring and early summer periods, while after 10,000 B.C. during what is known as the "Allerod phase" the climate had become appreciably warmer. It was during this period that birches plants reached central parts of Ireland. (Manley 1952).

A deterioration in climate occurred about 8,850 B.C. and saw the formation of localised glaciers and the retreat of birch vegetation further south. (Manley 1952).

In the period following 8,200 B.C. in what is known as the "Boreal"

climatic period, the summers became steadily warmer while winters remained severe by today's standards, but gradually became less so. Birch vegetation gradually spread northward to be replaced by pine vegetation which was in turn replaced by elm and oak. This period saw the disappearance of the remaining local mountain glaciers, (Manley 1952) which were responsible for the formation of corries in areas such as Nephin beg.

In the period from 5000 B.C. to 3000 B.C. known as the Climatic Optimum the climate became milder and more moist with slightly more windy conditions than today. Plants such as Oak, Alder and Lime continued to replace Pine and Birch (Lamb 1969).

At some stage following this period the climate of the Erris area deteriorated sufficiently to allow peat to form (Doyle 1983).

In the period from 3,000 B.C. to about 900/500 B.C. in what is known as "Sub-Boreal" climatic conditions the climate became drier and less windy (Manley 1952).

The centuries immediately following 900 B.C. until about 450 B.C. (Lamb 1969) saw a return to damper, cooler climatic conditions. Upland areas which had previously been forested became waterlogged and this led to the formation of peat-bogs.

The last two thousand years have seen further minor changes in Climate. The 7th and 11th centuries were drier and warmer than the undermining years, while the end of the 13th century saw a return to more disturbed conditions. The winters after 1550 tended to be more severe and the summers shorter while since 1850 there has been a slight trend towards less cold winters (Manley 1952).

### General characteristics of the Irish Climate

The climate of Erris is dominated to a large extent by the moderating influence of the Atlantic Ocean and this is emphasised by the prevailing winds which originate from this area.

The following section tries to give a general idea of the yearly weather patterns which affect Erris. It should however be remembered that these weather patterns can vary greatly from year to year due to the unpredictable nature of the Irish climate.

In the months of January and December, dominant low-pressure systems in the Atlantic result in depressions moving eastward toward Erris often causing heavy rainfall and strong winds.

Towards the end of January the cold high-pressure system over the continent becomes more dominant over Ireland often resulting in a dry cold spell.

The low rainfall levels which can occur in the period from February to June are the result of high-pressure systems from mainland Europe and more occasionally from Greenland. The low temperatures which are often experienced in early spring are due to the coldness of the coastal waters in the months of February and March. The extension of the continental anticyclone which prevents depressions from reaching Erris, can sometimes result in dry spells in March and April.

Around mid-summer a rise in pressure over the Atlantic and a corresponding fall in pressure over the continent result in a westerly air flow from the Atlantic becoming dominant causing humid, moist conditions over Erris. In late summer warm, still air masses of this nature can result in thunderstorms.

In autumn cold northerly air masses can extend into the Atlantic resulting in active depressions.

In late autumn and early winter air moving in towards Erris from the Atlantic over relatively warm water often results in heavy to moderate frontal rain and post cold-frontal showers. High pressure systems over Ireland at this time of year can produce dry, settled conditions with fog developing at night.

(Rohan 1986)

### Aspects of the Climate of Erris

(Based on information provided by the Meteorological service and from Rohan 1986).

#### Temperature in Erris.

The moderating influence of the Atlantic combined with the prevailing west/south-westerly winds mean that the climatic temperatures of the Erris area are higher in winter and lower in summer than would be

expected from an area of that latitude and proximity to a large landmass. It varies from a daily mean of 5.7 C in January to 14.4 C in August. Its position on the western seaboard of Ireland also means that its average daily air temperatures for winter are higher than in many inland areas due to the relative warmth of the Atlantic water in winter. The opposite is true in summer as Erris has lower air temperatures than many other areas in the summer due to the cooling influence of the nearby water mass and sea breezes.

### Rainfall

The greatest mean monthly amount of rain tends to rise in the winter months (123mm) in Erris while the months of April, May and June tend to be the driest (mean 64.6mm).

Erris receives a relatively large proportion of rain in comparison with many other areas of the country i.e. mean yearly amounts of between 1600 and 1000mm as opposed to most eastern parts of the country which receive between 1000 and 750mm. This is due to the fact that rain bearing clouds begin to lose some of their moisture when they encounter land and uplands in the western half of the country.

Because of the relatively lowlying nature of the Mullet combined with its small land mass, it receives lower rainfall levels (between 1200 and 1000mm) on average than much of the rest of Erris.

The height of the Nephin beg range however results in the immediate area receiving a relatively large amount of rain i.e. between 1600 and 2000mm yearly. This is due to moisture laden clouds cooling and losing precipitation as they rise over the mountains.

### Snow, Hail and thunderstorms

Due to the mild nature of the winters in Erris, snow is a rare occurrence, and on average is recorded lying on the ground 2.5 days a year. Hail is more common and occurs on average 40 times a year mainly in winter and early spring. Thunder in Erris is recorded average on 5 days a year and is most likely to occur in winter. Much of this thunder is associated with cold unstable Atlantic air which can result in shower activity.

### Surface wind

The Erris area along with Malin head ranks as being amongst the

windiest in Ireland, having an annual mean hourly mean wind speed of 6.7 metres per second. Winds are recorded most often from a west/southwest or southerly direction. The highest gust having been recorded in Erris occurred in January 1957 and was of 94 knots per hour, while on the 9th of February 1988 a wind of 93 knots per hour occurred. (meteorological service).

#### Sunshine, cloud and solar radiation

The annual average mean daily duration of bright sunshine received in Erris (between 3.0 and 4.0 hr.) is comparable to much of the rest of the country. Some eastern and south eastern regions however receive slightly more than this (between 3.5 and 4.5 hr.). The western half of Erris receives more bright sunshine (between 3.5 and 4.0 hr.) than does the eastern half (between 3.0 and 3.5 hr.). December is the dullest month with a mere 15% on average of the total possible amount of bright sunshine having been recorded. During May however (the brightest month), 41% on average of the total possible amount of bright sunshine is recorded.

#### Fog, mist, haze and pollution

As the majority of fog which occurs in Ireland is radiation fog in low-lying inland areas, Erris is subject to relatively little fog (62 hours on average per year). The sea fogs that occur are due to the manner in which the cold sea cools the overlying moist air. The fogs which occur in the more hilly areas of Erris is sometimes caused by the cooling of moist air as it rises over the mountains and is sometimes due to the fact that the base of the cloudline may be lower than the hill tops. In general fog is more likely to occur in Erris in the months April to August rather than in the months September to March.

Erris is subject to relatively little haze due to frequent windy weather, and air is almost totally free of atmospheric pollution.

Mists are more common due to the proximity of the sea and tend to occur least often during the hours 1200 to 1800 GMT.

#### Atmospheric pressure

The annual averages of mean sea level pressure at 0900 GMT for the Belmullet area is the second lowest in the country at 1012.6, with only Malin head having a lower sea level pressure average (1012.2).

## The Wildlife of Erris

The composition of the present flora and fauna of Erris has been determined to a large extent by events during the last 10,000 years following the end of the last glacial period.

Towards the end of the last ice age Ireland (including Erris) was inhabited mainly by plants and animals such as northern grasses, arctic-alpine herbs and the mountain hare which were capable of surviving harsh climatic conditions. It appears likely that each glacial period forced the majority of faunal life from the more northerly parts of the British Isles such as Erris southwards to more temperate conditions. (Harrison Matthews 1952).

As the climate ameliorated at the end of the last glaciation period the then dominant plant and animal species were put under increasing pressure from animals and plants moving from Britain and Europe. Continental species were able to move in a north-westerly direction along land bridges which had replaced the glacial straits situated between Ireland and mainland Europe.

The variety of plants and animals found in Erris is considerably less than that found in many parts of the Britain Isles but more especially mainland Europe.

While obviously the size of the Erris barony is a limiting factor in the provision of a wide range of plant and animal habitats, other reasons are needed to explain the lack of species diversity.

One of the main reasons for the noticeable lack of animal and plant species diversity in Erris in comparison with the rest of Europe is probably the fact that relatively soon after the ending of the last ice age (circa 1500yrs afterwards, Mitchell 1976, 7000Bp, Harrison Matthews 1952), plant and animal species moving towards Ireland from Europe were cut off by the emergence of the Irish sea.

Another reason for the relative lack of variety of wildlife in Erris is the homogeneous nature of its landscape. Much of Erris is underlain by glacial till upon which a rather uniform covering of peat has developed. Peatland habitats are only suitable for certain specialised bog plants which are adapted to the acidity of the soils and its lack of nutrients. The mountains of the area are not sufficiently high to sustain truly alpine plant communities, and much of their vegetation is of lowland

origin (Praeger 1934).

The increasingly harsh climate and deteriorating quality of soils met by plant and animal species moving towards the west of Ireland from the rest of Europe after the ending of the last glacial period, undoubtedly prevented some of the more fragile species from extending their range to Erris. (Mitchell 1976)

These inhospitable characteristics of the Erris environment are a contributing factor in the lack of deciduous woodland in the area. The absence of deciduous woodlands in the Erris results in the absence of the various shrubs, lianes and herbs which often accompany woodlands of this type. Many of the present day animals of Ireland are of woodland ancestry and hence the lack of deciduous woodland has had a serious detrimental affect on the number and variety of animals present in the barony. Squirrels for example, although common in many parts of Ireland are absent from Erris. (Mitchell 1976)

In general the wild mammals which are present in Erris, tend to be those which were among the first which entered the British Isles from Europe following the ending of the last ice age. Animals such as the pygmy shrew, the badger, the hedgehog and the otter, are thought to have spread to the British Isles long before animals such as the weasel and the brown hare which have a more restricted distribution. The notable variety of bat species found in Erris suggests that some of the bat species present such as Leisler's, and Natter's bats may have entered the British Isles from the southwest, possibly from land now submerged by the risen sea-level where they could have been present during glacial phases (Harrison Matthews 1952).

Birdlife in Erris is much more varied than the animal life of the area as a wider variety of habitats are available such as wetland, island and cliff, and upland and lowland bog sites. Erris is also well positioned on the migrating route of many birds and has a reasonably temperate climate all year round. Also the island nature of Ireland, or the relative isolation of Erris, does not impose a serious barrier to bird movement. Hence a wide variety of both resident and migrating birds have been noted in the area.



## Mammals of Erris

(Based on Harrison Mathews 1952, D'arcy, Forest and Wildlife Service 1986 and personnel communications).

### Order Insectivora

#### FAMILY ERINACEIDAE

##### 1) Hedgehog, *Erinaceus europaeus*

This mammal is present throughout Ireland.

##### Occurrence in Erris

Although it is present in almost all lowland habitats where cover is available, it is scarce in moorland, marshy, and coniferous woodland areas. It favours areas of grassland close to cover such as scrub, hedgerow or woodland. It can be also found in sand-dunes with shrub cover.

#### FAMILY SORICIDAE

##### 2) Pygmy Shrew, *Sorex minutus*

The shrew can be found in all parts of Ireland including many islands where there is sufficient ground cover.

##### Occurrence in Erris

It is present on the Inishkea islands.

### Order Chiroptera

#### FAMILY RHINOLOPHIDAE

The following are the species of bats likely to be present in the Erris area. Due to the secretive nature of bats, concrete evidence of their occurrence is not available.

##### 3) Lesser Horseshoe bat, *Rhinolophus hipposideros*

This bat is relatively numerous and widely distributed in Ireland.

#### Occurrence in Erris

In winter it is present in large caves and small tunnels, while in summer it is found most often in sheds and roof spaces.

### FAMILY VESPERTILIONIDAE

#### 4) Whiskered bat, *Myotis mystacinus*

Although it is distributed across Ireland, it is infrequently found.

#### Occurrence in Erris

It can be found in caves in winter while it is more often found in buildings and trees in summer. It occurs in both open and wooded countryside.

#### 5) Natterer's bat, *Myotis nattereri*

This bat is widely distributed and numerous in Ireland

#### Occurrence in Erris

It is found in caves, trees and buildings.

#### 6) Daubenton's bat, *Myotis daubentoni*

This bat is widely distributed and numerous in Ireland.

#### Occurrence in Erris

Found mainly near water, this bat is present in buildings and hollow trees in summer, as well as caves during the winter months.

#### 7) Leisler's bat, *Nyctalus Leisleri*

It is widely distributed and numerous in Ireland.

#### Occurrence in Erris.

Although occasionally found in buildings, it is mainly recorded in tree holes.

8) Pipistrelle, *Pipistrelle pipistrellus*

It is widely distributed and numerous in Ireland.

Occurrence in Erris.

It is recorded often near water, and is also found roosting in sheltered spaces and on walls and trees.

9) Common long-eared bat, *Plecotus auritus*

It is widely distributed and numerous in most parts of Ireland.

Occurrence in Erris.

It roosts year round in buildings and trees and less often in caves. It is most often recorded in sheltered, lightly wooded areas.

Order Lagomorpha

FAMILY LEPORIDAE

10) Rabbit, *Oryctolagus cuniculus*

This mammal is found throughout Ireland

Occurrence in Erris.

Most prominent in areas where short grasses are present with sufficient cover in the form of scrub or sand in the proximity.

Rabbits are present in sandhills in Inver, Pullthomas, Ballyveeny, and inside the Mullet.

11) Mountain hare, *Lepus timidus*

The mountain hare is indigenous to Ireland.

Occurrence in Erris.

It is recorded most often in areas where heather is abundant as well as upland pasture. It has also been known to feed on farmland crops.

It has been found on the west side of Termoncarra lake, but is found rarely on large expanses of lowland bog.

#### Order Rodentia

##### FAMILY MURIDAE

###### 12) Wood mouse, *Apodemus sylvaticus*

This very common small mammal was introduced to Ireland by man.

Occurrence in Erris.

It occupies varied habitats including unoccupied buildings, but is most often recorded in bracken, bramble, grass and heather occurring below the treeline.

###### 13) House mouse, *Apodemus sylvaticus*

This rodent is very common throughout Ireland.

Occurrence in Erris.

Its presence is often noted in a variety of buildings as well as hedges.

###### 14) Common rat, *Rattus norvegicus*

This mammal is very common in Ireland.

Occurrence in Erris.

The rat is found commonly across the countryside and its presence is most often noted in areas of ground cover close to water as well as near human settlements in habitats such as farm buildings, refuse tips, and areas of root crop growth.

#### Order Carnivora

##### FAMILY CANIDAE

###### 15) Fox, *Vulpes vulpes*

This very adaptable mammal is common throughout Ireland.

Occurrence in Erris.

It is recorded most often especially cover such as woodland is available near food sources, but can be also be found in more open habitats such as hill, and areas of sand dune.

#### FAMILY MUSTELIDAE

16) Stoat, *Mustela erminea*

This mammal is found throughout Ireland.

Occurrence in Erris.

It has been noted in a wide range of habitats such as woodland, hill and moorland.

17) Badger, *Meles meles*

The badger is found throughout Ireland.

Occurrence in Erris.

It has been recorded in a variety of habitats including moorland, scrub, quarries, and sea cliff, as well as open fields.

18) Otter, *Lutra lutra*

The otter has a widespread distribution throughout Ireland.

Occurrence in Erris.

It is found in both marine and freshwater habitats, such as marshes, rivers, and lakes.

It can be seen around the lakes of Carrowmore and Termoncarra.

## Order Pinnipedia

### FAMILY PHOCIDAE

#### 19) Common Seal, *Phoca vitulina*

This seal is normally found in sheltered shallow water and has a fairly widespread distribution in Ireland.

Occurrence in Erris.

It is found in Erris in the Blacksod Bay and Ballyveeny/Claggan areas.

#### 20) Grey seal, *Halichoerus grypus*

This seal is found in exposed areas of coasts such as rocky outcrops, and its occurrence has been noted in many parts of Ireland.

Occurrence in Erris.

In Erris it is found in the vicinity of the Inishkea and Duvillaun island areas.

## Amphibians of Erris

- 1) Common Frog, *Rana temporaria*, Loscan.
- 2) Viviparous Lizard, *Lacerta vivepara*, Earc Luachra.
- 3) Common newt, *Triturus vulgaris*, Earc Sleibhe.

## BIRDS IN ERRIS

The diversity of birdlife in Erris is a reflection of the bird habitats found in the area.

The interior of Erris consists mainly of bog and mountain habitats with sparse plantations of conifer trees where bird species such as Merlin, Magpies and Golden plover are found. The sea cliffs of the north coast of Erris from Rinroe to Benwee Geeraun Point also provide a habitat for a wide variety of birds including Cormorants, Kittiwakes and Auks (Leonard). A variety of beach types found on the Mullet are inhabited by birds such as resident Oystercatchers, as well as summer migrants like the Common sandpiper and Sanderling which are winter visitors (Ruttledge 1950). The Blacksod bay area contains many waders in its mudflat habitats such as Dunlin and Redshanks (Whilde 1977). Lough Carrowmore and its immediate vicinity is an important wetland site for many birds including White-fronted geese and Tufted duck, while the rare Red necked phalarope has a breeding site on marshland on the Mullet (Leonard). The uninhabited islands found off the coast of Erris provide secluded protection for numerous birds such as Illanmaster island with its population of Puffins (Whilde 1977). The Inishkea islands are wintering grounds of international importance for a large number of Barnacle geese, while Inishglora supports large numbers of Storm petrels (Whilde 1977).

(A more complete guide to the Birds of Erris has been compiled by the Erris Survey Office, and is available in a separate report entitled "The Flora and Fauna of Erris).

## The Natural Vegetation of Erris

The natural vegetation of Erris can be divided into three main groups.

### 1) Bog, peat and fen vegetation

This is the dominant vegetation type which is to be found in Erris, as Atlantic peat covers the majority of the Barony. This very extensive covering of peat provides a wide variety of plant habitats. These include, (based on Doyle 1990).

#### Ombrotrophic peat

The dominant species in these areas are *Schoenus nigricans* and *Molinia caerulea*. *Calluna vulgaris*, *Erica tetralix* are also often present while *Sphagnum* is occasionally found in these areas.

#### Heathland on shallow peat

On dry heathland *Calluna vulgaris* is dominant with *Erica cinera* being common. Wet heathland is also heather dominated but has a more diverse vegetation including an important presence of *Sphagnum*.

#### Pools and lakes

Some pools contain little vegetation with plants such as *Lobelia dortmanna*, *Eriocaulon aquaticum*, *Menyanthes trifoliata*, *Eleocharis multicaulis*, *Utricularia minor* and scattered tussocks of *Molinia caerulea*. Floating plants are found in some pools such as *Sphagnum cuspidatum*, *S. auriculatum* var. *inudatum*, *S. subsecundum*, along with *Zygogonium ericetorum*.

#### Wet hollows on bog surfaces

*Rhynchospora alba* and *Rhynchospora fusca* are dominant in the shallow, permanently waterlogged hollows of the boglands, while deeper hollows sometimes contain floating mats of *Sphagnum cuspidatum* and *S. recurvum*. *Vaccinium oxycoccus* and *Drosera rotundifolia* can also be found in these habitats.



## Drainage channels

In areas of shallow peat near drain heads which are affected by seepage and flood flows, *Myrica gale* is dominant, while *Calluna vulgaris* and *Erica tetralix* are also present. Other plants present in these habitats include *Eriophorum vaginatum*, *Potentilla erecta* and *Hypnum jutlandicum*.

In areas at the head of drains with a greater level of saturation, *Eriophorum angifolium* is dominant while plants as *Menyanthes trifoliata* and *Juncus bulbosus* are also present. An extensive covering of *Sphagnum recurvum* is usually present.

In the upper parts of the channel where there is a substantial water flow, *Juncus effusus* and *Sphagnum recurvum* var. *mucronatum* dominate.

The top of swallow holes provides a habitat for *Calluna vulgaris*, while lower down the profile of the swallow holes, plants such as *Juncus effusus* and *Agrostis stolonifera* are found. Woodland plants such as *Athyrium filix-femina* and *Blechnum spicant* are sometimes present in swallow holes.

In areas of the drains with deep sides and shallow peat, with a high water flow, plants such as *Juncus articulatus*, *Ranunculus flammula*, *Eliobium palutre* and *Agrostis stolonifera* are found.

In some drainage channels where slow-moving water runs over mineral soils, *Carex paniculata* sometimes occurs as the dominant plant with others such as *Potentilla palustris* and *Juncus effusus* occurring in small quantities in the habitat.

Occasionally where widening of the drains occurs, *Hippuris vulgaris* is the dominant plant species. *Ranunculus Flammula* can also occur in the associations.

Willow scrub can develop in deep wind protected drains. Both *Salix aurita* and *Salix atrocinera*. Plants found in the ground levels of this plant association profile include *Blechnum spicant*, *Rubus fruticosus* as well as species such as *Juncus effusus*.

## 2) Coastal vegetation

### Sand Dunes

The extensive machair sand dunes of Erris have a very limited vegetation. *Ammophila arenaria* (Marram) is usually the dominant plant present. *Pinguicula vulgaris* and *Selaginella selainoides* are found on the damper flat areas while *Eryngium maritimum* is often present on the drier areas (Praeger 1934).

### Sandy beaches

The sparse vegetation found on the beaches of Erris consists mainly of *Atriplex hastata*, *Arenaria peploides*, *Salsola kali*, and *Agropyron junceum*. (Praeger 1905).

### Salt Marsh

In some of the more sheltered areas of the west coast of Erris salt marsh vegetation flourishes. A prime example of this is the Portnafranka inlet on the Mullet which contains plants such as *Enanthe Lachenalii*, *Blysmus rufus* (*Scirpus rufus*), *Triglochin maritimum*, and *Potamogeton interruptus*. (Praeger 1905).

### Sea-rock

The various sea-rock habitats along the northerly coasts of Erris provide a suitable site for plants such as *Crithmum maritimum*, *Beta vulgaris*, *Asplenium marium*, *Sedum Rhodiola* and the *Spergularia rupestris*. (Praeger 1905).

## 3) Upland or mountain vegetation

The Erris area has a relatively poorly developed range of alpine flora which is found mainly on the upper reaches of the Nephinbeg range. This vegetation includes *Isoetes Lacustris* which is found near bodies of water, *Saxifraga oppositifolia* which is found in rocky areas and *Sedum roseum* which is found occasionally. Other plants which have been recorded in these areas include *Thalictrum alpinum* and *Salix herbacea*. (Praeger 1934).

A more complete guide to the natural flora of Erris has been compiled by the Erris Survey Office and is available in a separate report entitled "The Flora and Fauna of Erris".

## Coastal Survey of Erris

This survey was undertaken by the Erris Survey Office during the period from September 1993 to June 1994 in response to the scarcity of information available on the coastline of Erris.

The methodology consisted of selecting sites of approximately 500 m in length from around the coast of Erris and these sites were then examined under the headings of

- Designation
- Access
- Hinterland
- Inflows
- Splashzone
- Intertidal area
- Animal and plant life
- Degree of littering
- Present management
- Future possibilities for change.

The sites selected were as follows

(Ordinance survey co-ordinates refer to the centre of the 500m long sites)

The Numbers refer to the individual field reports on the sites (which are available)

### Beaches

Num.	Area	Co-ordinates
1)	Shraigh	F712 269
2)	Ellybay	F635 253
3)	Mullaghroe	F642 230
4)	Rinroe	F810 400
5)	Doohoma	F711 169
6)	Cross Abbey	F645 310
7)	North of Tiraun point	F625 250
8)	French port	F645 350

The water quality of the beaches surveyed appeared to be excellent and most had healthy plant (predominantly Bladder wrack (*Fucus*

vesiculosus) and Channelled wrack (*Pelvetia canaliculata*) and animal populations (mainly Barnacles and Limpets). The amount of litter present was less satisfactory and could pose a threat to future recreational development. The litter appeared to have originated in a diverse range of sources from casual littering to larger scale dumping.

#### Coastline around Belmullet

Num.	Area	Co-ordinates
9)	Mullet side of Blacksod bay	F701 329
10)	From the canal to the pier on shore road	F701 322
11)	To the south of the pier on shore road	F701 325
12)	From the dock area north to Broadhaven bay	F710 322
13)	Mullet side from canal towards Broadhaven bay	F703 329

Although there is little evidence of deterioration in the overall water quality of the coastal waters of Belmullet, the sheer quantity of litter present is a highly detrimental influence on the environmental quality of the area.

#### Others

Num.	Area	Co-ordinates
14)	Southside Doolough Bay	F732 245

The presence of dumped cars in the Bay is obviously unsatisfactory.

#### Erosion and sea-level change

In addition to the serious problem of litter around the Erris coastline, erosion visibly poses a serious threat. This problem is emphasised by studies undertaken by the National Coastal Erosion Committee (Coastal management- A case for Action vol. 2 1991) during 1991 indicating a rate of annual erosion of the Erris coastline varying between 0.1m on the northern coast to between 1.0m and 0.5 on the Mullet to 0.4 in the south west.

Some of the proposals put forward by the National Coastal Erosion Committee in response to the problem of erosion are as follows,

Flood prevention walls to be built in Fahy, Ballycroy at a cost of £0.25 m

Underpinning and strengthening sea walls at Porturlin at a cost of £0.02 m

Pier reconstruction at Blacksod pier at a cost of £0.08m

Building RC retaining wall at Rinroe, Carratigue at a cost of £0.08m.

In the same report by the National Coastal Erosion Committee (Coastal management- A case for Action vol. 2), they refer to the possible dangers of future sea-level rise to the Erris coastal area.

The low shoreline of Blacksod bay is said to be likely to be affected by increased flooding, possibly breaching the low dunes and tombolos, such as the one at Shraigh. The Mullet peninsula may face a major period of instability if the sea rises and the storms intensify and become more frequent and the resulting erosion releases large quantities of sand for airborne transport and deposition. Both bays at Belmullet are said to represent low coasts liable for change should sea level rise.

## TOURISM QUESTIONNAIRE

The aim of this pilot survey was to get a general indication of the level of satisfaction among visiting tourists in relation to the natural environment of Erris. It was hoped that any complaints that tourists might have in relation to the level of cleanliness of the Erris environment would be highlighted, therefore allowing corrective action to be taken. The survey was also designed to highlight which aspects of the environment are most important to tourists.

62 tourists were interviewed using a questionnaire (see A1) at the Bangor Tourist Point which was run by the Erris Survey Office during the summer of 1993.

The results of the questionnaire was as follows

1) What was your main reason for visiting Erris ?

- a) Visiting Friends/relations 7.1 %
- b) To see cultural/historical attractions 17.8 %
- c) The natural environment 46.4 %
- d) Activities (such as water sports, Golf) 3.5 %
- e) The social life (pubs/Discos) 3.5 %
- f) Others 21.4 %

Other reasons mentioned for visiting the area include, a combination of factors, family roots, passing through, visiting Ceide, history, and to hear Irish spoken.

This question highlighted the role played by the natural environment and historical and cultural aspects of the area in attracting visitors to Erris.

2) What part of the natural environment of Erris is most important to you ?

- a) Lakes/ivers 17.8 %
- b) Beaches/cliffs 7.1 %
- c) Fields/farmland 0 %
- d) Mountains/Hills 3.5 %
- e) Animals/Birds 3.5 %
- f) Forestry/Woods 0 %
- g) Boglands 10.7 %
- h) None 0 %
- i) Other 57.1

Other factors mentioned include a combination of aspects, fresh air and wildlife near the golf club.

The majority of visitors felt that it was a combination of different aspects of the natural environment (as in landscape, freedom from pollution etc) of Erris which was most important to them.

3) Are you happy with facilities in relation to being able to see/visit the natural attractions of the Erris area such as nature trails, signposts, toilets ?

- a) Yes 17.8 %
- b) No 78.5 %
- c) Don't know 3.5 %

The answers of tourists to this question indicated a high level of dissatisfaction with the amenities available. A lack of adequate signposting and toilet facilities was noted by many visitors. The absence of litter bins was also mentioned to a lesser extent.

4) Have you seen any pollution/litter since you visited Erris ?

a) yes 82.1 %

b) no 17.8 %

The present of litter on the side of the road, on the coastline and near rivers was noted by many tourists. The presence of dumped cars was mentioned by a minority of tourists.

5) Are you satisfied with the level of cleanliness of the Erris area ?

a) yes 75%

b) no 25%

ii) if not why ?

A significant number of tourists stated that they were unhappy with the level of cleanliness of the Erris area in general, citing litter as being a major reason for this.

These results would seem to indicate the need to maintain a very high standard of environmental quality in the area. Measures such as a co-ordinated anti-litter policy, and a review of outdoor facilities (especially in relation to toilets and signposting) would assist in maintaining and increasing the numbers of tourists visiting the Erris area.

A further more extensive questionnaire survey encompassing greater numbers of tourists over a wider area, with an emphasise on the personal characteristics of the tourists would be of assistance in targeting specific visitor groups.



# TOURIST ENVIRONMENTAL QUESTIONNAIRE

This information is being collected as part of on-going research by the Erris Survey Office, The industrial Estate, Belmullet.

PLEASE ENCIRCLE APPROPRIATE LETTER

Example a)

1) What was your main reason for visiting Erris ?

- a) Visiting Friends/relations
- b) To see cultural/historical attractions
- c) The natural environment
- d) Activities (such as water sports, Golf)
- e) The social life (pubs/Discos)
- f) Others

please explain \_\_\_\_\_

2) What part of the natural environment of Erris is most important to you ?

- a) Lakes/rivers
- b) Beaches/cliffs
- c) Fields/farmland
- d) Mountains/Hills
- e) Animals/Birds
- f) Forestry/Woods
- g) Boglands
- h) None
- i) Other

please explain \_\_\_\_\_

3) Are you happy with facilities in relation to being able to see/visit the natural attractions of the Erris area such as nature trails, signposts, toilets ?

- a) Yes
- b) No
- c) Don't know

4) Have you seen any pollution/litter since you visited Erris ?

a) Yes

b) No

If Yes please explain\_\_\_\_\_

5) Are you satisfied with the overall level of cleanliness of the Erris area ?

a) yes

b) no

if not, please explain why ?

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# ARCHAEOLOGY

# THE ARCHAEOLOGY OF ERRIS, COUNTY MAYO.

ROBERT M. CHAPPLE

"Warlike heroes have doubtless fallen in contests worthy of record;  
but the green turf covers them; their names and deeds are lost  
in the gloom of the past; no bard sung them, or his verses are lost;  
the same grave entombs all, and the swelling Atlantic,  
in his wintry-rage, washes the forgotten spot  
where their bones moulder to dust"

(Trotter 1819, 504)

## INTRODUCTION

The Barony of Erris comprises a land area of approximately 230,000 acres in the north-west of county Mayo. It is internally divided between the two civil parishes of Kilmore and Kilcommon. Kilmore comprises the entire area of peninsular Erris, to the west of Belmullet. The civil parish of Kilcommon is further divided into the four ecclesiastical parishes of Belmullet, Ballycroy, Kiltane, and Kilcommon. Westropp notes that "The great size of the [civil] parishes is (as always) a sure indication of the sparseness of the population from the twelfth century down." (1912, 188). For the most part, the landscape appears as an elevated moorland, dotted with hills, low mountains, and large tracts of blanket bog. Thus, the land quality ranges from generally poor pasture and tillage to large areas unsuitable for agriculture. To the north and west, Erris is bounded by the Atlantic ocean with the Islands off the west coast of the Mullet Peninsula acting as a geological breakwater against the full forces of the winter storms. Along the south-east and south of the Barony the line of the Nephin Beg range of mountains forms part of the border. The remainder of the boundary follows the line of natural watercourses and areas of bogland.



## THE NEOLITHIC

There is, as yet, no evidence of people having arrived in Ireland during the Palaeolithic (Old Stone Age) period, the earliest phase of human habitation on the planet. Sometime after the end of the last Ice Age, around 8,000 to 7,000 BC during the Mesolithic (Middle Stone Age) period (11,000 - 3,500 BC) the first settlers are believed to have arrived in Ireland. These groups came over narrow straits, or possibly via land-bridges, from Scotland into Northern Ireland, and from western Britain into the Irish Midlands. These people were 'Hunter-Gatherers' who lived by collecting, or hunting, the available foodstuffs using a variety of stone implements including axes, arrows, spears, and javelins. As hunters they migrated from place to place erecting no permanent structures, though possibly returning to the same places on a seasonal basis.



Figure 1. Stone Axe Head from Erris.

However, it was not until around 3,500 - 4,000 BC, during the Neolithic (New/Late Stone Age) period (3,500 - 2,000 BC) that another group of settlers came to Ireland, and also to Erris. These were a farming people who had, over

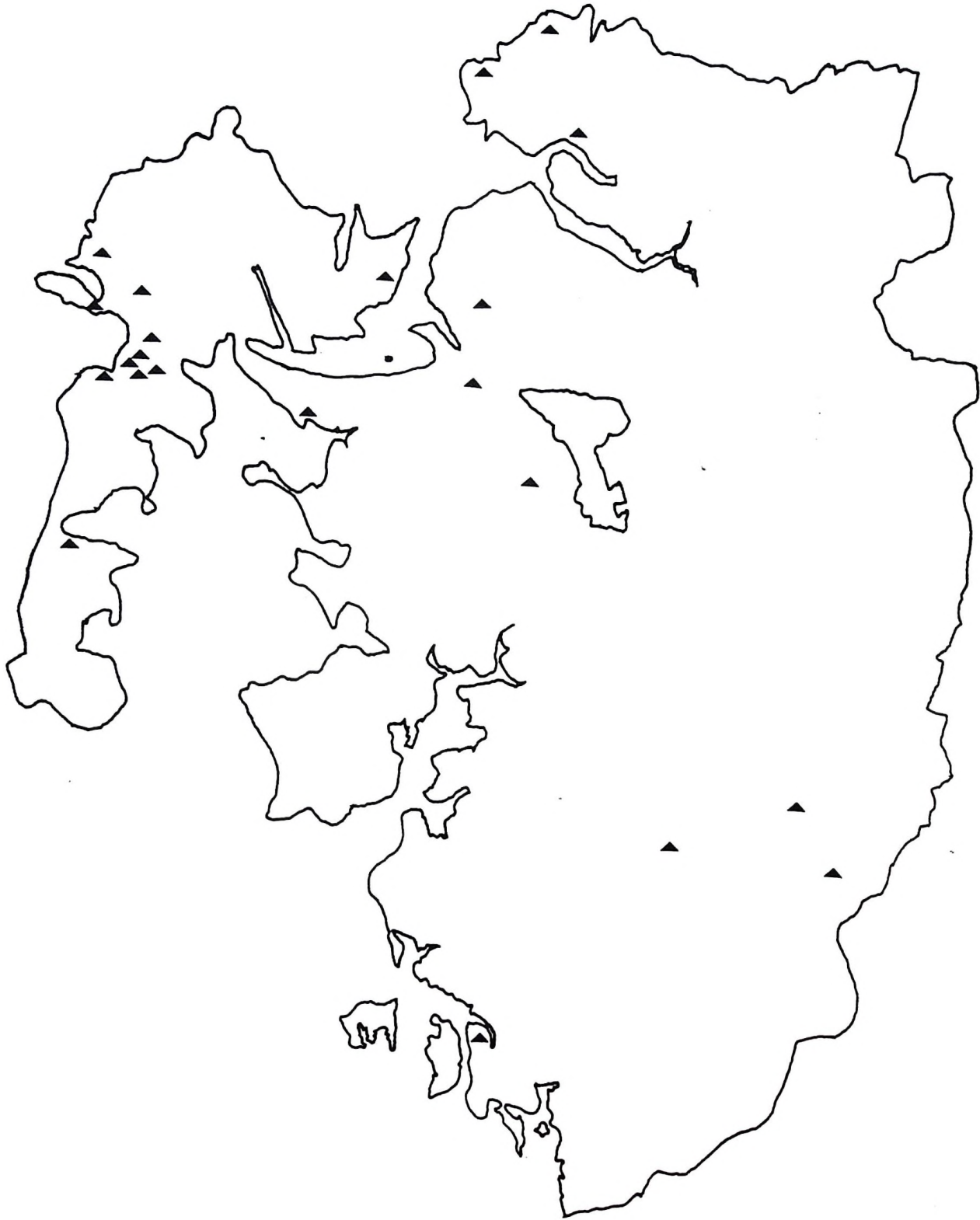
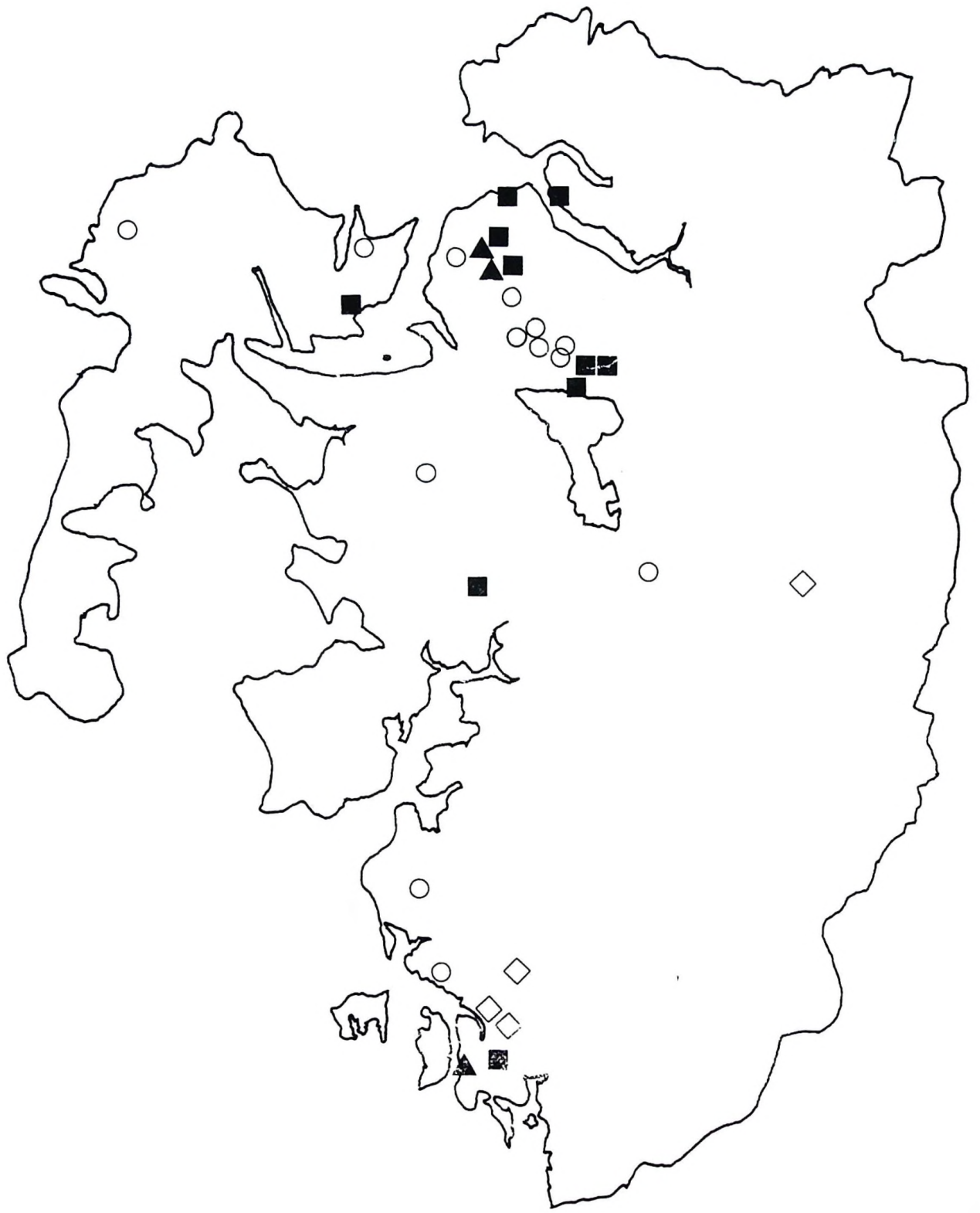


Figure 7 (i) Distribution of Cairns and Mounds in Erris



- Court Tomb
- ▲ Portal Tomb
- ◇ Wedge Tomb
- Possible/Unclassified Megalithic Tomb

Figure 2 (i) Distribution of Megalithic Tombs in Erris



Figure 2 (ii) Distribution of Megalithic Tombs on Inishkea North and South

many generations, learned the skills of agriculture and animal husbandry that had originated in the Near East. They brought with them new skills and a new material culture. These included the knowledge of weaving, pottery making and the domesticating of wild animals. Using stone axes, they cleared large areas of the forest cover for settlements and for the purposes of agriculture (Fig. 1). They also introduced a new form of disposal of their dead, namely in large communal tombs, known as 'megalithic tombs' (Fig. 2). The usual form of interment in these being cremation, though inhumation was also, if less frequently, used.

The term 'megalithic' comes from the Greek, meaning simply 'of large stone' referring to the form and type of construction material employed, and is used to refer to all tombs of this period. These tombs share similar characteristics in that all consist of one or more burial chambers with an entrance at one end and were covered with a mound or 'cairn' of stones. Irish megalithic tombs are divided into four classes, named from their major features. These are: court tombs, portal tombs, passage tombs, and wedge tombs. Of these only the passage tombs are unrepresented within Erris. The introduction of each new type of tomb appears to indicate further new waves of settlers coming to these shores during the Neolithic.

Over the centuries these structures have become imbued with a variety of mystical and mythical characteristics many of which belie their true purposes, many of which are still used on the Ordnance Survey six-inch maps. Amongst the various names they acquired were: 'Dolmen', from the Breton tol, a table, and mën, a stone. The term 'Cromlech' comes from the Welsh crom, meaning bent or arched, and llech, a flat stone. Neither of these terms are current in technical use, though they are still in popular usage. The name 'Giants' Grave' probably derives from the fact that when later people looked at the size of the stones used to build such monuments, they speculated that that superhuman strength was required, and thus concluded that these were the work of giants. Another popular term, 'Druids' Altar', presumably derives from the fact that the majority of portal tombs, and especially wedge tombs are flat topped, giving the impression of an altar.

One of the most popular names applied to Irish megalithic tombs is 'Diarmuid and Gráinne's Beds'. This relates to a tale about Diarmuid, a young warrior of the Fianna, and Gráinne, daughter of the high king. She was betrothed to Fionn Mac Cumhail, leader of the Fianna, who was by then very old. She

convinced Diarmuid to elope with her, which naturally incurred the wrath of Fionn. By tradition, they travelled the entire country together for sixteen years, erecting a 'bed' each night, only to continue their flight the following day. Eventually they made peace with Fionn, and made their home at the royal site at Tara, county Meath. Diarmuid was eventually killed at Benbulbin, county Sligo, in a battle with an enchanted boar, goaded on by the still vengeful Fionn.

The remains of megalithic tombs, as we see them today, generally bear little resemblance to their original forms as most have been partially destroyed or denuded over the passage of time. In the case of a tomb being too damaged to definitely designate as one or other type it is described as 'unclassified'. In most cases, though, it is safe to assume that archaeological excavation would reveal enough of the original structure to allow its proper recognition. Within Erris there are fourteen sites listed by the Office of Public Works' Sites and Monuments Record as possible sites of megalithic tombs or as unclassified megalithic monuments.

## COURT TOMBS

The major burial monument associated with these Neolithic peoples is the 'court tomb'. It is generally held that court tombs are the earliest form of megalithic tomb in Ireland. They are considered to be part of a continental tradition of the third and fourth millennia BC. These tombs consisted of a long compartmented and roofed chamber where cremated remains were placed. At the front of the tomb, generally to the east, there was an open, semicircular courtyard, from which it derives its name. Although there is little evidence, it is supposed that this courtyard was used for ceremonial/ritualistic purposes, connected with the placement of the dead within the structure. The tomb itself was covered by a trapezoidal cairn of stone, broader at the east end than the west. However, this standard design varied from site to site.

Within Mayo there is a major variant on the basic type, where two small transepted galleries, or side-chambers, run off the major chamber to the north and south. This difference between the tombs in the east and the west of the country has been an element in the debate as to where the first Neolithic settlers arrived in Ireland. Considering the high concentration of court tombs in Mayo it has been

speculated that this area was among the primary landing places in the country. Alternatively, it is possible that the Neolithic settlers, like their Mesolithic predecessors came into Ireland along the east coast, perfecting their tomb-building techniques as they moved westwards.

The distribution of this type of tomb is chiefly confined to the northern half of the country, especially in Mayo, with 79 recorded examples; the largest amount known from a single county. There are eleven known examples of court tombs in Erris. Although there are a number of outlying examples, the majority of the Erris court tombs are located in the northern half of the barony, specifically the area north of Carrowmore Lake, on the Barnatra-Glenamoy peninsula. One of these is the well preserved site in Drumgollagh, Ballycroy. The Gallery consists of two large chambers with an ante chamber. The ante chamber is marked by only one of its two original jambstones. Internally the tomb is divided by two high jamb stones with a septal slab closing off the rear chamber. There is a large stone covering the rear portion of the end chamber. This stone has various cup-marks carved on its upper surface, but it is hard to say whether they are natural, or part of the manmade decoration of the tomb. A small number of the other stones in the tomb display some rare, if highly worn, examples of Neolithic carving or 'rock art'.

In more recent times the main chambers of the tomb were converted into a hen-shed. A gabled roof of thatch and sods was placed across the orthostats. This structure has since been removed, but its base is still visible as a low bank outside the side-stones of the site.

The now near levelled site at Rosdoagh was also a court tomb, though sometimes erroneously regarded as a stone-circle. Though difficult to interpret, it is still an important site, and is classified as a national monument.

"The monument lies about 300 yards from the shore at the eastern side of Broadhaven near the entrance to Sruwaddacon Bay. To the north lies a wide stretch of sand-dunes and to the south-west Dooncarton Mountain dominates the site. The land on which the tomb stands is damp heathy pasture sloping towards the sea from a low ridge to the east of the site. Old tillage beds surround the tomb.

"The monument is poorly preserved and difficult to interpret. A short gallery,

oriented roughly SSE-NNW, opens to a court at the SSE. The court area is comparatively level. Around the court and gallery a low banking can be traced forming a rough oval 27.00 m. long and 20.00 m. in greatest width. While much of the outer edge of this banking is reasonably clear, the rough heather-covered ground and the general slope of the surrounding land permit only an approximate delineation of the outline. At the north-western end of the site around the gallery very uneven ground leaves the true outline especially uncertain. The inner edge of the bank appears to run 2 m. to 3 m. outside the probable line of the court perimeter along the north-eastern side, extending from a row of five heavy blocks near the eastern corner of the site to a point just north of the rear end of the gallery. However, the downward slope continues to the ill-defined edge of the level area within the court [...]. The evidence of cornerstones along this side is not sufficient adequately to define the perimeter. It remains uncertain therefore how far this edge can be taken as truly representing the line of this side of the court. It is probable that some of the lower portion of the slope may be due to slip from the bank. Along the opposite (south-western) side the inner edge of the banking seems to merge with the court perimeter as defined by the courtstones.

“The gallery opens off the NNW end of the court. A heavy stone, .60 m. high, may be the backstone or a segmenting stone [...]. It has a rough but flattish top. The north-eastern side of the gallery is represented by two stones. [...] on the opposite side of the gallery is the only surviving stone of the south-western side. It is .40 m. high. Inside this a flat-topped stone, .65 m. high, seems to be a jamb. Beside this again a pointed stone, .70 m. high, seems best interpreted as a blocking stone or septal. All the above described stones are erect.

“The north-western part of the court perimeter is defined by three erect stones each .30 m. high. The first is a flat-topped stone standing at the gallery entrance and perhaps functioning as an entry jamb. A small fragment immediately behind it is probably a piece split from it. The second courtstone has a horizontal top edge but the top of the third slopes sharply downwards away from the gallery entrance. At right angles to this are two stones probably originally a single block. The smaller is .40 m. high and the larger .80 m. high. Overlapping the larger piece is a big block .50 m. in height. The function of these stones is not certain. They could perhaps indicate a lateral entry into the court or a subsidiary chamber opening off the court. Some 2.00 m. to the south three erect set stones indicate the



continuation of the court perimeter. [...] Some 2.00 m. to the south-east of these is a further group of three set stones. Two of these are much concealed and protrude only .20 m. above the ground. The third which stands between them is an erect stone, .50 m. high, and may well be a courtstone or perhaps part of the court entrance. It is possible that the other two are to be similarly interpreted.

“Fewer courtstones are present along the north-eastern side of the court. [...] Taken as a whole the evidence suggests a full-court about 9.00 m. long and about 8.00 m. wide. The portion on either side of the gallery entrance indicates a characteristic flattening across the entry. [...]

“While the evidence for court and gallery seems sufficient to permit classification as a Court Cairn with reasonable certitude the relation of the banking to the tomb must be left undecided. The stones protruding from the banking seem in general to follow the curve of the oval. It is difficult therefore to consider these stones as kerbing of a cairn. They could, perhaps, have marked the edge of the banking. The difficult ground conditions make for obscurity but the general impression given by the site is that of an oval enclosure built around the site. It is quite possible that two distinct phases are represented; the first a court cairn, the second of unknown date, an enclosure incorporating the remains of the megalithic structure. It would seem likely that the cairn material would have been utilised in the construction of such an enclosure. The gallery seems to have had a very short front element, 1.00 m. and approximately 2.20 m. wide, best described as an ante-chamber. Behind this is a chamber of normal size, 2.25 m. long. If the stone at the end of the gallery is, in fact, the backstone, the tomb could be either a two-chambered site with an exceptionally short front chamber or a single-chambered tomb with ante-chamber. It is just possible that the stone is a segmenting stone like that present at Dooncarton (Ma. 1) and that the gallery once extended beyond it.” (de Valera and O’Nuallain 1964, 2-3).

## PORTAL TOMBS

Portal tombs, or ‘Dolmens’, are a slightly later form of Neolithic tomb. They consist of three or more upright stones covered by one or two massive cap-stones. Two of the upright stones are generally placed near each other at the front end of

the tomb forming a portal or door feature. Stones placed at the back and sides close off the structure. Like court tombs, they appear to have been surrounded by a large cairn of stones, most of which have become denuded over time. Sometimes excavation may reveal the former extent of these cairns. Communal burials, chiefly cremations, were placed on the internal ground surface.

Their distribution is, again, mostly confined to the northern half of the country, including parts of Leinster. Only seven of this type are known from Mayo, three of which were discovered in Erris. Of these, two are located to the north of Carrowmore Lake, while the third is situated in the extreme south of the Barony. The example at Claggan in Ballycroy, is one of the finest in the barony. "It consists of the ruins of a gallery, about 3.00m long, orientated roughly E-W. The entrance, at the east, is between two portal stones. [...] The gallery sides are completed by single stones and another closes the west end. The gallery was covered by a single roofstone which slipped off the tomb to the south. There are no visible traces of a mound around the structure. The northern portal stone is erect and is 1.90m high. The opposite portal stone is leans inwards and its base may have been forced out of position by the collapse of the roofstone. At present it is 1.45m high but its top may be broken away." (de Valera and O'Nuallain 1964, 71-2)

## WEDGE TOMBS

The final type of megalithic tomb to be introduced into Ireland was the wedge tomb. As a monument type, it was used from the latter part of the Neolithic period and into the Early Bronze Age (c. 2000 - 1500 BC). It consisted of a long and narrow, sub-rectangular structure constructed of orthostats, capped with a single large stone. In general, they are rather higher and wider at their south-western facing entrance, giving them their distinctive shape. Their long, narrow burial chamber was generally surrounded by a stone-setting, and covered by a circular or oval mound of earth and stone. They too appear to have been used for communal cremation and inhumation. It is believed that these tombs were constructed by a new wave of settlers coming into the country, possibly from north-western France, around 2,000 BC. Their distribution pattern is more widespread than those of the other tomb types, with most of the high concentrations of the type in the west of the country, including nineteen recorded from Mayo. Of this number, four are known from Erris, three of which are located close together in the south of the Barony.



Figure 3 Distribution of Pre-Bog Walls and Field Systems in Erris

Two of these tombs are located in Castlehill Townland, Ballycroy Parish. They “[...] stand approximately 200 yards apart on flat pasture land about a half-mile north-west of Holy Trinity Church on the Mullranny-Belmullet road” (de Valera and O’Nuallain 1964, 62-3). The more northerly of the tombs is today quite ruined. However, the other site is better preserved: “It consists of a short gallery, oriented roughly NE-SW, flanked at each side by a close-set outer-wall. The area between the two lines of outer wall is filled almost to the level of a roofstone which seems to be in situ [...]” (op. cit., 63).



Figure 4. Pre-bog wall, Carrownaglogh



Figure 5 (i) Distribution of Ancient Habitation Sites in Erris



Figure 5 (ii) Distribution of Ancient Habitation Sites on Inishkea North and South

## PRE-BOG SETTLEMENT

One of the more recent archaeological discoveries within Ireland are the great complexes of field-walls, now buried beneath the massive peat bogs of Mayo. The blanket bog that now covers these walls started to grow around 1,000 BC from where it encroached upon, and finally overcame the man made structures. The walls have only been uncovered and recognised in recent decades with the cutting of the peat for use as a domestic fuel. From twenty years of archaeological excavation and probing of the bog it is now known that these complexes (approximately thirty in number) are not only the remains of a highly organised cattle-raising and agricultural society, but it is also the largest Neolithic monument in the world. These vast systems are not only made up of the field-walls themselves, but include house sites and incorporate the larger, more visible court tombs. They demonstrate land clearance and management on a huge scale, and the presence of an organised society, living well above subsistence level, here during the Neolithic. Though generally seen as centred on the Céide area, these field systems are also present within Erris. The majority of the Erris examples have been located on the hills of Knocknallower and Faulagh, on the Barnatra-Glenamoy peninsula (Figs. 3&4).

## ANCIENT HABITATION SITES

Throughout Ireland there are many ancient habitation sites, some of which may date to the Neolithic. They are rarely marked on the Ordnance Survey maps, but when they are recorded they are generally noted as 'hut sites' or 'house sites'. These were either circular or rectangular in plan, possibly with walls constructed of wood, and probably thatched with rushes. Today, all that survives of most of these sites are their stone foundations, their ephemeral upper structures having long ago disintegrated and decayed away. However, without excavation they are almost impossible to date accurately. Thirty of these sites are known from Erris, none of which have been excavated, and thus have produced no secure dating evidence (Figs. 5&6). In general terms, however, many of the Erris sites are associated with the pre-bog walls on the Barnatra-Glenamoy peninsula, while others are to be found in or around promontory forts, thus suggesting that they are contemporaneous.



Figure 6. Hut site from Inishkea South

#### CAIRNS AND MOUNDS

In many parts of the country there may be seen various types of mounds and cairns, in a huge variety of of shapes and sizes. Some may contain megalithic tombs, or other forms of prehistoric burials such as cist graves. However, some may be merely 'clearance cairns'. These are mounds where stones were piled up solely for the purposes of field clearance. Most were constructed in relatively recent times, and are obviously not connected with burials of any period. Again, without archaeological excavation it is impossible to state with certainty a mounds' original function, much less their dates of construction and use.

There are thirty-three known cairns and mounds in Erris, undoubtedly of various dates (Figs. 7-9). Among these is the famous 'Leacht Ithar Iorus'/'Lacht Air Iorrais' in Binghamstown. "Tradition asserts that ages ago an invasion, under a





Figure 7 (ii) Distribution of Cairns and Mounds on Inishkea North and South

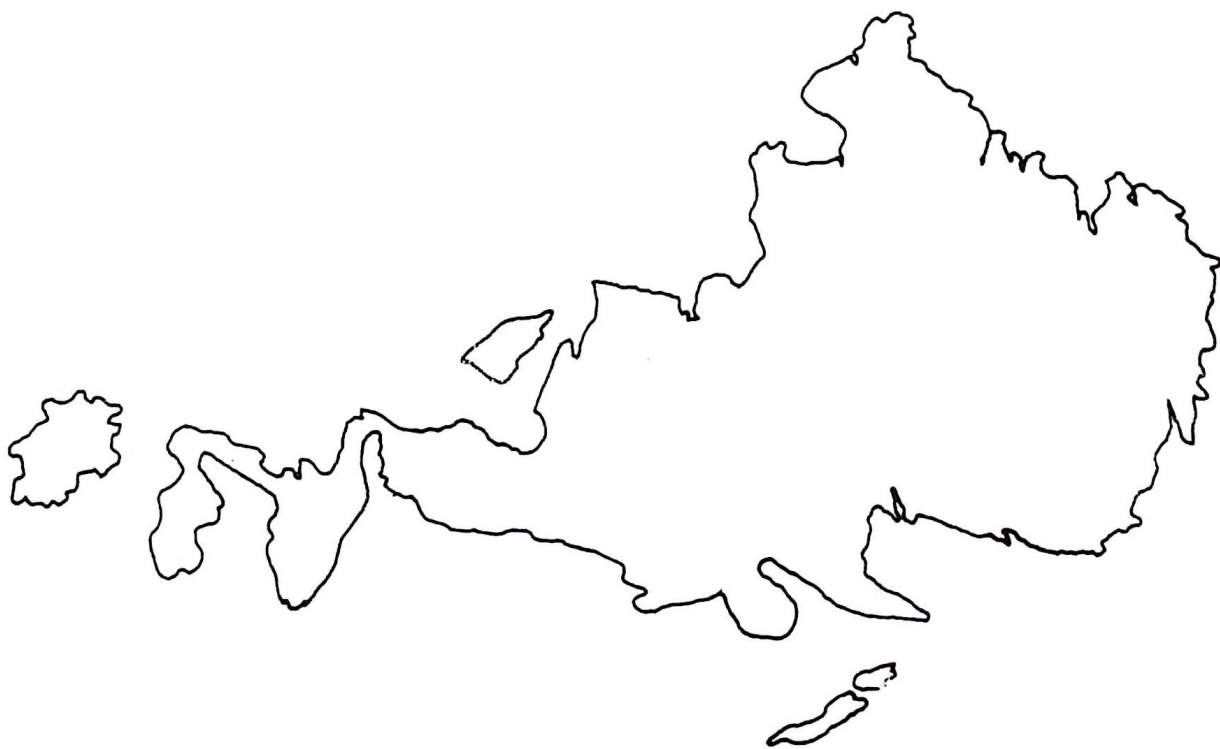


Figure 7 (iii) Distribution of Cairns and Mounds on  
Inishglora (top) and Duvillaun More (above)

Munster king, was repelled, with vast slaughter, in "the battle of Cross," and the monarch was among the slain. Archaeology so far corroborates the tale in finding a vast stratum of bones under the sandhills, between Binghamstown and the sea, and a single skeleton (upright some say, sitting say others) in the mound off the King of Munster, the "Reemooni" tumulus." (Westropp 1912, 188). There is also a group of eight cairns on Inishglora Island which were used as penitential stations from the Early Christian period down to relatively recent times. However, many of these may be much earlier in date.



Figure 8. Mound, possibly of Bronze Age date, Kilgalligan



Figure 9. Mound on Inishkea North

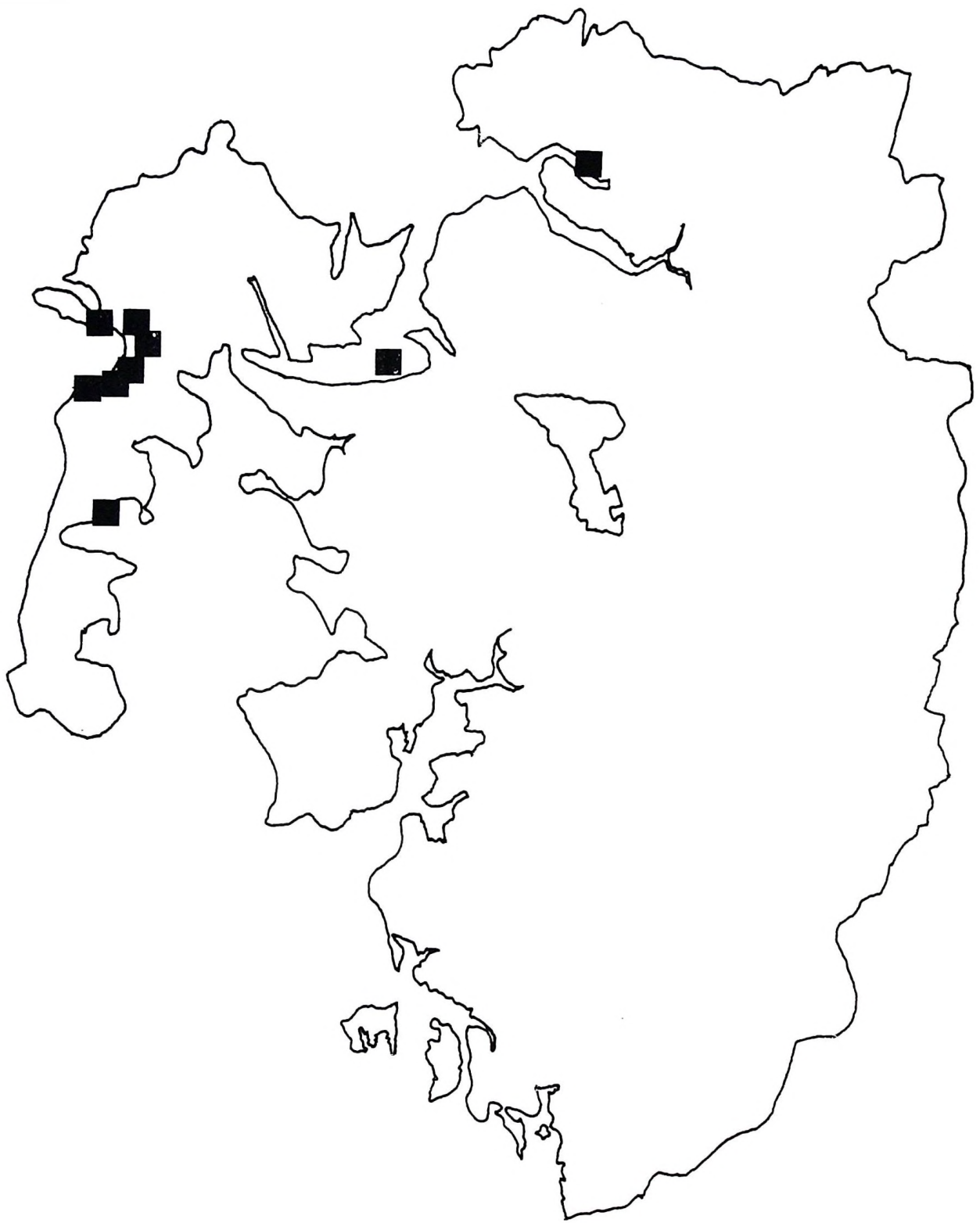


Figure 10 (i) Distribution of Shell Middens in Erris

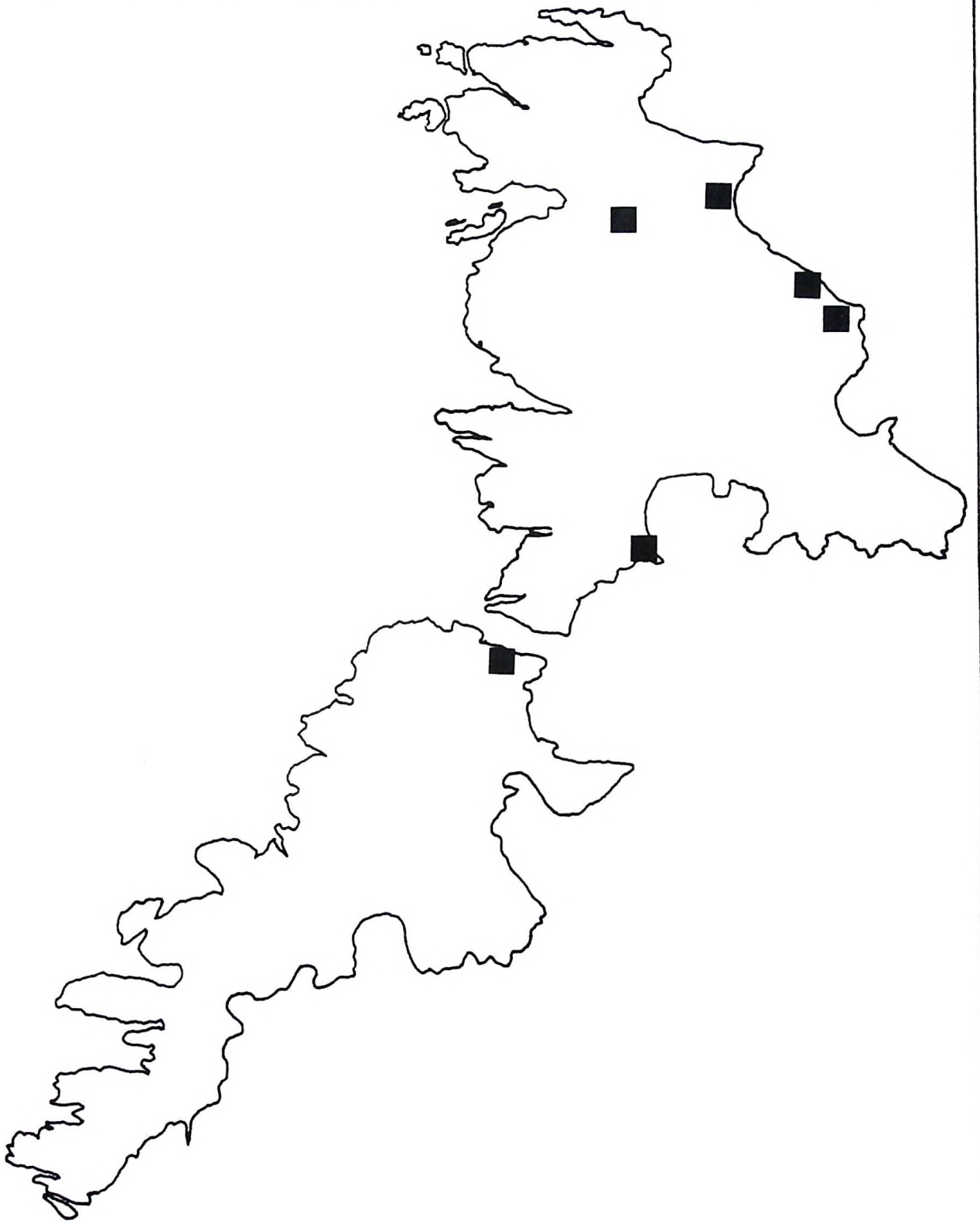


Figure 10 (ii) Distribution of Shell Middens on Inishkea North and South

## SHELL-MIDDENS

The term 'shell-midden' is used to describe any man-made accumulation of shells. In most cases the sites chosen were used to cook shell-fish that had been gathered from rock-pools, or from the sea shore at low tide. As the food was consumed, the shells were simply discarded and may be seen in well defined layers, along with the charcoal blackened sand from their cooking. These sites are difficult to date accurately, and some may be as early as the Neolithic period. Though the period of their use continued down to the nineteenth century. Fifteen of these sites have been recorded from Erris, the majority being located on the west coast of the Mullet peninsula, with another major grouping on the Inishkea Islands (Fig. 10).



Figure 11. Shell Midden, near Cross Abbey

In the low sandy cliffs, a short distance to the south of the church at Cross, one may see bone and coffin fragments protruding from the sand. Slightly further along still, there are the remains of a large shell-midden from which iron fragments, burnt stone, and butchered animal bones protrude (Fig. 11). Some of these bones were split length-ways to remove the high-protein marrow. As stated above, shell-middens may be as early as the Neolithic period, but this example seems much later in date, presumably contemporary with the period of monastic habitation.

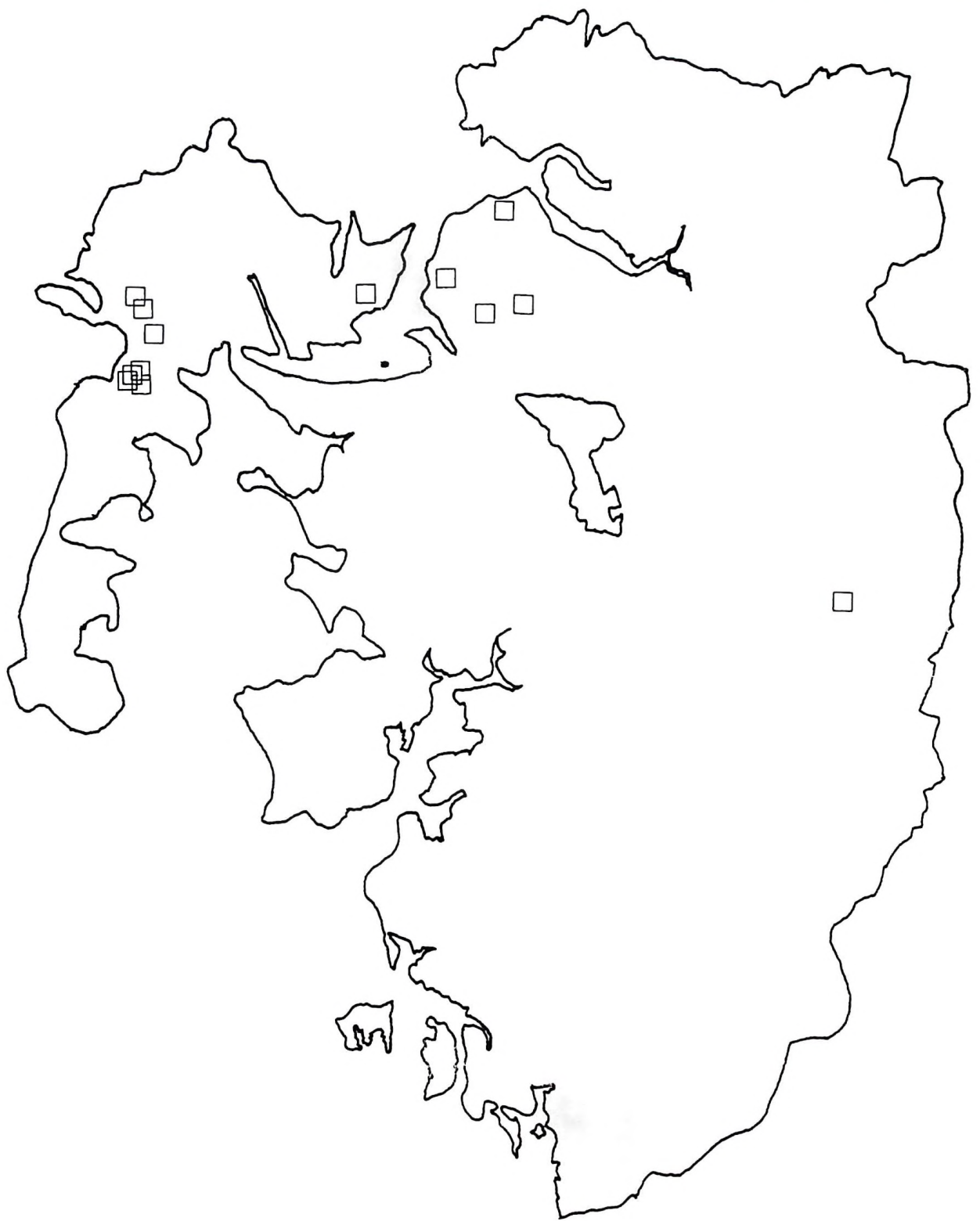


Figure 12 Distribution of Cist-Burials in Erris

## THE BRONZE AGE

The Bronze Age probably began around 2,000 BC when further groups of settlers began to arrive in Ireland. These were a technologically superior people to their predecessors as they possessed a knowledge of metals, specifically how to combine copper and tin to produce bronze, for the production of various forms weapons and utensils. They also produced large quantities of jewellery made from alluvial gold. Their widespread use of copper, bronze, and gold made Ireland one of the greatest producers (and exporters) of metalwork in western Europe at that time.

## CIST-BURIALS

These Bronze Age people also brought with them a distinctive new burial practice of single crouched inhumation in cist-graves. Cists are essentially the square or rectangular stone-lined pits into which the dead body was deposited. The majority were covered with a single, flat slab that left little evidence above ground. This form of burial was often accompanied by grave goods such as pottery food vessels. These cist-burials are commonly, though not necessarily, found in association with mounds and cairns. This form of disposal of the dead dates from the late Neolithic, eventually replacing the older tradition of the megalithic tombs, and remained in use down to the Early Christian period; though not without some distinctive developments in the overall form of the practice. Because cist-burials were largely unmarked and slightly underground, they are occasionally discovered by farmers during the course of ploughing, or during sand and gravel quarrying. Cist-burials are known from all over Ireland, especially from the eastern and northern parts of the country. Thirteen are known from Erris (Fig. 12), of which a small cluster of four are found on the Barnatra-Glenamoy peninsula. However, the main concentration is on the Mullet peninsula, the majority of which are located in the sandhills to the west of Binghamstown.

A cist of Bronze Age date is known from Gortmellia, in Kilcommon Parish. Waddell (1990, 121) notes it briefly as "A short rectangular slab-built cist, found in 1936, was described as slightly wedge-shaped internally, measuring 56 by 38cm. Its long axis lay NW-SE and it contained cremated bones." The Finds Register of



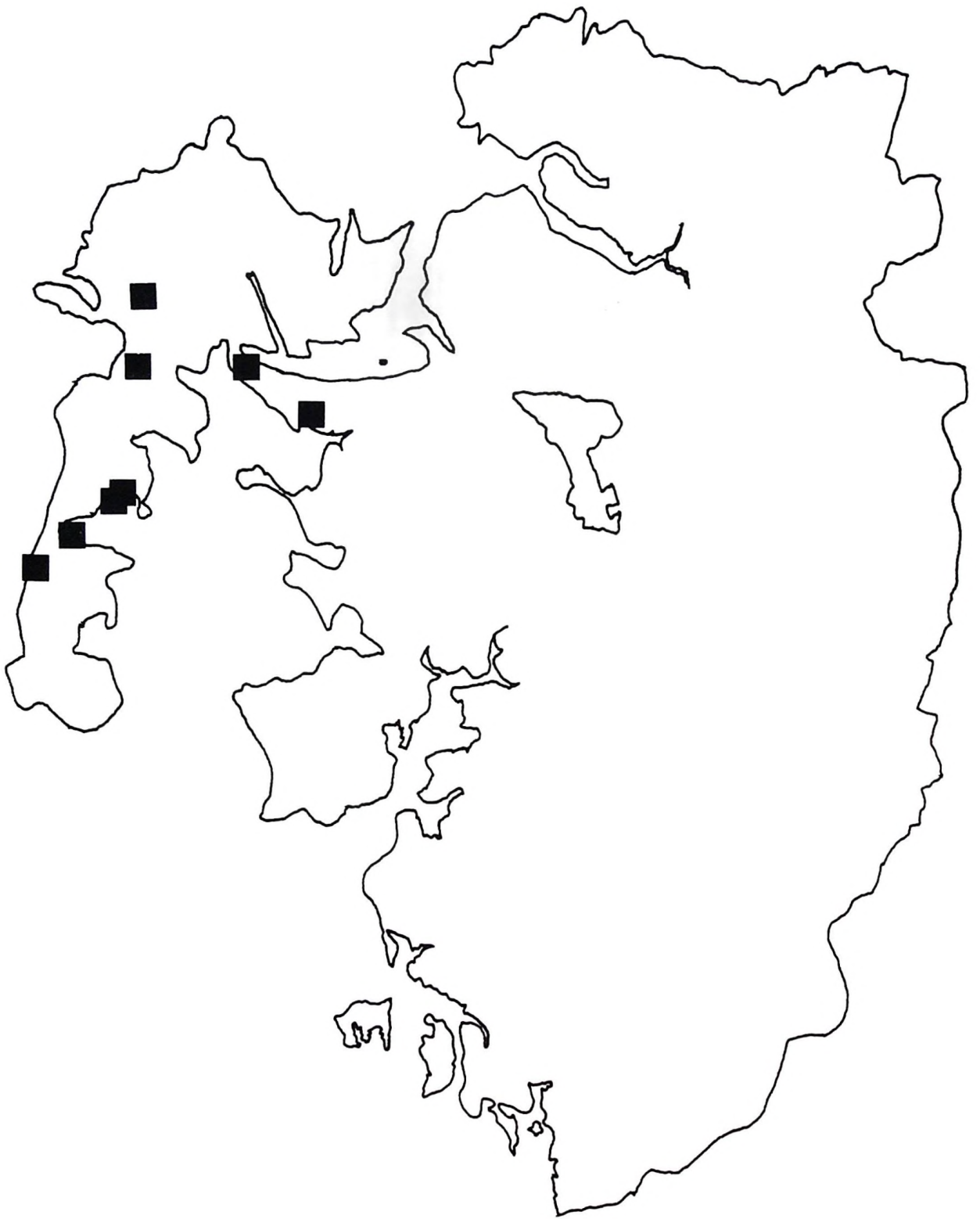


Figure 13 Distribution of Standing Stones in Erris

the National museum of Ireland add that the "Sides and floor of the grave underneath [were] covered with flags of stone and [the] top of the grave was covered with a large flag of stone. At the centre of the grave there were several bones that appeared to be human." (N.M.I. Finds Register. Erris, Gortmellia, 1936)



Figure 14. Standing Stone on Mound, Kilgalligan. (see Fig. 8)

## STANDING-STONES

Standing-stones are possibly the simplest form of megalithic monument known, consisting merely of a single, unworked and undecorated stone, set upright in the ground. They are also roughly contemporary with stone-circles. They may vary in form from less than a metre, to over six metres in height. Examples of this form of monument are known from almost every county in the country, though most numerous in the south-west. In date they may range from the Bronze Age to the Post-Medieval Period. The excavation of a number of examples has shown that some mark the sites of Early Bronze Age cist graves. A small number which bear La Tène ornamentation, such as the Turoe and Castlestrange pillar-stones, are of Iron Age date, specifically the first centuries BC/AD; however, none of this type are known from Erris. In a number of cases simple crosses, or other Christian motifs,



Figure 15. Standing Stone, Barranagh East

were carved on standing-stones. It is a matter of speculation as to whether these are genuine monuments of the Early Christian/Early Medieval period, or the Christianised monuments of an earlier time. In addition to their presumed uses as burial markers or the foci for cult/ritualistic purposes, standing-stones may have also, or merely in occasional cases, served as territorial boundary markers. Some 'standing-stones' around the country are of more recent origin, having been erected by farmers in the nineteenth century as cattle scratching posts. Within the Barony there are eight known sites mostly located on the Mullet Peninsula, including the recently discovered example at Tiraun Point (Figs.13-15).

#### STONE-CIRCLES

A stone-circle is, in essence, a ring of standing-stones placed upright in the ground. They vary in size and the number of stones used in their construction. Their

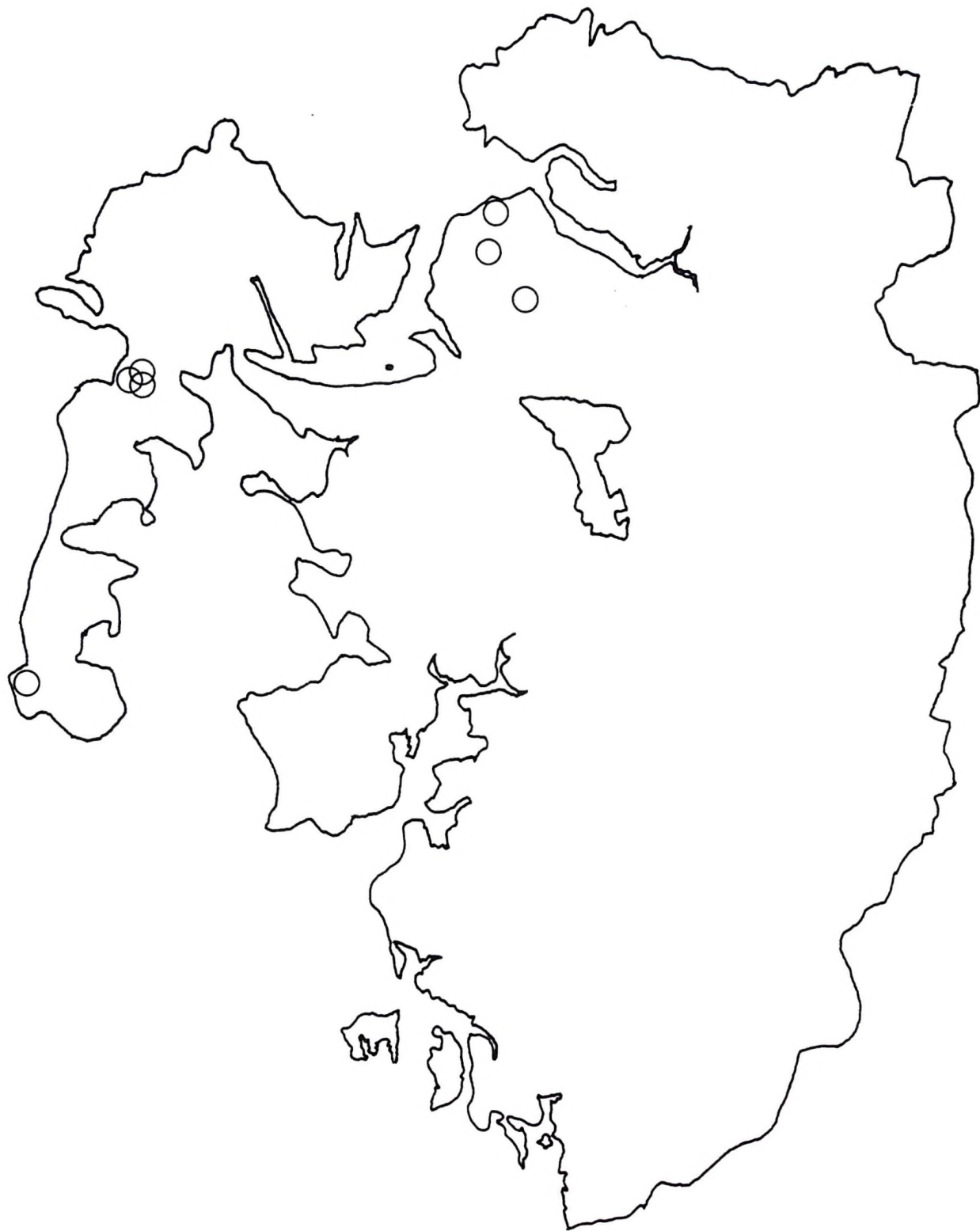


Figure 16 Distribution of Stone Circles in Erris

uses are largely unknown, but in a number of excavated examples burials have been discovered. It has also been suggested that they may have been built to study the movements of the celestial bodies, or possibly related to religious rites connected with sun or moon worship. Standing-stones are known from most parts of Ireland, though high concentrations exist in western Munster and in Ulster. Seven of these monuments are known from Erris, three of which are on the Barnatra-Glenamoy peninsula, while the remaining four are located on the Mullet peninsula. Of this latter group, three are to be found close together in the sand dunes to the west of Binghamstown (Fig. 16).



Figure 17. Stone Circle, Glengad or Dooncarton

The finest example of this type of monument in Erris is undoubtedly the stone-circle at Dooncarton, near Pollathomish, in Kilcommon. It is located in rising ground looking out over Sruwaddacon Bay to the north. The circle was originally comprised of a total of ten upright stones, however one is now recumbent. It measures approximately five metres in diameter. During the last century part of the circle was dug into, apparently in a misplaced search for "buried-treasure" (Fig. 17).

## RING-BARROWS

Ring-barrows are another form of prehistoric burial. They are usually in the form of a low circular, flat-topped mound with a central fosse and external bank. Occasionally, they may have gaps and causeways passing through the bank and fosse. Excavations of a number of sites have shown that they were normally used for burial, usually in the form of cremations, and may vary in diameter from four to

twenty metres, though rarely rising above one metre in height. Indeed, this type of site is often barely perceptible on the ground, their already slight features having been worn away over time. Due to this they were frequently omitted from the Ordnance Survey six-inch sheets, and now being discovered only in the course of highly intensive field survey or by aerial photography.

It has been argued that ring-barrows were used over a long period of time both as individual sites and as part of a larger sepulchral tradition initiated in the Neolithic. The body of excavated evidence gathered on a national basis, however, suggests that this was the exception rather than the rule; the majority, where secure dating is available, are placed in the first centuries BC/AD. This would imply that their primary period of use was during the later part of the Early Iron Age period.

## THE IRON AGE

Around 300 BC a new wave of settlers came to Ireland, moving west from central Europe. These people were the Celts, and they brought with them a knowledge of a superior metal for weaponry and personal decoration. This metal was iron, a material much more durable than bronze which produced a finer, sharper cutting-edge. However, the most lasting of their contributions to the countries they settled, was their distinctive Celtic language. It survives in this country as modern Irish, and elsewhere as Cornish, Breton, Manx, and Scots Gaelic.

While the remains from the Stone and Bronze Ages are largely tombs, with little evidence of habitation, the opposite situation applies in the following Iron Age as the settlement evidence is overwhelming, but almost nothing of their burial customs is known. In some parts of the country they built large protective enclosures on the crowns of hills, known today as 'hillforts', similar to the larger Celtic 'Oppida' of European countries. It was also during this period that ringforts and crannógs were introduced into Ireland as forms of defended settlements. These were used from the end of the Bronze Age, through the Early Christian Period, and in some cases as late as the seventeenth century.

## RINGFORTS

The name 'ringfort', or 'Rath', is applied as standard to almost all circular to sub-circular enclosures demarcated by an earthen bank with enclosing fosse or by a dry-stone wall with a mean diameter of 15 to 60 m, the majority being around 30 m in diameter. They are also known by their Irish names: 'Ráth', 'Líos', 'Dún', 'Cathair', and 'Cashel'; each referring to individual aspects of the site. Many of these terms have been used to form elements in modern Townland names.

As a site type, ringforts, of both stone or earthen construction, are probably the most characteristic Irish settlement type of the Early Medieval period, the greater majority appearing to date from between 500 and 1200 AD. However, some evidence suggests that they may have, if only occasionally, been built much earlier, during the Iron Age, and continued in use, if not being built, down until the seventeenth century. Although no nationwide programme of physical survey has ever been undertaken, approximately forty- to fifty-thousand sites are known from OS six-inch sheets. Their actual numbers may have originally been in excess of sixty- to eighty-thousand sites. Due to their large numbers they are exceptionally vulnerable to complete destruction in the course of land clearance and reclamation, or to partial modification, generally due to the construction of roadways, field-walls, and drainage-ditches.

It is the most usual form of ringforts to have had only one bank and fosse, commonly termed 'univallate'. In the case of a ringfort having two or more banks and fosses they are referred to as 'bivallate', or 'multivallate' respectively. On some sites the original entrance gap is still visible, in many cases it faced roughly east. In some excavated examples it has been shown that stones were employed torevet or face earthen banks. However, such facings frequently remain hidden from view until such procedures as excavation are undertaken. Thus in the course of a programme of field survey it is usually impossible to distinguish between ringforts built using such facings and those constructed solely of earth. Alternatively the sites' defences may consist of a large stone wall or 'cashel'. Excavation has shown that in the case of earthen ringforts the bank may have, at least on occasion, been topped by a high wooden palisaded fence for extra protection. Inside these sites there would have been one or more circular or rectangular rush-thatched houses with wattle-and-daub walling (a construction technique involving the application of

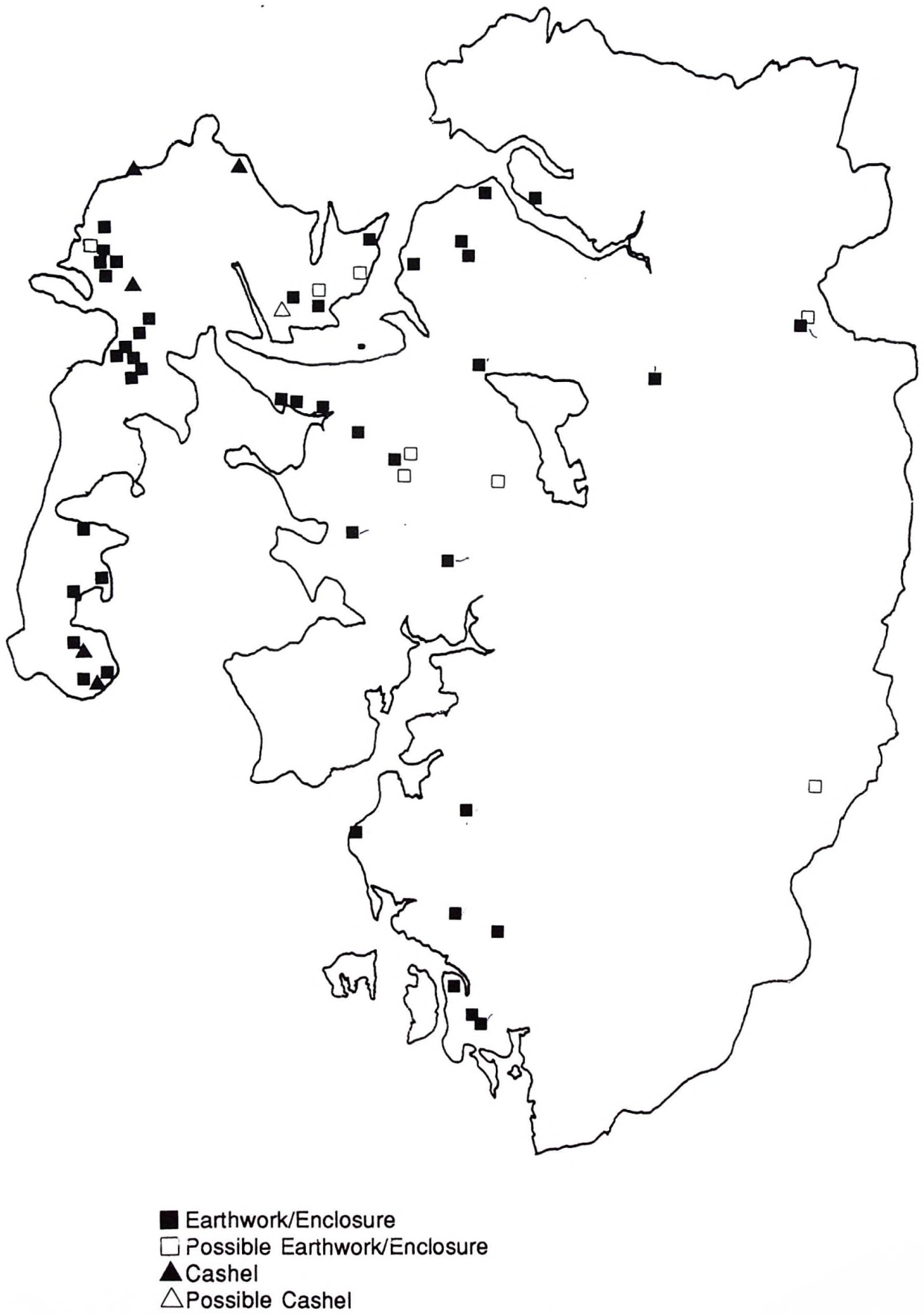


Figure 18 (i) Distribution of Enclosures and Earthworks in Erris



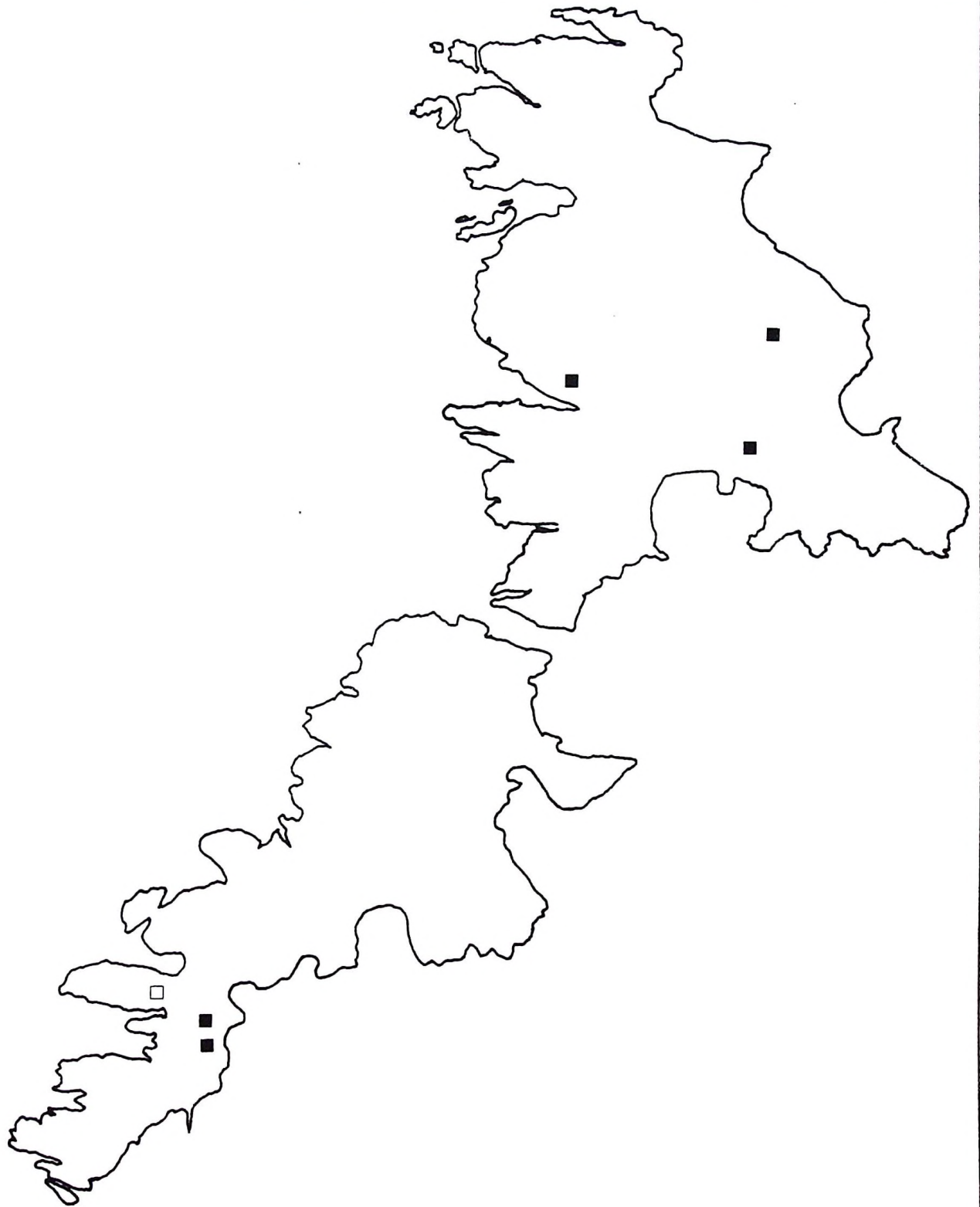


Figure 18 (ii) Distribution of Enclosures and Earthworks on Inishkea North and South

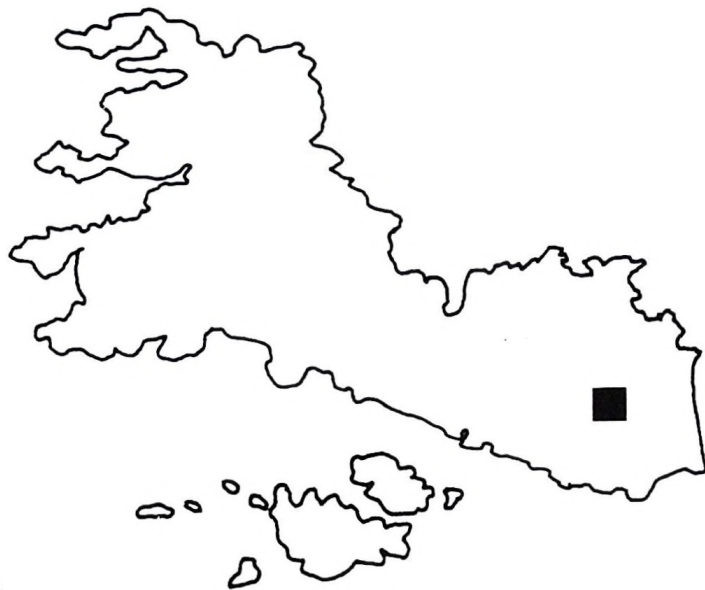


Figure 18 (iii) Distribution of Enclosures and Earthworks on Inishglora (top) and Duvillaun More (above)

a mud mixture to a woven wooden wall).

Although termed 'forts' they are not to be considered as military in character or function. Excavation has shown that ringforts were essentially the secure settlements of individual families, if only of the wealthier farming classes, to provide protection for themselves, their valuables, and their cattle from other warring chieftains and wild animals. Some forts had underground passages of stone or wooden construction, known as souterrains which were used for storage, or as places of refuge in times of danger.

The origin and chronology of the Irish ringfort is, at best, problematic, the initial phase of construction being largely dated to the Iron Age. The majority of excavated examples from the country, approximately 150, indicate that the main period of occupation, if not of construction of ringforts as a site type, was during the second-half of the first millennium AD. Thus it may be considered that it was during this period that the majority of ringforts within Erris were constructed and inhabited. There are claims for an origin in the prehistoric period for ringforts, others disagree with this sentiment, chiefly on the basis of there being no evidence of sites of ringfort type having been built in the period before the Iron Age. However, the evidence from the Rath of Feerwore, county Galway, and from Aughinish, county Limerick may point to an early date in some cases.

In areas of the country such as Erris where Anglo-Norman activity appears to have been almost non-existent, and coupled with the dearth of excavated evidence, it is problematic to determine whether, and in what numbers, ringforts continued to be occupied, and possibly constructed, during the later Medieval period and into the sixteenth and seventeenth centuries. Some excavated ringforts indicate occupation during the late Medieval period, though none produced evidence of actual Medieval construction. Cahermacnaghten, in county Clare is commonly cited as housing a legal school into the seventeenth century. In Erris there are a total of 49 known enclosures and earthworks, along with a further ten possible sites. On top of this number there are seven recorded cashels, and one possible example. They are known from all over Erris, though they are concentrated mostly on the coasts of the Mullet peninsula (Fig. 18). Souterrains are another feature regularly associated with ringforts and cashels. They are manmade caves which were built for the purposes of storage, and of hiding in times of turmoil.

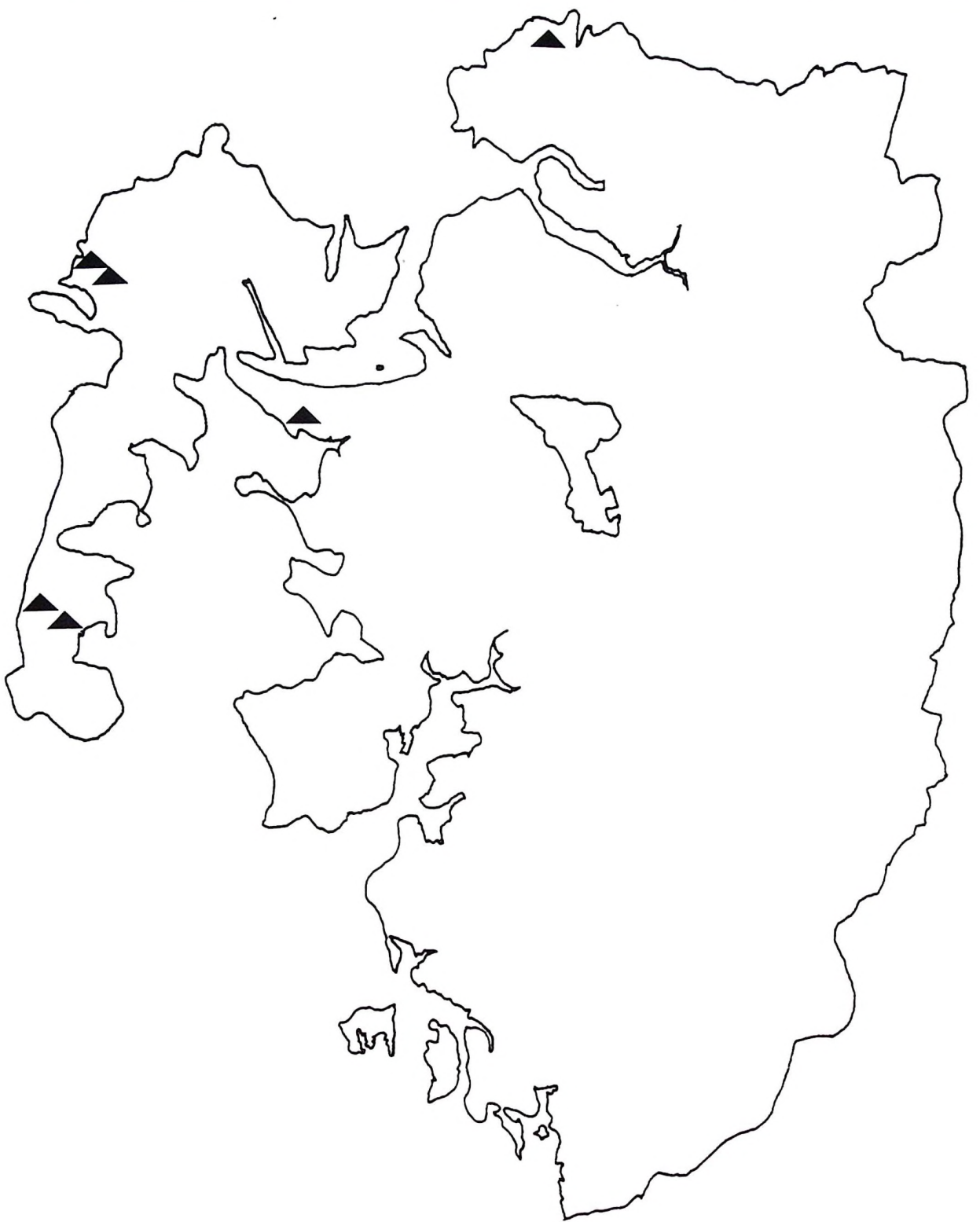


Figure 19 (i) Distribution of Souterrains in Erris

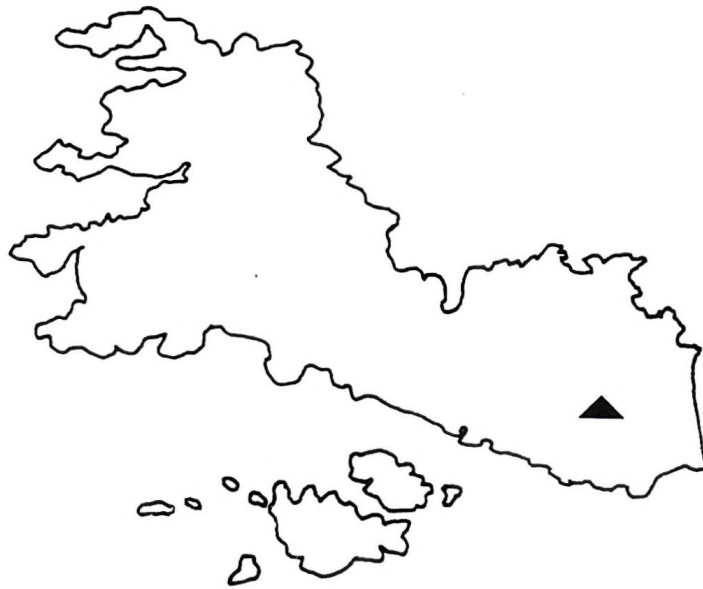


Figure 19 (ii) Distribution of Souterrains on Inishglora (top)  
and Duvillaun More (above)

They were built either completely of stone, or built completely of timber, though a combination of the two materials was apparently common. Those built wholly or partly of wood all collapsed over time as their timbers decayed. These generally go unrecognised until excavated. The other type of souterrain, built entirely of stone, have a much higher chance of survival, though many of these too have collapsed or their entrances filled with debris. Within Erris there are records of seven souterrains, though there were undoubtedly more (Fig. 19).

Until relatively recent times ringforts were, at least partially, protected by a body of local superstition and cultural taboo associated with 'Fairies', 'Little People', and traditions of a vague Celtic otherworld. The modern waning of these traditional beliefs, coupled with the fact that ringforts are generally sited in good quality agricultural land, has led to their regular destruction, or at least partial 'modification'. In later times some of these sites were reused as graveyards for the burial of unbaptised children (see below).



Figure 20. Dun Domhnaill, Glencastle

The most impressive of this type of site in Erris is the strategically located 'Dun Domhnaill' (The fort of Donal) in Glencastle (Fig. 20). This was obviously a highly important place at one time as its owner receives mention in the "Annals of the Four Masters" for the year 1386: "A great army was led by Donnell, the son of Murtough O'Connor, the Mac Donoughs, O'Dowda, and the O'Haras, into the territory of Mac Wattin [Barony of Tirawley], which they totally plundered and devastated on that occasion; and many persons were killed, among whom were

Otway describes the fort along with giving some of the folklore associated with it: "In the centre of this green and well-sheltered oval vale, rises an oblong eminence, which nature seems to have intended for a fortress, for it rises on every side to the height of about one hundred feet [...] On the top of this picturesque eminence, whose sides are not now so steep as to be deprived of grassy verdure, are the remains of a doon or cassiol, whose mounds run conformably to the oval formation of the eminence, and which bear evidence of being one of the most ancient and important strongholds in the district. This glen is called Glencastle, and the fortress, Doon Donald. [...] Glen Castle, or rather Cassiol, is an ancient Doon of the Tuatha Danaan, who possessed Ireland [...] Donald Doolwee was a giant, as all Danish kings were in the days when they conquered Ireland [...] our giant ruled with his strong hand all this *fine* tract of mountain and bog, and having such a fortress, a Doon Donald, he was not only stout, but rendered also unconquerable by the incantations of a witch, who, to make him invincible, came from the Ocean Isles. One would think that all these natural and acquired excellences might have made Doolwee capable of holding his own; but not so, for he had a pretty wife - and he himself, it seems, though stout, was not made for lady's love. And now came the trial of his powerful means. A potent northern, a giant also, entered the mouth of Broadhaven, landed his dark multitudes, and seized on Doolwee's fortresses of Dooncarton and Doonkeegan. The two armies met in the bay of Inver - they fought on the sands - and Doolwee, though unconquerable himself, was unable to conquer the Vickyng; and, what is worse, Doolwee's wife saw the stranger fighting in all the pride of his beauty with her *ordinary* husband, and love got the better of her bosom. Well, the battle was a drawn fight - the Vickyng returned to Dooncarton, and Donald retired to his false wife, Munhanna, to the Doon of the glen; and here the Irish Helen, urged by curiosity and love, used all her wily art to induce her good man to propose an armistice, which he acceded to, and a white flag hung out from his Doon, which was responded to by another from one of the enemy's strongholds. This brought about a treaty of peace - a division of territory - and an invitation of the Vickyng to the fortress of Doon Donald. [...] In moments of dalliance with her paramour, she was tempted, as Dalila was, to disclose the secret of her husband's invincibility. This, however, she could not do at once, and for the best of reasons, because, though she was aware that he had a charmed life, she yet knew not in what that charm consisted. But now she resorted to Dalila's tricks,

and fondled her strong man and coaxed him to divulge his secret; but this he must not do without the consent of the enchantress, and still the wife wheedled, and, to please this false one, he muttered the wild rhyme, by means of which he could bring the powerful one to his presence; and lo! she came. the awful Morna, with a human skull in her hand, and cried, "Donal Doolwee, here I am, from the caves of the roaring sea. What is your pleasure?" "I have called you," said the giant, "to tell this wilful wife of mine the secret of my invincibility." "Daughter of the Lord of Crohan Aigle," cried Morna, "I comply with your unhappy request; but (stretching forth her hand, wherein was held the skeleton head) you must swear, placing your hand on THIS, that the sins of the soul that animated this body and of all his forefathers, may rest on yours at the terrible day of doom, and blast you to perdition, if you ever reveal the secret." The wife laid her hand on the skull [...] The skull gave out a moan as if in warning; but in vain - she invoked the curse - she swore. And then the enchantress rose as a wreathing mist into the air, and, when high above, she cried - "There is a ringlet of my hair surrounding the loins of your husband - until the knot which ties it be separated, no weapon can affect his life." Saying this, she vanished as in wrath, and the thunder rolled and the lightnings flashed, and an earthquake opened that ravine which winds no so picturesquely about Glen Castle.

"What need we proceed to narrate in detail the misdeeds of that Connaught Dalila. Donald was made drunk - he slept in sottishness - his knot was cut - the Vickyngyr admitted - he drew his sword, and Doolwee's head was severed from his body, and sent rolling in all its ghastliness down the steep sides of the Doon; and the morning sun, as it rose over the eastern hill, saw the raven banner of the sea-king floating over the ramparts of Dooncarton.

"How long did the false woman enjoy her new lover? Just so long as her paramour's fancy was steady - and where is that ever secure when there is not virtue and respect to keep it from veering? The Vickyngyr *must* go to visit his other dominions - he must mount the dark rider of the ocean to go to the northern isles; and he commands his black steed to be brought out to take him to the seashore, and Munhanna implores to be taken along with him, and he condescends to listen to her entreaty: she is mounted up behind, and on the sea-king rides till he comes to the broad and turbulent stream that flows from Lough Carrowmore, and the flood is high and loudly rushing in a red fury between its rocks - the sea-king plunges in - the steed struggles and swims - the false fair one shrieks and clings to her lord -



and now he ruthlessly shakes her off and down she goes: the boiling surge whisked her along and engulfed her, and she was no more seen.

"Onwards went the cruel northern, glad to be rid of one who might yet betray him in his sleep; and a crane was now seen flapping its heavy wings over the roaring waters, and it shrieked with a voice that sounded like the word *revenge*, and then she urged her flight towards the cliffs of Inniskea, where, according to O'Flaherty and other chroniclers, she stands and will stand alive and solitary until the end of time." (1841, 37-42).

## CRANNÓGS

Of roughly contemporary date with ringforts, though more inaccessible, are crannógs. These are small, roughly circular islands; wholly or partly, artificial, and generally sited near the edges of lakes. The name derives from the Irish words 'crann' and 'óg', meaning 'young tree' as large numbers of saplings and young timbers were used in their construction. This was for the purposes of consolidation of the underwater structure, and to prevent its subsidence. However, when they are noted in Irish writings of the Medieval period no distinction is made between crannógs and natural Islands. Both being referred to as 'Inish', or 'Island'. Crannógs were also inhabited into the Medieval Period.

Such sites were constructed by accumulating layers of stone, earth, brushwood, and peat on a relatively shallow part of the lake bed. Many crannógs also had a causeway connecting them to the shore. For defence purposes this was constructed just beneath the water surface, occasionally in a serpentine shape, to further impede the progress of would-be attackers who did not know its course. However, the most likely form of transport to and from the crannógs would have been by dugout canoe, a number of which have been found on excavation. They were defended by high wooden, palisaded fences to protect their inhabitants from attack. Their internal layout was similar to that of the ringforts. Today crannógs may appear as small, overgrown islands, or occasionally as mounds on a lakeshore or marshy area of bog where water has been drained.



△ Crannóg  
 ▲ Possible Site

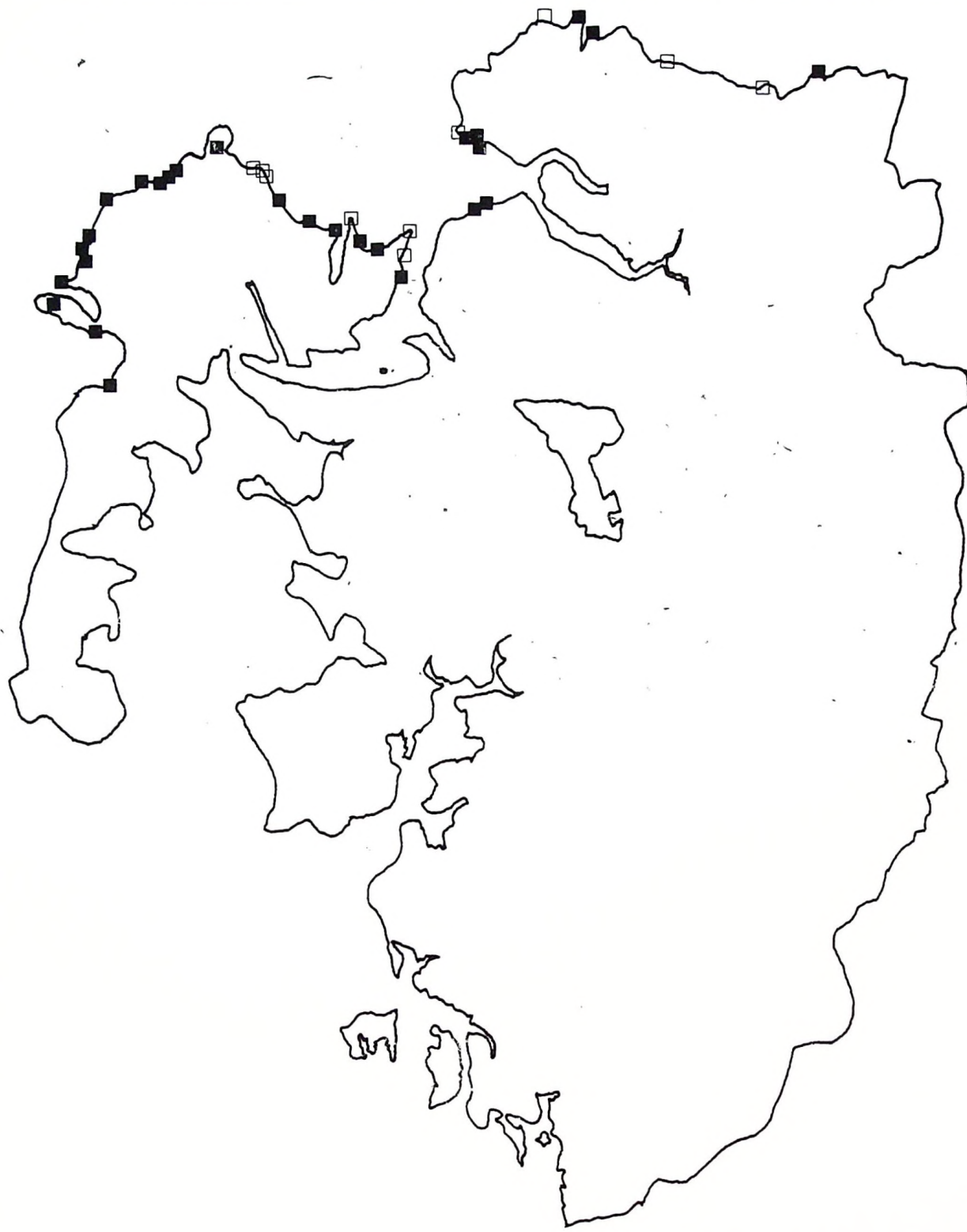
Figure 21 Distribution of Crannógs in Erris

Within Erris the Sites and Monuments Record lists only one site as a definite crannóg (Fig. 21). However, on the basis of aerial photography, some twenty-six further locations are noted as possible sites. One other island, in the south of Carrowmore lake was also investigated, and produced a chert scraper possibly of Neolithic/Bronze Age date, which appears to suggest activity on or near the site during the late prehistoric period. The site appears to have been connected to the mainland by a low rubble causeway, parts of which are still traceable underwater.

## PROMONTORY FORTS

The vast majority of Irish promontory forts are found along the coast, but occasionally examples are also found inland. As their name implies these sites consist of a promontory, or spur of land which has been fortified to provide a defensive position. In the case of most promontory forts they are already naturally defended on three sides by high cliffs and usually require only a short barrier crossing the neck of the land to complete the defences. This generally consists of a large earthen bank with an external fosse and a breaching gangway. By such a method a large stronghold could be created with a minimal outlay of time and resources.

Although large numbers are recorded from all over the country not enough examples have been systematically excavated to demonstrate any kind of nationwide pattern. The few sites that have been excavated have produced scant dating evidence, and diagnostic or cultural finds are rare. Indeed, in the few examples where secure dates have been recovered, they span the period from the Early Medieval to the seventeenth century. Despite such late dates many promontory forts may be earlier, dating to the Iron Age, or before. In the majority of cases, since there are so few indications of internal activity, promontory forts have been regarded as temporary refuges rather than the sites of long term, continuous habitation. Some sites were also reused and refortified in later periods. There are twenty-eight promontory forts in Erris, along with eleven further locations which are regarded as possible sites (Fig. 22). They are most dense along the high cliffs of the north coast of the Mullet peninsula, with some minor concentrations along similar cliffs of the north coast, near Carrowteige and Portacloy.



■ Promontory Fort  
□ Possible Site

Figure 22 (i) Distribution of Promontory Forts in Erris



Figure 22 (ii) Distribution of Promontory Forts on Inishkea North and South



Figure 22 (iii) Distribution of Promontory Forts on Inishglora (top) and Duvillaun More (above)

The most important promontory fort in Erris, and also a site of national importance, is Doonamo, in Aughernagalliagh Townland, Kilmore Parish. Westropp described the site: "Tradition asserts that this, the chief fort of Erris, was built by the Burkes, and besieged and taken by the Danes. Others said it was built in the time of Queen Elizabeth "in order to deposit goods that were shipwrecked"; and, later, it was said that, during the "battle of Cross," the inhabitants penned their cattle in it for safety, whence the name *Dunnamo*, *Dun na mbo*, cattle-fort. O'Donovan inclined to connect the name with Modh, the Firbolg chief. [...] The works comprise an abbatis of pillar-stones, "of great height and size," in 1817, but reduced to its present insignificance by 1839, O'Donovan thought, by the sea, but, as Otway heard, by the natives taking them for lintels and sills. Stones 5 feet high around the moor, hardly two miles away, near Dun fiachrach; now only some forty-two very low stone spikes remain *in situ*. Inside these is a shallow but marked hollow beside a mound; it curves round at 15 feet past the broken cleft which evidently has been cut by the sea for that space since the outer mound was made. There are no corresponding features to the south of the entrance. The great fosse lies inside a rock cutting along a stream, in a fault to the south, but is dry to the north and 7 feet deep, 6 feet wide below, and 22 feet above. Inside this to the north was a low mound along which (and on the scarped rock ridge of the southern reach) a massive wall of dry stone has been built of small thin flags, much of which has fallen into ruinous heaps. It extends for 52 feet to the north and 65 feet to the south of the gateway, being still 118 feet and once, probably, 150 feet long and nearly straight"; it is 20 feet thick in the middle, and 14 feet to the north, about 8 feet high at the southern end, and about 17 feet over the fosse.

"The gateway was 3 feet 9 inches wide; it had evidently later guard rooms, one to the south 17 feet 6 inches long, and two smaller ones to the north nearly buried in debris and not mortar built. Inside the gate are a rectangular yard to the right with a circular hut foundation at its south-west angle about 7 feet 6 inches inside. To the the south is another circular hut with a square annexe, each 12 feet over all; while outside, the entrance has a long curved wall, 40 feet long, and 5 to 6 feet thick, to the south, and a hut to the north 13 feet across.

"On the hill inside the rampart are two segments of the wall of an oval ring fort apparently 63 feet, north and south, by 51 feet, its walls over 6 feet thick." (1912, 201-3).



- ▲ Church and Graveyard
- △ Church Only
- Graveyard Only

Figure 23 (i) Distribution of Churches and Graveyards in Erris





Figure 23 (ii) Distribution of Churches and Graveyards on Inishkea North and South



Figure 23 (iii) Distribution of Churches and Graveyards on Inishglora (top) and Duvillaun More (above)

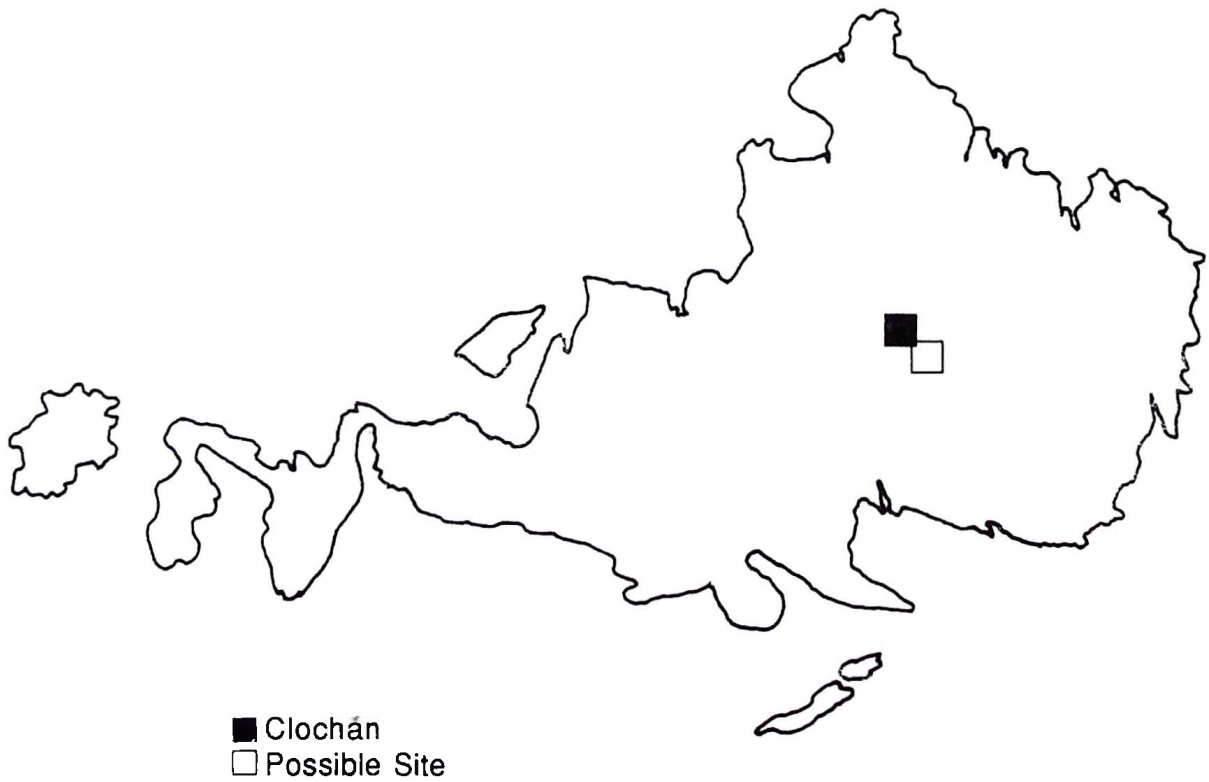


Figure 24 Distribution of Clocháns on Inishglora (top)  
and Duivillaun More (above)

What Westropp describes as the “low stone spikes” around Doonamo have for many years been considered to be a relatively rare feature, known as Chevaux-de-frise, similar in style to that of Dún Aengus, on the Arran Islands (Harbison 1971, 206). However, recent excavation of this formation has shown that it was in fact a childrens' burial ground.

## THE EARLY CHRISTIAN/EARLY MEDIEVAL PERIOD

The introduction of Christianity into Ireland by various missionaries, including St. Patrick, before and during the fifth century brought with it a huge change, the legacy of which is still with us today. The earliest known record relating to Christianity in this country is a letter dated 431 AD, from Pope Celestine, appointing one Palladius as Bishop to those already converted in Ireland. The form of the Church created by Patrick was episcopal, based on the idea of dioceses, ruled over by Bishops; much as modern Christianity is organised. However, by the end of the fifth century this form of Christianity had waned, and was replaced by an extraordinary large number of small monasteries which came to the fore, especially during the sixth and seventh centuries. Although some of these were hermetic and ascetic in their orientation, others were deliberately built on major routeways, and with time became important cultural and economic centres.

To the modern visitor these Early Christian Monasteries appear small in extent (Fig. 23). Little or nothing remains from the earliest period of Christianity in Ireland as the first churches to be built here by missionaries were of a wooden construction. These ephemeral buildings would have eventually decayed, or in most cases been replaced by churches of stone once the fledgling religion had taken a firm hold and consolidated its power. The earliest monasteries consisted of a large bank of earth or stone, similar to a ringfort, known by its Latin name 'Vallum'. Within this there would have been at least one church, along with various cells or 'clocháns' for habitation, and possibly some used for the production of manuscripts, stonework, and metalwork. Four of these clocháns are known from Erris (Fig. 24). Three examples are found on Inishglora and one from Duvillaun More (plus one further possible on the latter). On both Islands where they are known, the clocháns are obviously associated with the Early Christian monasteries there. Within these monastic enclosures stone slabs were erected to the dead.

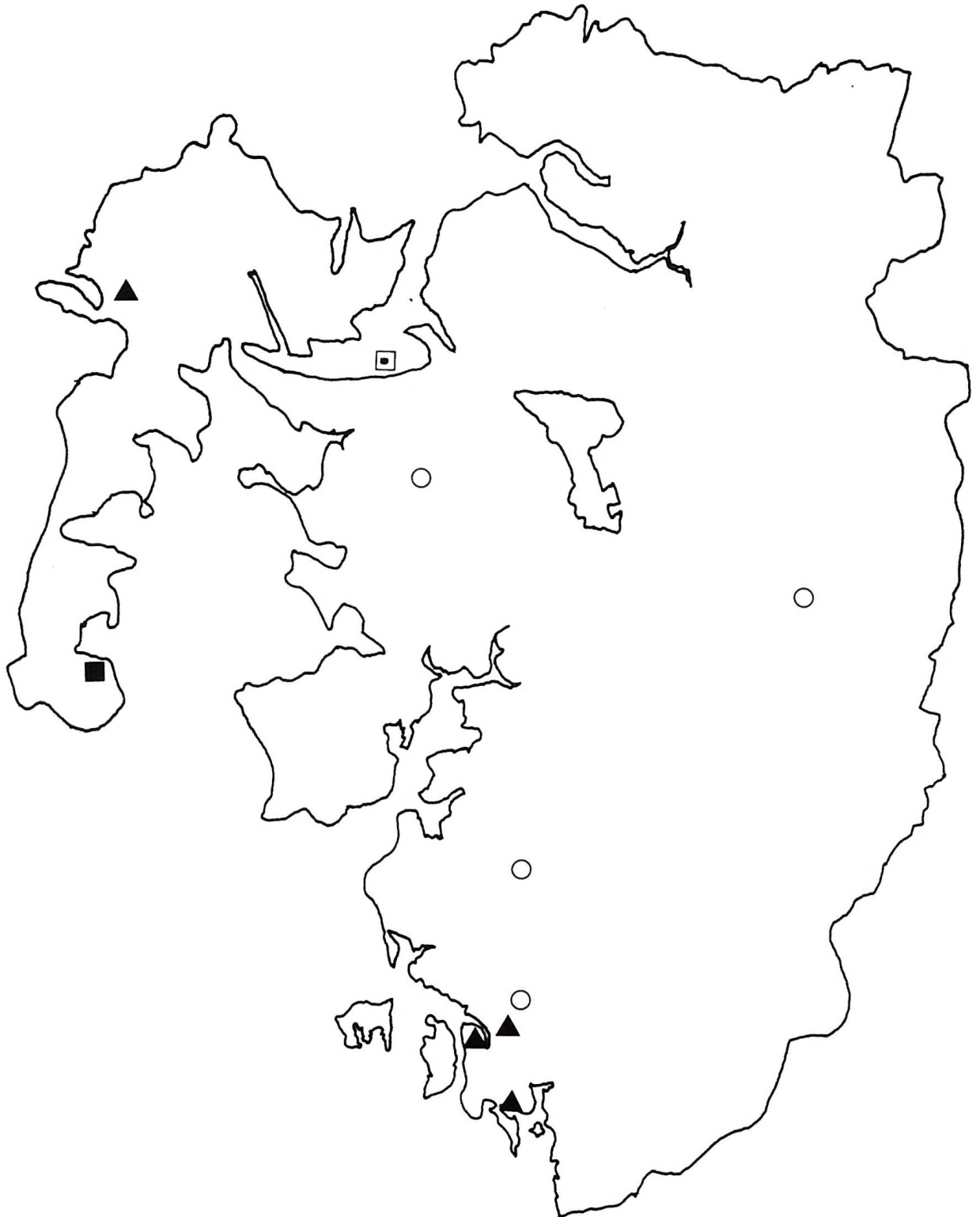


Figure 25 (i) Distribution of Cross Inscribed Pillars, Slabs, and Stones in Erris



Figure 25 (ii) Distribution of Cross Inscribed Pillars, Slabs, and Stones on Inishkea North and South

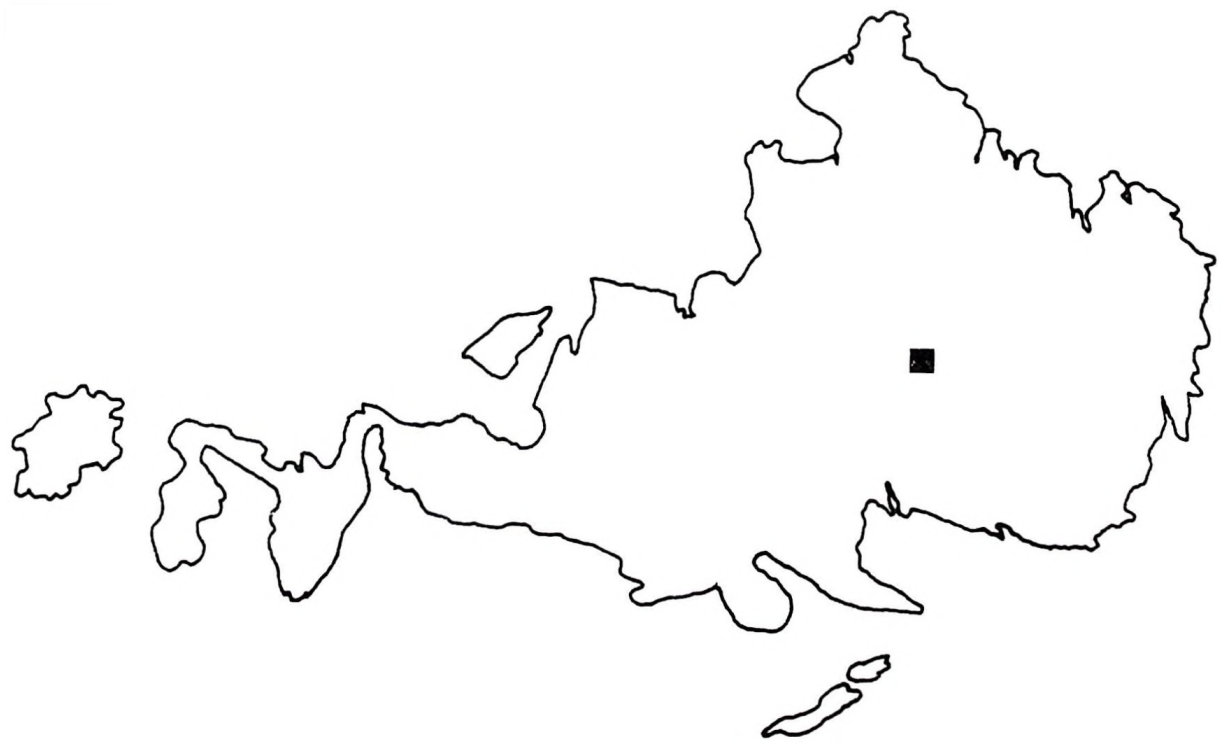
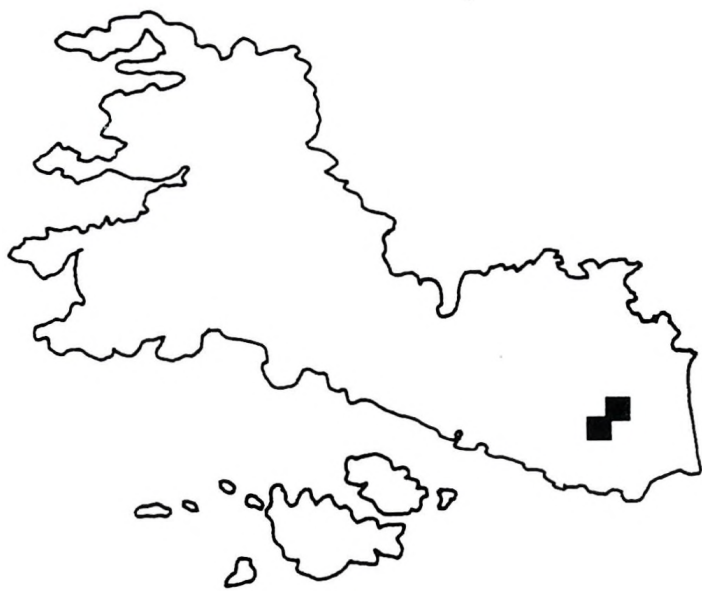


Figure 25 (iii) Distribution of Cross Inscribed Pillars, Slabs, and Stones on Inishglora (top) and Duvillaun More (above)

Vertical cross-slabs are generally dated to the fifth to seventh centuries (Figs. 25 - 27), while recumbent slabs, usually bearing a cross and personal name with the 'or do' (a prayer for) prefix, are considered to be slightly later.



Figure 26. Cross Slab, Inishkea North

The Christian monastery on Duvillaun More displays many of the characteristics of a typical seventh century establishment. It has a circular stone enclosure, with a small stone oratory, monks cells or 'clocháns' and a cross-pillar depicting a highly stylised crucifixion scene. The nearby Islands of Inishglora, Inishkea North, and Inishkea South also supported thriving monasteries during this period. These monasteries are of the ascetic variety as it was here that monks attempted to move far from the distractions of ordinary life, to devote themselves to their religion. Of note is a large upright slab carved with incised crosses on Inishkea South. It is one of the earliest of its type in the country. By tradition, the soil of Inishglora was so sacred that any bodies buried there never decayed. The island also 'boasted' a well that would unleash a horrible vengeance on any woman who drew water from it.





Figure 27. Cross Slab on the Bailey More, Inishkea North

Some of the mythical characteristics of these islands are recounted by O'Flaherty (1793, 155-6, vol. II) in the sixth and seventh verses of the poem "Wonders of Ireland":

In Inishkea, as credulous ancients tell,  
From Earth's foundations, one lone crane doth dwell;  
Where Irras' brows o'er ocean's tide impend,  
Coeval stars his happy life attend.

At Inisglora, in view of Irras' shore,  
Should we the bodies of our sires explore,  
We'd find them blooming still, both nails and hair;  
No human flesh can fade, or perish there.



Figure 28. East Window, Cross Church

By 1198 it appears that the monastery at Inishglora was moved to Cross, on the Mullet peninsula, as it retained the name of the island as an alias into the Medieval period. This move was possibly due to the pressures of earlier Viking attacks along the Irish coast, the mainland providing a somewhat safer alternative. In papal letters it was usually known as 'St. Brendans', after the founder of Inishglora; 'St. Marys', its later dedication; or 'Holy Cross'. It was eventually brought under the control and influence of Ballintubber Abbey, as a daughter house, dedicated to the Blessed Virgin Mary. Traditionally the sub-Prior of the Abbey of Cross was a Canon of Ballintubber. It gained Papal recognition for its

status in 1400. By this time Cross was a relatively affluent monastery, insofar as it had a high income and owned much land in the area. However, the vast majority of these revenues were paid to the Mother House, leaving little to support the running of the monastery itself. Between 1442 and 1448 Canon William Roche of Cross petitioned the Pope to allow him to be transferred back to Ballintubber as the Priory was in a state of disrepair and greatly poverty stricken.

Today little remains of this once thriving monastery except the windswept and partially eroded ruins of the small Medieval church (Fig. 28). The remains of the church are situated on the seaward side of its small graveyard, which is still in use. The western end of the church has been badly eroded over time and parts of it have been swept into the sea. The auxiliary buildings of the monastery have long ago either scummed to the violence of the sea, or were possibly demolished to mark many of the grave-plots that now crowd the interior of this raised, D-shaped graveyard.



Figure 29. East Window, St. Derbhile's Church, Fallmore

Little is known of the history of St. Derbhile's church at Fallmore (Fig. 29), near Blacksod, on the Mullet Peninsula, but as it is dedicated to a female saint (Dairbhile/Dervilla/ or Derbhile de Irras), possibly of the seventh century, it has been suggested that this was a nunnery. The Martyrology of Donegal records two feast days for St. Derbhile. The first, August the third: "Derbhiledh, of the race of Fiachra, son of Eochaidh Muighmedhoín." (O'Donovan 1864, 211). The second, October the twenty-sixth: "Darbile, of Achadh Chuilinn. She was of the race of Fiachra, son of Eochaidh." (op. cit. 1864, 285). The Ordnance Survey Letters note that "... a Patron was held [at the well] on Saint Derivla's Day, which falls on the 1st of the month of August, until it was suppressed by Dr. Lyons on account of the abuses which were the consequence." (O.S.L. 1838, 214/112).

Dunraven's description of the surrounding graveyard is interesting, as it demonstrates how much the site has changed in the past century alone: "It [the church] is surrounded by a churchyard filled with graves, the great headstones of which are in some instances roughly shaped into crosses, while in others the tomb is marked by portions of wrecked vessels, worn handles of paddles, broken masts, whose jagged ends rising dark against the sky, add indescribably to the weird and desolate aspect of the scene. All these objects, thickly overgrown with moss and lichen, have an air of great antiquity." (1875, 107).

The plain round-headed east window, and the beaded and interlaced head of the west doorway appear to suggest a twelfth century date (Fig. 30). At a later time the south wall was extended outwards, possibly at the same time the opportunity was taken to rebuild the west wall. However, the shape of the door-frame itself may indicate that part of the building is much older, possibly dating to the late ninth or tenth century.

From the twelfth century on these small Celtic monasteries went into decline with the arrival of the large continental religious houses, such as the Cistercians, Augustinians, and Franciscans. Along with their new form of monasticism and religious organisation they introduced into Ireland the new European architectural styles of the rounded Romanesque, and later the pointed Gothic. Although none of their abbeys or priors were ever built in Erris, the influence of their architecture may be seen in the form of the round-headed Hiberno-Romanesque west doorway of St. Dervilla's church at Fallmore on the Mullet peninsula (see above).

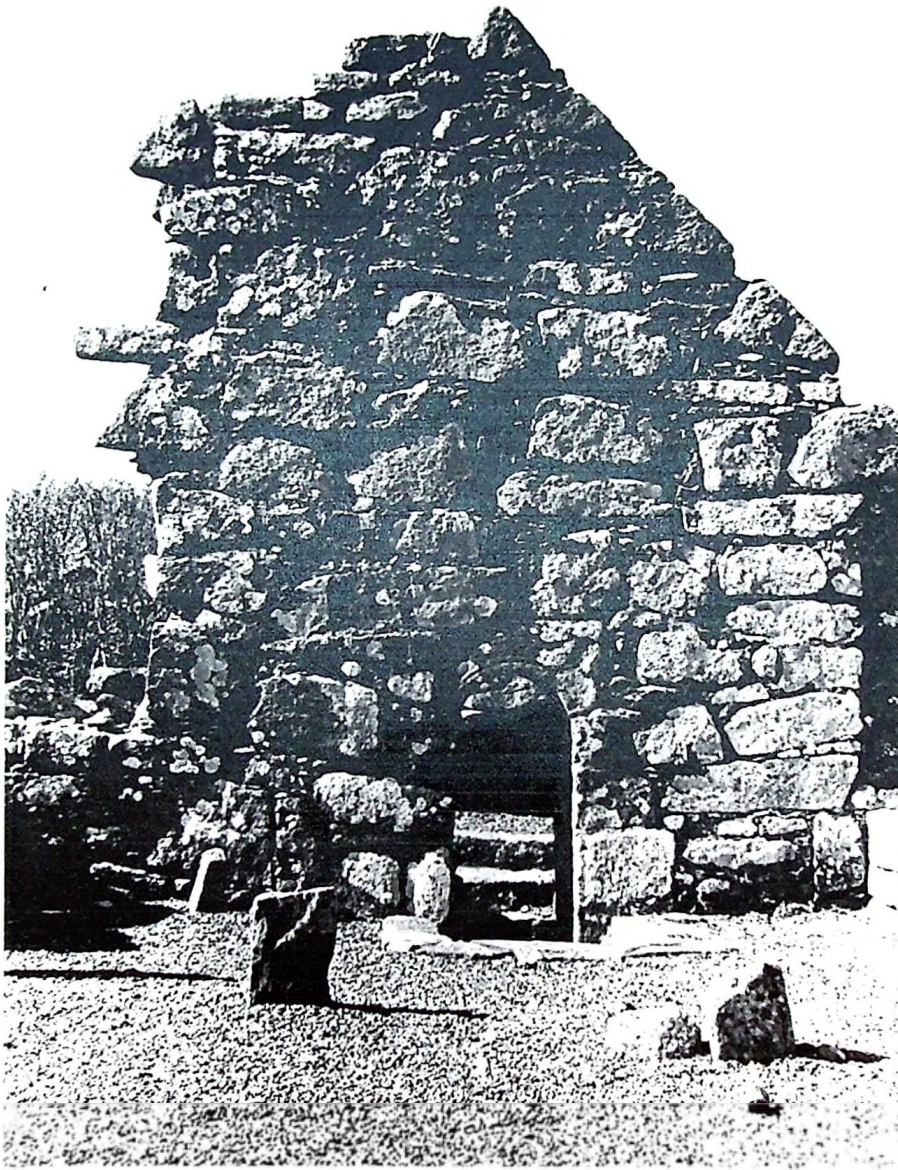


Figure 30. West Doorway, St. Derbhile's Church, Fallmore

Otway mentions a tradition that in much later times a Trappist monk (Reformed Cistercians of the Strict Observance) was invited to Erris to consider setting up a religious house here: "The Very Rev. Dean L[yons (d. 1845)], hearing of the wonders effected by the silent fraternity of Trappists, in the county of Waterford, felt desirous to introduce the brotherhood into Erris, and to that effect invited one of them to come and see the nakedness of the land. Accordingly he came, but, alas for himself and his cause, he did not return; - for he fell sick - of

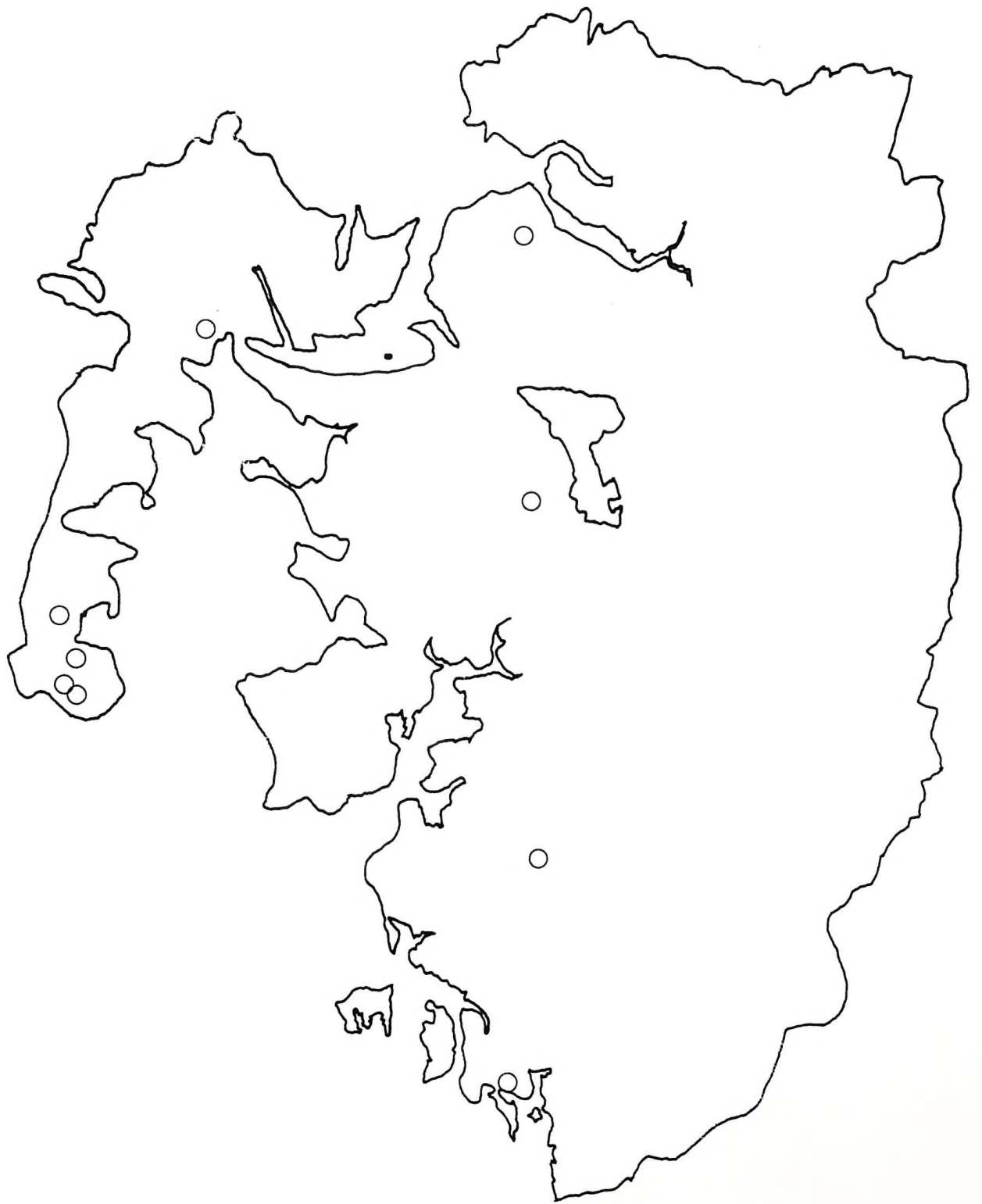


Figure 31 (i) Distribution of 'Holy' Wells in Erris



Figure 31 (ii) Distribution of 'Holy' Wells on Inishkea North and South

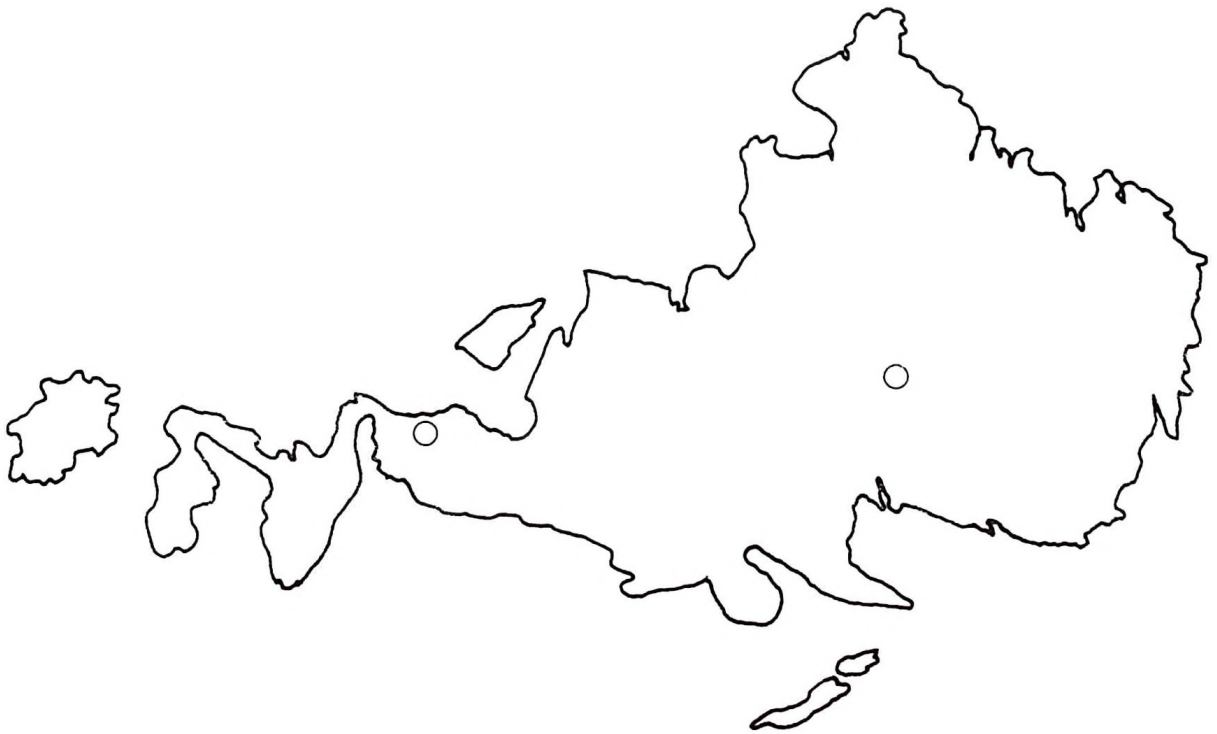


Figure 31 (iii) Distribution of 'Holy' Wells on  
Inishglora (top) and Duvillaun More (above)



what disease I know not, died and was buried. [...] it has unfortunately deterred (and why shouldn't it!) the Trappists from venturing to settle in such a *charming* place as Erris." (Otway 1841, 91).

After the Reformation, and later with the suppression of Catholicism by the Penal Laws (1695 - 1727), the majority of the small churches and religious houses were closed down, and largely abandoned. Today they are merely ruins, many crumbling under the onslaught of weather and time.

(Inishderry - Sculpture)

## 'HOLY' WELLS

Although the consideration of 'holy' wells within the bounds of archaeology may be questionable as most have no artificial features of ancient origin. However, veneration at, and of, wells was a widespread tradition in ancient Ireland, possibly since the Iron Age. With the arrival of Christianity in the fifth century, many of these sites were taken over and assimilated into the beliefs of the new religion. Thus, many wells are today associated with early ecclesiastical sites, such as St. Dervilas' well/vat at Fallmore, and Tobar Fintany at Claggan within Erris. Others have the names of Christian saints attributed to them, such as at Tober Gabriel at Aghleam. In all there are thirteen recorded wells in Erris which are regarded as 'holy' many of which are associated with the Early Christian monasteries in the area (Fig. 31).

## CHILDREN'S BURIAL GROUNDS

Until the concept of 'Limbo' was abolished by the Second Vatican Council, a child who died before he could be baptised in the Catholic faith, or a suicide victim, could not be buried in the consecrated ground of a regular graveyard. To deal with this many ancient monuments, especially ringforts, were reutilised to provide alternative burial sites for these individuals. In Erris there are fourteen known children's burial grounds, including one at the promontory fort of Dunamoe (Fig. 32). The wide distribution of these sites in Erris, and all over Ireland, is a saltwater reminder of the high rate of infant mortality of previous centuries.

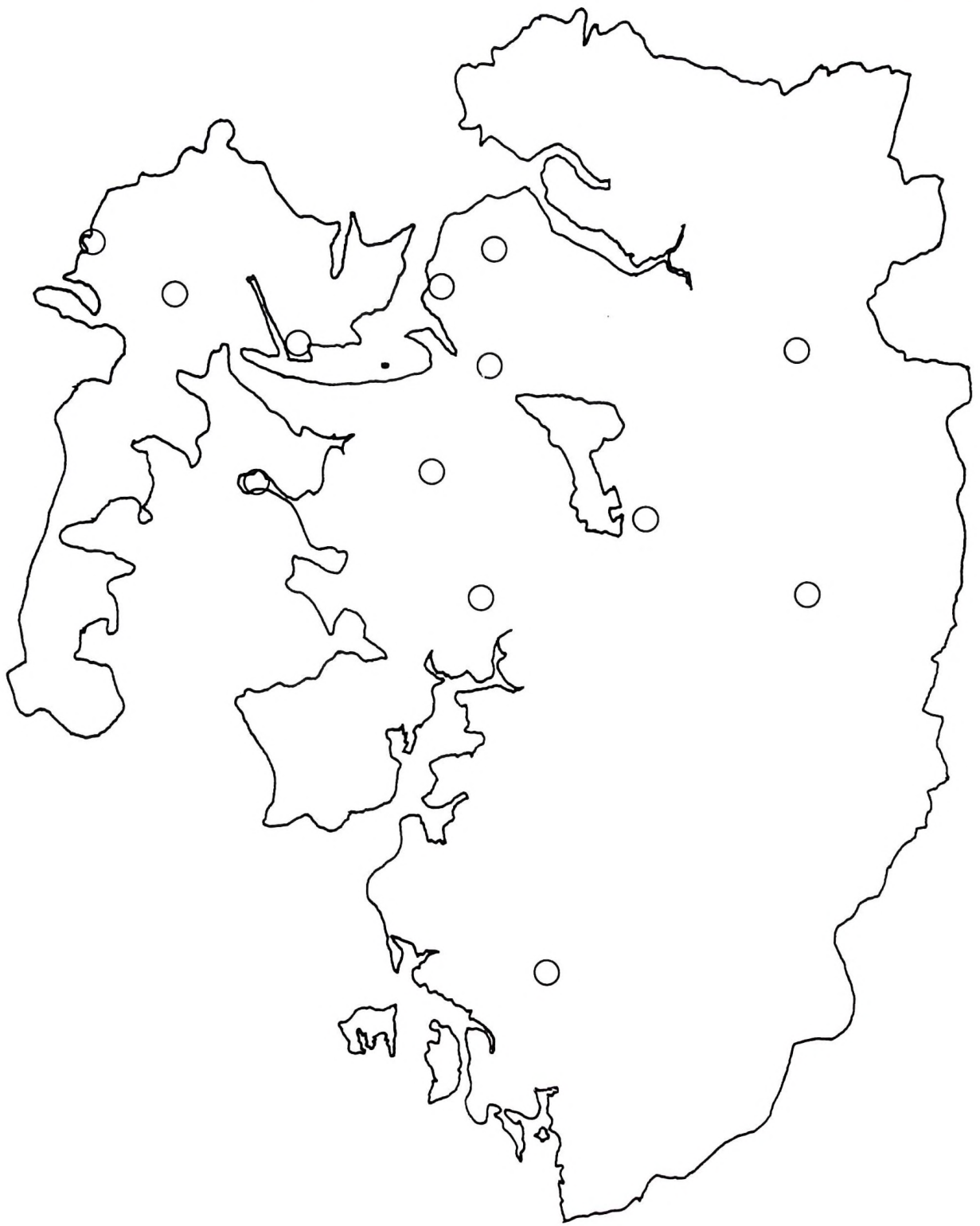


Figure 32 (i) Distribution of Children's Burial Grounds in Erris

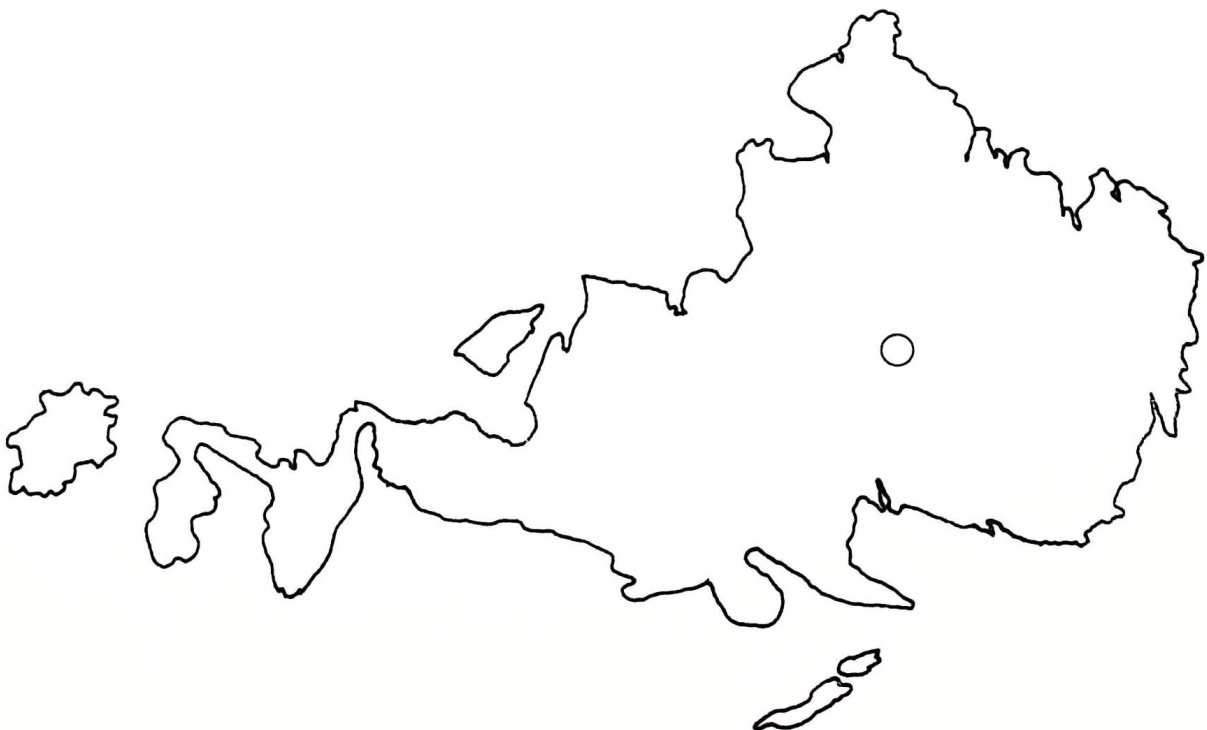


Figure 32 (ii) Distribution of Children's Burial Grounds on Inishglora (top) and Duvillaun More (above)

## THE ANGLO-NORMANS TO THE THE MEDIEVAL PERIOD

In 1169 Dermot MacMurrough gained the support of a number of powerful Welsh Marcher lords, or Anglo-Normans, in his attempt to win back the throne of Leinster. In return for their support MacMurrough offered the lords land in Ireland and also agreed to the marriage of his daughter Aife to Richard deClare, better known as Strongbow. On MacMurroughs death in 1171 deClare succeeded to the throne. Later in the same year king Henry II arrived in Ireland. His intention was to prevent the Welsh lords becoming too powerful, and possibly conspiring against him. To this end he divided the country up into a number of lordships in the hope that no individual family would become overly powerful.

## TOWER HOUSES

During the following decades the Normans gradually moved west in their attempt to gain lands. To protect themselves from the hostile natives, they built large fortified castles. By about 1440 these had evolved into a much simpler and more modest design known today as 'tower houses'. Over time these newcomers were assimilated into the Irish way of life, and took up the Irish customs, dress, and language. At the same time many of the native Irish Chieftains adopted tower houses as their preferred modes of habitation. Most of these tower houses changed hands many times during the following centuries due to the continuing wars between the Irish and the English. Most, however, continued in use down to the seventeenth century, and occasionally as late as the nineteenth. There are eleven known remains of tower houses and castles in Erris, all but one of which are located on the coast (Fig. 33).

The only one of these that, even partially, remains is Fahy or Doona Castle in Ballycroy Parish. It is situated on the coastline, just north of Fahy Lough, and looks out over Blacksod Bay. There are many traditions as to who built and occupied the castle over its history, it being variously attributed to the Normans, the Butlers, the Barretts, the Burkes, the McMahons, and the O'Kellys. However, the most famous of these traditions is that it belonged to the 'Pirate Queen', Grace O'Malley or Granuaile. Noone gives the story as to how she acquired the castle:

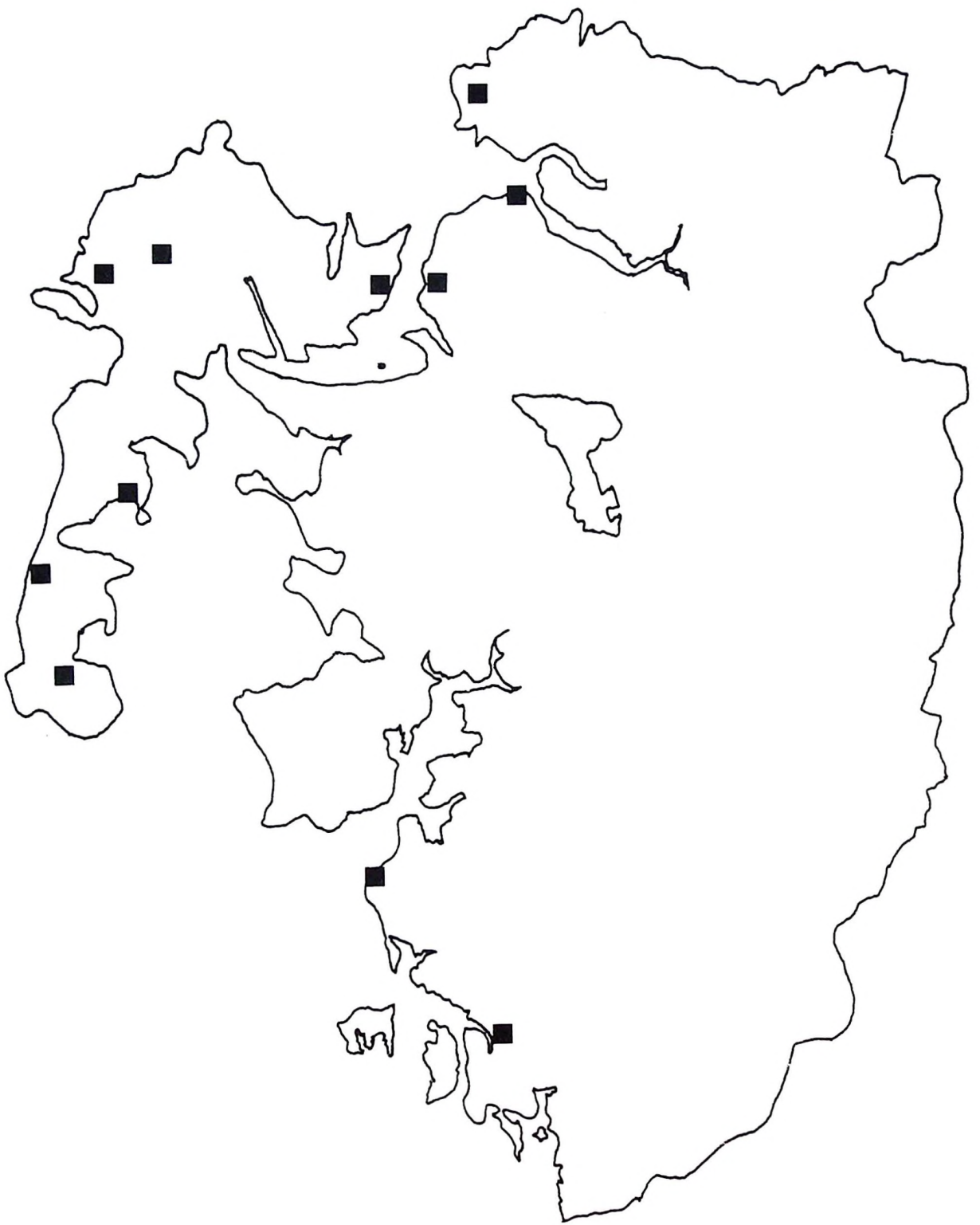


Figure 33 Distribution of Castles and Tower Houses in Erris

“The McMahons, while deer hunting on Achill, killed Hugh de Lacy, Grace O’Malley’s lover. To avenge her lover’s death, Grace attacked the McMahon boats and killed those responsible. She set sail for Fahy Castle, routed the inhabitants “and installed her followers there” (Noone 1991, 38. citing Chambers 1983, 76).

It was here too that in 1588 the officers and crew of the *Sancta Maria Rata Encordata*, of the Levantine Squadron, took shelter and refortified the castle after running aground on Fahy strand. It is unknown as to whether the castle was deserted at this time, or whether its inhabitants deserted it when the Spanish ship was sighted in the bay. They marched round the eastern side of Blacksod bay and south along the peninsula to Elly bay where the *Duquesta Santa Ana* was anchored. However, the *Duquesta* was later wrecked off the coast of Donegal. To prevent the salvage of their ship by the Irish natives, or by the English authorities, they removed all necessary, portable items and then set fire to the remainder. “[...] tradition [...] places the site some 150 yards offshore and almost in the centre of the sickle-shaped hoop of strand northwest of Doona Castle. Local people living there there remember hearing their grandparents talk of the wreck and there are stories of intrepid children picking mussels from its weed-encrusted timbers. [...] Spotswood Green, on a visit there at the turn of the century, secured ‘one of her timbers of Italian oak, burnt at one end’ [...]” (Fallen 1978, 68-9).

Maxwell tells of how the Doona castle finally fell, not by force of arms, but by an unfortunate accident: “A rich hospitable farmer [John Conway], [...] had erected a comfortable dwelling immediately adjoining the courtyard wall of the ancient fortress; and against the tower itself was piled in wealthy profusion a huge supply of winter turf. It was a night of high solemnity, for his first-born son was christened. [...] Turf was wanted, and one of the boys was dispatched for a cleaveful - but though Patt could clear a fair [...] he was no man to venture into the old tower in the dark, “and it haunted”. Accordingly, to have fair play “if the ghost gripped him”, he provided himself with a brand of burning bog-deal. No goblin assailed him, and he filled his basket and returned unharmed to the company, but unfortunately forgot the light behind him. The result may be anticipated. The turf caught fire, and from the intense heat of such a mass of fuel, the castle walls were rent from top to bottom, and one side fell before morning with a crash like thunder. Nor was the calamity confined to fallen tower and lost fuel. Alas ! several kegs and ankers of

contraband spirits were buried beneath the walls, and the huge masses of masonry that came down, burst the concealed casks of Cognac and Schiedam." (Maxwell 1886, 270).

## CONCLUSION

This work has attempted to show how the archaeology of Erris spans all periods of the human occupation of county of Mayo. It is an unbroken chain connecting the earliest settlers to the people of modern times. The landscape of Erris is a palimpsest, a physical document left behind by the once vibrant communities who settled and lived here, built their houses, and buried their dead, who collected food and farmed the land to survive. And in time they passed away. Each succeeding generation, community, and culture have left their mark on the landscape, each creating something new and erasing fragments of the past. Today the remains of these people, the buildings they erected and the objects they created are all that are left behind to tell the stories of these people and how they lived. The telling of this great story is the purpose of archaeology. Our archaeological heritage is incredibly fragile. This is the heritage of Erris. It is ours to enjoy and appreciate, but will only survive for future generations if we care for it and respect it.

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# **ARCHITECTURE**

# Architectural Survey of Erris

A Survey has been completed of all buildings of Architectural significance within the Barony.

The areas covered include:-

- Belmullet
- Houses of Erris
- Piers
- Coastguard Stations
- Lace Schools
- Deserted Villages (with reference to Blacksod)
- Kilns
- Lodges of Erris
- Glosh Signal Tower
- The Furnace
- Cross Abbey
- Fish Curing Station

These surveys include site report, scale drawings and a brief history on each. This information is included in The Report on The Architectural Survey of the Barony of Erris.

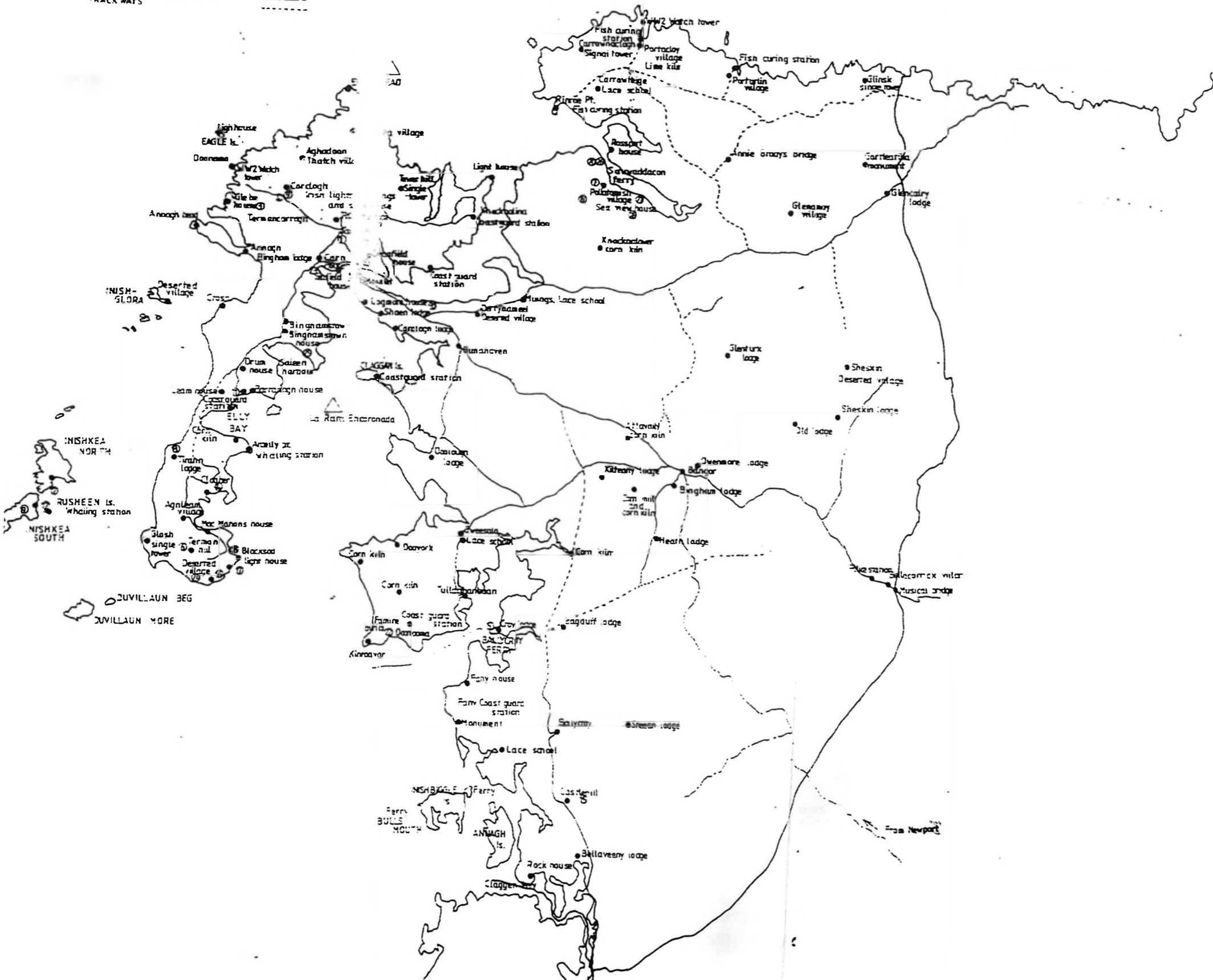


KEY

WRECK SITES OF THE SPANISH ARMADA  
 ROADS SHOWN BY NIGHT IN 1836  
 WALKWAY BANGOR TRAIL  
 TRACKWAYS



STAGS OF BROAD HAVEN



- 1 SHELTING WORKS
- 2 SUBTERRANEAN WALL
- 3 TERRACOTTA BOOSE
- 4 IRISH LIGHTS STORE
- 5 COAST GUARD STATION
- 6 DESERTED VILLAGE
- 7 AN OICE YOUTH HOSTEL (RECTORY) POLLATOMISH
- 8 KILCORBON LODGE
- 9 LACE SCHOOL
- 10 WORKHOUSE BELMILLER
- 11 WORKHOUSE - ELLY BAY
- 12 DESERTED VILLAGES - NISHKEA NORTH/SOUTH
- 13 TIRANN
- 14 MASS ROCK - CLOCHER
- 15 CASTLEHILL BOOSE
- 16 MONUMENT TO A BOAT'S CREW WHO PERISHED HERE - CARRIBRILL
- 17 DESERTED VILLAGE - BARRACKPEDROW
- 18 COASTGUARD STATION - BLACKSOD
- 19 SUBTERRANEAN WALL - NISHKEA SOUTH
- 20 POLLATOMISH - FIELD NAMES
- 21 LIME KILNS
- 22 COAST GUARD BOAT BOOSE
- 23 KILCORBON LODGE
- 24 COAST GUARD STATION
- 25 CURLEW HILL BOOSE
- 26 CARRIBRILL BOOSE
- 27 HUGBOOSE PAROCHIAL BOOSE
- 28 LACE SCHOOL
- 29 ARMORE BOOSE
- 30 PICKLE POINT BOOSE

## **GRAVEYARDS**

**Directory of Graveyards**  
**The Barony of Erris**

**Graveyard Name:** Faulmore (Medieval)

**Address:** Faulmore, Blacksod, Ballina, Co. Mayo.

**Under the Care of:** Mayo County Council.

**Surveyed By:** Liam Kelly.

**Present Location of  
Burial/ Death Records:** Unknown.

**Period of Use:** 1894 up to 1972

**O.S. 6" Sheet:** 33

**N.G.R.:** F621184

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**Graveyard Name:** Faulmore (New)

**Address:** Faulmore, Blacksod, Ballina, Co. Mayo.

**Under the Care of:** Mayo County Council.

**Surveyed By:** Liam Kelly.

**Present Location of  
Burial/ Death Records:** Arch Deacon Rea.

**Period of Use:**

**O.S. 6" Sheet:** 33

**N.G.R.:** F621184

**Graveyard Name:** Cross Abbey  
**Address:** Cross, Binghamstown, Belmullet, Co. Mayo.  
**Under the Care of:** Mayo County Council.  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:** Arch Deacon Rea.  
**Period of Use:** In existence prior to 1838  
**O.S. 6" Sheet:** 16  
**N.G.R.:** F649310

---

**Graveyard Name:** Cross (new)  
**Address:** Cross, Binghamstown, Belmullet, Co. Mayo.  
**Under the Care of:** Annie Gaughan.  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:** Arch Deacon Rea.  
**Period of Use:**  
**O.S. 6" Sheet:** 16  
**N.G.R.:** F655309

**Graveyard Name:** Cross (Protestant)  
**Address:** Cross, Binghamstown, Belmullet, Co. Mayo.  
**Under the Care of:** Mayo County Council.  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:** Unknown.  
**Period of Use:** In Existence prior to 1838 up to 1956  
**O.S. 6" Sheet:** 16  
**N.G.R.:** F657310

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**Graveyard Name:** Binghamstown (Protestant)  
**Address:** Binghamstown, Belmullet, Co. Mayo.  
**Under the Care of:** Mayo County Council.  
**Surveyed By:** Vincent Kelly.  
**Present Location of  
Burial/ Death Records:** Unknown.  
**Period of Use:** The oldest gravestone inscription is dated  
17th Nov. 1864 and the last burial was on  
22nd Jan. 1975.  
**O.S. 6" Sheet:** 16  
**N.G.R.:** F674314

**Graveyard Name:** Termoncarragh  
**Address:** Termoncarragh, Belmullet, Co. Mayo.  
**Under the Care of:** Mayo County Council.  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:** Arch Deacon Rea.  
**Period of Use:** In existence prior to 1838 to date.  
**O.S. 6" Sheet:** 9  
**N.G.R.:** F655353

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**Graveyard Name:** Carne  
**Address:** Carne, Belmullet, Co. Mayo.  
**Under the Care of:** Patrick Gaughan.  
**Surveyed By:** Vincent Kelly.  
**Present Location of  
Burial/ Death Records:** Arch Deacon Rea.  
**Period of Use:** 1890 -1987  
**O.S. 6" Sheet:** 9  
**N.G.R.:** F685328

**Graveyard Name:** Emlybeg  
**Address:** Emlybeg, Belmullet, Co. Mayo.  
**Under the Care of:** Thomas Gaughan.  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:** Arch Deacon Rea.  
**Period of Use:** 1968 to date  
**O.S. 6" Sheet:** 9  
**N.G.R.:** F674322

---

**Graveyard Name:** Belmullet (19th Century Protestant)  
**Address:** Church Road, Belmullet, Co. Mayo.  
**Under the Care of:** Mayo County Council.  
**Surveyed By:** Vincent Kelly.  
**Present Location of  
Burial/ Death Records:** Unknown  
**Period of Use:** The oldest gravestone inscription was dated 25th July and the last burial was dated 10th Dec. 1986.  
**O.S. 6" Sheet:** 10  
**N.G.R.:** F705322

**Graveyard Name:** Glencastle (New)  
**Address:** Glencastle, Belmullet, Co. Mayo.  
**Under the Care of:** Mayo County Council.  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:** Fr. Halloran  
**Period of Use:** 1880 to date.  
**O.S. 6" Sheet:** 17  
**N.G.R.:** F762285

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**Graveyard Name:** Glencastle (Old)  
**Address:** Glencastle, Belmullet, Co. Mayo.  
**Under the Care of:** John T. Kerrigan.  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:** Unknown  
**Period of Use:** 1880 to date.  
**O.S. 6" Sheet:** 17  
**N.G.R.:** F755288



**Graveyard Name:** Pullathomas (New)  
**Address:** Pullathomas, Ballina, Co. Mayo.  
**Under the Care of:** Patrick Mc Grath.  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:** Fr. Guickian  
**Period of Use:**  
**O.S. 6" Sheet:** 11  
**N.G.R.:** F824375

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**Graveyard Name:** Pullathomas (Medieval)  
**Address:** Pullathomas, Ballina, Co. Mayo.  
**Under the Care of:** Mayo County Council.  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:** Unknown  
**Period of Use:**  
**O.S. 6" Sheet:** 11  
**N.G.R.:** F824370

**Graveyard Name:** Pullathomas (19th Century Protestant)  
**Address:** Pullathomas, Ballina, Co. Mayo.  
**Under the Care of:** Mayo County Council.  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:** Unknown  
**Period of Use:**  
**O.S. 6" Sheet:** 11  
**N.G.R.:** F830369

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**Graveyard Name:** Glenamoy (New)  
**Address:** Glenamoy, Ballina, Co. Mayo.  
**Under the Care of:** Mayo County Council.  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:** Unknown  
**Period of Use:**  
**O.S. 6" Sheet:** 12  
**N.G.R.:** F922339

**Graveyard Name:** Rossport (19th Century Protestant)

**Address:** Rossport, Ballina, Co. Mayo.

**Under the Care of:** Mayo County Council.

**Surveyed By:** Liam Kelly.

**Present Location of  
Burial/ Death Records:** Unknown

**Period of Use:**

**O.S. 6" Sheet:** 4

**N.G.R.:** F829392

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**Graveyard Name:** Cornboy (New)

**Address:** Cornboy, Ballina, Co. Mayo.

**Under the Care of:** Charles Joseph O 'Malley.

**Surveyed By:** Liam Kelly.

**Present Location of  
Burial/ Death Records:**

**Period of Use:**

**O.S. 6" Sheet:** 4

**N.G.R.:** F853403

**Graveyard Name:** Inver (New)  
**Address:** Inver, Barnatra, Ballina Co. Mayo.  
**Under the Care of:** Patrick Conway.  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:** Fr. Guickian  
**Period of Use:**  
**O.S. 6" Sheet:** 10  
**N.G.R.:** F777353

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**Graveyard Name:** Shragraddy (New)  
**Address:** Shragraddy, Bangor Erris, Co. Mayo.  
**Under the Care of:** E. Deane.  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:** Fr. Flynn  
**Period of Use:**  
**O.S. 6" Sheet:** 26  
**N.G.R.:** F855221

**Graveyard Name:** Kilgalligan  
**Address:** Kilgalligan, Carrowteige, Ballina Co. Mayo.  
**Under the Care of:** Mayo County Council.  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:**  
**Period of Use:** 1808 to date  
**O.S. 6" Sheet:** 3 / 4  
**N.G.R.:** F801412

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**Graveyard Name:** Ballycroy (New)  
**Address:** Ballycroy, Wesport, Co. Mayo.  
**Under the Care of:** Mayo County Council.  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:** Fr. O' Hora  
**Period of Use:**  
**O.S. 6" Sheet:** 44  
**N.G.R.:** F804101

**Graveyard Name:** Castlehill (Protestant)  
**Address:** Castlehill, Ballycroy, Westport, Co. Mayo.  
**Under the Care of:** Mayo County Council.  
**Surveyed By:** Liam Kelly.  
**Present Location of Burial/ Death Records:** Unknown  
**Period of Use:**  
**O.S. 6" Sheet:** 44  
**N.G.R.:** F804070

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**Graveyard Name:** Fahy  
**Address:** Fahy, Ballycroy, Westport, Co. Mayo.  
**Under the Care of:** Mayo County Council.  
**Surveyed By:** Liam Kelly.  
**Present Location of Burial/ Death Records:** Fr. O' Hora  
**Period of Use:**  
**O.S. 6" Sheet:** 34  
**N.G.R.:** F753124

**Graveyard Name:** Claggan (Old)  
**Address:** Claggan, Westport, Co. Mayo.  
**Under the Care of:** Mayo County Council.  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:** Fr. O' Hora  
**Period of Use:**  
**O.S. 6" Sheet:** 56  
**N.G.R.:** F795038

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**Graveyard Name:** Doohoma (New)  
**Address:** Doohoma, Ballina, Co. Mayo.  
**Under the Care of:** Patrick Keane (Eddie).  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:** Patrick Keane (Eddie).  
**Period of Use:**  
**O.S. 6" Sheet:** 34  
**N.G.R.:** F713150

**Graveyard Name:** Geesala (New)  
**Address:** Geesala, Ballina, Co. Mayo.  
**Under the Care of:** Mayo County Council.  
**Surveyed By:** Liam Kelly.  
**Present Location of  
Burial/ Death Records:** Fr. Haverty.  
**Period of Use:**  
**O.S. 6" Sheet:** 25  
**N.G.R.:** F759197

A survey has been completed on each of these graveyards. This information can be found in the Graveyard Survey Report. Scale drawings of each Graveyard have also been completed.



