Ecology of Grange Village and Environs

Grange Pond and Winnowing Hill

Update: Newly recorded local mushrooms include Common morel (Marchella esculenta) dryad's saddle (Polyporus squamosus) and Jew's ear (Auricularia auricula-judae), insects include both pond skaters (Gerris sp) and boatman (Notonecta) species and flora, a possible stonewort. An update on the state of the pond is appended.

2010 - 2014

Breffni Martin

Contents

Introduction

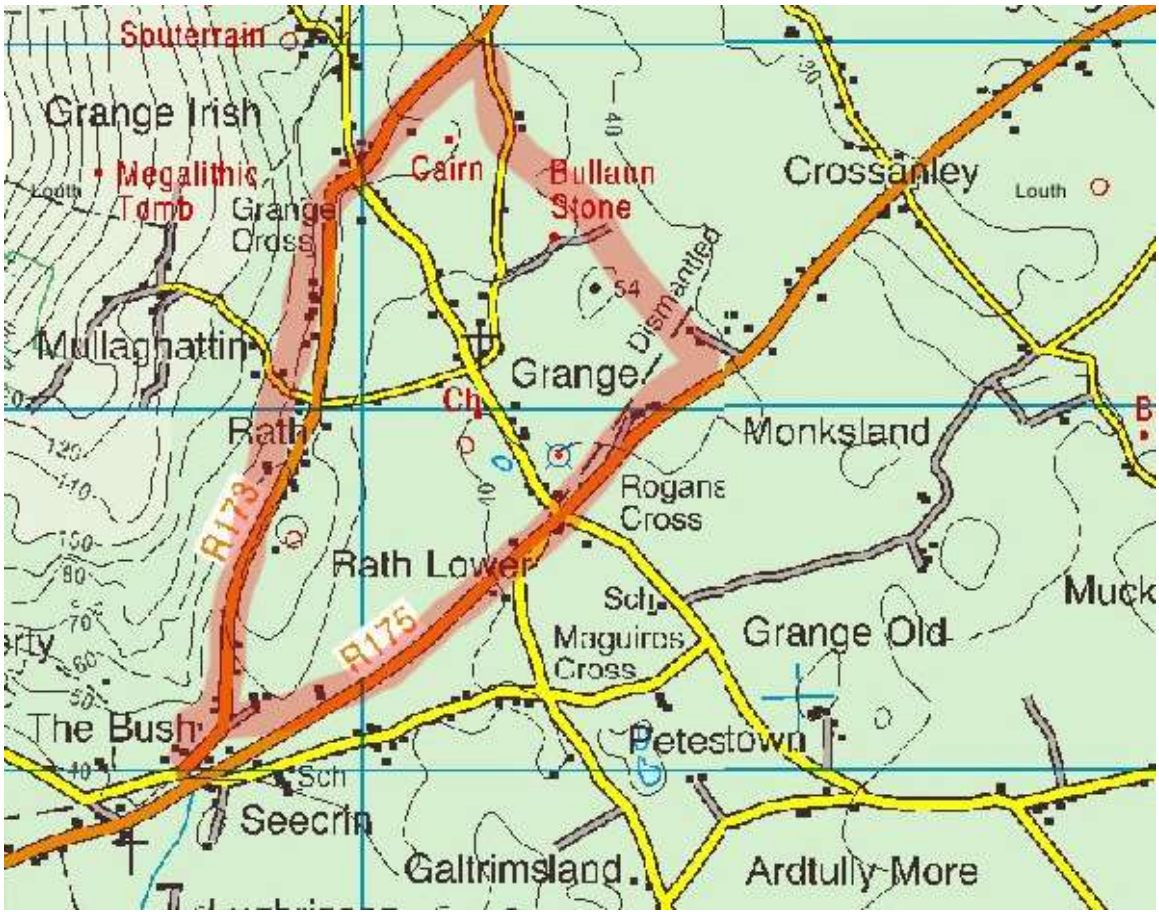
The Grange Village Residents Association and Tidy Towns Committee expressed an interest in the preparation of an ecological survey of the village and environs. The objective of the report is to highlight areas and species of ecological value in the area, with a view to conserving them for the future, particularly in the face of future development of the village. The survey will focus particularly on the village pond and stream, the associated small woodland and marsh, as well as the hedgerows and fields in the area.

The survey was carried out by Breffni Martin, BSc, during the spring, summer and autumn of 2009, and spring of 2010, and was updated through 2011, 2012 and 2013.

Location and Study Area

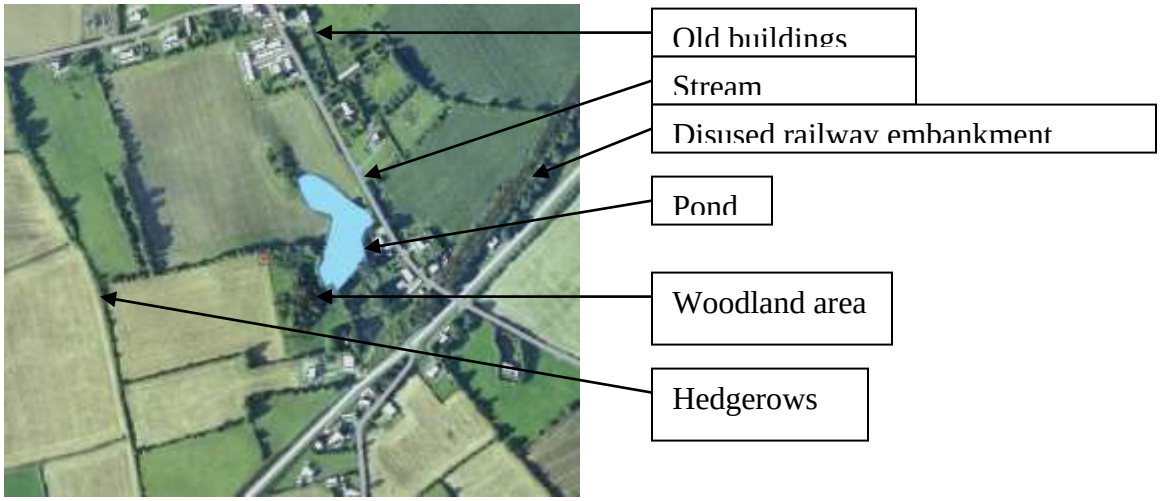
The location is Grange Village and environs on the Cooley peninsula in County Louth.

Grange Village is in the middle of the Cooley peninsula.



Study area

The red line above encloses the study area covering the townlands of Grange, Rath Lower and part of Irish Grange. However the main focus of the study will be on the pond, stream and associated woodland shown below. The stream and pond are shown in blue.



The area has a number of interesting features including old stone walls, a stone bottomed stream, a pond featuring a shallow mud tree-covered area and a deeper open area, a

disused railway embankment, dense hedgerows, agricultural fields, and several old buildings.

Methods

Desktop study

This phase consisted of a review of all available published and unpublished data and literature on the area, large-scale maps, aerial photographs, hydrological and geological reports, and any other relevant source of information.

Field Survey

The field survey consisted of defining and surveying several transects within the red line area and surveying the pond from its periphery on a monthly basis. These will be surveyed during the winter (February), in spring (April to mid-May), summer (mid-May to end July) and autumn (September to October).

Particular interest was paid to the sites of highest conservation interest, namely the pond, stream, and the small woodland.

Background

Geology and Soils of the Grange area

Cooley peninsula Carlingford bears traces of Silurian, Carboniferous, Paleogene and Pleistocene geology. Grange is overlooked by Barnavave, "Maeve's Gap" which was formed following the opening of the Atlantic Ocean which started about 65 million years ago in the Palaeogene Period (Paleocene Epoch) resulting in significant igneous activity during the period 61 to 52 million years ago. The intrusions are dominated by granite, a silicic or felsic rock, but there are also significant volumes of mafic rocks (containing magnesium and iron) such as gabbro, dolerite and basalt giving the upland area (Irish Grange and above) a peat bog character.

Below Barnavave at Irish Grange, immediately to the north and above the study area, where the intruding igneous rock came in contact with the preexisting limestone, an updomed limestone skarn as well as sill and dyke intrusion examples can be seen ((Baxter 2009). A skarn is thermally metamorphosed limestone, deformed by the igneous rock. The underlying geology of the study area itself (Grange) is carboniferous limestone formed during the Carboniferous Period 354 million years ago.

At the start of the Quaternary about 2 million years ago, the beginning of the Ice Age, there were probably as many as six separate episodes of ice advancing and retreating over the area with the most recent being between about 19,000 and 13,000 years ago. The ice sheets flowed in a south-easterly direction from Lough Neagh, down Carlingford Lough and from the west. The glaciers eroded the bedrock gouging out Carlingford Lough and giving it its Fjord-like form today. The ice transported a mixture of sediments of all sizes

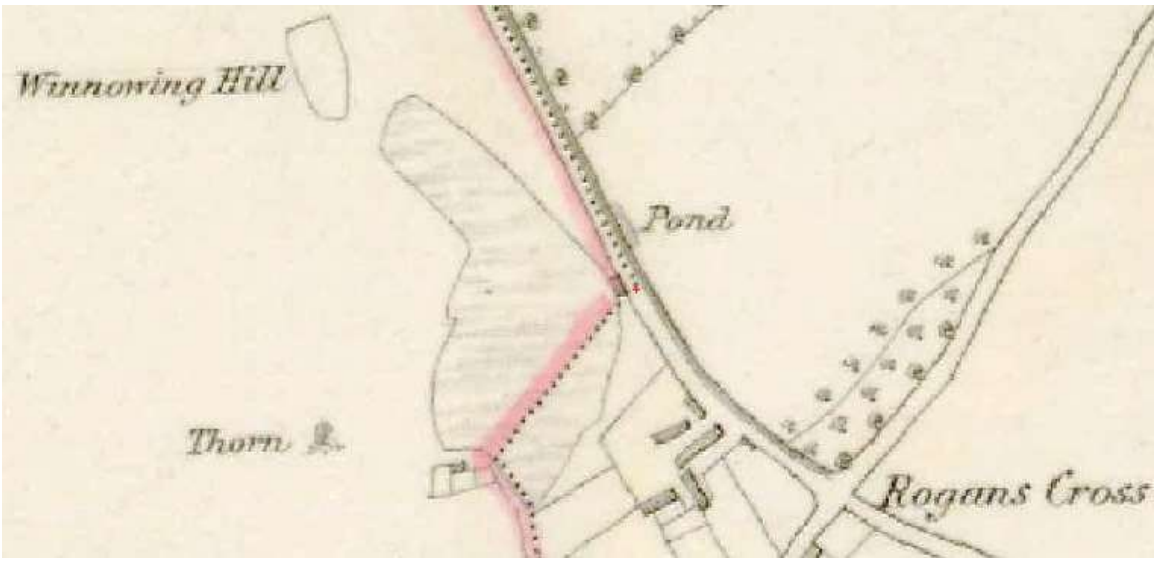
(boulders, cobbles, gravel and clay) which it would later deposit, forming the drumlins that cover the area today and giving a lithosol soil type typical of glacial deposits. An idea of the extent of the glacial sediment can be seen from the nearby Bush Quarry. The cycles of glaciations combined with faulting produced the geological phenomenon known as Maeve's Gap (Barnavave).

As the ice melted two phenomena occurred simultaneously affecting sea level. Firstly the volume of seawater increased causing sea levels to rise. At the same time, but more slowly, the earth's crust rose because it was no longer burdened by the weight of snow and ice in a phenomenon known as crustal rebound. As a consequence, for a time after the ice melted, Grange may well have been under water, then slowly rose. From about 10,600 years ago there was a sudden pause in the warming and the resultant cold-snap wiped out species such as Reindeer, Giant Irish Deer and others, and replaced the grassland with tundra-type vegetation. At this time some glaciation started again with the formation of Corrie lakes in the nearby Mournes.

From 10,000 years ago the climate started to warm again leading to a heavily wooded habitat consisting initially of birch and hazel, and subsequently oak, elm, and pine.

Grange is therefore impacted by three geological ages: the Carboniferous when its bedrock was laid down, the Palaeocene when the Carlingford Complex formed, and the Pleistocene or last Ice Age, the latter giving the study area its current configuration.

The origin of the pond and the adjacent hill (Winnowing Hill) is the subject of some speculation locally, some theorising that the pond was dug out when the railway was constructed, others that it was dug out as a flax pond. However, the likely explanation is that it is a natural features of the landscape and is similar to many other such ponds, notably McGuires pond at nearby Bush. This is supported by the 1828 map of the area which shows both the hill and the pond.



Extract from the 1828 Ordinance Survey Map – source: OSI

The above section draws heavily on Sadhbh Baxter's excellent publication 'A Geological Field Guide to Cooley, Gullion, Mourne &. Slieve Croob", 2009, as well as the Geological Survey of Ireland, and Cassell's Atlas of Evolution 2001.

Soil Characteristics

Acid Brown Earths represent the principal soil type in the area with associated gleys and brown podzolics. These are derived from Ordovician, Silurian, Cambrian shale in the gladial sediment. They are associated with hilly sloped countryside, high precipitation and mild weather and are generally considered useful and productive soils.

Water Characteristics

Well water extracted from the area is generally of an alkaline quality due to the influence of the limestone bedrock (personal communication Louth County Council Water Services). The mountain stream that flows into the village and empties into the pond is of a neutral quality suggesting that it originates in limestone as opposed to the more acidic conditions of the mountain.

Climate of the Grange area

The climate of the Cooley peninsula is generally typical of the north-east coast of Ireland. Grange is protected by the mountains to the west and north, and is in a hollow, so that it probably enjoys a milder microclimate than many of the more exposed areas in the peninsula, though perhaps a little more humid. Fog and mist often linger in the area. For example in a survey to determine the optimum location for a windmill in the Grange townland, a suitable location could not be found, however the whole coastal and mountain areas, just a few miles away, are suitable, at least in terms of wind direction and velocity.

Habitats of Grange

Habitat Classification

A habitat (which is Latin for "it inhabits") is an ecological or environmental area that is inhabited by a particular species of animal, plant or other type of organism (Dickinson 1963). It is the natural environment in which an organism lives, or the physical environment that surrounds (influences and is utilized by) a species population. Examples of habitats include ponds, hedgerows, marshes etc.

The habitats typical of Ireland have been catalogued by Julie Fossett in, A Guide To Habitats In Ireland, published by the Heritage Council and these are used as a reference below. Of these the habitats present in the study area are as follows:

Freshwater
FL5 Eutrophic Lake – the open water section of the pond
FW1 Eroding Upland River – streams feeding the pond and flowing towards Bush

Grassland and Marsh
GA1 Improved Agricultural Grassland – fields throughout the study area
GA2 Amenity Grassland – graveyard, opposite the broken railway bridge etc

Heath and Dense Bracken
HD1 Dense Bracken – Irish Grange

Woodland and Scrub
WN6 Wet Willow-alder-ash Woodland – the wooded section of the pond
WD1 Broadleaf Woodland – the woodland behind the pond
WL1 Hedgerows – throughout the study area

Disturbed Ground
ED3 Recolonising Bare Ground – adjacent to the pond and shop

Cultivated and Built Land
BC3 Tilled Land – some tilled fields in the study area
BC4 Flower beds and borders – gardens in the village
BL1 Stone Walls and Other Stonework – many stone outhouses and ruins in the area
BL2 Earth Banks – railway bank
BL3 Buildings And Artificial Surfaces – houses, pub, shop, church etc

Description of Key Habitats

Grange Pond

The ecological centre of the study area is undoubtedly Grange pond, which is in many ways exceptional. In particular it has shown the ability to rebound vigorously despite abstraction of its water for irrigation, infilling, drought, contamination with fertiliser, herbicide and insecticide and other pressures. This may be due to the fact that he ponds' waters are continuously fed by an oligotrophic mountain stream, and given the constant inflow of water, the pond must be hydrologically connected to the groundwater, making a good rate of turnover of the water possible.

The pond itself is divided into two parts: the northern part, consisting of about 200 metres squared, is open water, about 2 to 3 metres deep at deepest and fringed by various grasses (red fescue), bramble, herbaceous plants, reedmace in the margins (also called bulrush), and a few willow (Salix sp) trees. The southern part is dominated by trees on the margins, mainly willow, but also ash and sycamore, as well as stunted willow growing in the shallow standing water in the centre. Flag Iris and water sedge dominate in this area. Reeds are absent. Coot and moorhen nest annually amongst the stunted trees.

Grange pond in Summer – a pair of mute swans attempted nesting in 2010

In March 2013 a smooth newt was seen in the pond. This may be a new pioneer, or may be a survivor from the summer of 2011 when the pond almost dried out. The present condition of the pond, following rain this winter, is good with little green algae and a good volume. The removal of green algae from the stream may have helped this.

Stream from Barnavave

The stream that feeds the pond rises under Barnavave and flows through Irish Grange where it turns at an abrupt right angle when entering Grange townland proper. This is reportedly because the stream was diverted into the cellar of a large house to cool the pantry there (personal communication, Anne O'Connor). The stream then runs along the roadside through the village eventually passing under the road and into the stream. High quality stonework channels the stream throughout.

Woodlands around Pond

The area to the west of the pond rises abruptly to a height of 30 metres. This area is tree covered with a well developed understory of bramble, hawthorn and blackthorn, as well as a herbaceous layer of flowering plants. The main rising bank, dominated by sycamore and ash, is covered in woodland flowers including bluebells, primrose, lesser celandine and sparse wood anemone in spring. At the top of the mound the habitat opens out into agricultural fields and hedgerows.

Foliose and fructose lichens on willow at Grange pond; the orange alga is a common photobiont of lichens

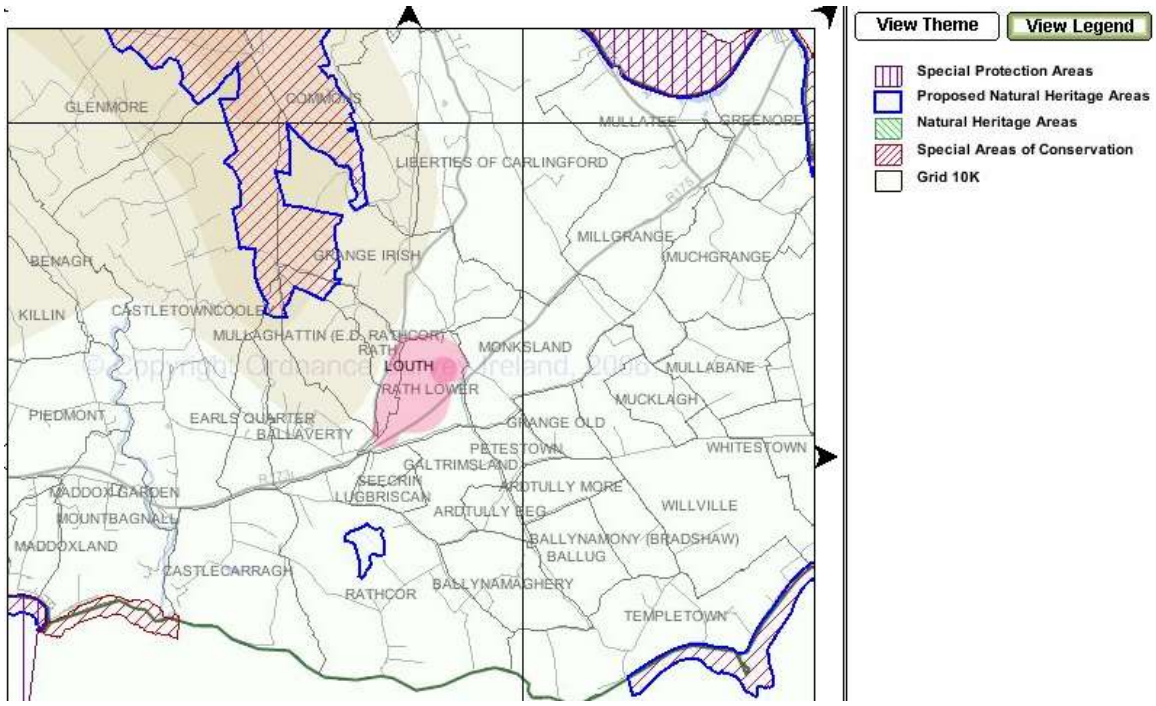
Old Buildings and Railway Bank

Across the road to the east are several ancient buildings and outhouses and these support numerous bats (only two species confirmed but a detailed study would be very productive). Adjacent to this is the bank from the disused railway supporting dense bramble, hawthorn, blackthorn and a variety of trees and herbaceous plants.

Designations

The European Union's Habitats Directive – Listed habitats and species

Under EU law member states including Ireland are required to designate and protect areas of high biodiversity quality. There are no designated habitats in the study area. However, the mountain area in near proximity to the north (Cooley mountains) is designated a Special Area of Conservation. Also nearby Liscarragh bog (also known as Christmas' bog) to the south-west is a designated proposed Natural Heritage Area (pNHA). The nearest Special Protection Area is to the north-east at Carlingford.



Designated areas near the study site – source NPWS

Special Areas of Conservation (SACs)

Here follows the NPWS site synopsis for the mountain area to the north:

The only upland area in County Louth, the Carlingford Mountain Range consists of an inverted 'Y' shaped ridge of dolerite forming the rugged backbone of the Carlingford Peninsula. Granite, slates and gabbro also contribute to the geology of the area. The Carlingford Mountain site comprises two main blocks, one northern from Anglesey Mountain to Carnavaddy and one southern centred around Carlingford Mountain itself; the two blocks are linked at the Windy Gap.
Generally the flora is a mosaic of alpine/subalpine heath, a habitat that is listed on Annex I of the EU Habitats Directive, and grassland. The sloping acidic grassland on mineral soils is dominated by Mat-grass (Nardus stricta) with much Sheep's-fescue (Festuca ovina). Other species such as Heath-grass (Danthonia decumbens), Heath Bedstraw (Galium saxatile) and Tormentil (Potentilla erecta) tend to be more frequent on the lower slopes.
The heath is dominated by Bell Heather (Erica cinerea) with a little Ling (Calluna vulgaris) and, in the wetter areas, Cross-leaved Heath (Erica tetralix). At higher altitudes the heath grades into mountain blanket bog dominated by Hare's-tail Cottongrass (Eriophorum vaginatum) and mosses (Sphagnum spp.), but the comparatively low rainfall here is not particularly conducive to blanket peat accumulation.
Numerous flushes and small streams add to the diversity of the site with species such as Marsh Pennywort (Hydrocotyle vulgaris), Butterworts (Pinguicula spp.), Star Sedge (Carex echinata) and Bulbous Rush (Juncus bulbosus) occurring. The presence of gabbro leads to some local base enrichment, resulting in many of the flushes being characterised by Black Bog-rush (Schoenus nigricans). In drier areas species such as Wild Thyme (Thymus praecox) and Fairy Flax (Linum catharticum) indicate this enrichment.
Three rocky habitats listed on Annex I of the EU Habitats Directive occur in the site. The rocky exposed areas of the summit ridge have a sparse cover of the species dominant in the grassland and heath found at lower levels. Species such as Heath Rush (Juncus squarrosus), Harebell (Campanula rotundifolia) and Bilberry (Vaccinium myrtillus) are also present.
A number of alpine species have been recorded from the summit ridge, which also provides an unusual location for the woodland species Wood Anemone (Anemone nemorosa) and Lady-fern (Athyrium filix-femina)
Patches of Alder (Alnus glutinosa) occur along the northern side, an area from which the Red Data Book species Parsley Fern (Cryptogramma crispa) has been recorded.
Bracken (Pteridium aquilinum) infests large areas of the lower slopes and in dense patches it grows to the virtual exclusion of other species. Further spread of this species should be prevented.
A pair of Peregrine Falcon, a species listed on Annex I of the EU Birds Directive, are resident in the area.
This site is important for the presence of four habitats listed on Annex I of the EU

Habitats Directive. Moreover, Carlingford Mountain is notable for the occurrence of certain alpine plants including the rare Parsley Fern, and for the presence of Peregrine Falcon.
25.3.1998

Special Protection Areas (SPAs)

Here follows the site synopsis for Carlingford Lough SPA
:
The site comprises part of the southern sector of Carlingford Lough, Co. Louth, extending from the harbour at Carlingford to Greenore Point. It includes all of the intertidal sand and mud flats to the low tide mark. Much of the shoreline is artificially embanked.
The site supports part of a nationally important population of wintering Cormorant (233 average maximum, 1995/96-1999/00). A range of other waterfowl species occurs, notably Brent Goose (175), Oystercatcher (172), Dunlin (267), Bar-tailed Godwit (25), Redshank (35) and Turnstone (19). The intertidal flats provide feeding areas for the wintering birds.
While the numbers of wintering birds are relatively low, the site does support a good range of species. The presence of Bar-tailed Godwit is of particular note as this species is listed on Annex I of the E.U. Birds Directive.
8.2.2004

Natural Heritage Areas (NHAs)

Liscarragh Marsh (pNHA 001451, Grid reference J 185 062), also known as Christmas' Bog, to the south-west of Grange is a good example of a fen in transition. Currently it is dominated by phragmites reeds and is starting to scrub up (small trees are starting to grow around the margins). It is designated as a proposed Natural Heritage Area and reportedly holds oyster plant (Mertensia maritima), a floral order protection species.

Settlement History

Coastal areas around Cooley were settled by Mesolithic people as much as 9000 years ago where they made a living as hunter gatherers collecting shellfish and other items along the shore. Although there is no evidence for it, these people may have ventured inland to Grange attracted by the pond. However when agriculture came to Cooley, perhaps 5000 years ago, it is likely that the area around Grange was settled as the pond and stream would have been valuable resources for watering animals, irrigating crops, washing, cooking etc. The earliest direct evidence of settlement comes from several souterrains, some very substantial, that are scattered around the area. Like the rest of the country, human activity completely transformed the area from wild woodland to the farmland that we see today.

Species

Mammals

Evidence of all typical countryside mammals were found within the study area.

Insectivores

Pygmy Shrew

This is the smallest of our mammals, at just three grams, and are present in all suitable habitats in Ireland. Pygmy Shrews are thought to have been brought to Ireland by stone-age mariners from the north of Spain around eight thousand years ago, probably by accident. Genetic studies have shown that all Irish pygmy shrews are related to this initial pioneer population. They are generally active in the litter under hedges and other vegetation where they feed on insects and other invertebrates – several were detected in the vicinity of the pond and undergrowth around it.

Hedgehog

Hedgehogs are present throughout Ireland in suitable habitat and were probably brought here by the Vikings. Several were seen in May along the hedgerows in the early morning.

Rodents

Wood Mouse

Wood mice are also present in almost all habitats in Ireland, from dunes to blanket bogs and are doubtless common in the hedgerows and grassland around Grange. Wood mice was the main prey species of long-eared owls as evidenced by the contents of pellets found in the Mullaghattin area of the Cooley mountains. Wood mice are chestnut brown with large eyes and ears – they rarely enter houses.

House Mouse

In Ireland almost always associated with human habitation living in houses, factories, shops, stores, farm outhouses etc; it may be distinguished from the wood mouse by its greyer pelage. Residents confirm its presence in Grange, as in most of the rest of the country.

Brown Rat

The Brown Rat has largely displaced the Black Rat in Ireland and, like other parts of Ireland, Brown Rats are just as big a pest in Grange as they are in other parts of the country. In times past Brown Rats would have been significant prey of Barn Owls, however for unknown reasons Barn Owls are declining in Ireland and have not been

recorded on the Cooely peninsula for many years, the last pair being recorded at Willville Farm in the 1980s. This may be related to the secondary poisoning of the owls from rat poison.

Grey Squirrel

Grey squirrels were introduced from the USA around 1900 and several individuals were observed in the vicinity of Grange, notably coming into gardens to steal peanuts left out for birds. As noted they out-compete red squirrels where they share habitat, however it seems that they are predated by pine martins. Grey squirrels are bigger than the red, have light brown pelage and lack the ear tufts that are characteristic of red squirrels.

Grey Squirrel – an invasive species in Ireland

Red Squirrel

Red Squirrels are thought to have been present in Ireland up until around 1600 AD when they died out, possibly due to climate change (the Little Ice Age) and deforestation. They were reintroduced around 1815 at Ravensdale from English stock, and subsequently occupied all suitably wooded habitats in Ireland. Around the turn of the century a number of Grey Squirrels, an American species, were deliberately introduced, and these have since competed with reds resulting in a reduction of the Red Squirrel population. However, possibly due to the presence of the Pine Martin, Reds seem to be holding their own in Ireland, apparently particularly successful in primarily coniferous forestry. Red Squirrels have been recorded in the forest at Ravensdale and Foye woods and are therefore probably present in the coniferous woodland on Carlingford Mountain; there is no suitable habitat in Grange itself so they are unlikely to be present. However they are extremely shy and elusive and so populations are hard to assess. Ironically Red Squirrels are now effectively extinct in England and it has been suggested that the current Irish stock is the last remnant of the English race (Sciurus vulgaris leucorus).

Carnivores

Red Fox

Red Fox was observed in fields and hedgerows around Grange and doubtless visit the village at night to forage for discarded food and rubbish. Foxes were observed during early morning surveys.

Stoat

Stoat was observed on a few occasions on Sleive Foye, particularly working the old stone walls, and, though none were seen, stoats are doubtless an occasional visitor to the village area where they would hunt for rodents. The Irish stoat is probably one of the few species with a legitimate claim to be native, in that genetic studies have revealed that the Irish population is distinct from the British and continental populations, and so it probably survived the last ice age in Ireland, though it would have probably sported white fur at that time, unlike its modern ancestor who is chestnut brown above and yellowish white below, with a black tip on the tail.

Otter

Though otters are common along the nearby shore, no evidence of otter was found in the area – the stream is unlikely to give adequate cover to an otter.

Pine Marten

The attractive Pine Martins, with its chocolate coloured pelage and creamy throat bib, is an extremely elusive and shy mammal that lives in woodland making a living by predating birds and small mammals and also feeding on berries, mushrooms, and insects. Like Hedgehogs and Red Squirrels, they may have been brought to Ireland by Vikings, either for food or for their pelt. Pine Martins have been confirmed at the Foye woods and are probably present in many woodlands in the area though neither them nor their traces were observed in the study area.

Badger

The shy and mainly nocturnal Badger is common and widespread throughout Ireland. There are very high population densities of Badger in Ireland because the permanently damp, soft soil is good for digging for worms, which are to be found lose to the surface, thereby making this country heaven for them. Traces of badger were found around fields and hedgerows of the study area (scat and tracks) in May.

Lagomorphs

Irish Mountain Hare

Like the Stoat, the Hare seems to have survived the Ice Age in Ireland, being genetically separated from British and European populations for 30 to 60,000 years, and as such possibly deserves full species designation. Hares are common around the study area both in upland areas and in the agricultural fields; several were seen in the study area itself.

A juvenile buzzard taking on an adult hare

Rabbit

Rabbits, originally an Iberian species, were introduced to Ireland in the 12th century by the Normans for food and fur and have since expanded to all suitable habitat in Ireland. Rabbits were observed within the study area on several occasions where they make their homes in the hedgerows. Rabbits area a major prey item for buzzards (see below).

Deer

Various reports of deer in the vicinity of Cooley mountains probably refer to escapes from local deer farming.

Goat

A flock of some 20 to 30 “wild” goats used to inhabit Carlingford Mountain but these had to be shot following the outbreak of foot and mouth in 2001. There is a good argument for restoring this flock as goats will eat pretty much any new shoot and have a high tolerance for species such as Bracken, and thus may create opportunities for species, that are currently being smothered, to come through.

Bats

Numerous bats were observed and detected (using a bat detector that converts their echolocation calls to within human hearing range) in the vicinity of the ponda and outhouses where they doubtless roost and hibernate. Daubentons and Leislers were confirmed but several other species are probably present. A detailed bat survey using a time expansion detector and recorder is recommended.

Birds

Breeding Aquatic Species

Mute Swan, Little Grebe, Mallard, Coot and Moorhen have successfully bred on Grange pond at various times. During 2010 Coot and Moorhen successfully produced young by early May.

Coot pair with juvenile following

Grey Heron

A Grey heron regularly visits the pond doubtless feasting on the many frogs – Grey Herons do not breed in teh study area though they do breed nearby.

Pheasant

Pheasants are common in the fields and hedgerows around Grange with several breeding pairs as evidenced by the numbers of juveniles in the late summer 2009.

Birds of Prey

Ireland has the lowest number of raptor species in Europe, partly because several species were extirpated based on the grounds that they predated livestock and game species such as Pheasant. Some of these are remembered in place names around Carlingford, eg Eagle Rock on Carlingford Mountain.

A red kite with wing tags was seen overflying the area and a number of residents reported such a bird roosting in trees in the area.

Buzzard

Buzzards died out in Ireland due to persecution and poisoning, however coincident with the banning of strychnine (used to bait carrion to poison foxes) in the North, Buzzards started to naturally recolonise there, and following its banning in the Republic in 1991, are now present in every county in Ireland. At least three pairs breed on the Cooley peninsula and a pair regularly hunts the study area for carrion, young Rabbits and rodents.

Buzzard

Kestrel

The Kestrel, often referred to as Kestrel Hawks, is in fact another species of falcon, like the Peregrine – Kestrels can often be seen in the area hovering in the air to catch wood mice and other rodents. Sefveral were seen in the study area but breeding was not confirmed.

Sparrowhawk

Sparrowhawk is a true hawk or accipitor – it can be seen regularly hunting the fields around the pond where it comes in low and fast to ambush passerines, its main prey species.

Owls

Long-eared owls breed in the upland woodlands in the Cooley mountains – one was regularly observed hunting over the fields behind the pond - it is doubtless nesting somewhere in wooded uplands. Long-eared Owls are live mainly on small rodents – an examination of 19 pellets (these are regurgitated fur, nails, teeth and bones of the birds prey species, small mammals) showed that one pair at Mullaghatin produced 18 wood mice and one other unidentified species, possibly a bird.

Long-eared owl

Barn Owls used to be common in the area with birds nesting in the Grange structure and in nearby Willville farm until as recently as 15 years ago. Short-eared Owls are occasional along th e nearby coastal areas.

Non-passerines

Pigeons and Doves

Woodpigeons and collared doves are common around Grange where their characteristic cuckoo-like calls may be heard.

Cuckoo

The increasingly rare cuckoo was not heard or seen in the study area, however several males may be heard calling their characteristic two-note call in the Cooley Mountains, notably on the west side of the mountain, one of the best places along the east coast to hear its iconic call. Cuckoos are currently declining in Ireland, possibly due to a decline in one of its brood parasite species, the meadow pipit.

Kingfisher

A Kingfisher was reported using in winter the several years ago – it is not suitable for breeding as kingfishers need moving water and a good supply of sprat to feed their

young, however it is not uncommon for a lone kingfisher to overwinter in a habitat such as Grange pond.

Kingfisher

Passerines

Passerines (literally perching bird, or songbird) are the species that we commonly see in gardens and include robins, thrushes, tits, hirundines (swallows and martins), pipits, wagtails, wrens, warblers, finches, crows, larks, buntings and others. The range of passerine species observed in the study area is typical of its Irish east coast location. Notable are Redwing and Fieldfare, thrushes from the north, using the fields behind the pond in winter, breeding Blackcaps in the mature trees around the pond in summer, occasional Ravens from the mountain soaring overhead and a pair of Yellowhammer breeding on the periphery of the study area near McGuire's Cross.

Swallows nest in many outhouses around Grange

Yellowhammers are declining as a breeding species

Outside but near the study area are a few notable passerine species including Crossbills in the woodland near Carlingford, notably the Foye woods, a Grasshopper Warbler heard at the Locra, a wetland area to the south of Carlingford, and a Spotted Flycatcher was at nearby Millgrange.

All of the passerine and other bird species which have been recorded in Grange and environs during 2009 are presented in the table below, indicating their status as possible, probable or proved breeders. In the case of wintering species, their presence is indicated.

House Martins nest under the eaves of houses, hence their name

Bird species Recorded in Grange

Little Grebe	Tachybaptus ruficollis*
Grey Heron	Ardea cinerea
Mute Swan	Cygnus olor*
Whooper Swan	Cygnus cygnus
Mallard	Anas platyrhynchos*
Sparrowhawk	Accipiter nisus
Common Buzzard	Buteo buteo
Kestrel	Falco tinnunculus
Red kite	Milvus milvus
Pheasant	Phasianus colchicus*
Moorhen	Gallinula chloropus*
Coot	Fulica atra*
Black-headed Gull	Larus ridibundus
Feral Pigeon	Columba livia*
Wood Pigeon	Columba palumbus*
Collared Dove	Streptopelia decaocto*
Cuckoo	Cuculus canorus
Long-eared Owl	Asio otus
Swift	Apus apus
Kingfisher	Alcedo atthis
Skylark	Alauda arvensis*
Swallow	Hirundo rustica*
House Martin	Delichon urbica*
Meadow Pipit	Anthus pratensis*
Pied Wagtail	Motacilla alba yarrellii*
Wren	Troglodytes troglodytes*

Dunnock	Prunella modularis*
Robin	Erithacus rubecula*
Stonechat	Saxicola torquata
Blackbird	Turdus merula*
Fieldfare	Turdus pilaris
Song Thrush	Turdus philomelos*
Redwing	Turdus iliacus
Mistle Thrush	Turdus viscivorous*
Whitethroat	Sylvia borin*
Blackcap	Sylvia atricapilla*
Chiffchaff	Phylloscopus collybita*
Willow Warbler	Phylloscopus trochilus*
Goldcrest	Regulus regulus
Long-tailed Tit	Aegithalus caudatus
Coal Tit	Parus ater
Blue Tit	Parus caeruleus*
Great Tit	Parus major*
Treecreeper	Certhia familiaris
Magpie	Pica pica*
Jackdaw	Corvus monedula*
Rook	Corvus frugilegus
Grey Crow	Corvus cornix*
Raven	Corvus corax
Starling	Sturnus vulgaris*
House Sparrow	Passer domesticus*
Chaffinch	Fringilla coelebs*
Greenfinch	Carduelis chloris*
Goldfinch	Carduelis carduelis*
Linnet	Carduelis cannabina*
Bullfinch	Pyrrhula pyrrhula
Yellowhammer	Emberiza citrinella
Reed Bunting	Emberiza schoeniclus*

*Breeding

Reptiles

Viviparous Lizards are common around Irish Grange where they may be seen sunning themselves on rocks in the early morning.

Viviparous lizard hiding under an old stone wall

Amphibians

Common Frogs are plentiful in the pond, indeed it is difficult to avoid walking on them in the late summer.

Common Frog

Smooth newts were finally confirmed in the pond in March 2013, with a single individual being observed floating on vegetation in the pond. Eggs were not found, however the

heavy rain in March caused the margins to be inundated and the eggs may have not been visible.

Smooth newt

Invertebrates

Lepidoptera (Butterflies and Moths)

The following butterfly species were observed during the study period around the pond and surrounding hedgerows: Peacock, Large White, Small white, small tortoiseshell, ringlet, speckled wood, meadow brown, holly blue, common blue and painted lady. In terms of moths a single Silver Y was recorded at Winnowing hill in May.

Peacock butterfly

A further study into the moths in the area using a moth trap may well be worthwhile given character of the area.

Odonata

Odonata is an order of insects, including dragonflies (Anisoptera) and damselflies (Zygoptera). They spend most of their life as juveniles in or on the water, some taking over a year to mature through egg, instar, nymph and, after several moults, adult. They are carnivorous predators throughout their life cycle feeding voraciously on other smaller acquatic insects (hence their name derived from the greek *odonto* or tooth.

Blue-tailed damselfly

June the 1st 2009 was a glorious day and on that day hundreds, possibly thousands of damselflies and dragonflies emerged from Grange pond making a fantastic spectacle. A Four-spotted chaser (an immature female) dragonfly as well as several Bluetails (>100, many copulating), Common Blue, and Azure Damselflies were observed. During a subsequent visit in late July a Common Darter and a Common Hawker were observed.

Clearly Grange pond is an excellent habitat for these fascinating insects. The unusual purity of the water, mud substrate, pond weed, lack of predatory fish, and sheltered situation all doubtless contributing to this fact.

Flora and Vegetation

Flora of the stream and pond area

The flora of the stream is relatively sparse with a thin layer of algae on the stones bedding the stream. This may be partly due to the fact the the stream's banks are regularly treated with herbicide to prevent weeds from growing in gaps between the cobbles that bound the stream. The flora of the pond is described above.

Amphibious bistort Grange pond – algae behind

Flora of the fields and hedgerows

The fields and hedgerows support a range of species typical of the north-east of Ireland. The following species were noted in the fields and hedgerows around Grange:

Meadow Buttercup	Ranunculus acris
Creeping Buttercup	Ranunculus repens
Common Poppy	Papaver rhoeas
Common Ramping-fumitory	Fumaria muralis
Common Fumitory	Fumaria officinalis
Stinging Nettle	Urtica dioica

Fat Hen	Chenopodium album
Ragged Robin	Lychnis flos-cuculi
Common Chickweed	Stellaria media
Hedge Woundwort	Stachys sylvatica
Field Madder	Sherardia arvensis
Broad-leaved Dock	Rumex obtusifolius
Curled Dock	Rumex crispus
Clustered Dock	Rumex conglomeratus
Common Sorrel	Rumex acetosa
Redshank	Persicaria maculosa
Knotgrass	Polygonum aviculare
Common Dog Violet	Viola riviniana
Watercress	Rorippa nasturtium-aquaticum
Shepherd's Purse	Capella bursa-pastoris
Common Scurvygrass	Cochlearia officinalis
Cuckooflower	Cardamine pratensis
Winter-cress	Barbarea vulgaris
Primrose	Primula vulgaris
Common Milkwort	Polygala vulgaris
Scarlet Pimpernel	Anagallis arvensis
Dog Rose	Rosa canina
Bramble	Rubus fruticosus agg.
Yellow Rattle	Rhinanthus minor
Meadowsweet	Filipendula ulmaria
Silverweed	Potentilla anserina
Barren Strawberry	Potentilla sterilis
Common Vetch	Vicia sativa
Hairy Vetch	Vicia hirsuta
Tufted Vetch	Vicia cracca
Birdsfoot Trefoil	Lotus corniculatus
Celery-leaved Buttercup	Ranunculus sceleratus
Meadow Vetchling	Lathyrus pratensis
Lesser Trefoil	Trifolium dubium
Red Clover	Trifolium pratense
White Clover	Trifolium repens
Meadowsweet	Filipendula ulmaria
Great Willowherb	Epilobium hirsutum
Rosebay willowherb	Chamerion angustifolium
Herb Robert	Geranium robertianum
Common Storksbill	Erodium cicutarium
Yarrow	Achillea millefolium
Hogweed	Heracleum sphondylium
Cow Parsley	Anthriscus sylvestris
Wild Carrot	Daucus carota
Field Bindweed	Convolvulus arvensis
Hedge Bindweed	Calystegia sepium

Field Forgetmenot	Myosotis arvensis
Red Dead-nettle	Lamium purpureum
Sticky Mousear	Cerastium glomeratum
Common Mouseear	Cerastium fontanum
Foxglove	Digitalis purpurea (nominate and alba forms)
Thale's Cress	Arabidopsis thaliana
Common Field Speedwell	Veronica persica
Cleavers	Galium aparine
Lady’s Bedstraw	Galium verum
Hairy Tare	Vicia hirsute
Honeysuckle	Lonicera periclymenum
Red Valerian	Centranthus ruber
Wild Teasel	Dipsacus fullonum
Daisy	Bellis perennis
Upright Hedge-parsley	Torilis japonica
Common Ragwort	Senecio jacobaea
Groundsel	Senecio vulgaris
Coltsfoot	Tussilago farfara
Common Knapweed	Centaurea nigra
Creeping Thistle	Circium arvense
Marsh Thistle	Circium palustre
Dandelion	Taraxacum officinale
Smooth Sow-thistle	Sonchus oleracius
Corn Sow-thistle	Sonchus arvensis
Mouse-ear Hawkweed	Pilosella officinarum
Bluebell	Hyacinthoides non-scriptus
Ramsons	Allium ursinum
Yellow Iris	Iris pseudacorus
Common Spotted Orchid	Dactylorhiza fuchsia
Lords-and-Ladies	Arum maculatum
Bulrush	Typha latifolia
Annual Meadow-grass	Poa annua
Meadow Fescue	Festuca pratensis
Red Fescue	Festuca rubra
Creeping Bent	Agrostis stolonifera
Wild Oat	Avena fatua
Hard Rush	Juncus inflexus
Marsh Foxtail	Alopecurus geniculatus
Perennial Ryegrass	Lolium perenne
Cocksfoot	Dactylis glomerata
Bracken	Pteridium aquilinum
Field Horsetail	Equisetum arvense
Bottle Sedge	Carex rostrata

Bottle Sedge grows in the shallow part of Grange Pond

Scarlet Pimpernel – a species typical of disturbed ground

Trees and Shrubs of the area

The following species were noted in the area

Species	Scientific Name
Alder	Alnus glutinosa
Ash	Fraxinus excelsior
Aspen	Populus tremula
Beech	Fagus sylvatica
Blackthorn	Prunus spinosa
Buddleja	Buddleja davidii
Elder	Sambucus nigra
Escallonia	Escallonia macrantha
Fuchsia	Fuchsia magellanica
Gorse	Ulex europaeus
Hawthorn	Crataegus monogyna
Holly	Ilex aquifolium
Ivy	Hedera helix
Rowan	Sorbus aucuparia
Scots Pine	Pinus sylvestris
Sessile Oak	Quercus petraea
Silver Birch	Betula pendula
Sycamore	Acer pseudoplatanus
Willow sp	Salix sp
Wych Elm	Ulmus glabra

Willow warbler singing from a Willow tree – Grange pond

Recommendations

Clearly the stream, pons and woodland lie at the heart of Grange's biodiversity. If it were possible to limit the impact of herbicide, fertiliser and insecticide this would have a positive effect on the pond over the long term, preventing it from fowling with algal bloom, and maximising biodiversity. If it were possible to open the area along the northern part of the pond, this could be a pleasant public amenity, particularly for the old person's home up the road from the pond. Similarly the pond area could benefit from suitable interpretative panels explaining the biodiversity. Thses actions would obviously have to be undertaken with the cooperation of landowners, and with sufficient local management to prevent the area being used for casual drinking and similar anti-social activity.

It would also be possible to envisage a biodiversity trail around Grange village and environs.

It is recommended to undertake a detailed bat survey of the area as it has been shown that large numbers of bats use the area, and there are several suitable roost and hibernation sites. A more detailed study of the fauna suing the pond is also recommended, particularly for newts, water beetles and other species.

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