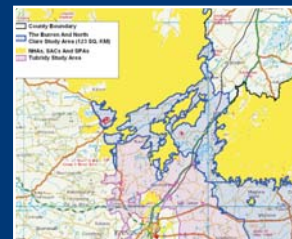
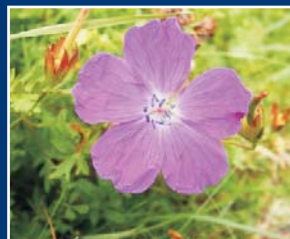




Clare County Council  
*Comhairle Contae an Chláir*



## Survey & Mapping of Habitats In North and Mid Clare

### Survey Findings Report





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# 1 EXECUTIVE SUMMARY

Clare County Council in association with the Heritage Council, Clare Biodiversity and Clare Heritage Forum commissioned RPS to survey and map habitats within a designated study area of approximately 123km<sup>2</sup> in North and Mid Clare. The study excluded lands designated for nature conservation.

County Clare is rich in its diversity of wildlife and habitats; however little is known about the habitats outside these lands designated for nature conservation. The main aim of the survey in North and Mid Clare is to provide an inventory and classification of the habitats present within the study area and to identify areas of biodiversity importance.

Through this process, we hope to create a more consistent sense of the value and importance of local sites of ecological value, by securing a broader awareness and support for their protection.

Information on the habitats found, was gathered through field by field surveys and interpretation of aerial photography. The habitat boundaries were mapped and classified in accordance with the national habitats classification produced by the Heritage Council, A Guide to Habitats in Ireland (Fossitt, 2000).

The field study was conducted between the months of July and September 2009. All information gleaned from the field studies was then digitised and stored in a Geographical Information System (GIS), which provides a statistical and visual representation of the habitat information.

There are 117 habitat types classified in Ireland (Fossitt, 2000), 89 of these habitat types are terrestrial and 28 of these are marine habitats. Of the 89 terrestrial habitat types, 50 different types of habitats occur within the study area, 8 are classified as under cultivated and built land. The remaining 42 habitats are described in detail in this report.

The habitats found within the study area are evaluated based on their naturalness, value and vulnerability. Habitats that are considered good examples of Annex I priority habitats are considered to be of international or national importance. Semi-natural habitats with high biodiversity in a local context and that are vulnerable, are considered to be of High Ecological value in a local context. Habitats that are considered semi-natural habitat or locally important



for wildlife are considered to be of Moderate Ecological value in a local context, and robust habitats that have been highly modified are considered to be of Low Ecological value in a local context.

Good examples of habitats that are considered to be of International, National, High and Moderate ecological value are target noted. These target notes provide detailed information on the habitat including, Survey details, Grid Coordinate, Townland Name, Area in Hectares, Ecological Value, Habitat Code and Habitat Description. The target note also provides a habitat map of the site indicating the extent of the area and a photographic record.

The habitat inventory and supporting biodiversity evaluation of the lands in north and mid Clare has important implications for spatial planning in the area. This information also establishes a forum for education and further research into the biodiversity value of the study area.

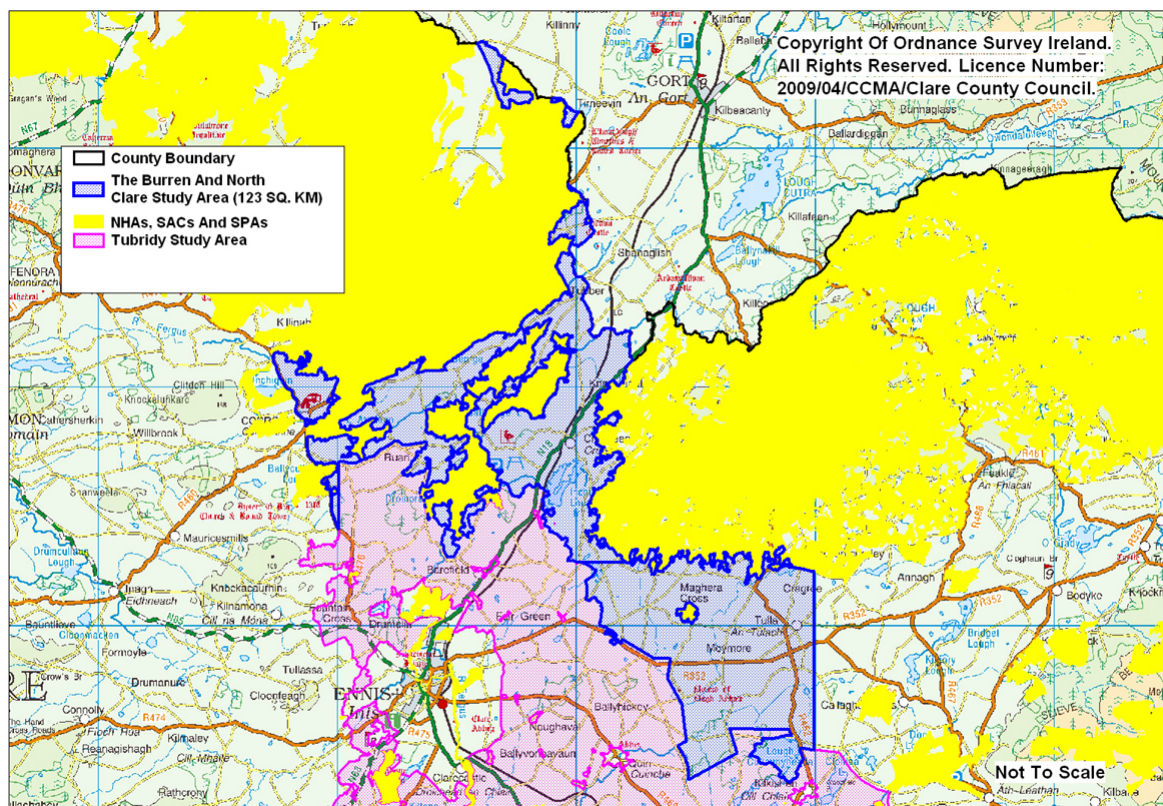


## 2 INTRODUCTION

## 2.1 BACKGROUND

In June 2008, Clare County Council commissioned the survey and mapping of habitats within a designated study area of approximately 123km<sup>2</sup> in North and Mid Clare (refer to **Figure 2.1**). This project is to fulfil the actions for habitat mapping under the County Clare Heritage Plan.

The main aim of the survey was to provide an inventory of the habitats present within the study area between Quinn to the Clare border west of Gort in the north and from Tulla in the east to Corrofin in the west (see **Figure 2.1**). The detailed mapping and inventory of the habitats, landscape features and ecological features within the study area will form the basis for a review of the variety and extent of habitats present, the identification of areas of high ecological and biodiversity value and important links between these areas. Recommendations will be made for best practice in relation to the conservation, protection and enhancement of areas of natural heritage and biodiversity importance.



### Figure 2.1: Study Area



The purpose of these surveys is to establish the following:

- To provide baseline data on the status of habitats of biodiversity value in North and Mid Clare,
- To continue development of the methodology and make recommendations for future refinements for use of the methodology in Clare,
- To raise awareness of the importance of biodiversity and habitats among landowners and residents in those areas surveyed,
- To inform future conservation policies in relation to habitats in County Clare,
- To utilise the data gathered on landscape features of ecological value in order to engage local communities in strengthening an eco-network at county level, and
- To utilise the data gathered on landscape features to inform the inclusion and mapping of ecological networks in upcoming Local Area Plans, aid Policy Decisions and the review of the County Development Plan.

## **2.2 BACKGROUND OF THE PROJECT TEAM**

The Project Team represents a combination of expertise, experience and resources providing a range of professional services that are directly relevant to the described tasks.

Ecological assessment requires a high level of skill and practical ability. Ecologists and environmental staff in RPS Galway are supported further by ecological staff distributed between offices in Ireland and the United Kingdom. RPS staff are drawn from scientists and conservation practitioners with broad ecological experience that includes, site survey and evaluation, phase I habitat survey; botanical survey; bird survey; terrestrial mammal, bat and invertebrate surveys.

The field surveys were carried out by RPS ecologists. Paula Kearney was the project manager and is a Senior Project Ecologist within the environmental section of RPS Consulting Engineers in Galway. Paula has ten years of professional ecological and environmental experience. Richard Mundy, who is also a Senior Project Ecologist with RPS in Cork, assisted with training and advice in relation to the project. Paula assisted in the field surveys along with Jean Hamilton, David Fallon and George Percival. Jean joined RPS in 2006. Since then she has developed her skills in field survey techniques and methodology, and in ecological impact assessment. David Fallon and George Percival are independent botanists working on behalf of RPS. They both have extensive experience in terrestrial ecology and botany.



Dr. Ruth Staunton is a geologist with over nine years experience and has worked with RPS for over two years. She provided an interpretation of soil, geology and hydrogeology of the study area, using published information available from the GSI.

## **2.3 SCOPE**

The scope of the project as per the brief provided by Clare County Council is as follows;

- 1) to map and provide supplementary information relating to all habitats within the survey area, to level III of the Fossit (2000) classification system,
- 2) to survey, map and provide supplementary information relating to all habitats listed on Annex I of the European Habitats Directive that occur within the survey area,
- 3) to survey, map and provide supplementary information relating to sites of local biodiversity value, flooding potential, ecological corridors and buffer zones within the survey area, and
- 4) provide an interpretation layer for non-specialists e.g. planners and non-expert users, to indicate habitats and areas of particular ecological value, sensitivity and potential wildlife corridors.

## **2.4 METHODOLOGY**

The habitats within the study area were assessed by means of a desk study of literature pertinent to the area and surrounding area and field surveys. In addition all spatial data was digitised onto a Geographical Information System (GIS) MapInfo Professional version 8.5.

### **2.4.1 DESKTOP STUDY**

The desktop study involved a comprehensive review of the existing information. The principal sources of information referred to during the desktop review are outlined below.

- Clare County Development Plan 2005-2011,
- South Clare Economic Corridor Local Area Development Plan (2003),
- Landscape Character Assessment in Ireland. The Heritage Council (2006),
- National and Local, Heritage and Biodiversity Plans,
- A review of the National Parks and Wildlife Service database for conservation sites,



- A review of any existing published and unpublished information from the National Parks and Wildlife Service, the Clare County Council and the Heritage Council, and
- Habitat/Land Use Maps available such as CORINE data.

Reference will be made to the methodologies and experience gained from the:

- Draft Habitat Survey Guidelines: a Standard Methodology for Habitat Survey and Mapping in Ireland (Heritage Council, 2002),
- *A Guide to Habitats in Ireland.* Fossitt, J.A 2000. The Heritage Council, Co. Kilkenny.
- Hedgerow Survey Handbook,
- Local Biodiversity Action Plan, and
- Habitat Action Plans.

## 2.4.2 GIS, MAPPING & RECORDING

All available digital mapping and aerial photography was divided up into 3km<sup>2</sup> tiles for ease of processing and field work.

The aerial photography was carefully examined to interpret the type of habitats present within the study area. Using this method some habitats and their spatial extent can be easily identified such as field boundaries, areas of plantation forestry and agricultural grassland. Other habitats are however more difficult to identify such as types of woodland, peatland and swamp. All habitats are classified to Level III of the Fossitt Classification. This classification system is explained in **Section 2.4.4**.

All spatial data was digitised onto a GIS system (MapInfo Professional version 8.5). The advantages of digital mapping are many and include:

- GIS provides a much more effective and efficient means of storing and accessing mapped data,
- Improved data manipulation capabilities,
- Habitat areas can be calculated with much greater accuracy,
- Precise locations of features of interest can be mapped more accurately using GPS (Geographical Positioning System) data, and
- Alterations to site boundaries / habitat areas can be made much more easily.



### 2.4.3 FIELD ACCESS

Prior to the commencement of field surveys local representatives of the Irish Farmers' Association (IFA) were contacted by telephone. A number of actions resulted from these conversations, including advertising the commencement of the survey on local radio and in parish newsletters. Surveyors had information leaflets to issue to farmers during the site survey.

Where possible, prior to entering land, the landowners were located and asked for permission. Not all fields were entered if a habitat could be assessed from the road such as Improved Agricultural Grassland GA1. Overall, landowners encountered for the duration of the project were cooperative and enthusiastic to impart local knowledge on wildlife, land use and farming practices in the area.

### 2.4.4 FIELD SURVEY

The field survey was based on a combination of field survey and interpretation of aerial photographs, with the use of supporting information, where available.

A habitat is an area in which a specific plant or animal naturally lives, grows and reproduces; an area that provides a plant or animal with adequate food, water, shelter and living space. Through the mapping of habitats, information can be gathered about the plants and animals, which are associated with an area.

Habitats can vary in naturalness, depending on the extent to which they have been modified by development. Throughout Ireland, there is probably no habitat that can be considered completely natural and therefore an assessment is made related to degrees of naturalness.

Habitats can be in terrestrial, freshwater or marine environments, or a combination of these. Many techniques and methodologies have been developed to map habitats and classify habitats around the world; however the Heritage Council has produced a methodology and classification system specific to habitats found in Ireland. These include the following:

- Fossitt, J. (2000) *A Guide to Habitats in Ireland*. The Heritage Council, Kilkenny, and
- The Heritage Council (2002) *Draft Habitat Survey Guidelines: A standard methodology for habitat survey and mapping in Ireland*. The Heritage Council, Kilkenny.



The habitats on site were classified in accordance with the Fossitt Classification system. The classification is a standard scheme for identifying, describing and classifying wildlife habitats in Ireland. The classification is hierarchical and operates at three levels, outlining the correlation between its habitat categories and the phytosociological units (plant communities) of botanical classifications. The scheme identifies 11 broad habitat groups at level 1, 30 habitat subgroups at level 2, and 117 separate habitats at level 3. The codes assigned at each level reflect the names of habitat groups or subgroups. Correspondence with habitats listed in Annex I of the Habitats Directive (92/43/EEC) is also described.

The surveys were conducted during the months of July, August and September. The survey was prolonged due to adverse weather conditions in August which impeded progress.

#### **2.4.5 MAP PRODUCTION**

All habitats were mapped individually on MapInfo so that the exact location and true extent of the habitats will be available to Clare County Council and to aid future research.

Photographs were taken for each habitat types and accompany the habitat descriptions on the digital version of the accompanying Habitat Map. A number of photos are also included in **Section 4.2** which provides a description for each habitat type.

All maps and scientific data sets are collated, logged and referenced in a database that will be easy to manage and use as a tool for further research or applications by the Council.



### 3 STUDY AREA CONTEXT

#### 3.1 STUDY AREA

The study area is located in north and Mid Clare, covering approximately 123km<sup>2</sup> of lands from Quinn to Clare border outside Gort in the north and Tulla in the east to Corrofin in the west (see **Figure 2.1**). The study comprised the survey and mapping of habitats within this designated study area.

The main aim of the survey was to provide an inventory of the habitats present within the study area, excluding the sites already designated for nature conservation. The following section describes the existing environmental conditions within the study area, describing elements such as geology, soils, ecology and land use.

#### 3.2 LANDFORM AND GEOLOGY

##### 3.2.1 Landform

The land within the study site is generally low-lying with higher elevations at the foothills of the Slieve Aughty Mountains. The minimum and maximum elevations reached within the site are 13mAOD and 104mAOD respectively. Poorly drained bog and wet marshland areas, or glacially formed depressions and seasonal lakes, known as turloughs occur within the study site. The higher ground generally comprises of well drained, gently undulating pastureland, with occurrences of uneven, hummocky till ridges. These ridges are either formed of limestone epikarst or are glacial features such as drumlins (small elongated hills, typically 500-800m long, 200-300m wide and 20-35m high). **Figure 3.1** illustrates the setting of the study area within the landform of County Clare.



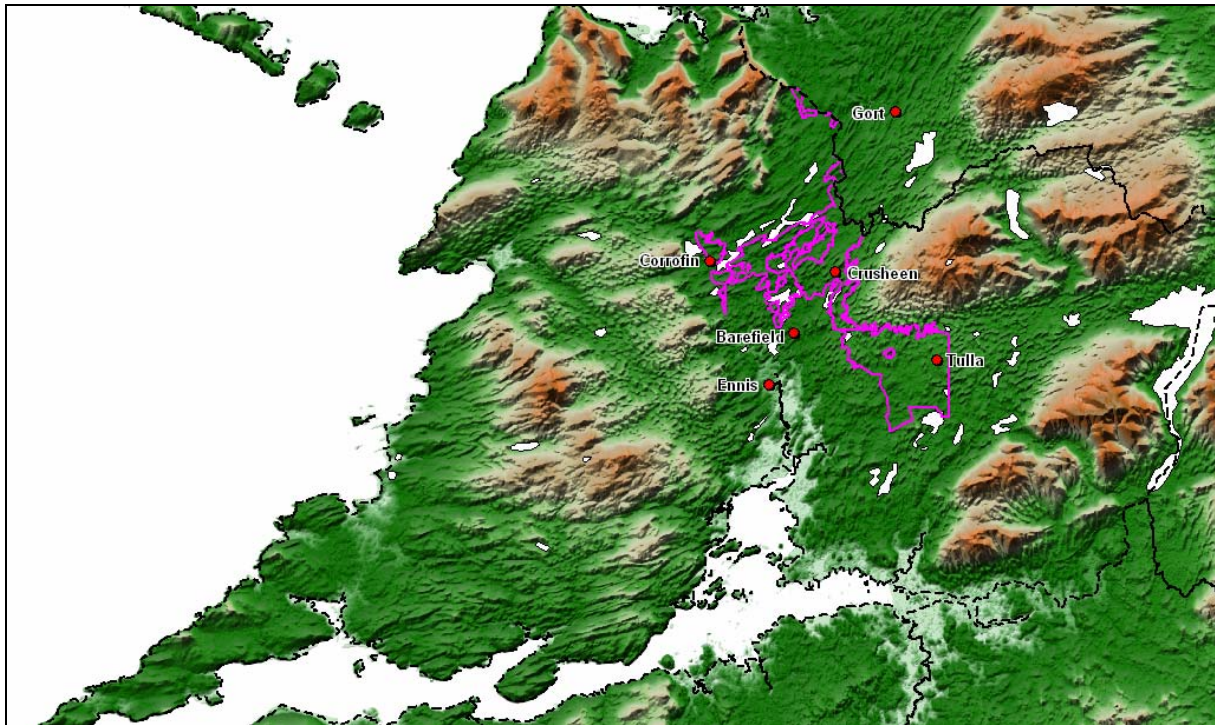


Figure 3.1: Landform of County Clare<sup>1</sup>. The pink line delineates the Study Area.

### 3.2.2 Geology, Soils and Subsoils

The geology and soils of north and mid Clare are the predominant factors influencing the habitats which it supports. The underlying geology generates a variety of soil-forming parent materials, which are an important element in governing the distribution of vegetation.

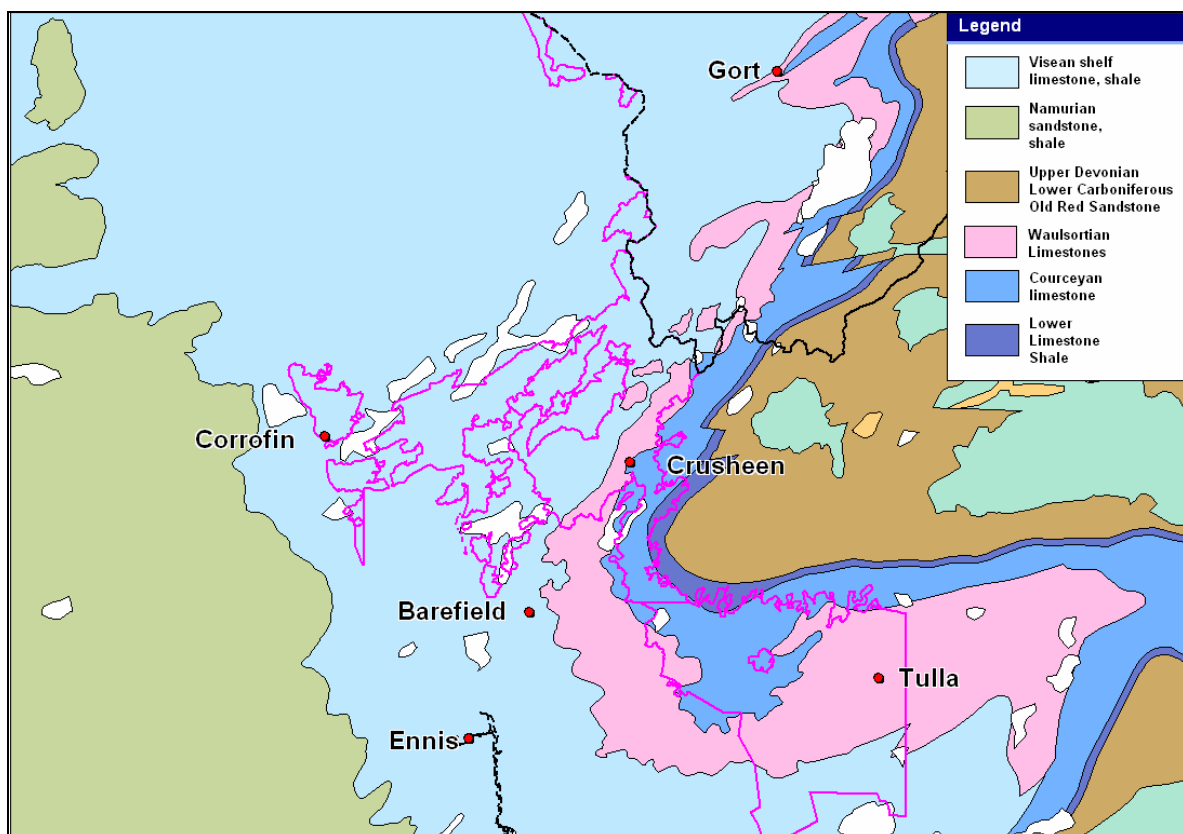
A general representation of the solid geology for the study area is presented in **Figure 3.2** and was constructed from available GSI (1:100,000) Bedrock Geology maps and reports. The two dominant rock types of the region are the Carboniferous Limestone, which underlies the entire study area, and the Devonian Old Red Sandstone which forms the Slieve Aughty Mountains to the east of the study area. This limestone belt runs north-south from the exposed limestone pavements of the Burren, underlying the drumlin belt surrounding Ennis and extending towards the lower drumlins of east Clare.

The Lower Carboniferous Limestone formations which underlie the north and west of the study site are Visean Shelf Limestone and Shale. Waulsortian Limestone (massive unbedded lime-mudstone) underlies the centre and south east of the study site and Courcyeen Limestone can be found to the north east and west of Tulla.

<sup>1</sup> Source - Hole-filled seamless SRTM data V1, 2004, International Centre for Tropical Agriculture (CIAT), available from [http://gisweb.ciat.cgiar.org/sig/90m\\_data\\_tropics.htm](http://gisweb.ciat.cgiar.org/sig/90m_data_tropics.htm).



Based on information gleaned from the Teagasc Subsoils and Soils map, the study area is predominantly underlain by either limestone derived till and sandy till deposited during the last glaciation, or organic peat which has generally formed in the low-lying, poorly drained areas where perched water and slow percolation causes thin layers of peat and peaty gleys to accumulate. Lands to the west of the study area are underlain by very thin (less than 1m) to absent shallow brown earths, with extensive areas of Exposed Calcareous Rock (Limestone Pavement) (ER2), while other areas mid-central, south and east are underlain by significant depths brown podzolics, gleys and peat.



**Figure 3.1: Geology of Study Area. The pink line delineates the Study Area**

The deeply weathered karst limestone of the Burren and the thin organic brown earth soil which occurs on the north and west of the study site is well drained and highly productive. Exposed Calcareous Rock (ER2), Dry Calcareous and Neutral Grassland (GS1) and Scrub (WS1) habitats, dominate this terrain, with some Oak Ash Hazel Woodland (WN2) developing in the less exposed areas. The low-lying areas in the north and mid section of the Study Area are interspersed with numerous loughs typical of such limestone areas, including; Limestone/Marl Lakes (FL3), Mesotrophic Lakes (FL4) and Turloughs (FL6), with associated wetlands including Rich Fen & Flush (PF1), Reed and Large Sedge Swamp (FS1) and Tall Herb Swamps (FS2).



Evidence of the drumlin belt can be seen to the south and east of the Study Area. These hills are well drained and are used extensively for pasture and dominated by Improved Agricultural Grassland (GA1) with Broadleaf Woodland (WD1). Interspersed between the drumlin hills are pockets of wetland where the drainage is impeded and peat has formed giving rise to Wet Grassland (GS4), Marsh (GM1), Raised Bog (PB1) and limited areas of Poor Fen and Flush (PF2) habitats.

The shales and peaty subsoils which occur on the foothills of the Slieve Aughties form wet acidic conditions and the habitats which occur here include Acid Grassland (GS3) and Conifer Plantations (WD4).

### 3.2.3 Karst Features

Karstification is the process whereby limestone is slowly dissolved by acidic waters moving through the rock. This most often occurs in the upper bedrock layers where the resulting features are referred to as epikarst. Solution of limestone can occur along pre-existing fissures and fractures in the rock which slowly become enlarged. Other factors influencing solution processes include the type and solubility of limestone, the degree of jointing, faulting and bedding, the chemical and physical character of the groundwater, the rate of water circulation and the subsoil cover.

Solution results in the progressive development of distinctive karst landforms such as collapses, caves, swallow holes, sinking streams, turloughs (seasonal lakes) and dry valleys. It also results in a unique and dynamic groundwater and surface water flow regime, where drainage is largely underground in solution enlarged fissures and conduits.

On review of online geological data (<http://www.gsi.ie>), there are fifteen recorded karst features within the boundaries of the study area. These features include the following;

- **Springs** at Cragbwee, Rylane, Cappafeean, Teervea
- **Turloughs** at Turloughmore, Gorteen, Derrybeg
- **Caves** at Toomeen, Miltown, Addergoole, Portlecka
- **Enclosed Depressions** Poulaforia, Cloonaleary, Lismuinga West
- **Swallow Hole** at Ross, North of Barefield.



### 3.2.4 Geological Heritage

It has been recognised nationally that sites of geological interest are not comprehensively addressed by existing nature conservation designations. Consequently, the Department of the Environment Heritage and Local Government (DoEHLG) and the Geological Survey of Ireland (GSI) are currently compiling a list of sites of national geological and geomorphological interest that will be proposed as Geological Natural Heritage Areas (NHA's). This forms part of The Irish Geological Heritage (IGH) programme.

The GSI has indicated that there are five Designated Areas of Geological Heritage within and in the vicinity of the study site as follows:

- The Fergus River Cave System supports two IGH sites, in the townland of Roughan (Site code: IGH12 & IGH1-44). It is a cave system. Uranium series dating of ancient cave which may have a pre-Quaternary origin >350ka calcite date but at limits of the method,
- Kilbreckan Mine located in the townland of Monanoe (Site code: IGH6), is of international importance. Kilbreckan Mine is situated between Ennis and Quin. It was worked intermittently for silver and lead from 1834 until 1856. In addition, Kilbreckan is the type locality for the mineral 'Kilbrickenite' – now confirmed as the mineral Geocronite (a white sulphosalt mineral of lead). The main orebody, trending north-south, has a pipe-like shape and is up to 1m in width. A second, northwest trending mineralized body of similar thickness occurs also.
- The Tomeen Cave System, is recorded as two IGH sites, located in the townlands of Milltown and Kiltanon. The Tomeens is an excellent example of a shallow developed river cave with unroofed, partially roofed and fully roofed sections, the unroofed sections resulting from roof collapse. It has a number of stream oxbows and dry oxbows. The process is still in progress, and will ultimately result in a stream canyon.

The IGH sites found within or adjacent to the study area boundary are provided in **Table 3.1**.



**Table 3.1: Geological Heritage Sites Burren and North Clare**

Site No.	Site Name	NHA	Townland(s)/ district	Grid Ref.	Principal characteristics - Summary description
IGH1	Ballykinnora North Mushroom Stone	-	Ballykinnacorra North	R 2865 8848	Mushroom stone (really part of group at Coad)
IGH1	Coad Mushroom Stones	-	Coad	R 2725 9139	Mushroom Stones
IGH12	Fergus River Cave	IGH1-44	Roughan	R 251 923	Cave system. Uranium series dating of ancient cave which may have a pre-Quaternary origin >350ka calcite date but at limits of the method
IGH1-44	Fergus River Cave	IGH1-44	Roughan	R 252 923	Cave system. Uranium series dating of ancient cave which may have a pre-Quaternary origin >350ka calcite date but at limits of the method
IGH16	Fergus River Spring Complex	-			Springs
IGH7	Fergus River Valley	-	covers much of mid-Clare	(51) R 25 92 (57) R 31 88 (58) R 35 85	Whalebacks and rock drumlins
IGH6	Kilbreckan Mine	International	Monanoe	R 399 763	Mineral 'Kilbrickenite'. Kilbreckan Mine is situated between Ennis and Quin. It was worked intermittently for silver and lead from 1834 until 1856. The mineralized bodies contain silver-bearing galena, pyrite, chalcopryrite, sphalerite and calamine in a calcite gangue. Other minerals include Bindheimite (a silver-bearing antimonite of lead), Bournonite (a sulphide mineral of copper, antimony and lead), Hemimorphite (a minor ore mineral of zinc), Quartz, Smithsonite (another zinc ore). In addition Kilbreckan is the type locality for the mineral 'Kilbrickenite' – now confirmed as the mineral Geocronite (a white sulphosalt mineral of lead). The main orebody, trending north-south, has a pipe-like shape and is up to 1m in width. A second, northwest trending mineralized body of similar thickness occurs also.
IGH1	Killinaboy Mushroom Stone	-	Killinaboy	R 2720 9133	Mushroom Stone
IGH8	Tomeens	IGH1-57	Milltown, Kiltanon	R 467 813	Waulsortian limestone mudmound with contact with Ballysteen Limestone Formation
IGH1-57	Tomeens	IGH1-57	Milltown, Kiltanon	R 47 82	The Tomeens is an excellent example of a shallow developed river cave with unroofed, partially roofed and fully roofed sections, the unroofed sections resulting from roof collapse. It has a number of stream oxbows and dry oxbows. The process is still in progress, and will ultimately result in a stream canyon. It is within the massive Waulsortian Limestone Formation.
IGH8	Toonagh Quarry, Ennis	-	Ballybrody, Drummina, Toonagh Commons	R 303 838	Burren Formation, Carboniferous Limestone. This quarry, 3.5km north of Ennis off the main Ennistymon road on the Corrofin road, is the best representative section in the county, other than karstic exposures in the Burren, for the typical Clare Burren Formation. The broad dip of the beds, and features of the overall sequence can be seen in an always changing quarry.
IGH8	Turrett Hill	-	Deerpark South, Cullaun	R 472 738	Tulla volcanics and only Brigantian exposed in the south of Clare



### 3.3 LAND USE

The drumlin landscape forms the overall character of the site; however areas of scrub and rough pasture on limestone outcrop is found to the north and west of the site, fringing the Burren landscape. This terrain provides a diversity of land uses ranging from pasture, silage, peat extraction, tillage, forestry and tourism. The villages and towns including Crusheen, Tulla, Corrofin and Tubber support residential and commercial business. The well drained hummocky hills provide good pastureland for Cattle and dairy farming, whilst the low-lying lands between are occupied with a variety of habitats including; Wet Grassland (GS4), Marsh (GM1), Raised Bog (PB1), Fen (PF1) and Turloughs (FL6), provide some limited grazing for livestock.

Coillte owns forested lands in the townland of Derrygarraff. There are also small pockets of privately owned forestry scattered in the study area.

Peat extraction is a prominent activity within the Raised Bogs surrounding Tulla, Quinn and in the foothills of the Slieve Aughties.

The scenic countryside of the Burren runs to the west of the study area is considered a valuable amenity which draws large numbers of visitors to County Clare. However, there are also a number of local amenities within the study area which can be enjoyed by tourists and residents of the towns include the following: Game and coarse fishing, Golf, Horse riding, and Walking. The “Mid Clare Way” and “The East Clare Way”, which are regional walking routes, weave through the study area. These walks are important from a tourism perspective.

### 3.4 ECOLOGICAL IMPORTANCE

County Clare covers an area of approximately 3,229km<sup>2</sup>. County Clare has a rich and varied landscape and supports a diversity of wildlife and habitats that are both rare in Ireland and Europe. As a result approximately 735km<sup>2</sup> (23%) of the landmass is designated for nature conservation. The study area is sandwiched between two significantly large designated sites, specifically the Slieve Aughty Mountains SPA and the East Burren Complex.

Sites of high conservation importance occur within and adjacent to the study area. These sites have been designated as they support a diversity of species that are protected on a National and International scale. The study excludes sites designated for nature



conservation; however a review of these sites provides a valuable insight into the landscape and its capability to support such biodiversity.

A number of sites are currently designated for nature conservation under both European and National legislation. These designated sites include; Natural Heritage Areas (NHA), Special Areas of Conservation (SAC) and Special Protection Areas (SPA). Details of applicable legislation are provided in **Table 3.3** and details of designated sites are detailed in **Table 3.3**, and illustrated in **Figure 3.3**.

**Table 3.2: National and European Legislation for Nature Conservation**

Legislation		Explanatory Note
EU Legislation	<b>Habitats Directive 92/43/EU</b> (transposed into Irish Law under the European Communities (Natural Habitats) Regulations 1997 SI/97/094 as amended)	This legislation is structured around the 'Natura 2000' network of protected sites and a strict system of species protection. Ireland has a legal obligation to protect the habitats and species which are listed in the Annexes to the legislation, as Special Areas of Conservation (SACs). The main objective of the Directive is to maintain or restore natural habitats, and species of plants and animals, which are of conservation importance as defined in the Directives, at a favourable conservation status. Ireland supports 60 Annex I habitats that require special conservation measures and, of these, 16 are priority types that are considered to be in danger of disappearance (see Table 4.2).
	<b>Birds Directive 79/409/EE</b>	This Directive identifies 194 species and sub-species of birds afforded protection. Annex 1 lists the bird species for which conservation requires the designation of Special Protection Areas (SPAs); this also applies to important concentrations of migratory birds.
NATIONAL LEGISLATION	<b>Wildlife (as amended) Act 1976</b>	This legislation aims to protect sites of scientific interest because of their habitats, plants and animals, or landforms and geological or geomorphological features from damaging developments and / or land uses. At a national level it provides a mechanism through which statutory protection is afforded as Natural Heritage Areas (NHAs). It also strengthens the protective status of SACs and SPAs by ensuring that protection will in all cases apply from the time of notification of proposed SAC and SPA sites. The Act further encompasses the statutory protection for important geological and geomorphological sites, including fossil sites by designation as NHAs.
	<b>The Flora (Protection) Order 1999</b>	This order sets out a list of plant species which are protected by Section 21 of the Wildlife Act, 1976 (as amended). If a plant species appears in this list it is illegal to cut, uproot or damage the listed species in any way, or to offer them for sale. This prohibition extends to the taking or sale of seed. It is also illegal to alter damage or interfere in any way with their habitats. This protection applies wherever the plants are found and is not confined to designated sites.



**Table 3.3: Brief Description of Designated Sites Located within or Adjacent to the Study Area**

	Brief Description
<b>cSAC/pNHA 000057</b>	<b>The Moyree River</b> is situated in a sheltered valley on the south-eastern fringe of the Burren, County Clare. Ballyvaughan Lough lies to the north of Moyree with Dromore Woods and Lough to the south-west. This site is an internationally important summer roosting and hibernation site for Lesser Horseshoe Bat, a species listed in Annex II of the EU Habitats Directive. Several other mammal species frequent the Moyree River valley, including Otter and Pine Marten. Both of these species are listed in the Red Data Book as threatened in Europe. The secluded nature of the river valley is ideal for sheltering wildfowl, especially teal and mallard. The rare Hen Harrier is a regular visitor to the area.
<b>cSAC 000019</b>	<b>Ballyogan Lough</b> is a complex of limestone pavement, scrub woodland, lake and fen situated about 10 km east of Corrofin, Co. Clare. This site is a candidate SAC selected for Cladium fen, a habitat listed on Annex I of the EU Habitats Directive. The south-west end is largely dominated by scrub and limestone pavement while the north-east is largely fen. A bog road divides this fen from Ballyogan Lough, which lies in the centre of the site. The dominant vegetation around the lake margin is Common Reed ( <i>Phragmites australis</i> ), with large stands of the Saw Sedge ( <i>Cladium mariscus</i> ) nearby. Black Bog-rush ( <i>Schoenus nigricans</i> ) is abundant some distance from the water, together with Bog-myrtle ( <i>Myrica gale</i> ), Purple Moor-grass ( <i>Molinia caerulea</i> ) and several plant species of note including Marsh Helleborine ( <i>Epipactis palustris</i> ), Dioecious Sedge ( <i>Carex dioica</i> ), Blunt-flowered Rush ( <i>Juncus subnodulosus</i> ) and Lesser Tussock-sedge ( <i>Carex diandra</i> ). Adjacent damp fields contain frequent Heather ( <i>Calluna vulgaris</i> ). Further away from the lake, on the west side of the bog road, this fen-type vegetation gives way to extensive, abandoned cutover bog. The north-east end of the site has facilitated the spread of drier, heath plants such as Gorse ( <i>Ulex europaeus</i> ). The scrub and limestone pavement, which is situated in the southern part of the site, is dominated by Hazel ( <i>Corylus avellana</i> ) and Ash ( <i>Fraxinus excelsior</i> ). Other plants of note include Yew ( <i>Taxus baccata</i> ) and Spindle ( <i>Euonymus europaeus</i> ) both of which are relatively rare on site. Cotoneaster ( <i>Cotoneaster microphyllus</i> ) is frequent on the pavement where it has become fully naturalised.
<b>cSAC/ pNHA 000032</b>	<b>Dromore Woods and Lough</b> is situated in central Clare 9 km north-west of Ennis, the site lies on the southern edge of the Clare limestone. The site is very diverse and contains a mosaic of different habitats: limestone pavement, scrub, dry broad-leaved woodland, mixed woodland, lakes, rivers, grasslands, cutaway bog, fen, freshwater marsh and reed-beds. Part of the Dromore site is also a Statutory Nature Reserve (i.e. the eastern part of complex extending from Dromore Lough Upper north-westwards to Ballyteige Lough). Mammals found on the site include Pine Marten, Otter, Badger, Fox and Stoat. The site is of particular importance for its population of Pine Marten, a rare Red Data Book species. The site also includes a nursery roost for a population (more than 400 individuals) of Lesser Horseshoe Bat. This nursery colony is one of the biggest in the country and of international importance. Lesser Horseshoe Bat is a rare and threatened species that is listed on Annex II of the EU Habitats Directive. The roost is owned and managed by the Heritage Council.



	Brief Description
<b>cSAC &amp; pNHA Code 001926</b>	<b>East Burren Complex</b> is of international scientific interest owing to the presence of fine examples of typical Burren habitats. The site incorporates all of the high ground in the east Burren, and extends south-eastwards to include a complex of calcareous wetlands. The area encompasses a complete range of limestone habitats that include limestone pavement and associated calcareous grasslands and heath, scrub and woodland together with a network of calcareous lakes and turloughs. The site exhibits some of the best and most extensive areas of oligotrophic limestone wetlands to be found in the Burren and in Europe. The site contains an internationally important population of Lesser Horseshoe bats. There are nursery roosts, a transient roost and four winter roosts. Pipistrelle and Long-eared bats also occur in the site. All of these species are listed in the Red Data Book, with the Lesser Horseshoe Bat also listed on Annex II of the EU Habitats Directive. The site also supports a large population of Marsh Fritillary. The site contains twelve habitats that are listed on Annex I of the EU Habitats Directive and four species of plant and animal listed on Annex II of this Directive and, as such, is of major conservation significance. The occurrence of many rare plants and several rare mammals within the site adds considerably to its scientific and conservation value. The site is of high ornithological interest for the internationally and nationally important numbers of waterfowl that use it.
<b>cSAC 001321 pNHA 002001</b>	<b>Termon Lough</b> is situated approximately 6 km south-west of Gort. It is a flat turlough, with low, drift-covered slopes on all sides except in the north-east, where a small area of limestone pavement is found. A higher spur adjoins the basin in the north-east. The main area of the site is now a reed-swamp underlain by marl deposits. Termon Lough is a particularly wet turlough that seldom dries out. Termon Lough is an unusual turlough by virtue of its extreme wetness. It contains one of the largest stands of reed-swamp to be found in a turlough. Although rare plant species have not been recorded, the relatively rare oligotrophic vegetation on marl does occur. The vegetation is in excellent condition and almost completely ungrazed. The transition to limestone pavement in the north-eastern corner of the site is also of interest.
<b>SAC 002314</b>	<b>Old Domestic Buildings, Rylane</b> , This site, which is west of Ruan in County Clare, consists of a farmyard which contains a series of stone sheds. The Lesser Horseshoe Bat ( <i>Rhinolophus hipposideros</i> ), a species listed on Annex II of the EU Habitats Directive, breeds here in two of the buildings. The Vincent Wildlife Trust has carried out work on one of these sheds to improve the roosting conditions for the bats. The shed has been reroofed with slates and the doors and windows have been secured leaving access for the bats. Approximately 80 individual bats were counted on emergence in June 2000, although numbers have exceeded 100 (threshold for international importance) in the past. There appear to be no immediate threats facing the site.
<b>SAC 002157</b>	<b>Newgrove House</b> is the remains of a former mansion called Newgrove House, as well as some of the surrounding countryside. It is situated near Tulla, County Clare. It is used as a hibernating site by the Lesser Horseshoe Bat ( <i>Rhinolophus hipposideros</i> ), a species listed on Annex II of the EU Habitats Directive. All that remains of the house is sections of the underground cellars, one of which is used by the bats as it is accessible, humid and remains at a constant temperature. The surrounding countryside is a mixture of pasture, hedgerows and some mixed woodland and scrub. A former lake, Newgrove Lake, has been completely reclaimed. The proximity of suitable foraging habitat in the area around the hibernation site is important as Lesser Horseshoe bats are often active in hibernacula in autumn and spring.



	Brief Description
pNHA 000038	<b>Inchicronan Lough</b> is a medium sized lake situated approximately 2km south of Crusheen. Fringing reed-beds of <i>Phragmites australis</i> ( <i>Common reed</i> ), Club rush ( <i>Scirpus lacustris</i> ) and Red Canary Grass ( <i>Phalaris arundinaceae</i> ) surround much of the lake verge. There are a number of small scrubby islands located around the western side of lake. Inchicronan Island which lies through the centre of the lake is inhabited and is mainly in use as pasture, although some wooded pockets still remain. Inchicronan Lough has interesting aquatic and terrestrial plant communities and the presence of Meadow-rue ( <i>Thalictrum flavum</i> ) forms the western limit of this species in Ireland. Although attempts at agricultural improvement have taken place around all sides of the lake, there is still a good degree of naturalness reflected in the remaining habitats. The lake is of local ornithological interest and during the survey a flock of 30 wild swans, some duck and Cormorants were observed. The whole area is of high scenic value.
SPA 004168	<b>Slieve Aughty Mountains</b> is a very large site that extends southwards from just south of Lough Rea, County Galway to Scariff in County Clare. The peaks are not notably high or indeed pronounced; the site rises to a maximum of 378 m near Cappaghbaun Mountain. It site includes many small- and medium-sized lakes, notably Lough Graney and Lough Atorick; several important rivers rise in the site, including the Owendalulleagh and Graney. Lough Derg occurs immediately to the south-east. The Slieve Aughty hills are predominantly comprised of Old Red Sandstone, but outliers of Lower Palaeozoic rocks provide occasional outcrops capping the hills. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for Hen Harrier and Merlin. The main threat to the long-term survival of Hen Harriers within the site is further afforestation, which would reduce and fragment the area of foraging habitat, resulting in possible reductions in breeding density and productivity. The Slieve Aughty Mountains have a number of large wind farm developments but it is not yet known if these have any adverse impacts on the Hen Harriers. Overall, the site provides excellent nesting and foraging habitat for breeding Hen Harrier and is one of the top two sites in the country for the species.

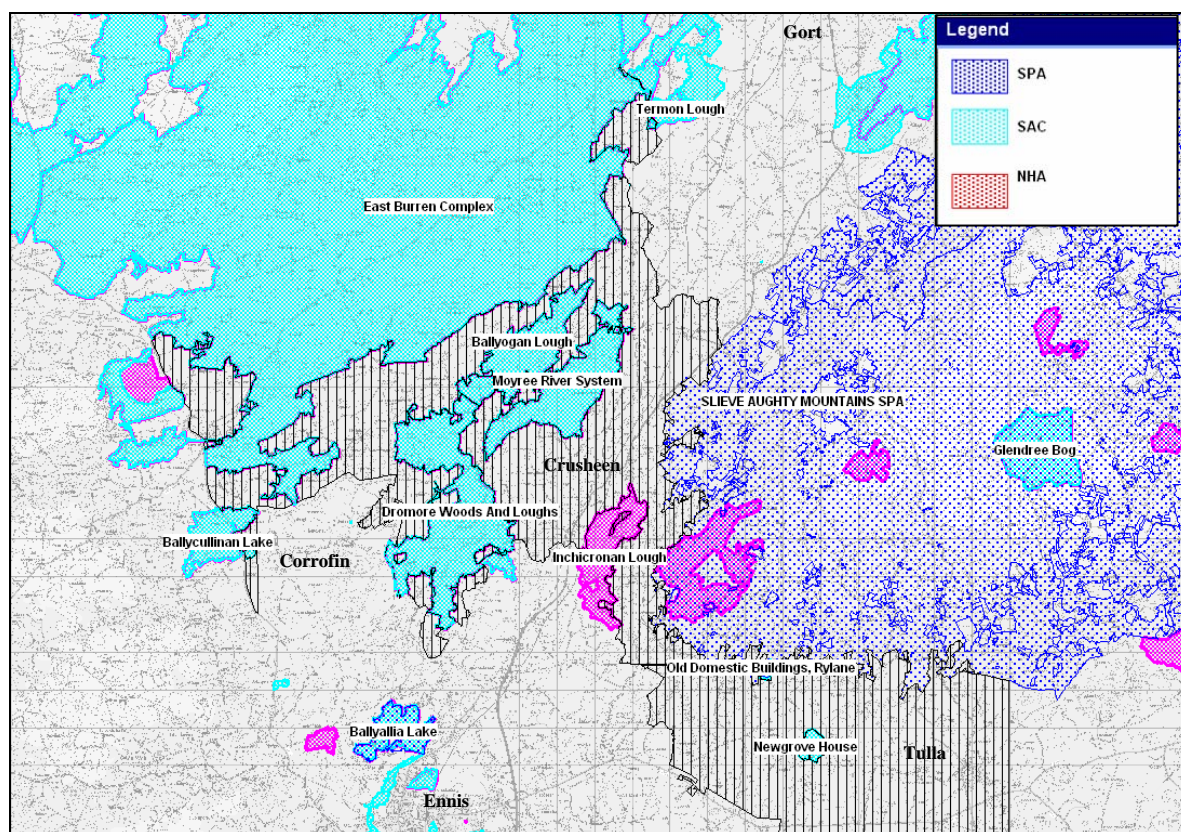


Figure 3.3 Designated Sites within and adjacent to the Study Area.



### 3.4.1 RARE FLORA WITHIN STUDY AREA

#### 3.4.1.1 Flora Atlas

The principal source of information regarding the distribution of flora in Ireland is the *New Atlas of the British & Irish Flora* (Preston *et al.*, 2002). This atlas shows data for vascular plants in individual 10 x 10 km squares. The study area falls within eight 10 x 10 km squares including N30, N31, N32, M31, M32, O31, O32 and O33. The records for these 10 km squares were consulted and a search was carried out to investigate if any rare or protected plant species had been recorded in the squares, during the 1987-1999 atlas survey carried out by the Botanical Society of the British Isles (BSBI). The search included the vascular plants that are listed in Annex II of the EU Habitats Directive, Flora Protection Order (FPO) of 1999, the Wildlife Act 1976, the Irish Red Data Book (IRDB) and the NPWS Site Synopsis for designated sites within the study area. There are no records for rare or protected species within the study area. The NPWS were contacted in relation to records from the County Clare Rare Flora survey carried out under contract to NPWS in 2006. This search revealed that all of the rare vascular plant sites surveyed during this survey are outside of the study area. The species found outside the boundary of the study area are shown in **Table 3.4**.

**Table 3.4: Flora Atlas Data**

Common Name	Scientific Name
Musk Thistle	<i>Carduus nutans</i>
Small White Orchid	<i>Pseudorchis albida</i>
Henbane	<i>Hyoscyamus niger</i>
Chives	<i>Allium schoenoprasum</i>
Mudwort	<i>Limosella aquatica</i>
Hairy Violet	<i>Viola hirta</i>
Narrow-Leaved Helleborine	<i>Cephalanthera longifolia</i>



## 4 HABITATS

### 4.1 HABITAT EVALUATION

The ecological interest of a site is assessed based on whether it is of *international, national, regional or local importance* as this has a direct bearing on its magnitude and significance. All impacts related to species or habitats protected by statute or Biodiversity Action Plans, priority species or habitats that are considered at national level. Seasonal factors that affect distribution patterns and habitats of species were taken into account when conducting the surveys and the potential of the site to support certain populations.

Consideration was given to the guidelines produced by the National Road Authority 'Guidelines for Assessment of Ecological Impacts of National Road Schemes, NRA Revision 1, 2006'. **Table 4.1** provide a suggested ranking based on the Site Evaluation Scheme as detailed in the NRA Guidelines. The wording in the table has been adjusted slightly and references to fisheries waters have been removed for the purposes of this report.

**Table 4.1: Ecological Site Evaluation Scheme**

Ratings for Ecological Sites	
<b>A</b>	<b>Internationally important:</b> <ul style="list-style-type: none"> <li>- Sites designated (or qualifying for designation) as SAC or SPA under the EU, Habitats or Birds Directives, and</li> <li>- Undesignated sites containing good examples of Annex I priority habitats under the EU Habitats Directive.</li> </ul>
<b>B</b>	<b>Nationally or regionally important:</b> <ul style="list-style-type: none"> <li>- Sites or waters designated or proposed as an NHA or statutory Nature Reserves.</li> <li>- Undesignated sites containing good examples of Annex I habitats (under EU Habitats Directive), and</li> <li>- Undesignated sites containing significant numbers of resident or regularly occurring populations of Annex II species under the EU Habitats Directive or Annex I species under the EU Birds Directive or species protected under the Wildlife (Amendment) Act 2000.</li> </ul>
<b>C</b>	<b>High Ecological value in a local context</b> <ul style="list-style-type: none"> <li>- Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or significant populations of locally rare species, and</li> <li>- Sites containing any resident or regularly occurring populations of Annex II species under the EU Habitats Directive or Annex I species under the EU Birds Directive.</li> </ul>
<b>D</b>	<b>Moderate Ecological value in a local context</b> <ul style="list-style-type: none"> <li>- Sites containing some semi-natural habitat or locally important for wildlife.</li> </ul>
<b>E</b>	<b>Low Ecological value in a local context</b> <ul style="list-style-type: none"> <li>- Artificial or highly modified habitats with low species diversity and low wildlife value.</li> </ul>

The habitats recorded within the study area, percentage cover and overall ranking in accordance with the guidelines in **Table 4.1** are detailed in **Table 4.2**.



**Table 4.2: Conservation Value of Habitats Recorded Within the Study Area**

Habitat Group	Habitat Sub-Group	Habitat	Links to Annex I Habitats	Townland	% Cover	Ranking
<b>F Freshwater</b>	<b>FL Lakes and Ponds</b>	FL2 Acid oligotrophic lakes	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea (3130)	Iscudda Lough Gortaphisheen Lough Cappafeean Lough Cloondorney Lough Caheraphuca Lough Inchicronan Lough pNHA	1.1	B – High International/National
		FL3 Limestone Marl Lakes	Limestone & Marl Lakes corresponds to the annexed habitat, 'hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp. (3140)'. (3140)'. (3140)'	Liskenny Lough Formerla Loughs Cragganaweel lough Skehanagh Lough Attyquin Lough Lough Cullaunyheeda pNHA	1.4	B – High International/National
		FL4 Mesotrophic lakes	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea (3130)	Kennedys Lough Lough Nagall O'Briens Little Lough Drumaghmartin lough	0.03	C- High
		FL6 Turloughs	Turloughs (3180) under Annex I of the EU Habitats Directive.	Throughout study area, O'Brien's Big Lough, is the largest 18.7ha	0.13	A/B – High International/National
	<b>FW Watercourses</b>	FW1 Eroding/upland rivers	Watercourses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation (3260)	Kiltannon River, Tomeen River, Hell River	<div> <div>↑</div> <div>7.2</div> <div>↓</div> </div>	C- High
		FW2 Depositing/lowland rivers	**Rivers with muddy banks with Chenopodium rubri p.p. and Bidention p.p. vegetation (3270)	Fergus River Castlelodge River Moyree River Millbrook River		C- High
		FW4 Drainage ditches		Throughout study area		D- Moderate



Habitat Group	Habitat Sub-Group	Habitat	Links to Annex I Habitats	Townland	% Cover	Ranking
	FS Swamps	FS1 Reed and large sedge swamps		Occurs in drains, rivers, fringing lakes and Turloughs throughout study site	0.37	C- High
		FS2 Tall herb swamps	**Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (6430)	Banks of Castledoge River Moyree River Millbrook River and Turloughs	0.09	C- High
G Grassland & Marsh	GA Improved grassland	GA1 Improved agricultural grassland		Throughout study area	65	E-Low
		GA2 Amenity grassland		Tulla Sports Ground	0.01	E-Low
	GS Semi-natural grassland	GS1 Dry calcareous and neutral grassland	**Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometea) (important orchid sites) (6210) **Juniperus communis formations on heaths or calcareous grasslands (5130) **Calaminarian grasslands of the Violetalia calaminariae (6130)	Occurs throughout Study Site, particularly in the north west of the study site, fringing the Burren.	1.46	C - High
		GS2 Dry meadows and grassy verges	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) (6510)	Corrofin, Carrownaclooughy, Kivoydan North	0.05	C - High
		GS3 Dry-humid acid grassland	*Species-rich Nardus grasslands on siliceous substrates in mountain areas (and submountain areas in continental Europe) (6230)	Drummaghmartin Knockanoura Derrygarraff Cappanapeasta	0.1	C - High
		GS4 Wet grassland	Molinia	Throughout study	6.4	D/C- Moderate to



Habitat Group	Habitat Sub-Group	Habitat	Links to Annex I Habitats	Townland	% Cover	Ranking
			meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) (6410)	area		High
	<b>GM Freshwater marsh</b>	GM1 Marsh	**Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (6430)	Throughout Study Area	1.12	D/C- Moderate to High
<b>H Heath &amp; Dense Bracken</b>	<b>HH Heath</b>	HH1 Dry siliceous heath	European dry heaths (4030)	Derrygarraff Ballyvergin	0.01	C- High
		HH3 Wet heath	Northern Atlantic wet heaths with Erica tetralix (4010)	Gortlurkaun Cappaghfeean Derryowen	0.05	C- High
	<b>HD Dense bracken</b>	HD1 Dense bracken		Small areas throughout study area	0.19	E - Low
<b>P Peatlands</b>	<b>PB Bogs</b>	PB1 Raised bogs	*Active raised bogs (7110)	Annagh, Cloonaleary, Cloondorney, Derrymore West, Ballyblood and Derrygarraff	0.34	A/B- International/National
		PB4 Cutover bog	Depressions on peat substrates of the Rhynchosporion (7150)	Annagh, Cloonaleary, Cloondorney, Derrymore West, Ballyblood, Derrygarraff	1.5	C- High
	<b>PF Fens and Flushes</b>	PF1 Rich fen and flush	Alkaline fens (7230)	Throughout Study Area	0.11	C- High
		PF2 Poor fen		Derrygarraff	0.01	C- High
		PF3 Transition Mire and Quaking Bog	Transition mires and quaking bogs (7140),	Cappanapeasta	0.05	B- International/National
<b>W Woodland and scrub</b>	<b>WN Semi-natural woodland</b>	WN2 Oak-ash-hazel woodland		Throughout north west of study site; Addergoole Teernea, Caherlough Corrofin East of the site, Gorteen, Dangan	0.98	C- High
		WN5 Riparian woodland		On the banks of the Hell River in Shraheen, South of Tulla	0.01	D/C- Moderate to High
		WN6 Wet willow-alder-ash woodland		Garlick Hill, Derrygarraff, Fringing O'Briens	0.23	C- High



Habitat Group	Habitat Sub-Group	Habitat	Links to Annex I Habitats	Townland	% Cover	Ranking
				Big Lough, Carahan, Formerla, Lissofin		
		WN7 Bog woodland	*Bog woodland (91D0)	Derrygarraiff Newgrove Cloondorney Cloonaleary Derrymore West	0.35	C- High
	<b>WD Highly modified/non-Native Woodland</b>	WD1 (Mixed) broadleaved woodland		Throughout study area	1.19	D- Moderate
		WD2 Mixed broadleaved/conifer woodland		Throughout study site Good examples, Dangan south of Tulla and Ballyogen east of Corrifin	0.83	E/D- Low to Moderate
		WD3 (Mixed) Conifer plantation		Scattered throughout study site. Larger examples in Derrymore West south of Tulla and Fiddaun north west of Tubber.	1.16	E/D- Low to Moderate
		WD4 Conifer plantation		Large areas west of Crusheen with some smaller compartments throughout the site.	1.74	E-Low
		WD5 Scattered trees and parkland		Derryowen Castle outside Tubber, Cragg north of Tulla, Knockanoura	0.15	D- Moderate
	<b>WS Scrub/transitional woodland</b>	WS1 Scrub	**Juniperus communis formations on heaths or calcareous grasslands (5130)	Throughout study site – large areas of Hazel Scrub bordering the Burren	6.31	D- Moderate
		WS2 Immature woodland		Carrownaclooughy Landire Ballyvroughaun-Eighter Newgrove Drummaghmartin	0.27	E/D- Low to Moderate
	<b>WL Linear woodland/scrub</b>	WL1 Hedgerows		Throughout study area	4	D- Moderate
		WL2 Treelines		Throughout study area	0.5	D/C- Moderate to High
<b>E Exposed rock and disturbed ground</b>	<b>ER Exposed rock</b>	ER2 Exposed calcareous rock	**Calcareous rocky slopes with chasmophytic vegetation (8210) &	Exposed Limestone Pavement occurs to the northwest of the Study Site	4.1	B- High International/National



Habitat Group	Habitat Sub-Group	Habitat	Links to Annex I Habitats	Townland	% Cover	Ranking
			*limestone pavements (8240)'			
		EU1 Non-Marine Caves	Caves not open to the public (8310)	Addergoole Portlecka Kiltannon	0.1	B- High International/National
		ED2 Spoil and bare ground		Small areas throughout	0.05	E-Low
		ED3 Recolonising bare ground		Scattered throughout study site	0.13	E/D-Low to Moderate
<b>B Cultivated and built land</b>	<b>BC Cultivated land</b>	BC1 Arable crops			0.15	E/D-Low to Moderate
		BC2 Horticultural land			0.02	E/D-Low to Moderate
	<b>BL Built Land</b>	BL3 Buildings & Artificial Surfaces		Throughout study area	5.4	E-Low

\* Annex I Habitats also listed as Priority Habitats under the EU Habitats Directive (Directive 92/43/EEC, amended by Directive 97/62/EC). Priority Habitats are habitats at risk from disappearance.

\*\* Annex Habitats not found within study area



## 4.2 HABITATS RECORDED WITHIN STUDY AREA

The following comprise summary descriptions and assessments of the principal habitats of found within the study area. Habitats of high conservation and biodiversity interest are complemented by species lists and target notes which are contained in Appendix A.

### Acid Oligotrophic Lakes FL2

Acid Oligotrophic Lakes FL2 are confined to the eastern reaches of the Study Area. They range in size from 0.08h Caheraphuca Lough, located south of Crusheen to 11.8ha Cloondorney Lough situated north of Tulla. Cloondorney Lough supports a good population of coarse fish. The shores and margins of these lakes support a variety to habitats including Reed and Large Sedge Swamps FS1, Tall Herb Swamp (FS2), Rich Fen and Flush PF1, Wet Grassland (GS4), Marsh GM1 and Wet Heath (HH3). Species typical of this habitat include Bulbous rush (*Juncus bulbosus*), Common rush (*Juncus effusus*), Bog Pondweed (*Potamogeton polygonifolius*) and Common Spike-rush (*Eleocharis palustris*).

Inchicronan Lough is classified as an Acid Oligotrophic Lakes FL2 and is situated approximately 2km south of Crusheen. Reed and Large Sedge Swamps FS1 fringes the lake with species such as Common reed (*Phragmites australis*), Club rush (*Scirpus lacustris*) and Red Canary Grass (*Phalaris arundinaceae*). Inchicronan Lough has interesting aquatic and terrestrial plant communities including the scarce species Meadow-rue (*Thalictrum flavum*) forms the western limit of this species in Ireland. The lake is of local ornithological interest, particularly for swans, duck and Cormorants. The whole area is of high scenic value.

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in an <b>International</b> context.	Acid oligotrophic lakes correspond to two annexed habitats, 'oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) (3110)' and 'oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea (3130)'.	Iscudda Lough Gortaphisheen Lough Cappafeean Lough Cloondorney Lough Caheraphuca Lough Inchicronan Lough





**Image 4.1: Cloondorney Lough, north of Tulla is classified as an Acid Oligotrophic Lake FL2**



### Limestone Marl Lakes FL3

This lake type occurs throughout the study area, however many of these lakes where they occur the west of the study area are more seasonal and are classified as Turloughs FL6. Limestone Marl Lakes FL3 are categorised by the white clay precipitate of calcium carbonate that can be seen on the lake shore and floor, which is called Marl. This Marl is formed by Stoneworts (*Chara* spp.) which can form dense carpets in unpolluted waters. Various-leaved Pondweed (*Potamogeton gramineus*) is also characteristic. Rich Fen and Flush PF1 habitat can be found in the margins.

Lough Callaunyeeda which is located 5km south of Tulla is classified as a Limestone Marl Lake FL3 and is designated as a pNHA. The shores and margins of this lake supports a variety to habitats including Reed and Large Sedge Swamp FS1, Raised Bog PB1, Wet Grassland GS3, Marsh GM1 and Wet Willow Alder Ash Woodland WN6. The main interest of the site is as a waterfowl site with nationally important numbers of Tufted Duck, Coot, and regionally/locally important numbers of Great Crested Grebe, Wigeon, Teal and Goldeneye along with Pochard and Lapwing. The lake is of a high amenity and scenic value and is used by local sailing and water sports clubs.

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in an <b>International</b> context.	Limestone & Marl Lakes corresponds to the annexed habitat, 'hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp. (3140)'.	Liskenny Lough Formerla Loughs Cragganaweer lough Skehanagh Lough Attyquin Lough Lough Cullaunyeeda



**Image 4.2: Area of Rich Fen and Flush Habitat (PF1) bordering an infilling Limestone-marl lake (FL3) Cragganaweer Lough.**



### Mesotrophic Lakes FL4

The lake located to the south of Bridgetown can be classified as Mesotrophic. The lakes can be prone to algal blooms. These lakes are bordered by a variety of habitats including Reed and Large Sedge Swamps FS1, Tall Herb Swamp (FS2), Rich Fen and Flush PF1, Wet Grassland (GS4), Marsh GM1 and Wet Heath (HH3). Species such as Stoneworts (*Chara spp.*) pondweeds (*Potamogeton spp.*) Waterlilies (*Nuphar lutea*) were recorded within the waterbody.

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in a local context.	Mesotrophic Lakes do not correspond to Annex I Habitats under the EU Habitats Directive.	Kennedys Lough Lough Nagall O'Briens Little Lough Drumaghmartin lough



**Image 4.3: Mesotrophic lakes FL4 O'Briens Little Lough**



## Turloughs FL6

Turloughs are seasonal lakes that occupy basins or depressions in limestone areas and may extend over many acres. In wet weather they can fill with groundwater which comes to the surface, through subterranean passages (caves and crevices) in the rock to a swallow hole at the surface and empty by the same means. Some also have inflowing rivers or streams. The size of the Turlough depends on several factors connected with underground drainage. This phenomenon is virtually unique to Ireland with a concentration of them occurring in County Clare. Plant communities typically form in concentric rings around the Turlough basin, with the different zones reflecting the differences in the extent, depth and frequency of flooding. A number of aquatic and terrestrial habitats plant communities can be found within Turlough basins. The broad habitat types include: Reed and Large Sedge Swamps FS1, Tall herb swamps FS2, Wet Grassland, Marsh GM1 and Rich Fen and Flush PF1.

Ecological Interest	Links to Annex I Habitats	Locations
This area is considered to be of <b>High</b> Ecological value in an <b>International</b> context.	Corresponds to Priority Habitat, Turloughs (3180) under Annex I of the EU Habitats Directive.	Throughout study area, O'Brien's Big Lough, is the largest 18.7ha



**Image 4.4: Turlough in the townland of Killeen, note fringing Reed and Large Sedge Swamps FS1**



### Eroding Upland Rivers FW1

A number of eroding upland rivers drain the eastern region of the study site. These rivers and streams are tributaries of the River Rine and include the Hell River and Kiltannon/Tomeen River. In the vicinity of Kiltannon Caves, 3km northwest of Tulla, the Kiltannon River flows underground for some distance. The lower reaches of the River Rine where it converges with the River Fergus at Latoon, south of Clarecastle, is designated under the Lower River Shannon SAC (2165).

Eroding upland rivers and streams have relatively fast, turbulent flow with little or no deposition of fine sediment and the beds of the rivers are characterised by exposed bedrock and loose cobbles. Due to the rapid movement of water and unstable eroding channels, which are key features of such rivers, little vegetation is present. However, some aquatic mosses and liverworts were noted. The main channels have a range of features such as riffles, pools and runs, which are characteristic of eroding / upland rivers.

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in a local context.	Eroding and upland rivers do not correspond to any Annex I or Priority Habitats under the EU Habitats Directive.	Kiltannon River, Tomeen River, Hell River



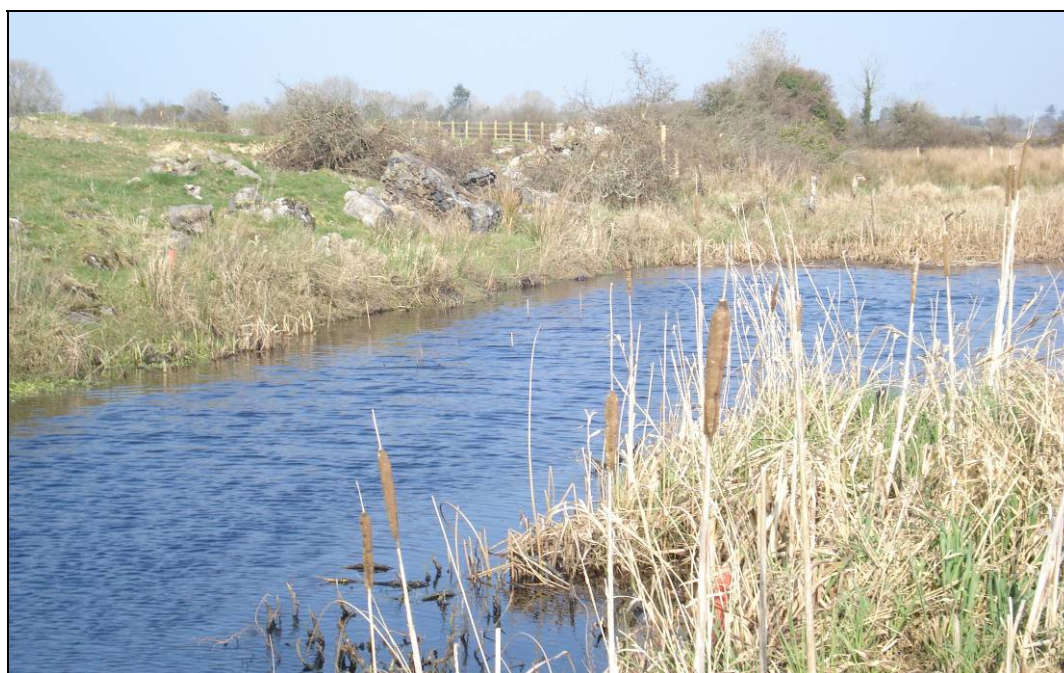
**Image 4.5: Kiltannon River**



## Depositing Lowland Rivers FW2

The Castlodge River, Moyree River and the Millbrook River are the three largest Rivers that drain the study area. The Moyree River is designated as an SAC, as the River system supports one of the largest colonies of Lesser Horseshoe Bats in Europe, in a network of underground caves. The Moyree River is also one of the best examples of a karstic river in the country and supports a number of priority habitats listed on Annex I of the EU Habitats Directive. The lower reaches of the Moyree River and the Millbrook River are tributaries of the River Fergus are also protected under Dromore Woods and Loughs SAC. The Castlodge River discharges into Muchanagh Lough, which is designated under the East Burren Complex SAC. The riparian vegetation on the banks of these rivers varies considerably through out the study area, varying between limestone pavement, peatlands, wetland habitats to improved grassland and woodland. These rivers are fringed by emergent vegetation which generally corresponds to Reed and Large Sedge Swamp FS1, Tall Herb Swamp FS2 and Marsh GM1, with species such as Bulrush (*Typha latifolia*), Common Club Rush (*Schoenoplectus lacustris*), Common Reed (*Phragmites australis*) and Fools Watercress (*Apium nodiflorum*).

Ecological Interest	Links to Annex I Habitats	Locations
High ecological importance in a local context.	Depositing Lowland Rivers FW2 does not correspond to any Annex I or Priority Habitats	River Fergus Castlodge River Moyree River Millbrook River



**Image 4.6: Moyree River near Inghid Bridge**



### Drainage Ditches FW4

Drainage ditches occur throughout the study site. The drains flow into larger tributaries of the larger rivers within the study area. The water in drains is slow-moving and stagnant in places. Fools Watercress (*Apium nodiflorum*) and Common duckweed (*Lemna minor*) were also common throughout with Water Mint (*Mentha aquatica*) occurring in the verges. Tall emergent vegetation is evident in drains throughout the study area. This vegetation corresponds with Reed and Large sedge swamp (FS1), and occurs in the deep drains in the low lying areas of the study site in the vicinity of the Castlodge River, Moyree River and the Millbrook River, however these areas are often too small to map. Species such as Common Reed (*Phragmites australis*), Common Club Rush (*Schoenoplectus lacustris*), and Reed canary grass (*Phalaris canariensis*) occur frequently.

Ecological Interest	Links to Annex I Habitats	Locations
<b>Moderate</b> ecological importance in a local context.	Drains are important for invertebrate diversity, and also Common Frog ( <i>Rana temporaria</i> ) and Smooth Newts ( <i>Triturus vulgaris</i> ). Drains flow into designated watercourses and are therefore considered sensitive.	Occurs throughout study site.



Image 4.7: Drain in Drummaghmartin north of Tulla, with emergent reed vegetation



Image 4.8: Smooth Newt (*Triturus vulgaris*) was also recorded here.



### Reed and Large Sedge Swamps FS1

Areas of Reed and large Sedge Swamps occupy drains and the margins of Depositing/Lowland Rivers FW2 throughout the study area. This habitat often forms intimate mosaics with Tall Herb Swamps FS2, Marsh GM1 and Wet Grassland GS4 and were therefore often too small to map. Common Reed (*Phragmites australis*), Great Fen-sedge (*Cladium mariscus*) and Common Club-rush (*Schoenoplectus lacustris*) are the dominant species, with commonly occurring species such as Common Reedmace (*Typha latifolia*), Water Mint (*Mentha aquatica*), Purple Loosestrife (*Lythrum salicaria*) and Water Plantain (*Alisma plantago-aquatica*).

Ecological Interest	Links to Annex I Habitats	Locations
<b>Moderate</b> ecological importance in a local context.	Reed and Large Sedge Swamps FS1 habitat does not correspond to EU Annex I habitats.	Occurs in drains, rivers, fringing lakes and Turloughs throughout study site



Image 4.9: Reed and Large Sedge Swamp FS1



## Tall Herb Swamps FS2

Tall Herb Swamp FS2 vegetation is confined to wet hollows and occupies the margins of Depositing/Lowland Rivers FW2, particularly in the Castletodge River, Moyree River and the Millbrook River. This habitat often forms intimate mosaics with Reed and Large Sedge Swamps FS1, Marsh GM1 and Wet Grassland GS4. Tall-herb swamps occur in wet areas where the water table is above the ground surface for most of the year (Fossitt, 2000) or where inundation is frequent but not permanent. These areas of swamp support greater species diversity than Reed and large Sedge Swamps FS1, species such as Yellow Iris (*Iris pseudacorus*), Water-plantain (*Alisma plantago-aquatica*), Water Horsetail (*Equisetum fluviatile*), Fool's Water-cress (*Apium nodiflorum*) some rush species (*Juncus spp.*) and sedge species (*Carex spp.*) also occur.

Ecological Interest	Links to Annex I Habitats	Locations
<b>Moderate</b> ecological importance in a local context.	Tall-herb swamps can include pockets of the annexed habitat ' <i>hydrophilous tall herb fringe communities of plains and of the montane to alpine levels</i> (6430)'. These communities do not occur within the study area. This habitat type is uncommon throughout the study area and is confined to the river margins in the lowlands.	Banks of Castletodge River Moyree River Millbrook River



**Image 4.10: Tall herb swamp on the banks of the Moyree River**

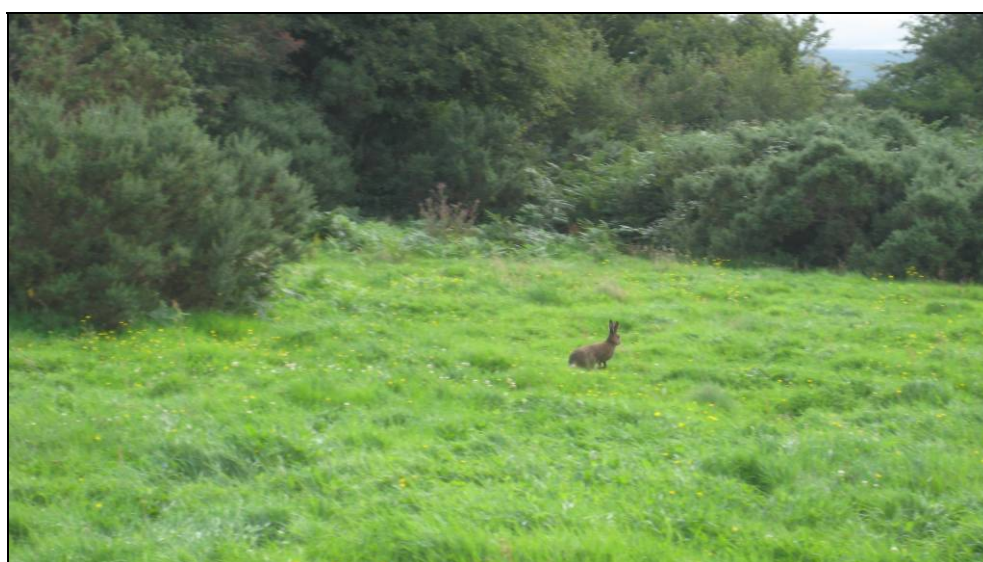


### Improved Agricultural Grassland GA1

Improved agricultural Grassland GA1 occurs throughout the site, on the freedraining drumlin hills surrounding Tulla and the good farmland around Corrofin and Inchiquin. This habitat type comprises primarily a grassy sward of typical agricultural grassland cultivars, typically a Perennial Rye-grass (*Lolium perenne*) and White Clover (*Trifolium repens*) mix. Cock's-foot (*Dactylis glomerata*), Fescues (*Festuca* spp.), Yorkshire Fog (*Holcus lanatus*) and Meadow species (*Poa* spp.) also occurring, particularly in the field margins.

Herb species such as Ribwort Plantain (*Plantago lanceolata*) and Daisy (*Bellis perennis*) occur abundantly. Depending on management practices species such as Thistles (*Cirsium* sp.), Dandelion (*Taraxacum* sp.), Creeping Cinquefoil (*Potentilla reptans*), Silverweed (*Potentilla anserina*), Chickweed (*Cerastium glomeratum*), Common Mouse-ear (*Cerastium fontanum*) and Common Nettle (*Urtica dioica*), can be common. The margins and field boundaries of Improved Agricultural Grassland GA1 provide some ecological value. Uncultivated vegetation occurs along hedgerows, stonewalls and fences, which can support a diversity of grassland species and the tall sward provides food, shelter and commuting routes for small animals and insects.

Ecological Interest	Links to Annex I Habitats	Locations within Study Site
<b>Low</b> ecological importance in a local context.	This habitat type does not correspond to EU Annex I Habitats	Throughout Study Site



**Image 4.11: Improved Agricultural Grassland with a foraging hare**



**Amenity Grassland (improved) GA2**

The amenity grassland occurs in parks, golf courses and football pitches, and comprises a short sward which is maintained through regular mowing. The species composition includes; ryegrass species (*Lolium* spp.), bents (*Agrostis* spp) and fescues (*Festuca* spp.). Daisy (*Bellis perennis*) and Buttercup also occur. The new sports ground at Cragg in Tulla, is an example of this habitat.

Ecological Interest	Links to Annex I Habitats	Locations within Study Site
<b>Low</b> ecological importance in a local context.	This habitat type does not correspond to EU Annex I Habitats	Cragg, Tulla



### Dry Calcareous and Neutral Grassland GS1

Dry Calcareous and Neutral Grassland GS1 occurs throughout the study site, on free draining base rich soils in areas of low intensity agriculture. Where these grasslands occur in the west of the study site they can be found in mosaics with Hazel Scrub (WS1), Oak-Ash-Hazel Woodland WN2 and open areas of Exposed Calcareous Rock - Limestone pavement (ER2). These grasslands where found in the east of the study area are more neutral in character.

This grassland classification can be very species diverse containing grass species such as bents (*Agrostis* spp.), meadow-grasses (*Poa* spp.), Meadow Foxtail (*Alopecurus pratensis*), Timothy (*Phleum pratense*), fescues (*Festuca* spp.), Sweet Vernal-grass (*Anthoxanthum odoratum*), Crested Dog's-tail (*Cynosurus cristatus*), Cock's-foot (*Dactylis glomerata*) and Yorkshire-fog (*Holcus lanatus*) occur. Common broadleaved herbs include clovers (*Trifolium* spp.), Yarrow (*Achillea millefolium*), Common Knapweed (*Centaurea nigra*), Selfheal (*Prunella vulgaris*), Bird's-foot Trefoil (*Lotus corniculatus*). Quaking grass (*Briza media*), Bloody Cranesbill (*Geranium sanguineum*) and Carlina Thistle (*Carlina vulgaris*) are common in the more calcareous areas. These grasslands are also important Orchid habitats.

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in a <b>National*/International</b> context.	*Calcareous grasslands with either high numbers or diversity of orchids correspond to the priority habitat, 'semi-natural dry grasslands and scrubland facies on calcareous substrates ( <i>Festuco-Brometea</i> )' (*important orchid sites) (6210)'.	Occurs throughout Study Site, particularly in the north west of the study site.



**Image 4.12: Bloody Cranesbill (*Geranium sanguineum*) on Limestone Pavement**



## Dry Meadows and Grassy Verges GS2

Few agricultural fields are now managed as traditional hay meadow and this habitat is largely confined to field and road margins. As these grasslands are rarely fertilised, a good diversity of grassland species persists. Species include; False Oat-grass (*Arrhenatherum elatius*), Cock's Foot (*Dactylus glomerata*), Meadow Foxtail (*Alopecurus pratensis*) and Yorkshire Fog (*Holcus lanatus*). There is also a good diversity of herbaceous species, including Spear Thistle (*Cirsium vulgare*), Cowslip (*Primula veris*), Ragwort (*Senecio jacobaea*), Meadowsweet (*Filipendula ulmaria*), Red and White Clover (*Trifolium pratense* and *T. repens*), Willowherb (*Epilobium* sp.) and Selfheal (*Prunella vulgaris*). Also present are species such as Meadow Vetchling (*Lathyrus pratensis*) which climb the stems of other plants. Lesser Trefoil (*Trifolium dubium*), Daisy and Shepherd's Purse (*Capsella bursa-pastoris*) can occur in the disturbed areas. This habitat type is declining in the Irish landscape due to changes in farming practises. As these grasslands are not fertilised or intensively grazed, these grasslands are species diverse and provide good habitat for many species of invertebrates.

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in a in a <b>National*/International</b> context.	This grassland habitat corresponds to the annexed habitat, 'Lowland hay meadows ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )'.	Corrofin, Carrownacloughy, Kivoydan North



Image 4.13: Two Common Blue Butterflies (*Polyommatus icarus*) on Devils Bit Scabious (*Succisa pratensis*) in a grassy road verge in North Clare



### Dry-Humid Acid Grassland GS3

This habitat type has limited distribution within the study area, confined to the reclaimed peatland areas around Derrygarraff and Cappanapeasta. It exhibits a good species diversity of vascular plants, herbs and mosses. Species include Purple moor grass (*Molinia caerulea*), Mat Grass (*Nardus stricta*), Bent grass (*Agrostis spp*), Wavy Hair Grass (*Deschampsia flexuosa*), Fescue Grasses (*Festuca spp.*), Tormentil (*Potentilla erecta*), Self Heal (*Prunella vulgaris*), Sheep's Sorrel (*Rumex acetosella*) and Devil's-bit Scabious (*Succisa pratensis*). Hard Fern (*Blechnum spicant*) and Bracken (*Pteridium aquilinum*) and mosses such as, *Brachythecium rutabulum*, *Pleurozium schreberi* and *Polytrichum commune* also occur.

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in a local context.	EU Habitats Directive Annex I Habitat: Dry-humid Acid Grassland includes the priority habitat 'species-rich <i>Nardus</i> grasslands on siliceous substrates in mountain areas (6320)'. This habitat type does not occur within the study area.	Drummaghmartin Knockanoura Derrygarraff Cappanapeasta



Image 4.14: Dry Humid Acid in Derrygarraff



### Wet Grassland GS4

This habitat occurs throughout the site where drainage is impeded. On acidic soils this habitat is characterised by rushes (*Juncus articulatus/acutiflorus/effuses/inflexus*), sedges (*Carex spp*), Purple Moor-grass (*Molinia caerulea*), Tormentil (*Potentilla erecta*), Devil's-bit scabious (*Succisa pratensis*), Bog Asphodel (*Narthecium ossifragum*) and Heath Milkwort (*Polygala serpyllifolia*). Bog mosses (*Sphagnum spp.*) can often be found in the damp hollows throughout. This habitat often forms mosaics with Wet Heath HH3 and Cutover Bog PB4.

This habitat also occurs around Turloughs (FL6) where species such as Meadowsweet (*Filipendula ulmaria*), Purple Loosestrife (*Lythrum salicaria*), Lesser Spearwort (*Ranunculus flammula*), Meadow buttercup (*Ranunculus acris*), and grasses such as Yorkshire Fog (*Holcus lanatus*), Creeping Bent (*Agrostis stolonifera*), Rough Meadow Grass (*Poa trivialis*), Cuckoo Flower (*Cardamine pratensis*) and Meadow Foxtail (*Alopecurus geniculatus*) also occur in more neutral soils.

Small areas of *Molinia* dominated Wet Grassland GS4 also occurs throughout the site, particularly in the grasslands bordering the Burren and peatlands around Tulla. These *Molinia* rich grasslands correspond to EU Habitats Directive Annex I Habitat, '*Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)' (6410).

The species diversity of this grassland type varies considerably throughout the study area and is largely determined by management practices. Species rich and diverse examples of Wet Grassland GS4 are target noted.

Ecological Interest	Links to Annex I Habitats	Locations
<b>Moderate to *High</b> ecological importance in a local context.	Few Wet Grassland GS4 habitats within the study site correspond to the EU Habitats Directive Annex I Habitat: ' <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinion caeruleae</i> )' (6410). Devil's-bit Scabious, which is the food plant of the Marsh Fritillary, prevails in a number of sites. Wet grasslands are susceptible to agricultural management practices; therefore species rich examples are under constant threat. Although this habitat type is widespread, it is considered to be of moderate ecological value.	Throughout study site.





**Image 4.15: Species rich Wet Grassland GS4 bordering Dromore Woods SAC**



## Marsh GM1

Marsh GM1 habitats are common throughout the study area, occurring predominantly in the margins of rivers in association with other habitats such as Reed and large Sedge Swamps, Tall Herb Swamps FS2, and wet hollows in Wet Grassland GS4 habitats. Marsh GM1 habitat comprises a diversity of species similar to Wet Grassland GS4; however there is a predominance of herbs including Ragged Robin (*Lychnis flos-cuculi*) and Marsh Woundwort (*Stachys palustris*), with horsetails (*Equisetum* spp), Yellow Iris (*Iris pseudacorus*), and Reedmace (*Typha latifolia*) occurring.

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in a local context.	Marsh may sometimes contain pockets of the Annex I habitat, 'hydrophilous tall herb fringe communities of plains and of the montane to alpine levels (6430)'. No examples of this particular habitat were found during the survey however.	Throughout Study Area



Image 4.16: Ragged Robin (*Lychnis flos-cuculi*), a typical Marsh species



### Dry Siliceous Heath HH1

Small areas of dry dwarf heath vegetation occur on the free-draining podzolic soils, interspersed with acid grassland species. This habitat can be found in the peatland habitats of Derrigariff and in Ballyvergin near Spancilhill. Ling heather (*Calluna vulgaris*), Crossed-leaved Heath (*Erica tetralix*) and Bilberry (*Vaccinium myrtillus*) are common and Heath Bedstraw (*Galium saxatile*) and Mat Grass (*Nardus stricta*) occur occasionally. Purple moor-grass (*Molinia caerulea*), Fescue grass (*Festuca sp.*), Bent grass (*Agrostis sp.*), Tormentil (*Potentilla erecta*) also occur.

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in a local context in an <b>International</b> context.	Dry Dwarf Scrub Heath is affiliated with 'European dry heaths (4030)'. This habitat has a moderate species-richness and is has limited distribution throughout study site. This habitat is considered to be of high conservation value.	Derrygariff Ballyvergin



Image 4.17: Dry Siliceous Heath dominated by Ling (*Calluna vulgaris*) in Ballyvergin



### Wet Heath HH3

Small areas of this habitat type occur within the study area. It is a common habitat in Cutover Bogs (PB4), but also occurs on shallow peat, generally under 0.5 metres in depth.

The wet heath species include Ling Heather (*Calluna vulgaris*) and Crossed-leaved Heath (*Erica tetralix*), Bilberry (*Vaccinium myrtillus*), Purple Moor-grass (*Molinia caerulea*), Common Rush (*Juncus effusus*), Heath Rush (*Juncus squarrosus*), Heath Milkwort (*Polygala serpyllifolia*), Devil's bit Scabious (*Succisa pratensis*) and Cotton grass (*Eriophorum vaginatum*). Mosses such as *Rhytidiadelphus loreus*, *Hylocomium splendens* and *Polytrichum commune* are common, with *Sphagnum* species and Star Sedge (*Carex echinata*) occurring in the flushed areas. This vegetation type occurs throughout the site and is considered to be of high conservation value

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in a local context in an <b>International</b> context.	Wet heath corresponds to the Annex 1 habitat 'northern Atlantic wet heaths with <i>Erica tetralix</i> (4010)'.	Gortlurkaun Cappaghfeean Derryowen



Image 4.18: Wet Heath habitat on the western shores of Cappafeehan Lough



### Dense Bracken HD1

Small areas of Dense Bracken HD1 occur in a variety of habitats within the study area, such as in the areas of scrub and woodland. This habitat also occurs in the upland grasslands in areas of low intensity grazing.

Ecological Interest	Links to Annex I Habitats	Locations
<b>Low</b> ecological importance in a local context.	This habitat does not correspond to EU Habitats Directive Annex 1 Habitats. This vegetation type can be invasive and is considered to be of low conservation value.	Small areas throughout study area



**Image 4.19: Dense Bracken**



## Raised Bogs PB1

Uncut raised bogs are a rarity in Ireland and those found within the study area are no exception. Raised bogs are found mostly in the midlands of Ireland; however they also occur in a limited number of areas in County Clare. They form in lowland areas in river valleys, hollows and lake basins. Their domed shape gives rise to the name 'raised bog' and can be as deep as 13m.

Within the study area, there were formerly significant areas of Raised Bog (PB1) in the townlands of Annagh, Cloonaleary and Cloondorney north of Tulla. The dome shape can still be seen at some of these sites, however, the tall peat banks and ramparts show evidence of a long history of peat extraction. The areas of Cutover Bog (PB4), are often colonised by Wet Heath (HH3) vegetation, or if it has been significantly drained and reclaimed, Dry Humid Acid Grassland (GS3) can establish. Some of the bogs have been planted with conifers and or Bog Woodland (WN7) has established on the dryer edges.

The typical floral assemblage of this habitat type includes; Deergrass (*Trichophorum caespitosum*), Common Cottongrass (*Eriophorum angustifolium*), Bog Rosemary (*Andromeda polifolia*), Bog Asphodel (*Narthecium ossifragum*), White Beak Sedge (*Rhynospora alba*), Purple Moor-grass (*Molinia caerulea*) and Sundew (*Drosera rotundifolia*) with Sedge (*Carex spp.*) and Rush species (*Juncus spp.*). Ling Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*) and occasional dwarf shrubs also occur such as Bilberry (*Vaccinium myrtillus*) and Bog Myrtle (*Myrica gale*). Wetter areas and pools containing large patches of Sphagnum are interspersed across the bog with Reindeer Mosses (*Cladonia spp.*) on the drier hummocks.

In Raised Bogs (PB1), the annexed habitat, 'depressions on peat substrates of the Rhynchosporion (7150)' can occur in the cutover areas.

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in an <b>International</b> context.	Raised bogs correspond to the priority habitat, '*active raised bogs (7110)' if they are still capable of peat formation, or if peat formation has temporarily ceased. 'Degraded raised bogs still capable of natural regeneration (7120)' are also listed as an annexed habitat. These are damaged bogs where it is judged that the peat forming capability can be restored within 30 years. The annexed habitat, 'depressions on peat substrates of the Rhynchosporion (7150)' occurs in pockets as a sub-habitat of raised bog.	Annagh, Cloonaleary, Cloondorney, Derrymore West, Ballyblood and Derrygarraff





**Image 4.20: Raised Bog in the Townlands of Annagh/Cloonaleary**



**Image 4.21: Peat Banks**



### Cutover Bog PB4

Turf banks occur throughout the Raised Bog PB1 areas within the study site. These ramparts are relics of a long history of peat extraction in the area. Bare banks are still evident where turbary harvesting of peat is ongoing. The areas of modified Raised Bog PB1, that have been cut have re-vegetated with varying assemblages of species, depending on hydrology, depth of peat remaining, nature of the peat and underlying substratum. The peat banks as a result of natural succession have been colonised with heath vegetation. However, the wetter hollows are usually dominated by Deer Grass (*Trichophorum cespitosum*), Bog Cotton Grasses (*Eriophorum angustifolium*) and Bog Asphodel (*Narthecium ossifragum*). The *Sphagnum* species occur throughout.

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in an <b>International</b> context.	EU Habitats Directive Annex 1 Species: The annexed habitat 'depressions on peat substrates of the <i>Rhynchosporion</i> (7150)' can occur in pockets on cutover bog. This annexed habitat occurs in wet depression in the areas of cut Raised Bog.	Annagh, Cloonaleary, Cloondorney, Derrymore West, Ballyblood, Derrygarraiff



Image 4.22: Cutover Raised Bog with pools of *Sphagnum* and *Rhynchosporion alba*



### Rich Fen and Flush PF1

Fens develop from damp or water logged hollows in the landscape and small areas can be found throughout the study area. They are generally associated with lake edges, flood plains and river valleys. Fens often form mosaics with a variety of woodland, wetland and open water habitats.

An interesting mosaic of habitats comprising Rich Fen and Flush (PF1), Reed and Large Sedge Swamp (FS1), Wet Grassland (GS4), Dense Bracken (HD1) and Scrub (WS1) occur in the townland of Carrownacloghy. A small area to the north east of the site supports Great Fen Sedge (*Cladium mariscus*), which links this site to the Annex I Priority Habitat. This habitat supports species such as Bogbean (*Menyanthes trifoliata*), Purple Moor-grass (*Molinia caerulea*), Grass-of-Parnassus (*Parnassia palustris*), Common Cottongrass (*Eriophorum angustifolium*), Velvet Bent (*Agrostis canina*), Yorkshire-fog (*Holcus lanatus*), Marsh Pennywort (*Hydrocotyle vulgaris*), Water Mint (*Mentha aquatica*), Common Butterwort (*Pinguicula vulgaris*) and Devil's-bit scabious (*Succisa pratensis*). This habitat occurs in close association with Alder Carr and Wet Willow-Alder-Ash woodland WN6.

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in an <b>International</b> context.	The annexed habitat 'Alkaline Fens (7230)'.	Throughout Study Area



**Image 4.23: Species Rich Fen and Flush in the margins with abundance of Bogbean**



### Poor Fen and Flush PF2

This habitat type is restricted within the study area, confined to the peatlands round Derrygarraff. This habitat is fed by groundwater such as a spring or a perched water table, which is an aquifer that occurs above the regional water table. The vegetation of Poor Fen and Flush PF2 habitat is typically dominated by rushes (*Juncus* spp.) and sedge species (*Carex* spp.).

This habitat also supports species such as Common Cottongrass (*Eriophorum angustifolium*), Velvet Bent (*Agrostis canina*), Yorkshire-fog (*Holcus lanatus*) and broadleaved herbs such as Marsh Violet (*Viola palustris*), Heath Bedstraw (*Galium saxatile*), Tormentil (*Potentilla erecta*) and Marsh Cinquefoil (*Potentilla palustris*) also occur.

Ecological Interest	Links to Annex I Habitats	Locations
High ecological importance in a local context.	Poor Fen and Flush PF2 habitat is not linked to Annexed Habitats however their distribution is limited in Ireland. Therefore should be considered to be of high ecological value in a local context.	Derrygarraff



Image 4.24: Poor Fen and Flush PF2 with a Mosaic of Habitats



### Transition Mire and Quaking Bog PF3

This habitat has limited distribution, not only in County Clare but also in Ireland. Therefore, this habitat is listed under Annex I of the EU Habitats Directive Habitat. Transition mires and quaking bog habitat are extremely wet peat-forming systems and are a transition habitat between Rich Fen and Flush PF1 and Poor Fen and Flush PF2 habitats. They usually form on the wettest parts of the bog or fen, however within the study area this habitat is found adjacent to the Moyree River, in the townland of Cappanapeasta. This habitat type can be treacherous to traverse, as there is often floating mat or surface scraw vegetation over pools of water.

The vegetation typically comprises species that are characteristic of bog, fen and open water habitats, however extensive moss cover is characteristic. Sedges (*Carex* spp), White Beak-sedge (*Rhynchospora alba*), Cottongrass (*Eriophorum angustifolium*), Purple Moor-grass (*Molinia caerulea*), and broadleaved herbs such as Bogbean (*Menyanthes trifoliata*), Marsh Pennywort (*Hydrocotyle vulgaris*) and Lesser Spearwort (*Ranunculus flammula*) also occur.

Ecological Interest	Links to Annex I Habitats	Locations
This area is considered to be of <b>High</b> Ecological value in an <b>International</b> context.	This habitat corresponds to <b>Annex I</b> Habitat, Transition mires and quaking bogs (7140), under the EU Habitat Directive	Cappanapeasta



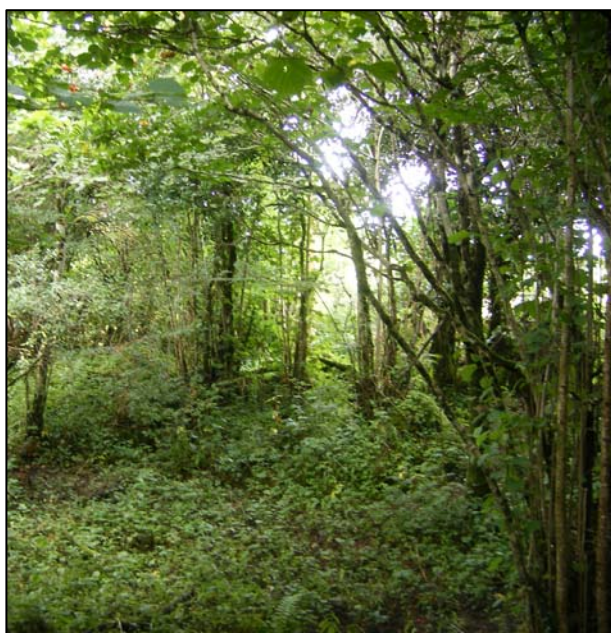
Image 4.25: Transition mire & Quaking Bogs (PF3) habitat on the banks of the Moyree River



### Oak-Ash-Hazel Woodland WN2

This habitat can be found throughout the study area, but is concentrated to the north and west, occurring on the limestone soils and outcrops of the Burren. The habitat type forms intimate mosaics with hazel Scrub WS1 and open areas of Limestone Pavement. This type of woodland occurs on soils that are well drained and comprises Oak (*Quercus robur*), Ash (*Fraxinus excelsior*), and Hazel (*Corylus avellana*), with Holly (*Ilex aquilinum*) occurring intermittently. The ground flora comprises Ivy (*Hedera helix*), Lords and Ladies (*Arum maculatum*), grasses and ferns.

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in a local context.	This habitat does not correspond to Annex I habitats, however the habitat is considered to be of moderate to high conservation value in a local context as semi-natural woodlands are a rarity in the landscape.	Throughout north west of study site; Addergoole Teernea, Caherlough Corrofin East of the site, Gorteen, Dangan



**Image 4.26: Oak Ash Hazel Woodland (WN2) on thin soils in an area of calcareous rock outcrop in the townland of Addergoole.**



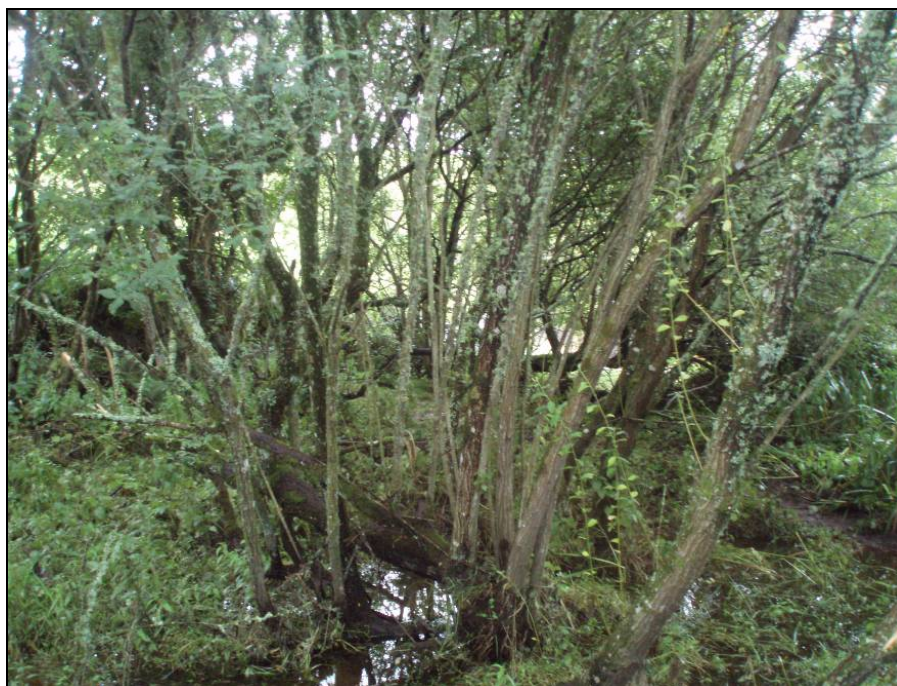
**Image 4.27: Broad-leaved Helleborine (Epipactis helleborine) a member of the Orchid family, can be found in these woodlands**



### Riparian Woodland WN5

This woodland occurs in the low lying river margins of tributaries of the Rine River which flows south of Tulla. Riparian woodland WN5, is dominated by willow species (*Salix* spp.) with Alder (*Alnus glutinosa*) and Birch (*Betula pendula*) occurring infrequently. The ground flora varies depending on levels of water inundation. In very wet sites the ground flora reflects species found in Reed and Large Sedge Swamps FS1. More often the species composition is similar to Wet Grassland GS4 Habitat. This habitat occurs in ribbon-like strips on the edges of lakes and river margins. These areas of woodland are limited to the riparian zone of the watercourses, restricted by agriculture and land reclamation. Semi-natural woodlands are a rarity in a landscape otherwise dominated by agricultural grassland.

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in a local context.	This habitat does not correspond to Annex I habitats, however the habitat is considered to be of high conservation value in a local context.	On the banks of the Hell River in Shraheen, South of Tulla



**Image 4.28: Riparian Woodland showing willows with lichen-covered bark**



### Wet Willow-Alder-Ash Woodland WN6

This classification includes woodlands of permanently waterlogged sites that are dominated by willows (*Salix* spp.), Alder (*Alnus glutinosa*) or Ash (*Fraxinus excelsior*). The field layer generally comprises; Creeping Bent (*Agrostis stolonifera*), Meadowsweet (*Filipendula ulmaria*) and Purple-loosestrife (*Lythrum salicaria*) and Skullcap (*Scutellaria galericulata*). A woodland that can be classified as Alder Carr can be found in the flooded lake margins of O'Briens Big Lough in Kivoydan.

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in a local context.	This habitat does not correspond to Annex I habitats, however the habitat is limited within the study area, in particular Alder Carr and is therefore considered to be of high conservation value in a local context.	Garlick Hill, Derrygarraff, Fringing O'Briens Big Lough, Carahan, Formerla, Lissofin



Image 4.29: Wet Willow-Alder-Ash Woodland in Derrygarraff



### Bog Woodland WN7

This woodland occurs on areas of Cutover Bog (PB4) in the east of the study site and north of Crusheen. Bog woodland typically occurs on peat bogs of significant depth, where the upper layers are well drained. The dominant tree species is Downy Birch (*Betula pubescens*), with occasional Silver Birch (*Betula pubescens*), Scots Pine (*Pinus sylvestris*) and willow (*Salix spp.*). Royal Fern (*Osmunda regalis*), Ivy (*Hedera helix*), Ling Heather (*Calluna vulgaris*), Bilberry (*Vaccinium myrtillus*), Bog Myrtle (*Myrica gale*), cross-leaved heath (*Erica tetralix*) and bog rosemary (*Andromeda polifolia*) occur in the under-storey. Sedges, rushes and bracken also occur.

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in a <b>National/International</b> context.	This habitat corresponds to the Annex I habitat 'Bog Woodland (91DO)', this classification refers to woodland of intact raised bog. The woodland occurs on the fringes of cutover raised bog and is considered to be of moderate to high conservation value in a local context.	Derrygarraiff Newgrove Cloondorney Cloonaleary Derrymore West



Image 4.30: Bog Woodland WN7 occurring on Cutover Bog in Derrygarraiff



### (Mixed) Broadleaved Woodland WD1

This woodland type occurs throughout the study area. This classification is the most common broadleaved woodland found within the study area. The greatest concentration of this habitat type was recorded in the lands surrounding Tulla. The woodlands represent remnants of the large estates that once existed here. The woodlands range in species diversity including; Oak (*Quercus* spp), Beech (*Fagus sylvatica*), Sycamore (*Acer pseudoplatanus*), Ash (*Fraxinus excelsior*), Horsechestnut (*Aesculus hippocastanum*) and the occasional Sitka Spruce (*Picea sitchensis*), and Pine species (*Pinus* spp). The scrub layer and ground flora varies dramatically between the sites, depending on species mix of trees, drainage and management practices.

Ecological Interest	Links to Annex I Habitats	Locations
<b>Moderate</b> ecological importance in a local context.	This habitat does not correspond to Annex I habitats and is quite common throughout the study area. However, compartments of deciduous woodland can be valuable to wildlife, providing refuge and foraging for a variety of animals. It is therefore considered to be of moderate conservation value in a local context.	Throughout Study Site



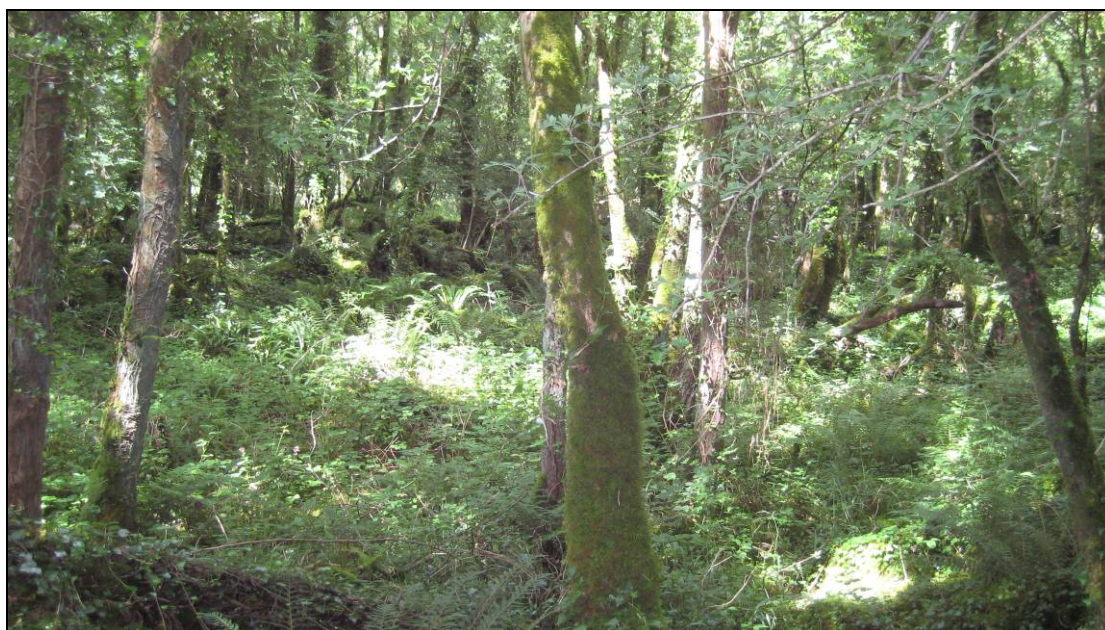
Image 4.31: Mixed broadleaved woodland



### Mixed Broadleaved/Conifer Woodland WD2

This habitat comprises mixed stands of broadleaved trees and conifer trees. The largest example of this woodland type can be found surrounding the ruins of Dangan Castle, situated 7km southwest of Tulla. This is a fine example of large mature woodland with a good variety of tree species, a relatively good understorey and ground flora present despite some grazing (possibly deer). Deadwood (both fallen and standing) is common and helps to encourage biodiversity in such habitats. Limestone outcrops occur throughout the woodland. This area of woodland provided excellent connectivity with other habitats and an abundance of roosting and nesting habitats for birds and mammals. Jays (*Garrulous glandarius*) are present within the woodland. The woodland to the west of the castle is dominated by broadleaved tree species including; Beech (*Fagus sylvatica*) and Ash (*Fraxinus excelsior*), whereas the woodland to the east is dominated by Scots Pine (*Pinus sylvestris*).

Ecological Interest	Links to Annex I Habitats	Locations
<b>Moderate</b> ecological importance in a local context.	This habitat does not correspond to Annex I habitats, but does however offer some refuge to wildlife.	Throughout study site Good examples, Dangan south of Tulla and Ballyogen east of Corrifin



**Image 4.32: Mixed Broadleaved/Conifer Woodland surrounding Dangan Castle**



**(Mixed) Conifer plantation WD3**

Small compartments of this habitat type occur throughout the study area. Some have been planted for commercial plantation forestry and are typically found within the old estates around Tulla.

Ecological Interest	Links to Annex I Habitats	Locations
<b>Low to moderate</b> ecological importance in a local context.	This habitat does not correspond to Annex I habitats.	Scattered throughout study site. Larger examples in Derrymore West south of Tulla and Fiddaun north west of Tubber.



**Image 4.33: Mixed Conifer Plantation at Fiddaun, Wet Grassland GS4 Vegetation to the foreground**



### Conifer Plantation WD4

Large plantations of commercial forestry are limited within the study site. Commercial forestry however dominates the Slieve Aughty uplands to the north of the study site. Some larger areas have been planted around Carrowkeel west of Crusheen and there are some smaller areas around Tulla. The plantations are harvested for commercial forestry. The closed canopies of these woodlands deprive the ground layers of light and are therefore a diverse woodland flora is absent. Deciduous trees are often planted on the edge of conifer plantations to increase species diversity.

Ecological Interest	Links to Annex I Habitats	Locations
<b>Low to moderate</b> ecological importance in a local context.	This habitat does not correspond to Annex I habitats.	Large areas in west of Crusheen with some smaller compartments throughout the study site.



**Image 4.34: Mature Conifer Plantation at Carrowkeel west of Crusheen**



### Scattered Trees and Parkland WD5

Areas of scattered trees and parklands occur in the old estates around Tulla, Tubber and Spancilhill. Large mature native and non-native trees are a prominent feature in the landscape. Horse chestnut, Beech and Oak are a regular feature. They occur in improved agricultural grasslands and semi improved pastures. These large mature trees can provide refuge for a number of bird species, including Owl, and a variety of insects.

Ecological Interest	Links to Annex I Habitats	Locations
<b>Moderate</b> ecological importance in a local context.	This habitat does not correspond to Annex I habitats, however some exquisite examples of mature trees have persisted in these landholdings.	Derryowen Castle outside Tubber, Cragg north of Tulla, Knockanoura



**Image 4.35: Scattered trees near Knockanoura east of Spancelhill**



## Scrub WS1

Areas of scrub occur throughout the study area. The species composition of this habitat varies dramatically within the study site, such as; Blackthorn and Gorse scrub is frequent throughout the south and east of the study area, however Hazel dominates the scrub to the north and west, near the Burren.

Scrub vegetation occurs on thin soils where agriculture has been abandoned and scrub has encroached. To be considered scrub, the habitat must comprise 50% of shrubs, low trees and /or brambles with a canopy height of less than 5m. Species such as Hazel (*Corylus avellana*), Gorse (*Ulex europea*) are a common component, with Bramble (*Rubus fruticosus* agg.), Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*) and Guelder Rose (*Viburnum opulus*).

Ecological Interest	Links to Annex I Habitats	Locations
<b>Moderate</b> ecological importance in a local context.	This habitat does not correspond to Annex I habitats, however it can be important for wildlife, particularly insects and birds.	Throughout study site, large areas of Hazel Scrub bordering the Burren



Image 4.36: Area of coppiced Hazel Scrub (WS1) a typical feature of in the Burren



## Immature Woodland WS2

Plots of immature woodland occur scattered throughout the study site. Ash is the main species planted in these broadleaved plantation woodlands. The plantations are principally on marginal agricultural land such as Wet grassland GS4 and Cutover Bog PB4, and the ground flora reflects these habitats. Immature Woodlands WS2 are a favoured foraging habitat for Hen Harrier.

Ecological Interest	Links to Annex I Habitats	Locations
<b>Low to moderate</b> ecological importance in a local context.	This habitat does not correspond to Annex I habitats, however it can be important for wildlife, particularly insects and birds.	Carrownacloughy Landire Ballyvroughaun-Eighter Newgrove Drummaghmartin



**Image 4.37: Immature woodland (WS2) comprising young Ash plantation in Wet Grassland (GS4)**



## Hedgerows WL1

Hedgerows occur throughout the study area. They are often found in association with stonewalls and earth banks. These linear features are prominent throughout the study site. Good examples of well-managed and diverse examples were recorded, with the greatest species diversity occurring in the hedgerows bordering roads. These species included native and ornamental/non-native species; native species included Honeysuckle (*Lonicera periclymenum*), Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Gorse (*Ulex europaeus*), Holly (*Ilex aquifolium*), Elder (*Sambucus nigra*) and Willow (*Salix* spp). Taller mature trees were also recorded within the hedgerows, such as Ash (*Fraxinus excelsior*), Oak (*Quercus* spp.), Sycamore (*Acer pseudoplatanus*) and Scots Pine (*Pinus sylvestris*) but to be considered hedgerows these must not dominate the feature. Non-native species recorded include Fuchsia (*Fuchsia magellanica*) and Snowberry (*Symphoricarpos rivularis*), both of which can be very invasive species. The ground flora of hedgerows within the study area was equally diverse supporting a variety of species corresponding to Dry Meadows and Grassy Verges Habitat GS2.

Ecological Interest	Links to Annex I Habitats	Locations
<b>Moderate</b> ecological importance in a local context.	This habitat does not correspond to Annex I habitats.	Throughout study site



**Image 4.38: Hedgerows criss-crossing landscape throughout study area**



## Tree-lines WL2

Exceptional examples of mature tree-lines can be found enclosing farmlands, particularly in the south and east of the study site. Mature Oak (*Quercus* spp) is a prominent feature with Scots Pine (*Pinus sylvestris*), Ash (*Fraxinus excelsior*), Beech (*Fagus sylvatica*) and Sycamore (*Acer pseudoplatanus*), Horsechestnut (*Aesculus hippocastanum*) and Poplars (*Populus* Spp.) occur occasionally. Hedgerows dominated by Leyland Cypress (*Cupressocyparis leylandii*) and Laurel (*Prunus laurocerasus*), were also recorded, usually bordering houses. A good diversity of herbaceous species was found in the understorey, including Herb Robert (*Geranium robertianum*), Creeping Buttercup (*Ranunculus repens*), Bramble (*Rubus fruticosus*), Couch Grass (*Elytrigia repens*), Ivy (*Hedera helix*), Willowherb (*Epilobium* spp.), Broad-leaved Dock (*Rumex obtusifolius*) and Cleavers (*Galium aparine*). The ground beneath the herbaceous layer has a dense covering of moss. Invasive exotic species were also recorded such as Japanese Knotweed (*Fallopia japonica*) Japanese knotweed is one of the most invasive species in Europe.

Ecological Interest	Links to Annex I Habitats	Locations
<b>Moderate</b> ecological importance in a local context.	This habitat does not correspond to Annex I habitats.	Throughout study site



Image 4.39: Tree-lined hedgerow in Cullenagh, Crusheen



## Exposed Calcareous Rock ER2

Exposed Limestone Pavement occurs intermittently between areas of Hazel Scrub WS1 and Oak Ash Hazel Woodlands WN2, to the west of the study site at the edge of the Burren.

The areas of Limestone Pavement shows typical Karstic features, e.g clints and grikes. Vegetation found growing in cracks included Herb Robert (*Geranium robertianum*), Ivy (*Hedera helix*), Bramble (*Rubus fruticosus*), Bloody Cranesbill (*Geranium sanguineum*), Wild Thyme (*Thymus polytrichus*), Lady's Bedstraw (*Galium verum*), Wood Sage (*Teucrium scorodonia*) and ferns such as Hart's-tongue Fern (*Phyllitis scolopendrium*), Rusty-back (*Ceterach officinarum*), Wall-rue (*Asplenium ruta-muraria*) and Maidenhair Spleenwort (*Asplenium trichomanes*).

Ecological Interest	Links to Annex I Habitats	Locations
<b>High</b> ecological importance in a <b>National/International</b> context	Exposed calcareous rock corresponds to two annexed habitats, 'calcareous rocky slopes with chasmophytic vegetation (8210)' and '*limestone pavements (8240)'.	North east of the study site bordering the Burren



Image 4.40: Exposed Limestone in the townland of Coollisteige, surrounded by Scrub WS1



### Non-Marine Caves EU1

Due to the limestone bedrock geology that underlies much of the study area, cave systems are dotted throughout. Of particular note are the caves at Kiltanon which are located 3 km northwest of Tulla and lie within the old estate and close to the ruins of Kiltanon House. The “Tomeens” as the caves are known locally, were formed by the stream which runs about 4 metres below the surface for almost 0.5 km. These caves are looked after by the local farmer and visits are arranged occasionally. The caves at Addergoole, situated 3.5km north of Crusheen are not open to the public but are an important roosting site for Lesser Horseshoe Bats which are protected under Annex II of the EU Habitats Directive. In the past these caves were used by local people for storing perishables during the summer months.

Ecological Interest	Links to Annex I Habitats	Locations
<b>Moderate</b> ecological importance in a local context.	Exposed calcareous rock corresponds to two annexed habitats, ‘calcareous rocky slopes with chasmophytic vegetation (8210)’ and ‘*limestone pavements (8240)’. The latter is a priority habitat and does not occur within the study area.	Addergoole Portlecka Kiltannon



Image 4.41: Caves at Kiltanon



### 4.3 SIGNIFICANCE OF HABITATS

Over the centuries this landscape within the study area has been heavily influenced by anthropogenic activities such as reclamation of wetlands for agriculture, peat harvesting, plantation forestry, quarrying of sands and gravels, and residential and industrial development. As a result, Improved Agricultural Grassland GA1 now provides the overall character of the surrounding landscape; comprising 55% of the total area surveyed, with some semi-natural habitats persisting in the less intensively managed areas. The uplands of the northern and western section provide the greatest diversity of upland peatland habitats; however Conifer Plantation WD4 is also extensive in this area. The eastern section also has an array of semi-natural habitats, including Oak Ash Hazel Woodland WN2, Cutover Bog PB4, Wet Heath HH3 and semi-natural grasslands.

Freshwater resources, including rivers, lakes and associated wetland habitats are under increasing pressure from pollution and reclamation. Reed and Large Sedge Swamps FS1 can be found in drains and the margins of Depositing/Lowland Rivers FW2 throughout the study area. Reed and Large Sedge Swamps FS1 is found throughout and forms an intimate mosaic with a number of habitats in this area including Wet Grassland GS4, Marsh GM1, Tall Herb Swamps FS2 and Riparian Woodland WN5. Fen habitats are limited within the study area. Rich Fen and Flush PF1 habitat occurs on the shores of some Turloughs FL6. Other lakes and ponds within the study area are under threat from pollution, eutrophication and water abstraction.

Peatlands that are still capable of peat formation are listed as a priority habitat in Annex I of the EU Habitats Directive and therefore extremely valuable for nature conservation. The Raised Bog PB1 formations add to the biodiversity of the study area as a whole. These areas have been extensively cut over the last centuries, however peat harvesting has largely ceased at these sites. In the depressions of the cutover bog, the annexed habitat, 'depressions on peat substrates of the *Rhynchosporion* (7150)' has occurred as a sub-habitat of Raised Bog PB1. This area is extensive and worthy of protection either nationally or locally.

Semi-natural woods have originated mainly through natural regeneration. These may be broadleaved, or mixed in composition, and are composed predominantly of native species. They tend to have a more 'natural' appearance than plantations, with greater variation in tree age and greater structural diversity. The ecological value of semi-natural woodland, in terms



of the diversity of plant communities and species present, is often closely related to woodland age and origin.

The character and ecology of rural and urban landscapes, and opportunities for recreation, are greatly influenced by woodland. Semi-natural woodland is an especially important habitat for native plants and animals. It enhances the biodiversity of farmland, and creates an attractive image for tourism. Good plantation design is vital to watercourse management; to protect against heavy run-off, acidification and erosion, and to maintain the quality of the habitat for fish and other freshwater life.

#### **4.4 SITES OF LOCAL BIODIVERSITY VALUE, ECOLOGICAL CORRIDORS AND BUFFER ZONES**

The survey identified areas of biodiversity importance on a local and national level. Some examples of priority habitat protected under the EU Habitats Directive were also identified. Stakeholders including the NPWS and County Council have an obligation under the Habitats Directive to protect, maintain or restore natural habitats, which are of conservation importance as defined in the Directive, at a favourable conservation status.

Many habitats of conservation concern particularly designated sites are linked to the surrounding landscape by natural and manmade features, such as water courses (rivers, streams, canals and drainage ditches), hedgerows, treelines, roads and railways. Therefore, areas of conservation concern must not be considered in isolation, their linkages and buffer zones must also be protected to ensure the continued migration of species and genetic diversity throughout the study area.

Prescribing buffer zone widths to designated sites, areas of conservation concern or ecological corridors is dependant on a number of variables and often a 'one size fits all' approach is not always applicable. The need for maintaining a buffer zone adjacent to conservation sites is well documented; the width, however, is contested.

When prescribing buffer zones the following should be considered;

- Conservation value of feature to be protected;
- Intensity of adjacent land use;
- Tolerance of species and habitat to disturbance,



- Buffer characteristics (e.g. slope, soil type);
- Specific buffer functions,
- Proximity to existing development and lands zoned for development, and
- Area that could be practicable and appropriate from the point of management of the buffer zone.

For example, buffer zones have been recommended for Riparian Zone Management in Forestry and are detailed in guidance from the Department of Agriculture Food and the Forest Service. The purpose of these buffer zones is to protect watercourses from forestry activities. Details of recommended buffer zones are provided in Table 4.1 below.

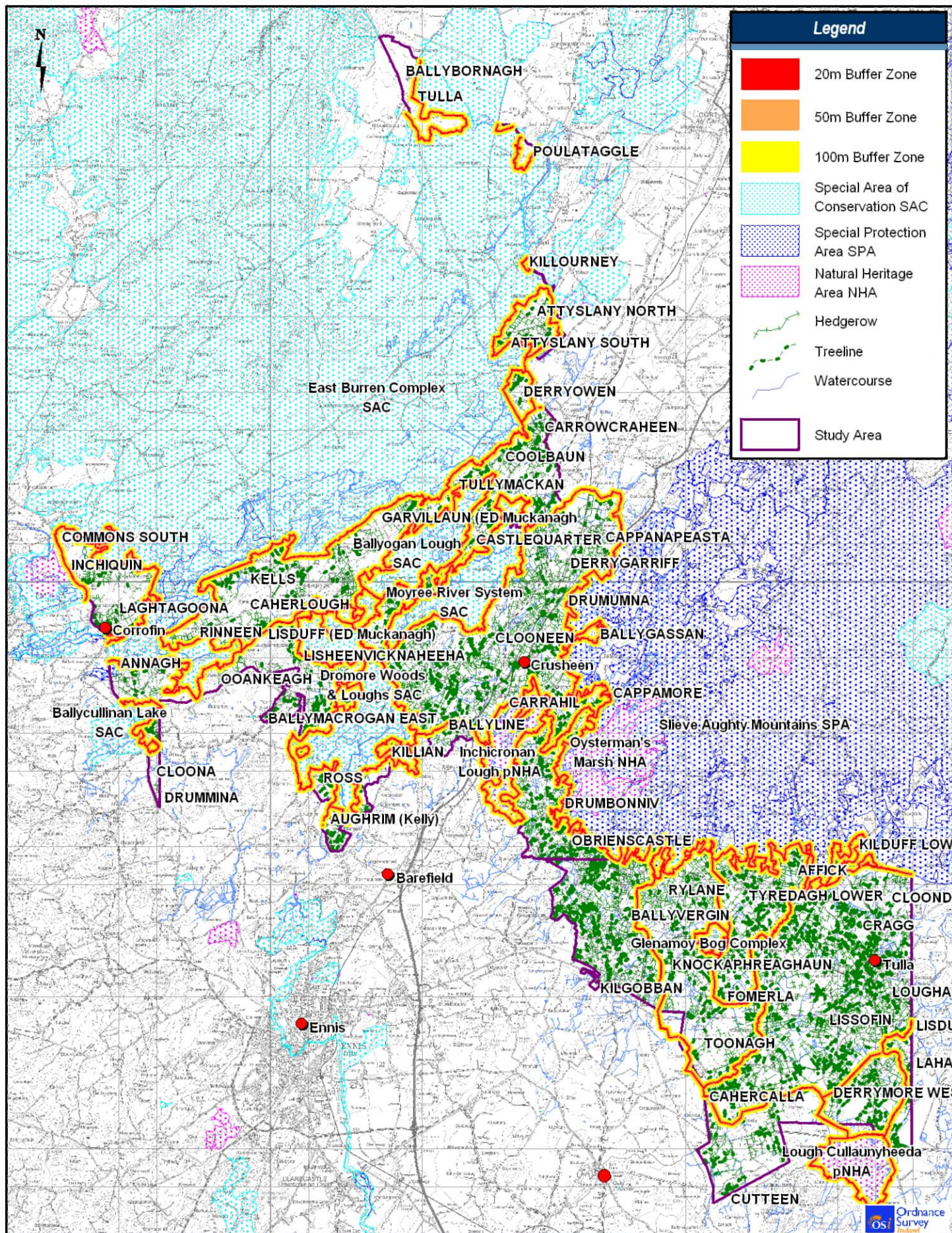
**Table 4.1: Buffer Zone widths for Riparian Zone Management in Forestry**

Geology –soils – terrain – slope - run off		
Average slope leading to aquatic zone	Zone width on each side of the aquatic zone	Zone width on each side of highly erodable soils
Moderate slope 0-1 in 7	10m	15m
Steep 1 in 7 – 1 in 3	15m	20m
Very steep 1 in 3 or >	20m	25m

(Source: [http://www.westernrbd.ie/PDF/Riparian/RiparianZone\\_Workshop\\_Pat\\_OCallaghan.pdf](http://www.westernrbd.ie/PDF/Riparian/RiparianZone_Workshop_Pat_OCallaghan.pdf))

There are no prescribed buffer zones for ecological corridors and designated sites, therefore for illustrative purposes buffer zones of 20m, 50m and 100m have been place around key ecological corridors and designated sites. Drains and hedgerows also provide valuable corridors; these features are illustrated but are not buffered. The buffer zones are illustrated in **Figure 4.1**.







#### **4.4.1 SITES OF LOCAL BIODIVERSITY INTEREST**

##### **4.4.1.1 Internationally/Nationally Important Ecological Sites – Highly Sensitive Habitats**

These habitats have been chosen due to their links to Annex I habitats as listed in the Habitats Directive. These habitats are considered highly sensitive.

##### **Freshwater Habitats**

- FL6 Turloughs are listed as a priority habitat Turloughs (3180) under Annex I of the EU Habitats Directive

##### **Peatland Habitats**

- Raised Bog PB1 also priority habitat under Habitats Directive listed as ‘Active Raised Bogs (Code 7110)’, and
- Transition Mire and Quaking Bog PF3 also an Annexed Habitat under Habitats Directive listed as Transition mires and quaking bogs (7140).

##### **Woodland Habitats**

- Bog Woodland WN7 also priority habitat under Habitats Directive listed as Bog Woodland (Code 91d0).

##### **Exposed Rock Habitats**

- Exposed calcareous rock ER2\*limestone pavements (8240)
- Non-Marine Caves EU1 Caves not open to the public (8310)

The areas listed above are of particular interest on an International and National level. These habitats are listed under Annex I of the EU Habitats Directive and a number of them are also Priority Habitats. These sites are rich in biodiversity and support a number of Annex II species. The Non-Marine Caves EU1 which were recorded are important roosting sites for Lesser Horseshoe Bats which are protected under Annex II of the Habitats Directive. The Peatlands and Woodlands provide refuge and habitat for numerous animal and invertebrate species, including, Badger, Fox, Pine Martin, Smooth Newt, Common Frog, various species of bird including Barn Owl, Sparrow Hawk, Kestrel, Meadow Pipit, Sky Lark, and a variety of beetle, dragon fly and damselfly. Transition Mire and Quaking Bog PF3 is also limited in its distribution. Sites where these habitats occur is worthy of further study and protection.



#### **4.4.1.2 Habitats of High Ecological Value in a Local Context – Very Sensitive Habitats**

These habitats are considered to be of High Ecological Importance in a Local Level as they contain semi-natural habitat types with high biodiversity in a local context. They also form valuable linkages and function as part of the designated sites, which are found within and border the study area.

##### **Freshwater Habitats**

- Acid Oligotrophic Lakes FL2,
- Limestone Marl Lakes FL3,
- Mesotrophic Lakes FL4,
- Eroding Upland Rivers FW1,
- Depositing/Lowland Rivers FW2,
- Reed and Tall Sedge Swamps FS1, and
- Tall Herb Swamps FS2.

##### **Grassland & Marsh Habitats**

- Wet Grassland GS4, and
- Marsh GM1.

##### **Heath and Dense Bracken Habitats**

- Dry Siliceous Heath HH1, and
- Wet Heath HH3.

##### **Pentland Habitats**

- Cutover Bog PB4 linked to the annexed habitat, 'depressions on peat substrates of the Rhynchosporion (7150)',
- Rich Fen and Flush PF1, and
- Poor Fen and Flush PF2.

##### **Woodlands**

- Oak-Ash-Hazel woodland WN2,
- Riparian Woodland WN5, and
- Wet Willow-Alder-Ash Woodland WN6.



#### **4.4.1.3 Habitats of Moderate Ecological Value in a Local Context – Moderately Sensitive Habitats**

Sites containing some semi-natural habitat or locally important for wildlife;

##### **Freshwater Habitats**

- Eutrophic Lakes FL5, and
- Drainage Ditches FW4.

##### **Grassland & Marsh Habitats**

- Dry Calcareous and Neutral Grassland GS1,
- Dry Meadows and Grassy Verges GS2, and
- Dry-humid Acid Grassland GS3.

##### **Woodlands and Scrub**

- (Mixed) Broadleaved Woodland WD1,
- Mixed Broadleaved/Conifer Woodland WD2,
- Scrub WS1,
- Immature Woodland WS2,
- Hedgerows WL1, and
- Treelines WL2.

##### **Exposed Rock and Disturbed Ground**

- ER1 Exposed Siliceous Rock
- ER2 Exposed Calcareous Rock

#### **4.4.1.4 Habitats of Low Ecological value in a Local Context – Robust Habitats**

##### **Freshwater Habitats**

- Other Artificial Lakes and Ponds FL8

##### **Grassland & Marsh Habitats**

- Improved Agricultural Grassland GA1, and
- Amenity Grassland GA2.

##### **Heath and Dense Bracken Habitats**



- Dense Bracken HD1

### **Woodlands**

- Conifer Plantation WD4,
- Scattered Trees and Parkland WD5, and
- Recently-Felled Woodland WS5.

### **Exposed rock and disturbed ground**

- Exposed Sand, Gravel or Till ED1
- Spoil and Bare Ground ED2
- Recolonising Bare Ground ED3

### **Cultivated and built land**

- Arable Crops BC1
- Horticultural Land BC2
- Buildings & Artificial Surfaces BL3

The locations of all of the habitats can be found in **Table 4.2** and in the supporting Habitat Map. Examples of these habitats are provided in the Target Notes in **Appendix A**.

## **4.5 AREAS LIABLE TO FLOOD**

As part of the project brief, there is a requirement to outline and compare existing habitats with areas marked as “liable to flood” in the 6 inch Ordnance Survey maps. The current OPW flood maps for the area ([www.floodmaps.ie](http://www.floodmaps.ie)) were also consulted for where recorded flood events correspond to the “liable to flood” identified on the 6 inch maps. The locations of all of the flood events within and adjacent to the study area are shown in **Figure 4.1**.

Each area is identified and discussed below in relation to flooding potential and existing habitats. The areas identified as “liable to flood” in the 6 inch maps are delineated by a black line.



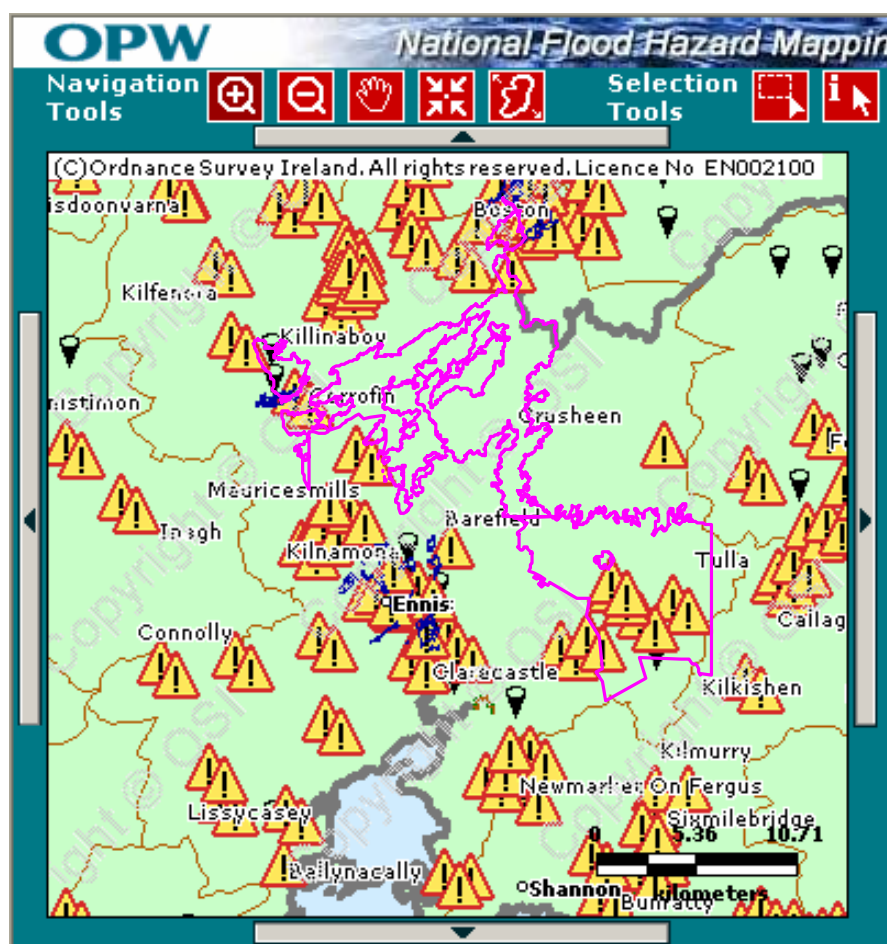
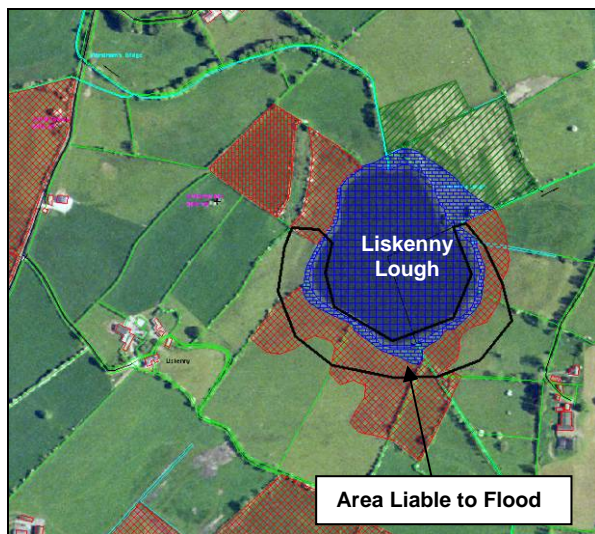


Figure 4.1: Flood events within and around the Study Area

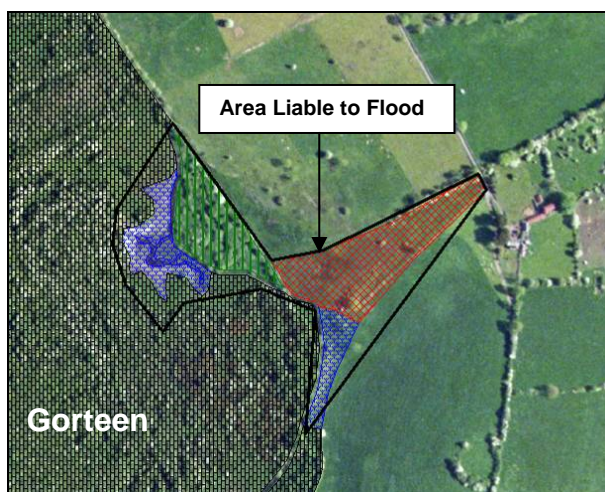


**AREA 1: LISKENNY (IGR: 149624, 177130)****Habitat Map****Extent of Flooding (OPW Flood Map)**

**Habitats:** The lands to the south of Liskenny Lough, which is a Limestone/Marl Lakes (FL3), are marked as “liable to flood” in the 6 inch maps. The habitats comprise Reed & Large Sedge Swamps (FS1), Wet Grassland GS4, Eroding Upland Streams (FW1) and Drainage Ditches (FW4).

**Watercourses nearby:** A number of small streams flow into the Lough.

**OPW Flood maps website:** This area is subject to annual flooding events, which floods the road and the land east of road is also affected. The cause is rainfall runoff causing stream to overflow but road bridge, (Wyndham’s Br), may restrict flow causing levels to rise.

**AREA 2: GORTEEN/ DERRYMORE WEST (IGR: 147614, 176330)****Habitat Map****Extent of Flooding (OPW Flood Map)**

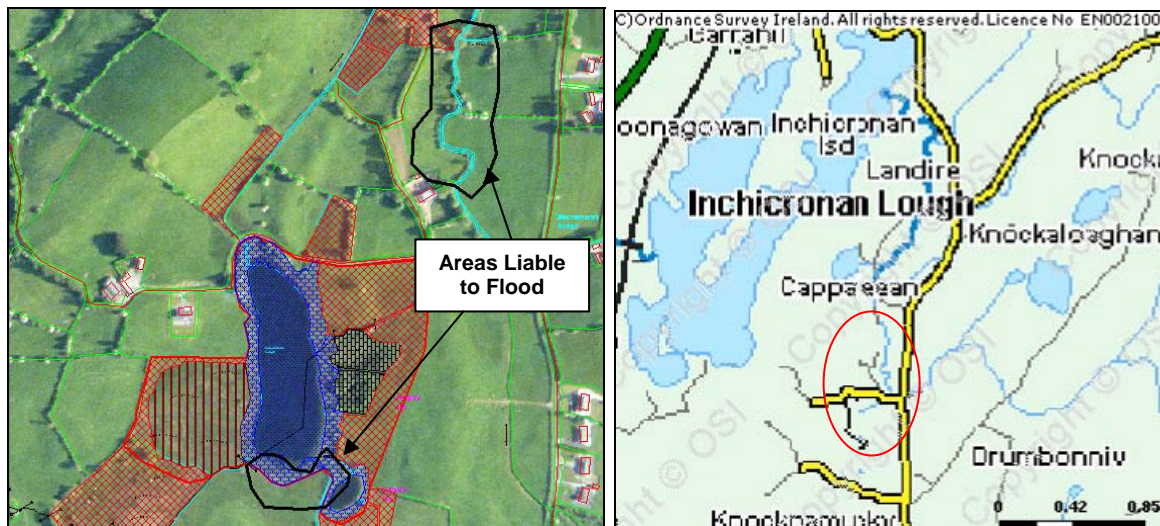


**Habitats:** A Turlough located to the townland of Gorteen. The lands surrounding the Turlough are well drained with thin soils and frequent limestone rock exposure. Oak Ash Hazel Woodland (WN2) and Scrub (WS1) dominate these lands. The extent to which the Turlough floods, is indicated on the 6 inch maps. This Turlough floods frequently and supports habitats such as Tall Herb Swamps (FS2) and Wet Grassland GS4.

**Watercourses nearby:** Tributary of the Rine River, to the north of the Turlough.

**OPW Flood maps website:** This site is recorded as a Turlough in the OPW Flood Maps and also in the GSI Kast Features database.

### AREA 3: CAPPAFEEAN LOUGH AND MOYREE RIVER



**Habitat Map**

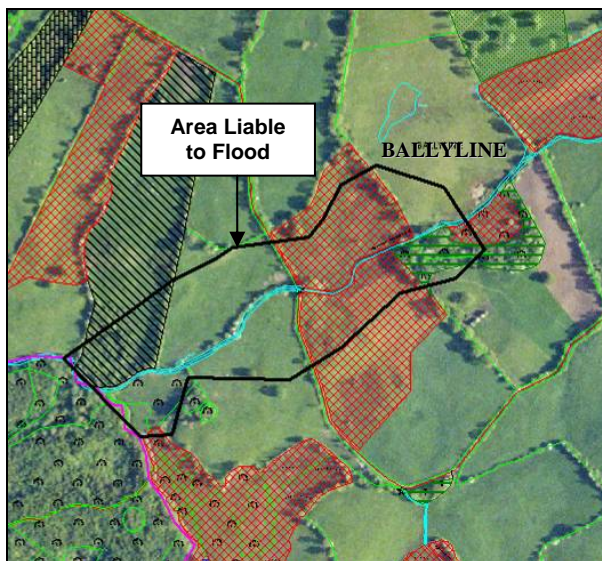
**Extent of Flooding (OPW Flood Map)**

**Habitats:** The lands to the south of Cappafeean Lough, which is an Acid Oligotrophic Lakes (FL2), are marked as “liable to flood” in the 6 inch maps. The habitats comprise Tall Herb Swamps (FS2) and Improved Agricultural Grassland GA1. Further north the lands on the banks of the Milbrook River are also marked as “liable to flood”. These lands comprise Improved Agricultural Grassland (GA1) grading into Wet Grassland (GS4) vegetation in the northwest.

**Watercourses nearby:** The Cappafeean Lough discharges into the Milbrook River, which flows to the north.

**OPW Flood maps website:** There are no OPW records for recent flooding events at this location.

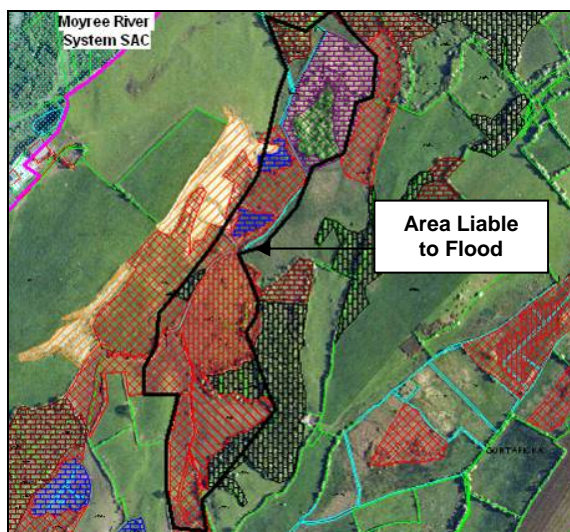


**AREA 4: MOYREE RIVER - BALLYLINE****Habitat Map****Extent of Flooding (OPW Flood Map)**

**Habitats:** The lands marked as “liable to flood” in the 6 inch maps, occurs on the banks of the Millbrook River in the townland of Ballyline. Wet Grassland (GS4) vegetation occurs in this area; however there is evidence that the land has also been significantly improved.

**Watercourses nearby:** The Milbrook River flows west into Dromore Lough which is designated under Dromore Woods and Loughs SAC.

**OPW Flood maps website:** There are no OPW records for recent flooding events at this location.

**AREA 5: GORTAFICKA****Habitat Map****Extent of Flooding (OPW Flood Map)**

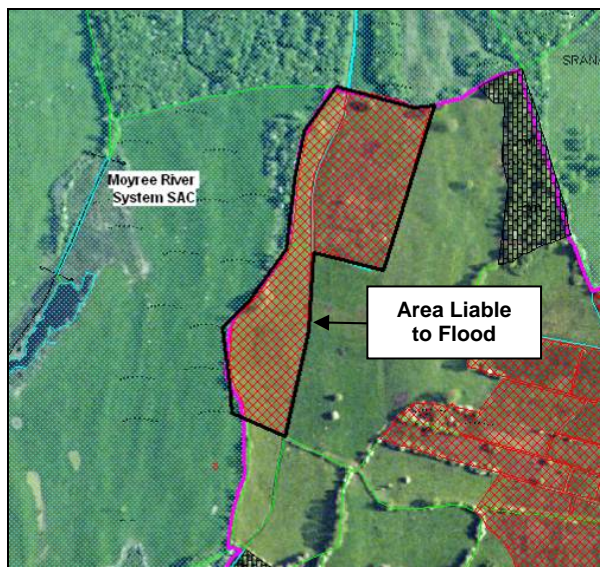


**Habitats:** This is a large area on the banks of a tributary of the Moyree River. This area was very wet during the habitat survey in August and some of the habitats indicate that the water table is at or above ground level for most of the year. These habitats include; Tall Herb Swamps (FS2) and Marsh (GM1). An area of Cutover Bog is located to the north of the area and Wet Grassland (GS4) vegetation is common throughout.

**Watercourses nearby:** The Moyree River flows to the northwest and is designated under Moyree River System SAC.

**OPW Flood maps website:** There are no OPW records for recent flooding events at this location.

#### AREA 6: SRANAGALLOON



Habitat Map



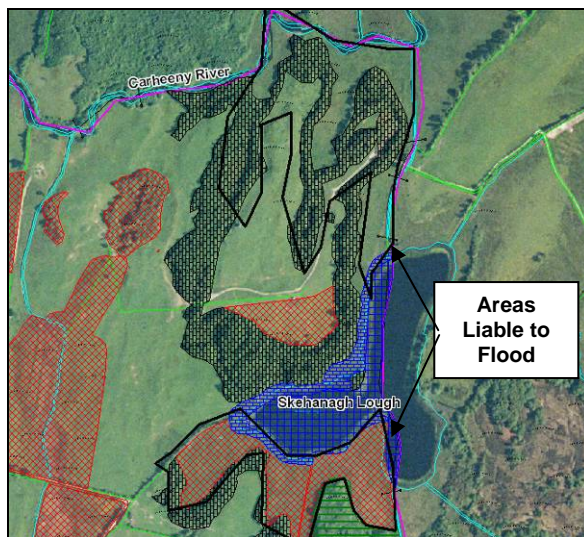
Extent of Flooding (OPW Flood Map)

**Habitats:** This area borders the Moyree River System SAC, and 130m west of a Turlough within the designation. The Turlough may extend to the lands identified during times of flood. The habitats within this area are classified Wet Grassland (GS4).

**Watercourses nearby:** The Moyree River flows to the west and is designated under Moyree River System SAC.

**OPW Flood maps website:** There are no OPW records for recent flooding events at this location.

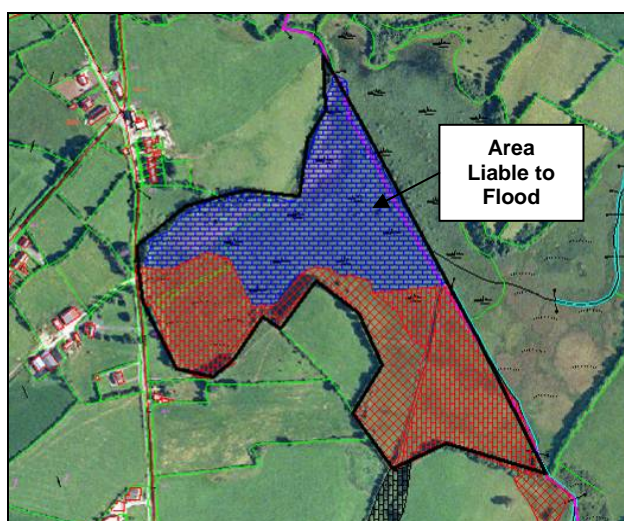


**AREA 7: CAPPANAPEASTA****Habitat Map****Extent of Flooding (OPW Flood Map)**

**Habitats:** The lands to the south of Liskenny Lough, which is a Limestone/Marl Lake (FL3), and Carheeney River are marked as “liable to flood” in the 6 inch maps. The habitats comprise Reed & Large Sedge Swamps (FS1), Wet Grassland GS4 and Drainage Ditches (FW4). The lands to the south of the Carheeney River have been drained, with areas of scrub encroachment and Improved Agricultural Grassland (GA1).

**Watercourses nearby:** Carheeney River which is a tributary of the Moyree River.

**OPW Flood maps website:** There are no OPW records for recent flooding events at this location.

**AREA 8: MONREAGH****Habitat Map****Extent of Flooding (OPW Flood Map)**

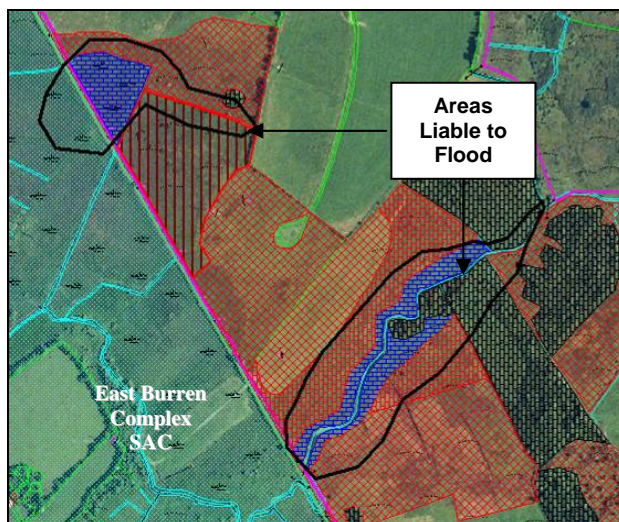


**Habitats:** This is a large area, marked as “liable to flood” in the 6 inch maps, only half of which is within the study area. This area was very wet during the habitat survey in August and some of the habitats indicate that the water table is at or above ground level for most of the year. These habitats include; Tall Herb Swamps (FS2) and Marsh (GM1). This area is fed by a stream from Scarriff Lough. This stream is a tributary of the Moyree River. Wet Grassland (GS4) vegetation is also common in this area.

**Watercourses nearby:** Tributary of the Moyree River.

**OPW Flood maps website:** There are no OPW records for recent flooding events at this location.

### AREA 9: DERRYOWEN



**Habitat Map**



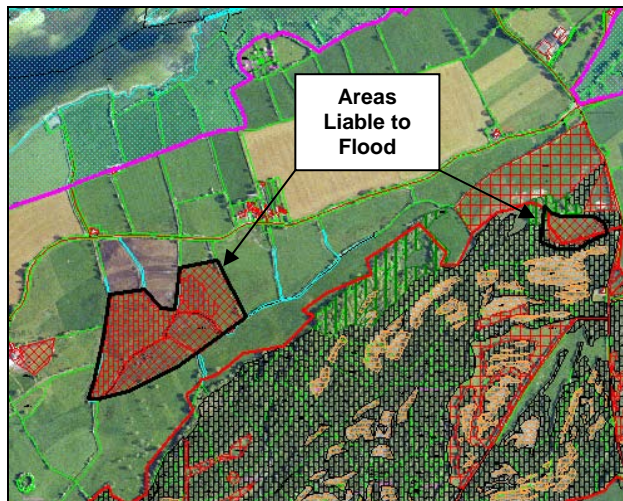
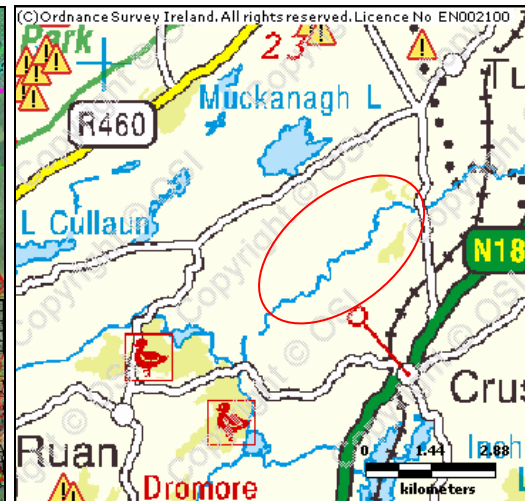
**Extent of Flooding (OPW Flood Map)**

**Habitats:** These areas are on the banks and tributaries of the Castledoge River. These wetlands are characterised Tall Herb Swamps (FS2) and Marsh (GM1) vegetation. Wet Grassland (GS4) vegetation is also common in this area.

**Watercourses nearby:** Castledoge River.

**OPW Flood maps website:** There are no OPW records for recent flooding events at this location. Some flooding was recorded on the road east of these sites in 1996.



**AREA 10: CORROFIN****Habitat Map****Extent of Flooding (OPW Flood Map)**

**Habitats:** These areas are on the banks of a tributary of the River Fergus. Wet Grassland (GS4) and Marsh (GM1) vegetation occurs in these areas.

**Watercourses nearby:** River Fergus.

**OPW Flood maps website:** There are no OPW records for recent flooding events at this location. Some flooding was recorded on the road east of these sites in 1996.



## 5 OVERALL CONCLUSIONS AND RECOMMENDATIONS

Information from this survey is principally of value in revealing the nature of the biodiversity interest within the Study Area. The results can be used to compare the status of biodiversity with other areas where such surveys have taken place, provide a baseline to inform discussion and policy-making on biodiversity and/or inform future research on other aspects of biodiversity.

There are 117 habitat types classified in Ireland (Fossitt, 2000), 89 of these habitat types are terrestrial and 28 of these are marine habitat. Of the 89 terrestrial habitat types, 50 different types of habitats occur within the study area. Of the 50 different habitat types, 8 are classified under cultivated and built land and the remaining 42 habitats are described in detail throughout the report.

Within these habitats, the study revealed 14 habitat types are considered rare, not only in Clare, but also in Ireland and the rest of Europe. These important and vulnerable habitats cover 16% (2,060ha) of the rural lands of the study area.

The habitats found within the study area are evaluated based on their naturalness, value and vulnerability. Habitats that are assessed to be good examples of Annex I priority habitats are considered to be of International or National importance. Semi-natural habitats with high biodiversity in a local context and that are vulnerable, are considered to be of High Ecological value in a local context. Habitats that are considered semi-natural habitat or locally important for wildlife are considered to be of Moderate Ecological value in a local context, and robust habitats that have been highly modified are considered to be of Low Ecological value in a local context.

The habitat inventory and supporting biodiversity evaluation of the lands in North and Mid Clare has important implications for spatial planning in the area. This information also establishes a forum for education and further research into the biodiversity value of study area.



## 5.1 RECOMMENDATIONS FOR SPATIAL PLANNING

The information in the survey provides an evaluation of the status of biodiversity in the surveyed area. The findings are the following;

- 1) There is a relatively good cover of semi-natural habitats in the wider countryside
- 2) Linear features such as hedgerows and drainage ditches are important habitats and linking features should be communicated to the public, landowners and policy makers.
- 3) Priority research given into land abandonment and its impacts on peatlands, wetlands, species rich grassland, limestone pavement etc. and should be carried out, and to initiate action projects to appropriately manage surviving good quality examples of these rare types of habitats.

These issues should be communicated to the general public and to stakeholders (landowners and planners) who are making decisions on land use. The secondary priority is to continue to gather such information on other parts of the county, particularly areas under pressure from development.

Strategic planning should recognise the sensitivity of the certain habitats to development, in particular water dependant habitats, where disruptions in the hydrological regime of an area can have significant impacts on these sensitive habitats. Projects such as quarrying, road building and large industrial and residential developments can cause irreversible consequences to these habitats.

Linkages and buffer zones should be maintained and incorporated into Development Plans. The removal of these linkages leads to habitat fragmentation and isolation. These corridors ensure the continued vitality of designated sites and protected habitats.

Specific policies should be developed to take into consideration habitats categorised in Section 4.4 Sites of Local Biodiversity Interest. Development should be avoided in habitats classified as Highly Sensitive and Very Sensitive and minimised in habitats classified as Moderately Sensitive. At least 65% of the study area is covered by habitats categorised as Robust and development should be considered in these areas.

Where development is considered in habitats listed categorised as Highly Sensitive and Very Sensitive, policies may contain requirements for developers to evaluate and assess the



impacts of the proposals on sensitive habitats. Under the Environmental Liability Regulations (SI 547, 2008), it is also important to note that protected species and natural habitats fall under the remit of this legislation wherever they occur in Ireland, for example in sites that do not meet the criteria for designation as a SAC. Designated site boundaries do not as a result present any limits on their protection. Damage to protected species and natural habitats can take place where such species and habitats occur, including migratory species.

Therefore, impacts to Annexed habitats and species may require screening and Appropriate Assessment under the Habitats Directive 92/43/EEC, Article 6(3) and (4), Assessment of Plans and projects Significantly Affecting Natura 2000 Sites.

Where developments are required for the socio-economic improvement of an area, these developments should be evaluated against the wider area at a strategic level. The assessment must include the direct, indirect and cumulative impacts of such developments, and the evaluation of any possible environmental impacts to specific sensitive habitats against the impact of the habitat coverage within the locality and area as a whole. Where such developments require it, this information should be assessed through a Strategic Environmental Assessment (SEA) Process.

## **5.2 LOCAL AREA PLANS**

The information contained in this report may be used in conjunction with the South Clare Local Area Plan 2009. All information pertaining to this study is provided digitally in a GIS system and is access is available to all planners in Clare County Council and to the general public. This information is provided to facilitate a sustainable approach to planning and to identify opportunities to incorporate and manage sensitive habitats in local and regional scale.

## **5.3 STAKEHOLDER ENGAGEMENT**

The positive engagement and co-operation of land owners and their representative bodies can contribute significantly to the success of the protection of local sites of ecological value. The management of these sites should also reflect the broad interests of landowners on to and identify mechanisms which will allow effective input.



The availability of digital information at County Council Offices, Teagasc, IFA and civic centres will assist in the dissemination of information to landowners, developers and agencies that advice on landuse and development.

Hardcopies of the Habitat Map and report will also be made available at these centres.



## 5.4 OPPORTUNITIES FOR FURTHER RESEARCH

Further studies should be conducted at sites identified as Internationally, Nationally Important Ecological Sites and also sites identified as being of High Ecological Value in a Local Context as per **Table 4.1 Section 4.1**. Some of these sites may meet the criteria for designation under European or Irish legislation. Other sites that do not meet the criteria for legal designation but contain habitats of conservation value may be designated as Sites of Local Nature Conservation Interest (SLNCI) and a strategic context for the designation of these sites may be incorporated into Local Area Plans.

This approach to the designation of local sites has been adopted in the UK and Northern Ireland, and Guidance for the Identification and Selection of Local Sites has been developed by the Department for the Environment Food and Rural Affairs (DEFRA). The evaluation and selection criterion for the local conservation sites is based on the 'Ratcliffe Criterion' as set out in the Nature Conservation Review 1977. A synopsis of the Ratcliffe criterion is provided in **Table 6.1**.

**Table 6.1 Ratcliffe Criterion**

Criteria	Description
<b>Size</b>	A habitat's importance for nature conservation generally increases with its size.
<b>Diversity</b>	Variety is better than uniformity, species or habitat richness is generally better than a poor species or habitat complement.
<b>Naturalness</b>	Sites, which have remained relatively unaltered by man, tend to be the most valuable. Furthermore, sites which are considered most natural are generally those which are hardest to recreate.
<b>Fragility</b>	A habitat that is fragile is one that is sensitive to changing influences. Habitats, which are liable to such influences, are likely to be of higher value than those which are not.
<b>Typicalness</b>	Those habitats which are representative or typical of good examples of their type are considered of higher value than those which are not.
<b>Rarity</b>	A site where rare or protected species or habitats exist is considered of higher value.
<b>Position in an ecological or geographical unit</b>	Sites, and their associated habitats, which are contiguous with other similar sites tend to be more valuable than those sites, which are situated in isolation.
<b>Potential Value</b>	Habitats, which, through an adjustment of current influences, have the potential to be, of a higher nature conservation value than they are currently, have additional value
<b>Intrinsic Value</b>	This criterion is based upon the value humans' place on a feature of ecology as opposed to its actual nature conservation value.



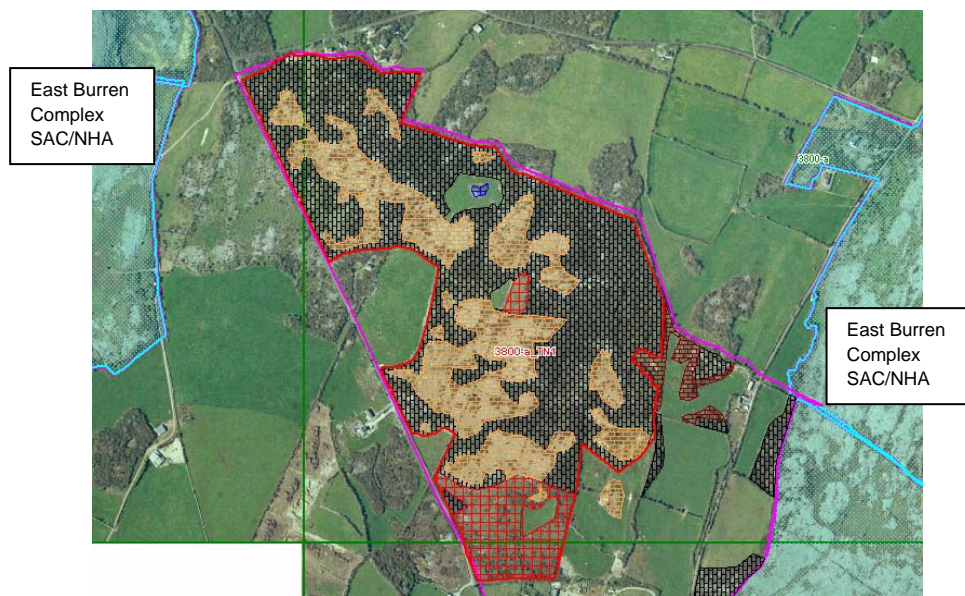
## **APPENDIX A**

### **TARGET NOTES**

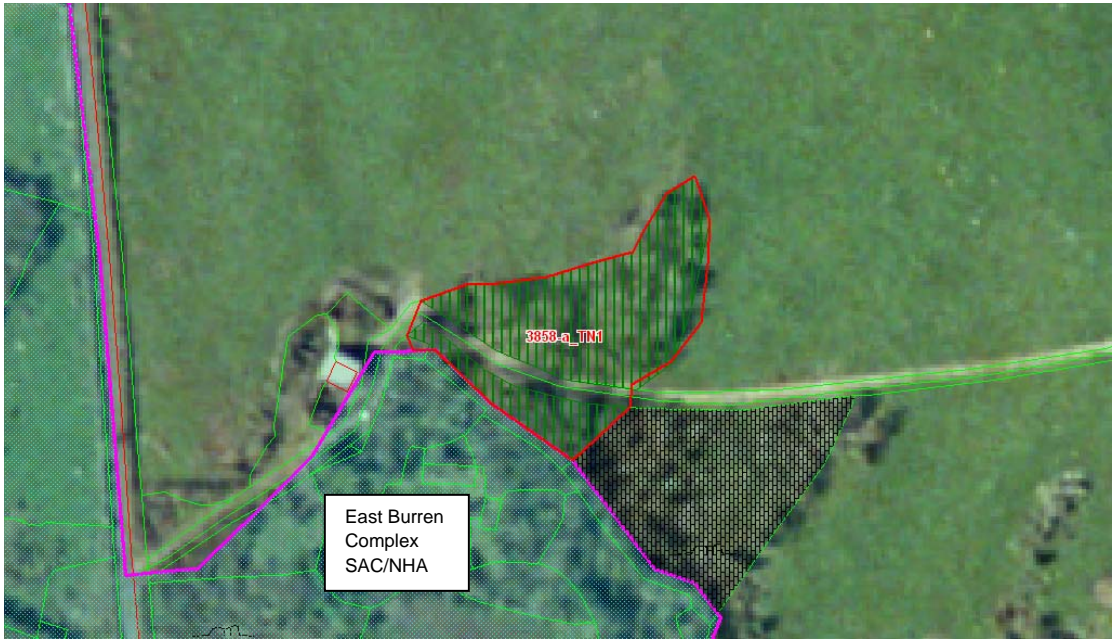











TARGET NOTES																																																																																																													
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 21/08/09																																																																																																											
<b>Surveyor:</b> George Percival		<b>County name:</b> Clare																																																																																																											
<b>1:2,500 Sheet no:</b> 3800-a	<b>Townland:</b> Cappacasheen	<b>Grid Ref:</b> 136386, 204025																																																																																																											
<b>Target note no.:</b> TN1		<b>Area:</b> 40ha																																																																																																											
This area is considered to be of <b>High</b> Ecological value in an <b>International</b> context. Corresponds to the Priority Habitat Limestone Pavements (8240) under the EU Habitats Directive.																																																																																																													
<b>Habitat code</b>  <b>GS1/ WS1 / HD1/ ER2</b>	Large area of Hazel Scrub (WS1) with areas exposed Limestone Pavement (ER2) and some limited areas of Dry Calcareous Grassland (GS1). There is also evidence of Bracken (HD1) encroachment.																																																																																																												
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**Habitat Map****Legend****Photographic Record****Plate 1: Limestone pavement with scrub**



TARGET NOTES																							
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 19/08/09																					
<b>Surveyor:</b> George Percival		<b>County name:</b> Clare																					
<b>1:2,500 Sheet no:</b> 3858-a	<b>Townland:</b> Depreenatloghtan	<b>Grid Ref:</b> 137021, 201766																					
<b>Target note no.:</b> TN1		<b>Area:</b> 0.3ha																					
This area is considered to be of <b>High</b> Ecological value in a local context.																							
<b>Habitat code</b>  <b>WN2</b>	<p>Small area of woodland which corresponds to Oak Ash Hazel Woodland (WN2) at the edge of the East Burren Complex SAC/NHA. However, Oak was not recorded in this area.</p> <p><b>Species List: Oak Ash Hazel Woodland (WN2)</b></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: left;"> <thead> <tr> <th style="text-align: left;">Species (<i>Latin name</i>)</th> <th style="text-align: left;">Species (common name)</th> <th style="text-align: left;">DAFOR Scale</th> </tr> </thead> <tbody> <tr> <td><i>Corylus avellana</i></td> <td>Hazel</td> <td>Occasional</td> </tr> <tr> <td><i>Crataegus monogyna</i></td> <td>Hawthorn</td> <td>Occasional</td> </tr> <tr> <td><i>Fraxinus excelsior</i></td> <td>Ash</td> <td>Dominant</td> </tr> <tr> <td><i>Prunus spinosa</i></td> <td>Blackthorn</td> <td>Rare</td> </tr> <tr> <td><i>Pteridium aquilinum</i></td> <td>Bracken</td> <td>Occasional</td> </tr> <tr> <td><i>Rubus fruticosus</i></td> <td>Bramble</td> <td>Occasional</td> </tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Corylus avellana</i>	Hazel	Occasional	<i>Crataegus monogyna</i>	Hawthorn	Occasional	<i>Fraxinus excelsior</i>	Ash	Dominant	<i>Prunus spinosa</i>	Blackthorn	Rare	<i>Pteridium aquilinum</i>	Bracken	Occasional	<i>Rubus fruticosus</i>	Bramble	Occasional
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## Photographic Record



**Plate 1: Ash trees**



## TARGET NOTES

<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 19/08/09
<b>Surveyor:</b> David Fallon		<b>County name:</b> Clare
<b>1:2,500 Sheet no:</b> 3916-c	<b>Townland:</b> Fiddaun	<b>Grid Ref:</b> 140634, 196464
<b>Target note no.:</b> TN1		<b>Area:</b> 3.1ha

This area is considered to be of **High** Ecological value in a local context.

## Habitat code

PB4

Cutover bog (PB4) with drainage ditches and old turf banks visible. One unusual feature is the presence of a number of Pendunculate Oak (*Quercus robur*) trees along its western boundary.

Species (Latin name)	Species (common name)	DAFOR Scale
<i>Erica cinerea</i>	Bell Heather	Dominant
<i>Erica tetralix</i>	Cross-leaved Heath	Frequent
<i>Molinia caerulea</i>	Purple Moor-grass	Frequent
<i>Osmunda regalis</i>	Royal Fern	Occasional
<i>Potentilla erecta</i>	Tormentil	Occasional
<i>Pteridium aquilinum</i>	Bracken	Frequent
<i>Quercus robur</i>	Pendunculate Oak	Rare
<i>Salix cinerea</i>	Grey Sallow Willow	Occasional
<i>Salix repens</i>	Creeping Willow	Frequent
<i>Succisa pratensis</i>	Devil's-bit Scabious	Rare
<i>Typha latifolia</i>	Bulrush	Occasional

## Habitat Map



## Legend

	Study Area		GS4 Wet Grassland		PB4 Cutover Bog		WS2 Immature Woodland
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## Photographic Record

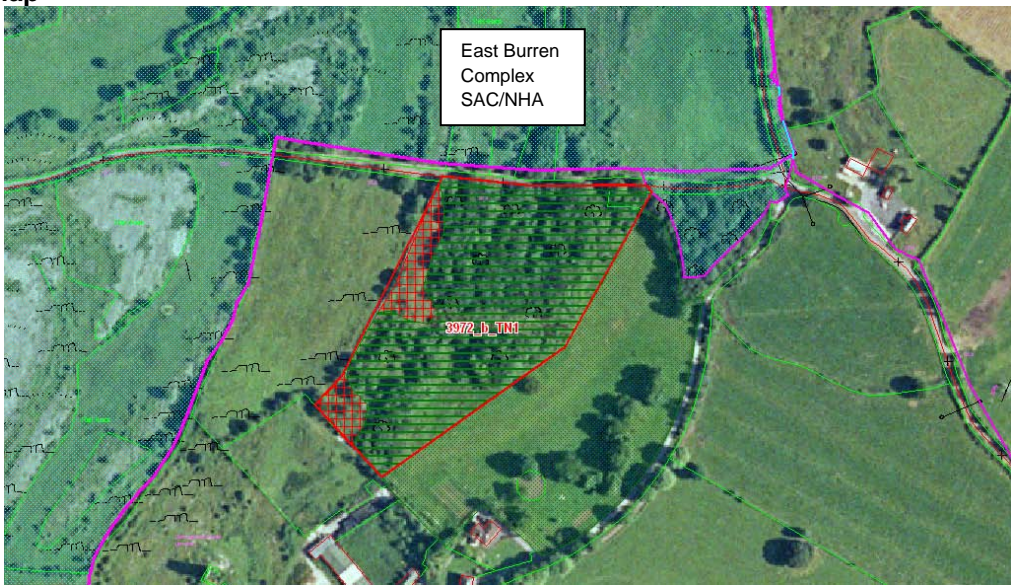


**Plate 1: View of Cutover Bog and Oak treeline to the west**



**Plate 2: Heath vegetation**



TARGET NOTES																																			
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<b>Surveyor:</b> David Fallon		<b>County name:</b> Clare																																	
<b>1:2,500 Sheet no:</b> 3972-b	<b>Townland:</b> Templebannagh	<b>Grid Ref:</b> 139520, 195510																																	
<b>Target note no.:</b> TN1		<b>Area:</b> 2.4ha																																	
This area is considered to be of <b>Moderate</b> Ecological value in a local context.																																			
<b>Habitat code</b>  <b>WD1</b>	<p>Mixed Broadleaved woodland (WD1). This woodland is located on limestone outcrops and is mostly comprised of non native tree species. This habitat has the potential to provide continuity between different habitats, while mature trees present, such as Beech (<i>Fagus sylvatica</i>) and Sycamore (<i>Acer pseudoplatanus</i>) have the potential to provide roosting and foraging habitats for birds and mammals. The ground flora of this woodland is particularly species poor due to heavy graving.</p> <p><b>Species List: Mixed Broadleaved Woodland (WD1)</b></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: left;"> <thead> <tr> <th style="text-align: left;">Species (<i>Latin name</i>)</th> <th style="text-align: left;">Species (common name)</th> <th style="text-align: left;">DAFOR Scale</th> </tr> </thead> <tbody> <tr> <td><i>Fagus sylvatica</i></td> <td>Beech</td> <td>Dominant</td> </tr> <tr> <td><i>Acer pseudoplatanus</i></td> <td>Sycamore</td> <td>Frequent</td> </tr> <tr> <td><i>Fraxinus excelsior</i></td> <td>Ash</td> <td>Occasional</td> </tr> <tr> <td><i>Crataegus monogyna</i></td> <td>Hawthorn</td> <td>Occasional</td> </tr> <tr> <td><i>Phyllitis scolopendrium</i></td> <td>Hart's Tongue Fern</td> <td>Frequent</td> </tr> <tr> <td><i>Circaea lutetiana</i></td> <td>Enchanters Nightshade</td> <td>Frequent</td> </tr> <tr> <td><i>Geranium robertianum</i></td> <td>Herb Robert</td> <td>Frequent</td> </tr> <tr> <td><i>Urtica dioica</i></td> <td>Nettle</td> <td>Frequent</td> </tr> <tr> <td><i>Rubus fruticosus</i> agg.</td> <td>Bramble</td> <td>Occasional</td> </tr> <tr> <td><i>Salix cinerea</i></td> <td>Grey Willow</td> <td>Occasional</td> </tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Fagus sylvatica</i>	Beech	Dominant	<i>Acer pseudoplatanus</i>	Sycamore	Frequent	<i>Fraxinus excelsior</i>	Ash	Occasional	<i>Crataegus monogyna</i>	Hawthorn	Occasional	<i>Phyllitis scolopendrium</i>	Hart's Tongue Fern	Frequent	<i>Circaea lutetiana</i>	Enchanters Nightshade	Frequent	<i>Geranium robertianum</i>	Herb Robert	Frequent	<i>Urtica dioica</i>	Nettle	Frequent	<i>Rubus fruticosus</i> agg.	Bramble	Occasional	<i>Salix cinerea</i>	Grey Willow	Occasional
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### Photographic Record

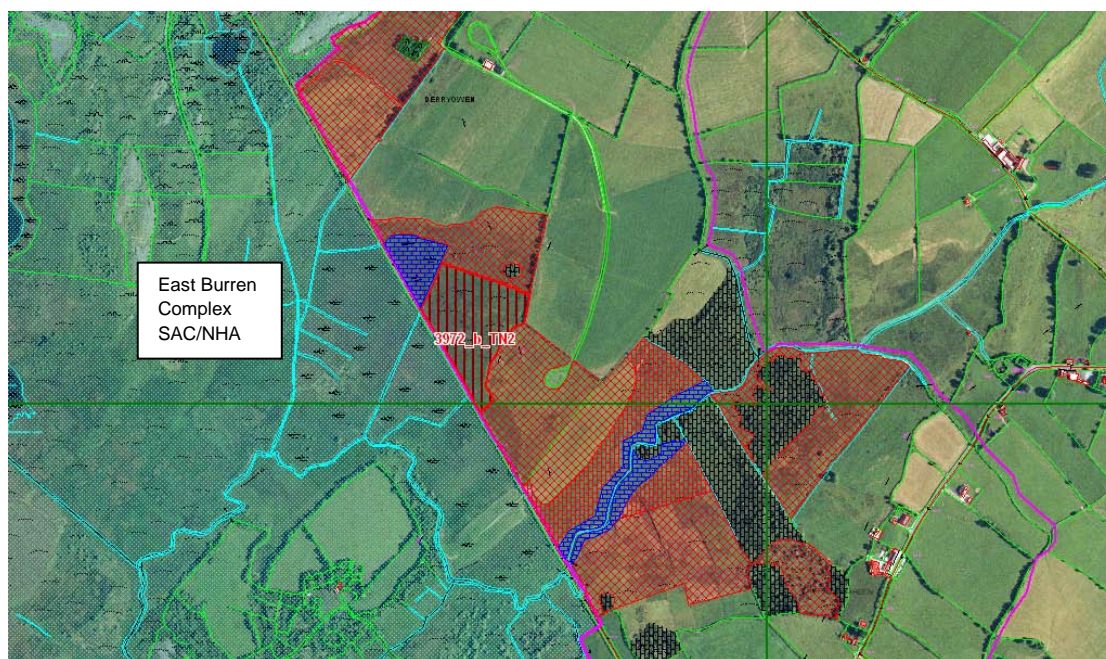


**Plate 1:** Note the absence of an understory and a poor ground flora due to grazing



TARGET NOTES																													
Survey Title: North and Mid Clare Habitat Mapping		Survey date: 19/08/09																											
Surveyor: David Fallon		County name: Clare																											
1:2,500 Sheet no: 3972-b	Townland: Derryowen	Grid Ref: 139440,194630																											
Target note no.: TN2		Area: 2.7ha																											
This area is considered to be of <b>High</b> Ecological value in a local context.																													
Habitat code  HH3	<p>A Wet Heath (HH3) located beside a large area of wetland and therefore offering excellent connectivity with similar habitats. At the time of the site visit this site was very wet and access was difficult to achieve.</p> <p><b>Species List: Wet Heath (HH3)</b></p> <table border="1"> <thead> <tr> <th>Species (<i>Latin name</i>)</th> <th>Species (common name)</th> <th>DAFOR Scale</th> </tr> </thead> <tbody> <tr> <td><i>Carex spp.</i></td> <td>Sedge spp.</td> <td>Occasional</td> </tr> <tr> <td><i>Juncus spp.</i></td> <td>Rush spp.</td> <td>Occasional</td> </tr> <tr> <td><i>Molinia caerulea</i></td> <td>Purple moor grass</td> <td>Frequent</td> </tr> <tr> <td><i>Myrica gale</i></td> <td>Bog Myrtle</td> <td>Dominant</td> </tr> <tr> <td><i>Typha latifolia</i></td> <td>Bulrush</td> <td>Occasional</td> </tr> <tr> <td><i>Salix cinerea</i></td> <td>Grey Willow</td> <td>Frequent</td> </tr> <tr> <td><i>Lythrum salicaria</i></td> <td>Purple loose-strife</td> <td>Rare</td> </tr> <tr> <td><i>Phalaris arundinaceae</i></td> <td>Reed Canary Grass</td> <td>Frequent</td> </tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Carex spp.</i>	Sedge spp.	Occasional	<i>Juncus spp.</i>	Rush spp.	Occasional	<i>Molinia caerulea</i>	Purple moor grass	Frequent	<i>Myrica gale</i>	Bog Myrtle	Dominant	<i>Typha latifolia</i>	Bulrush	Occasional	<i>Salix cinerea</i>	Grey Willow	Frequent	<i>Lythrum salicaria</i>	Purple loose-strife	Rare	<i>Phalaris arundinaceae</i>	Reed Canary Grass	Frequent
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## Habitat Map



## Legend

	Study Area		GS4 Wet Grassland		GM1 Marsh		FS1 Reed & Large Sedge Swamps		HH3 Wet Heath		WS1 Scrub
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## Photographic Record

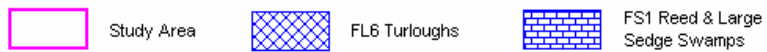


**Plate 1: Wet Heath vegetation surrounded by wetland habitats**



TARGET NOTES																																																											
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 11/08/09																																																									
<b>Surveyor:</b> Jean Hamilton		<b>County name:</b> Clare																																																									
<b>1:2,500 Sheet no:</b> 4028-d	<b>Townland:</b> Inchiquin	<b>Grid Ref:</b> 127996, 190640																																																									
<b>Target note no.:</b> TN1		<b>Area:</b> 1.7ha																																																									
This area is considered to be of <b>High</b> Ecological value in an <b>International</b> context. Corresponds to Priority Habitat, Turloughs (3180) under Annex I of the EU Habitats Directive.																																																											
<b>Habitat code</b>  <b>FL6 / FS1/ GS4</b>	<p>Large flooded area in a depression of a field, possible Turlough (FL6). According to the landowner, the level rises significantly during winter months. The fringing vegetation is characterized by concentric rings of Reed and Large Sedge Swamp (FS1), Tall Herb Swamps (FS2) and Wet Grassland (GS4). Reed and Large Sedge Swamp (FS1) is characterised by tall rushes, sedges and horsetails. Bogbean (<i>Menyanthes trifoliata</i>) is also frequent in the shallower areas. Tufted Duck (<i>Aythya fuligula</i>) was sighted in the flooded area.</p> <p>The Tall Herb Swamps (FS2) supports species such as Brooklime (<i>Veronica beccabunga</i>), Watercress (<i>Rorippa nasturtium-aquaticum</i>), Water Forget-me-not (<i>Myosotis scorpioides</i>), Water Horsetail (<i>Equisetum fluviatile</i>) and Yellow Iris (<i>Iris pseudacorus</i>).</p> <p>The fringing area is Wet grassland with abundant rushes and Meadowsweet (<i>Filipendula ulmaria</i>). Other abundant species are Silverweed (<i>Potentilla anserina</i>), Lesser Spearwort (<i>Ranunculus flammula</i>), Star Sedge (<i>Carex echinata</i>) and other medium-sized sedges, Watermint (<i>Mentha aquatica</i>), Lesser Spearwort (<i>Ranunculus flammula</i>), Clovers (<i>Trifolium</i> spp.), Perennial Ryegrass (<i>Lolium perenne</i>), Yorkshire Fog (<i>Holcus lanatus</i>) and mosses.</p> <p><b>Species List: for Wet Grassland (GS4) &amp; Reed and Tall Sedge Swamp (FS1)</b></p> <table border="1"> <thead> <tr> <th>Species (Latin name)</th> <th>Species (common name)</th> <th>DAFOR Scale</th> </tr> </thead> <tbody> <tr><td><i>Carex echinata</i></td><td>Star Sedge</td><td>Occasional</td></tr> <tr><td><i>Carex flacca</i></td><td>Sedge, glaucous</td><td>Occasional</td></tr> <tr><td><i>Carex panicea</i></td><td>Sedge, carnation</td><td>Occasional</td></tr> <tr><td><i>Carex nigra</i></td><td>Common Sedge</td><td>Frequent</td></tr> <tr><td><i>Holcus lanatus</i></td><td>Yorkshire Fog</td><td>Frequent</td></tr> <tr><td><i>Juncus conglomeratus</i></td><td>Compact Rush</td><td>Occasional</td></tr> <tr><td><i>Juncus effusus</i></td><td>Rush, soft</td><td>Frequent</td></tr> <tr><td><i>Juncus articulatus</i></td><td>Rush, jointed</td><td>Frequent</td></tr> <tr><td><i>Iris pseudacorus</i></td><td>Yellow Iris</td><td>Frequent</td></tr> <tr><td><i>Lolium perenne</i></td><td>Perennial Ryegrass</td><td>Frequent</td></tr> <tr><td><i>Mentha aquatica</i></td><td>Water mint</td><td>Occasional</td></tr> <tr><td><i>Menyanthes trifoliata</i></td><td>Bog-bean</td><td>Occasional</td></tr> <tr><td><i>Myosotis scorpioides</i></td><td>Water Forget-me-not</td><td>Occasional</td></tr> <tr><td><i>Ranunculus flammula</i></td><td>Lesser Spearwort</td><td>Occasional</td></tr> <tr><td><i>Rorippa nasturtium-aquaticum</i></td><td>Watercress</td><td>Occasional</td></tr> <tr><td><i>Schoenoplectus lacustris</i></td><td>Common Club-rush</td><td>Abundant</td></tr> <tr><td><i>Trifolium</i> spp</td><td>Clovers</td><td>Frequent</td></tr> <tr><td><i>Veronica beccabunga</i></td><td>Brooklime</td><td>Occasional</td></tr> </tbody> </table>		Species (Latin name)	Species (common name)	DAFOR Scale	<i>Carex echinata</i>	Star Sedge	Occasional	<i>Carex flacca</i>	Sedge, glaucous	Occasional	<i>Carex panicea</i>	Sedge, carnation	Occasional	<i>Carex nigra</i>	Common Sedge	Frequent	<i>Holcus lanatus</i>	Yorkshire Fog	Frequent	<i>Juncus conglomeratus</i>	Compact Rush	Occasional	<i>Juncus effusus</i>	Rush, soft	Frequent	<i>Juncus articulatus</i>	Rush, jointed	Frequent	<i>Iris pseudacorus</i>	Yellow Iris	Frequent	<i>Lolium perenne</i>	Perennial Ryegrass	Frequent	<i>Mentha aquatica</i>	Water mint	Occasional	<i>Menyanthes trifoliata</i>	Bog-bean	Occasional	<i>Myosotis scorpioides</i>	Water Forget-me-not	Occasional	<i>Ranunculus flammula</i>	Lesser Spearwort	Occasional	<i>Rorippa nasturtium-aquaticum</i>	Watercress	Occasional	<i>Schoenoplectus lacustris</i>	Common Club-rush	Abundant	<i>Trifolium</i> spp	Clovers	Frequent	<i>Veronica beccabunga</i>	Brooklime	Occasional
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**Habitat Map****Legend****Photographic Record****Plate 1: View of Turlough**





**Plate 2: Flooded area with rushes, horsetails and Bogbean**

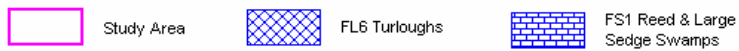


**Plate 3: Wet grassland vegetation**



TARGET NOTES																																												
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 4/08/09																																										
<b>Surveyor:</b> Jean Hamilton		<b>County name:</b> Clare																																										
<b>1:2,500 Sheet no.:</b> 4031-c	<b>Townland:</b> Dromeen	<b>Grid Ref:</b> 137186, 190062																																										
<b>Target note no.:</b> TN1		<b>Area:</b> 0.2ha																																										
This area is considered to be of <b>High</b> Ecological value in an <b>International</b> context. Corresponds to Priority Habitat, Turloughs (3180) under Annex I of the EU Habitats Directive.																																												
<b>Habitat code</b>  <b>FL6/ FS1</b>	<p>This area comprises a small Turlough (FL6) known as Dromeen Lough. The vegetation is dominated by Reed and Large Sedge Swamp (FS1). There are patches where Bulrush (<i>Typha latifolia</i>) is abundant. The broadleaved herb component is relatively significant, with Purple Loosestrife (<i>Lythrum salicaria</i>), Watermint (<i>Mentha aquatica</i>), Silverweed (<i>Potentilla anserina</i>), Lesser Spearwort (<i>Ranunculus flammula</i>), Marsh Pennywort (<i>Hydrocotyle vulgaris</i>) and Marsh Bedstraw (<i>Galium palustre</i>). Rushes (<i>Juncus</i> spp.) are abundant in places. The water table is quite high, with 30cm or more of water.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Species (<i>Latin name</i>)</th> <th style="text-align: left; padding: 2px;">Species (common name)</th> <th style="text-align: left; padding: 2px;">DAFOR Scale</th> </tr> </thead> <tbody> <tr><td><i>Berula erecta</i></td><td>Water Parsnip</td><td>Frequent</td></tr> <tr><td><i>Equisetum fluviatile</i></td><td>Water Horsetail</td><td>Occasional</td></tr> <tr><td><i>Filipendula ulmaria</i></td><td>Meadowsweet</td><td>Occasional</td></tr> <tr><td><i>Galium palustre</i></td><td>Marsh Bedstraw</td><td>Frequent</td></tr> <tr><td><i>Hydrocotyle vulgaris</i></td><td>Marsh Pennywort</td><td>Occasional at edges</td></tr> <tr><td><i>Iris pseudacorus</i></td><td>Yellow Iris</td><td>Frequent</td></tr> <tr><td><i>Lythrum salicaria</i></td><td>Purple Loosestrife</td><td>Frequent</td></tr> <tr><td><i>Mentha aquatica</i></td><td>Watermint</td><td>Rare</td></tr> <tr><td><i>Myosotis scorpioides</i></td><td>Water Forget-me-not</td><td>Occasional</td></tr> <tr><td><i>Potentilla anserina</i></td><td>Silverweed</td><td>Frequent</td></tr> <tr><td><i>Ranunculus flammula</i></td><td>Lesser Spearwort</td><td>Frequent</td></tr> <tr><td><i>Typha latifolia</i></td><td>Bulrush</td><td>Frequent</td></tr> <tr><td><i>Schoenoplectus lacustris</i></td><td>Common Club-rush</td><td>Dominant</td></tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Berula erecta</i>	Water Parsnip	Frequent	<i>Equisetum fluviatile</i>	Water Horsetail	Occasional	<i>Filipendula ulmaria</i>	Meadowsweet	Occasional	<i>Galium palustre</i>	Marsh Bedstraw	Frequent	<i>Hydrocotyle vulgaris</i>	Marsh Pennywort	Occasional at edges	<i>Iris pseudacorus</i>	Yellow Iris	Frequent	<i>Lythrum salicaria</i>	Purple Loosestrife	Frequent	<i>Mentha aquatica</i>	Watermint	Rare	<i>Myosotis scorpioides</i>	Water Forget-me-not	Occasional	<i>Potentilla anserina</i>	Silverweed	Frequent	<i>Ranunculus flammula</i>	Lesser Spearwort	Frequent	<i>Typha latifolia</i>	Bulrush	Frequent	<i>Schoenoplectus lacustris</i>	Common Club-rush	Dominant
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**Habitat Map****Legend****Photographic Record**

**Plate 1: Reed and large sedge swamp with abundant *Typha latifolia***





**Plate 2: Reed and large sedge swamp with sedges prominent in foreground**

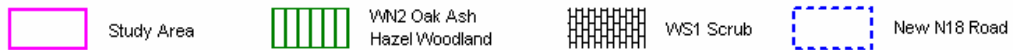


**Plate 3: Reed and large sedge swamp, sedges prominent in foreground and area with abundant rushes in the background**








TARGET NOTES														
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 16/08/09												
<b>Surveyor:</b> David Fallon		<b>County name:</b> Clare												
<b>1:2,500 Sheet no:</b> 4031-d	<b>Townland:</b> Addergoole	<b>Grid Ref:</b> 139898, 191095												
<b>Target note no.:</b> TN1		<b>Area:</b> 7.7ha												
This area is considered to be of <b>High</b> Ecological value in a local context														
<b>Habitat code</b>  <b>WN2/WS1</b>	<p>Quite a large area of Scrub (WS1) developing into Oak Ash Hazel woodland (WN2). There is some evidence of scrub clearance within the site; however it seems to be quickly reverting to scrub. Closed canopy Oak Ash Hazel (WN2) is evident to the north and west of the site. Sapling Ash and Oak were also recorded within the areas of scrub woodland. Evidence of Pine Marten was also found in the area. There is good connectivity between this area and other similar habitats in the surrounding landscape.</p>													
	<b>Species (Latin name)</b>	<b>Species (common name)</b>												
	<i>Corylus avellana</i>	Hazel												
	<i>Crataegus monogyna</i>	Hawthorn												
	<i>Euonymus europaeus</i>	Spindle												
	<i>Fraxinus excelsior</i>	Ash												
	<i>Hypericum perforatum</i>	St John's-wort												
	<i>Ilex aquifolium</i>	Holly												
	<i>Prunus spinosa</i>	Blackthorn												
	<i>Pteridium aquilinum</i>	Bracken												
	<i>Quercus</i> sp.	Oak												
	<i>Rubus fruticosus</i>	Bramble												
	<i>Sorbus aucuparia</i>	Rowan												
	<i>Viburnum opulus</i>	Guelder Rose												
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Occasional														
Frequent														
Rare														
Occasional														



**Habitat Map****Legend****Photographic Record****Plate 1: Developing Oak Ash Hazel Woodland WN2**



TARGET NOTES							
Survey Title: North and Mid Clare Habitat Mapping		Survey date: 16/08/09					
Surveyor: David Fallon		County name: Clare					
1:2,500 Sheet no: 4031-d	Townland: Addergoole	Grid Ref: 139806, 191335					
Target note no.: TN2		Area: 0.65ha					
This area is considered to be of <b>High</b> Ecological value in an <b>International</b> context. This habitat corresponds to the Annex I Habitat, Caves not open to the public (8310), under the EU Habitats Directive.							
Habitat code	Dense Scrub (WS1) vegetation covers this area so caves are difficult to locate. A stream flows into one of these caves, which appeared to be partially blocked with plastic and detritus (logs, sticks etc.). The NPWS should be alerted to this issue. These caves are a roosting site for Lesser Horseshoe Bats which are protected under Annex II of the EU Habitats Directive.						
WS1/ EU1							
Habitat Map							
							
Legend							
	Study Area		WS1 Scrub		EU1 Non-Marine Caves		GSI Karst Features



## Photographic Record



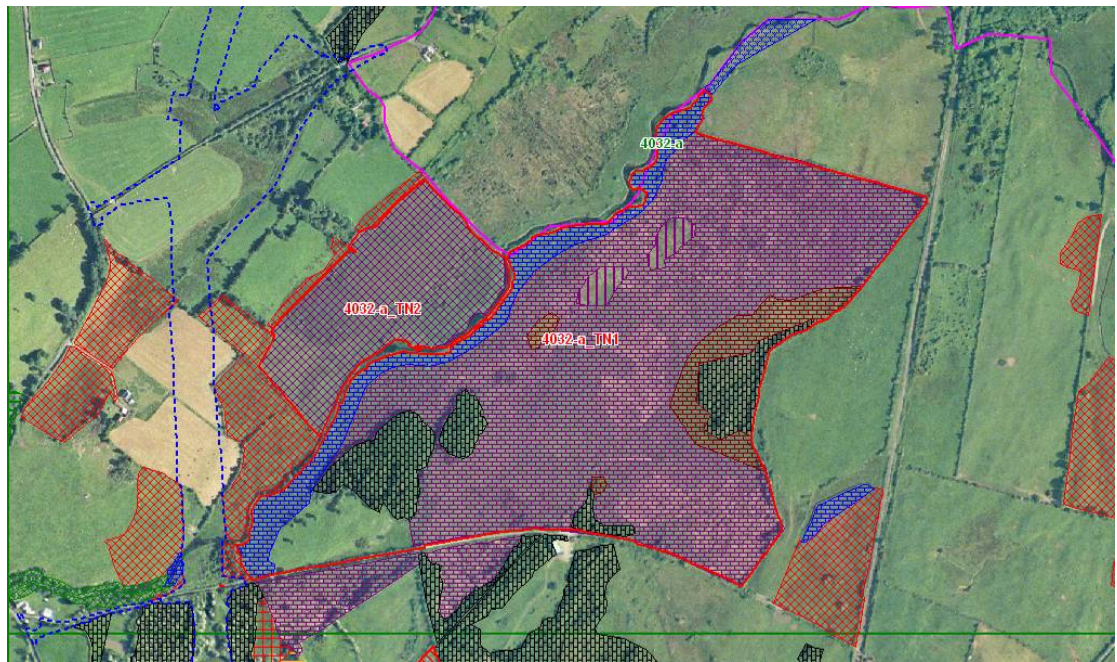
**Plate 1: Caves where small stream flows into.**








TARGET NOTES		
Survey Title: North and Mid Clare Habitat Mapping		Survey date: 17/08/09
Surveyor: David Fallon		County name: Clare
1:2,500 Sheet no: 4032-a	Townland: Cappanapeasta	Grid Ref: 140850,191890
Target note no.: TN1		Area: 36ha
This area is considered to be of <b>High</b> Ecological value in a local context.		
<b>Habitat code</b>  <b>PB4, WS1, PF2 &amp; FS1</b>	This peat land area has been Cutover (PB4) and is now grazed. A mosaic of habitats now remains including Scrub (WS1), Poor Fen and Flush (PF2), Dry Humid Acid Grassland (GS3) and Reed and Large Sedge Swamp (FS1) fringing the Moyree River. The wetter areas are floristically diverse. This area is severed from similar habitats in the surrounding areas by a small farm track.	
	<b>Species List: Cutover Bog PB4</b>	
	<b>Species (Latin name)</b>	<b>Species (common name)</b>
	<i>Anthoxanthum odoratum</i>	Sweet Vernal grass
	<i>Anthriscus sylvestris</i>	Cow Parsley
	<i>Betula pubescens</i>	Downy Birch
	<i>Briza media</i>	Quaking Grass
	<i>Centaurea nigra</i>	Common Knapweed
	<i>Cladonia spp.</i>	Lichen
	<i>Cynosurus cristatus</i>	Crested Dogs Tail
	<i>Erica cinerea</i>	Bell Heather
	<i>Molinia caerulea</i>	Purple Moor-grass
	<i>Myrica gale</i>	Bog Myrtle
	<i>Osmunda regalis</i>	Royal Fern
	<i>Orchidaceae</i>	Orchid spp
	<i>Parnassia palustris</i>	Grass of Parnassus
	<i>Pinguicula vulgaris</i>	Butterwort
	<i>Polygala serpyllifolia</i>	Heath Milkwort
	<i>Potentilla erecta</i>	Tormentil
	<i>Pteridium aquilinum</i>	Bracken
	<i>Rubus fruticosus agg.</i>	Bramble
	<i>Salix repens</i>	Willow
	<i>Senecio jacobaea</i>	Ragwort
	<i>Sorbus aucuparia</i>	Rowan
	<i>Sphagnum spp.</i>	Bog moss
	<i>Succisa pratensis</i>	Devil's Bit Scabious
	<i>Ulex europaeus</i>	Gorse
	<b>Species List: Poor fen and Flush (PF2)</b>	
	<b>Species (Latin name)</b>	<b>Species (common name)</b>
	<i>Menyanthes trifoliata</i>	Bog Bean
	<i>Molinia caerulea</i>	Purple Moor-grass
	<i>Potentilla erecta</i>	Tormentil
	<i>Lythrum salicaria</i>	Purple Loose-strife
	<i>Juncus effusus</i>	Soft rush
	<i>Juncus conglomeratus</i>	Compact Rush
	<b>Species List: Tall-Herb swamp (FS2)</b>	
	<b>Species (Latin name)</b>	<b>Species (common name)</b>
	<i>Typha latifolia</i>	Bulrush
	<i>Heracleum sphondylium</i>	Hogweed
	<i>Phalaris arundinaceae</i>	Reed Canary Grass



## Habitat Map



## Legend

	Study Area		FS1 Reed & Large Sedge Swamps		PB4 Cutover Bog		PF2 Poor Fen & Flush		WS1 Scrub
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## Photographic Record



Plate 1: Grass of Parnassus








**Plate 2: An array of plant species are present in this habitat  
Moyree River in the background**



TARGET NOTES																																															
Survey Title: North and Mid Clare Habitat Mapping		Survey date: 17/08/09																																													
Surveyor: David Fallon		County name: Clare																																													
1:2,500 Sheet no: 4032-a	Townland: Cappanapeasta	Grid Ref: 140590,192020																																													
Target note no.: TN2		Area: 6.7ha																																													
This area is considered to be of <b>High</b> Ecological value in an <b>International</b> context. This habitat corresponds to <b>Annex I</b> Habitat, Transition mires and quaking bogs (7140), under the EU Habitat Directive																																															
Habitat code	This habitat is ungrazed and very wet. This area of Transition mire & Quaking Bogs (PF3) located on the northern banks of the Moyree River. This habitat has limited distribution within the study area.																																														
PF3	<b>Species List: Cutover Bog PB4</b>																																														
	<table><tr><th>Species (Latin name)</th><th>Species (common name)</th><th>DAFOR Scale</th></tr><tr><td><i>Anthoxanthum odoratum</i></td><td>Sweet Vernal grass</td><td>Frequent</td></tr><tr><td><i>Anthriscus sylvestris</i></td><td>Cow Parsley</td><td>Occasional</td></tr><tr><td><i>Carex riparia</i></td><td>Greater Pond Sedge</td><td>Occasional</td></tr><tr><td><i>Carex acutiformis</i></td><td>Lesser Pond Sedge</td><td>Occasional</td></tr><tr><td><i>Erica cinerea</i></td><td>Bell Heather</td><td>Dominant</td></tr><tr><td><i>Heracleum sphondylium</i></td><td>Hogweed</td><td>Occasional</td></tr><tr><td><i>Lythrum salicaria</i></td><td>Purple Loose-strife</td><td>Rare</td></tr><tr><td><i>Molinia caerulea</i></td><td>Purple Moor-grass</td><td>Frequent</td></tr><tr><td><i>Myrica gale</i></td><td>Bog Myrtle</td><td>Occasional</td></tr><tr><td><i>Phalaris arundinaceae</i></td><td>Reed Canary Grass</td><td>Frequent</td></tr><tr><td><i>Salix repens</i></td><td>Willow</td><td>Rare</td></tr><tr><td><i>Succisa pratensis</i></td><td>Devil's Bit Scabious</td><td>Frequent</td></tr><tr><td><i>Typha latifolia</i></td><td>Bulrush</td><td>Dominant</td></tr><tr><td><i>Ulex europaeus</i></td><td>Gorse</td><td>Occasional</td></tr></table>	Species (Latin name)	Species (common name)	DAFOR Scale	<i>Anthoxanthum odoratum</i>	Sweet Vernal grass	Frequent	<i>Anthriscus sylvestris</i>	Cow Parsley	Occasional	<i>Carex riparia</i>	Greater Pond Sedge	Occasional	<i>Carex acutiformis</i>	Lesser Pond Sedge	Occasional	<i>Erica cinerea</i>	Bell Heather	Dominant	<i>Heracleum sphondylium</i>	Hogweed	Occasional	<i>Lythrum salicaria</i>	Purple Loose-strife	Rare	<i>Molinia caerulea</i>	Purple Moor-grass	Frequent	<i>Myrica gale</i>	Bog Myrtle	Occasional	<i>Phalaris arundinaceae</i>	Reed Canary Grass	Frequent	<i>Salix repens</i>	Willow	Rare	<i>Succisa pratensis</i>	Devil's Bit Scabious	Frequent	<i>Typha latifolia</i>	Bulrush	Dominant	<i>Ulex europaeus</i>	Gorse	Occasional	
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Habitat Map

Legend

	Study Area		PF3 Transition Mire & Quaking Bog		New N18 Road
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**Photographic Record**

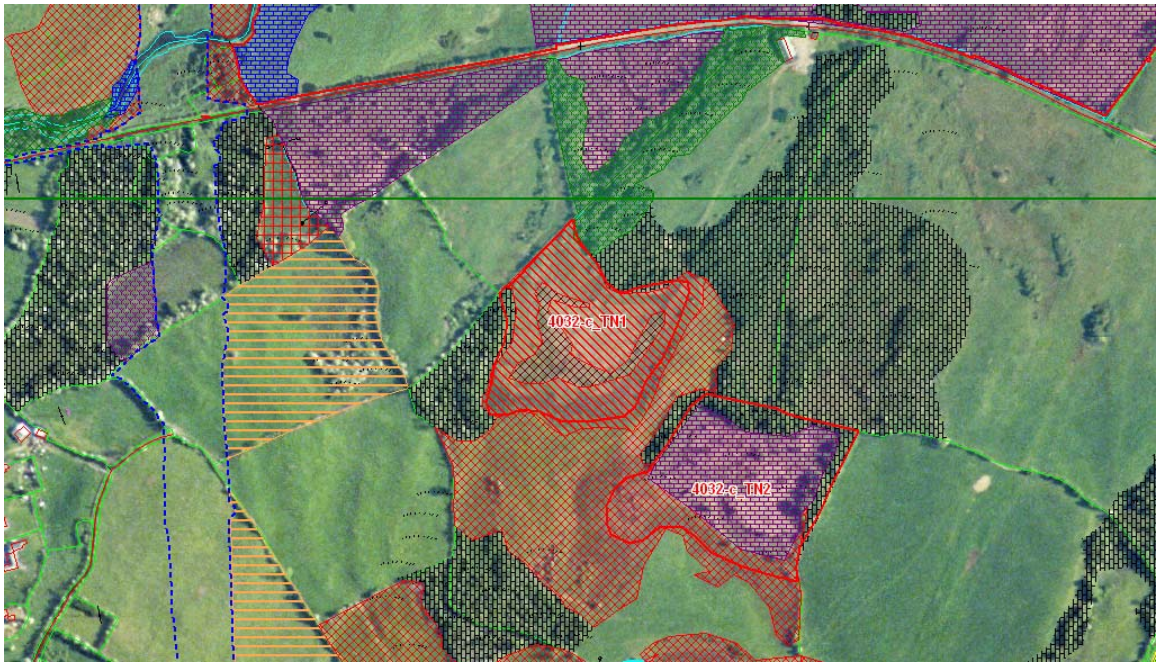


**Plate 1: Transition mire & Quaking Bogs (PF3) habitat on the banks of the Moyree River**



TARGET NOTES																																									
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 30/07/09																																							
<b>Surveyor:</b> David Fallon		<b>County name:</b> Clare																																							
<b>1:2,500 Sheet no:</b> 4032-c	<b>Townland:</b> Derrygarraiff	<b>Grid Ref:</b> 140661, 191377																																							
<b>Target note no.:</b> TN1		<b>Area:</b> 1.9ha																																							
This area is considered to be of <b>High</b> Ecological value in a local context.																																									
<b>Habitat code</b>  <b>FS1/ GS3 / HH1/ PF2</b>	<p>This area consists of a mosaic of habitats consisting of Dry-Humid Acid Grassland and Dry Siliceous Heath (HH1), occurring on a peaty substrate. Some wet areas occur through out the site which support Rush and Tall Sedge Swamp (FS1) and Poor Fen and Flush (PF2). These areas are small and sporadic and too small to map. Species which occur in these areas include; Bogbean (<i>Menyanthes trifoliata</i>), Bulrush (<i>Typha latifolia</i>), Grey Willow (<i>Salix cinerea oleifolia</i>), Purple Moor-grass (<i>Molinia caerulea</i>) and Purple loose-strife (<i>Lythrum salicaria</i>). Not an area that is particularly rich in species, as it has been burned in recent years it is none the less important on a local level. It is well connected to similar habitat in the surrounding environment</p> <p><b>Species List: Dry-Humid Acid Grassland (GS3)</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Species (<i>Latin name</i>)</th> <th style="text-align: left; padding: 2px;">Species (common name)</th> <th style="text-align: left; padding: 2px;">DAFOR Scale</th> </tr> </thead> <tbody> <tr><td style="padding: 2px;"><i>Succisa pratensis</i></td><td style="padding: 2px;">Devil's Bit Scabious</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Molinia caerulea</i></td><td style="padding: 2px;">Purple Moor-grass</td><td style="padding: 2px;">Dominant</td></tr> <tr><td style="padding: 2px;"><i>Juncus conglomeratus</i></td><td style="padding: 2px;">Compact Rush</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Anthoxanthum odoratum</i></td><td style="padding: 2px;">Sweet Vernal Grass</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Potentilla erecta</i></td><td style="padding: 2px;">Tormantil</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Pteridium aquilinum</i></td><td style="padding: 2px;">Bracken</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Erica cinerea</i></td><td style="padding: 2px;">Bell Heather</td><td style="padding: 2px;">Occasional</td></tr> </tbody> </table> <p><b>Species List: Dry Siliceous Heath (HH1)</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Species (<i>Latin name</i>)</th> <th style="text-align: left; padding: 2px;">Species (common name)</th> <th style="text-align: left; padding: 2px;">DAFOR Scale</th> </tr> </thead> <tbody> <tr><td style="padding: 2px;"><i>Molinia caerulea</i></td><td style="padding: 2px;">Purple Moor-grass</td><td style="padding: 2px;">Dominant</td></tr> <tr><td style="padding: 2px;"><i>Potentilla erecta</i></td><td style="padding: 2px;">Tormantil</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Pteridium aquilinum</i></td><td style="padding: 2px;">Bracken</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Erica cinerea</i></td><td style="padding: 2px;">Bell Heather</td><td style="padding: 2px;">Occasional</td></tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Succisa pratensis</i>	Devil's Bit Scabious	Frequent	<i>Molinia caerulea</i>	Purple Moor-grass	Dominant	<i>Juncus conglomeratus</i>	Compact Rush	Frequent	<i>Anthoxanthum odoratum</i>	Sweet Vernal Grass	Frequent	<i>Potentilla erecta</i>	Tormantil	Occasional	<i>Pteridium aquilinum</i>	Bracken	Occasional	<i>Erica cinerea</i>	Bell Heather	Occasional	Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Molinia caerulea</i>	Purple Moor-grass	Dominant	<i>Potentilla erecta</i>	Tormantil	Frequent	<i>Pteridium aquilinum</i>	Bracken	Occasional	<i>Erica cinerea</i>	Bell Heather	Occasional
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**Habitat Map****Legend****Photographic Record**

**Plate 1: Wetter areas with *Typha latifolia* with Dry Siliceous Heath in the background**





**Plate 2: Dry-Humid Acid Grassland**



TARGET NOTES																																									
Survey Title: North and Mid Clare Habitat Mapping		Survey date: 16/08/09																																							
Surveyor: David Fallon		County name: Clare																																							
1:2,500 Sheet no: 4032-c	Townland: Derrygarraiff	Grid Ref: 140790, 191252																																							
Target note no.: TN2		Area: 2.1ha																																							
This area is considered to be of <b>High</b> Ecological value in a local context.																																									
Habitat code	<p>This small, habitat is best described as Cutover Bog PB4, due to the presence of deep pools and ridges indicating old turf banks. This area was very wet at the time of the ecological survey and access was limited.</p> <p><b>Species List: Cutover bog (PB4)</b></p> <table><tr><th>Species (<i>Latin name</i>)</th><th>Species (common name)</th><th>DAFOR Scale</th></tr><tr><td><i>Typha latifolia</i></td><td>Bulrush</td><td>Occasional</td></tr><tr><td><i>Betula Sp.</i></td><td>Birch</td><td>Frequent</td></tr><tr><td><i>Lythrum salicaria</i></td><td>Purple loose-strife</td><td>Occasional</td></tr><tr><td><i>Molinia caerulea</i></td><td>Purple moor-grass</td><td>Frequent</td></tr><tr><td><i>Picea sitchensis</i></td><td>Sitka Spruce</td><td>Occasional</td></tr><tr><td><i>Pteridium aquilinum</i></td><td>Bracken</td><td>Frequent</td></tr><tr><td><i>Menyanthes trifoliata</i></td><td>Bog Bean</td><td>Occasional</td></tr><tr><td><i>Eriophorum angustifolium</i></td><td>Common Cottongrass</td><td>Occasional</td></tr><tr><td><i>Rubus fruticosus agg.</i></td><td>Bramble</td><td>Rare</td></tr><tr><td><i>Centaurea nigra</i></td><td>Common Knapweed</td><td>Rare</td></tr><tr><td><i>Osmunda regalis</i></td><td>Royal Fern</td><td>Occasional</td></tr><tr><td><i>Salix cinera olifolia</i></td><td>Grey Willow</td><td>Occasional</td></tr></table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Typha latifolia</i>	Bulrush	Occasional	<i>Betula Sp.</i>	Birch	Frequent	<i>Lythrum salicaria</i>	Purple loose-strife	Occasional	<i>Molinia caerulea</i>	Purple moor-grass	Frequent	<i>Picea sitchensis</i>	Sitka Spruce	Occasional	<i>Pteridium aquilinum</i>	Bracken	Frequent	<i>Menyanthes trifoliata</i>	Bog Bean	Occasional	<i>Eriophorum angustifolium</i>	Common Cottongrass	Occasional	<i>Rubus fruticosus agg.</i>	Bramble	Rare	<i>Centaurea nigra</i>	Common Knapweed	Rare	<i>Osmunda regalis</i>	Royal Fern	Occasional	<i>Salix cinera olifolia</i>	Grey Willow	Occasional
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<i>Salix cinera olifolia</i>	Grey Willow	Occasional																																							
PB4																																									

Habitat Map

Study Area

GS4 Wet Grassland

PB4 Cutover Bog

WS1 Scrub

New N18 Road



## Photographic Record



**Plate 1:** Natural regeneration of Birch on this habitat



**Plate 2:** Some sections of this habitat are wetter than others as shown by the presence of Bulrush in parts of the habitat.



## TARGET NOTES

**Survey Title:** North and Mid Clare Habitat Mapping

**Survey date:** 30/07/09

**Surveyor:** David Fallon

<b>County name:</b> Clare
---------------------------

**1:2,500 Sheet no: 4032-c**

**Townland:** Derrygarraiff

<b>Grid Ref:</b> 141363, 190854
---------------------------------

Target note no.: TN3

**Area: 1.3**

This area is considered to be of **High** Ecological value in a local context.

## Habitat code

**PF2/ FS1/ GS3**

A mosaic of habitats containing a mix of Poor Fen and Flush (PF2), Reed and Large Sedge Swamp (FS1) and Dry-Humid Acid Grassland (GS3). Grazing pressure appeared to be low in these habitats and Sika Deer (*Cervus nippon*) were present in low numbers.

**Species List: Poor fen and Flush (PF2)**

Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale
<i>Menyanthes trifoliata</i>	Bog Bean	Dominant
<i>Molinia caerulea</i>	Purple Moor-grass	Frequent
<i>Potentilla erecta</i>	Tormentil	Occasional
<i>Lythrum salicaria</i>	Purple Loose-strife	Rare
<i>Juncus effusus</i>	Soft rush	Occasional
<i>Juncus conglomeratus</i>	Compact Rush	Occasional

**Species List: Reed and Large Sedge Swamp (FS1)**

Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale
<i>Typha latifolia</i>	Bulrush	Dominant
<i>Heracleum sphondylium</i>	Hogweed	Occasional
<i>Phalaris arundinaceae</i>	Reed Canary Grass	Frequent

**Species List: Dry Humid Acid Grassland (GS3)**

Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale
<i>Molinia caerulea</i>	Purple Moor-grass	Frequent
<i>Potentilla erecta</i>	Tormentil	Frequent
<i>Succisa pratensis</i>	Devil's Bit Scabious	Frequent
<i>Mentha sp.</i>	Mint	Rare
<i>Carex nigra</i>	Black sedge	Occasional
<i>Briza media</i>	Quaking Grass	Frequent
<i>Centaurea nigra</i>	Common Knapweed	Dominant
<i>Euphrasia nemorosa</i>	Eyebright	Occasional
<i>Trifolium pratense</i>	Red clover	Occasional
<i>Rubus fruticosus agg.</i>	Bramble	Occasional
<i>Senecio jacobaea</i>	Ragwort	Occasional
<i>Anthoxanthum odoratum</i>	Sweet Vernal grass	Frequent
<i>Anthriscus sylvestris</i>	Cow Parsley	Occasional
<i>Parnassia palustris</i>	Grass of Parnassus	Rare



## Habitat Map



## Legend



## Photographic Record



**Plate 2:** Young Sika Deer on the edges of the habitats





**Plate 3:** An array of plant species are present in this habitat mosaic



TARGET NOTES																																																																						
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 17/08/09																																																																				
<b>Surveyor:</b> David Fallon		<b>County name:</b> Clare																																																																				
<b>1:2,500 Sheet no:</b> 4032-c	<b>Townland:</b> Derrygarriiff	<b>Grid Ref:</b> 141380, 191170																																																																				
<b>Target note no.:</b> TN4		<b>Area:</b> 6.4ha																																																																				
This area is considered to be of <b>High</b> Ecological value in a local context.																																																																						
<b>Habitat code</b>  <b>WS1/ GS3</b>	<p>This area comprises an intimate mosaic of two habitats, Scrub (WS1) and Dry-Humid Acid Grassland (GS3). Due to the low volumes of grazing animals in this area the scrub areas appear to be encroaching on the grassland habitats. The grassland habitats are species rich and uncommon locally. There is also evidence that badgers are using these habitats to forage for food.</p>																																																																					
	<p><b>Species List: Scrub (WS1)</b></p> <table> <tr> <th>Species (<i>Latin name</i>)</th><th>Species (common name)</th><th>DAFOR Scale</th></tr> <tr> <td><i>Rubus fruticosus agg.</i></td><td>Bramble</td><td>Dominant</td></tr> <tr> <td><i>Corylus avellana</i></td><td>Hazel</td><td>Occasional</td></tr> <tr> <td><i>Crataegus monogyna</i></td><td>Hawthorn</td><td>Frequent</td></tr> <tr> <td><i>Prunus spinosa</i></td><td>Blackthorn</td><td>Dominant</td></tr> </table> <p><b>Species List: Dry Humid Acid Grassland (GS3)</b></p> <table> <tr> <th>Species (<i>Latin name</i>)</th><th>Species (common name)</th><th>DAFOR Scale</th></tr> <tr> <td><i>Agrimonia eupatoria</i></td><td>Agrimony</td><td>Occasional</td></tr> <tr> <td><i>Cynosurus cristatus</i></td><td>Crested Dogs tail</td><td>Frequent</td></tr> <tr> <td><i>Lotus corniculatus</i></td><td>Bird's foot Trefoil</td><td>Occasional</td></tr> <tr> <td><i>Vicia sativa</i></td><td>Common Vetch</td><td>Occasional</td></tr> <tr> <td><i>Hypericum sp.</i></td><td>St. John's Wort</td><td>Occasional</td></tr> <tr> <td><i>Molinia caerulea</i></td><td>Purple Moor-grass</td><td>Frequent</td></tr> <tr> <td><i>Dactylis glomerata</i></td><td>Cock's Foot Grass</td><td>Frequent</td></tr> <tr> <td><i>Potentilla erecta</i></td><td>Tormentil</td><td>Frequent</td></tr> <tr> <td><i>Succisa pratensis</i></td><td>Devil's Bit Scabious</td><td>Frequent</td></tr> <tr> <td><i>Carex nigra</i></td><td>Black sedge</td><td>Occasional</td></tr> <tr> <td><i>Briza media</i></td><td>Quaking Grass</td><td>Frequent</td></tr> <tr> <td><i>Carlina vulgaris</i></td><td>Carline thistle</td><td>Rare</td></tr> <tr> <td><i>Centaurea nigra</i></td><td>Common Knapweed</td><td>Dominant</td></tr> <tr> <td><i>Euphrasia nemorosa</i></td><td>Eyebright</td><td>Occasional</td></tr> <tr> <td><i>Rubus fruticosus agg.</i></td><td>Bramble</td><td>Occasional</td></tr> <tr> <td><i>Anthoxanthum odoratum</i></td><td>Sweet Vernal grass</td><td>Frequent</td></tr> <tr> <td><i>Anthriscus sylvestris</i></td><td>Cow Parsley</td><td>Occasional</td></tr> </table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Rubus fruticosus agg.</i>	Bramble	Dominant	<i>Corylus avellana</i>	Hazel	Occasional	<i>Crataegus monogyna</i>	Hawthorn	Frequent	<i>Prunus spinosa</i>	Blackthorn	Dominant	Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Agrimonia eupatoria</i>	Agrimony	Occasional	<i>Cynosurus cristatus</i>	Crested Dogs tail	Frequent	<i>Lotus corniculatus</i>	Bird's foot Trefoil	Occasional	<i>Vicia sativa</i>	Common Vetch	Occasional	<i>Hypericum sp.</i>	St. John's Wort	Occasional	<i>Molinia caerulea</i>	Purple Moor-grass	Frequent	<i>Dactylis glomerata</i>	Cock's Foot Grass	Frequent	<i>Potentilla erecta</i>	Tormentil	Frequent	<i>Succisa pratensis</i>	Devil's Bit Scabious	Frequent	<i>Carex nigra</i>	Black sedge	Occasional	<i>Briza media</i>	Quaking Grass	Frequent	<i>Carlina vulgaris</i>	Carline thistle	Rare	<i>Centaurea nigra</i>	Common Knapweed	Dominant	<i>Euphrasia nemorosa</i>	Eyebright	Occasional	<i>Rubus fruticosus agg.</i>	Bramble	Occasional	<i>Anthoxanthum odoratum</i>	Sweet Vernal grass	Frequent	<i>Anthriscus sylvestris</i>	Cow Parsley
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**Habitat Map****Legend**

Study Area

GS3 Dry Humid  
Acid GrasslandGS4 Wet  
Grassland

WS1 Scrub


**Photographic Record****Plate 1:** An example of the variety of flora in the Dry-Humid Acid Grassland





**Plate 2:** An area of Acid Grassland with the encroaching scrub in the background



TARGET NOTES																																												
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 20/08/09																																										
<b>Surveyor:</b> David Fallon		<b>County name:</b> Clare																																										
<b>1:2,500 Sheet no:</b> 4032-d	<b>Townland:</b> Cappanapeasta	<b>Grid Ref:</b> 142080, 191240																																										
<b>Target note no.:</b> TN1		<b>Area:</b> 3.8ha																																										
This area is considered to be of <b>High</b> Ecological value in a local context.																																												
<b>Habitat code</b>  <b>WN2</b>	<p>Oak Ash Hazel Woodland (WN2) that is heavily grazed. It appears to have been coppiced in the past, as most trees are multi-stemmed. There is also evidence of planting for the purpose of coppice management as the trees are widely spaced. Current management practices are resulting in an impoverished ground flora and soil rutting due to heavy grazing.</p> <p><b>Species List: Oak-Ash-Hazel Woodland (WN2)</b></p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: left;"> <thead> <tr> <th style="text-align: left;">Species (<i>Latin name</i>)</th> <th style="text-align: left;">Species (common name)</th> <th style="text-align: left;">DAFOR Scale</th> </tr> </thead> <tbody> <tr><td><i>Fraxinus excelsior</i></td><td>Ash</td><td>Frequent</td></tr> <tr><td><i>Corylus avellana</i></td><td>Hazel</td><td>Dominant</td></tr> <tr><td><i>Crataegus monogyna</i></td><td>Hawthorn</td><td>Occasional</td></tr> <tr><td><i>Betula sp.</i></td><td>Birch</td><td>Occasional</td></tr> <tr><td><i>Phyllitis scolopendrium</i></td><td>Hart's Tongue Fern</td><td>Frequent</td></tr> <tr><td><i>Sambucus nigra</i></td><td>Elder</td><td>Occasional</td></tr> <tr><td><i>Circaea lutetiana</i></td><td>Enchanters Nightshade</td><td>Frequent</td></tr> <tr><td><i>Laccaria amethystina</i></td><td>Amethyst Deceiver</td><td>Rare</td></tr> <tr><td><i>Quercus robur</i></td><td>Pendunculate Oak</td><td>Rare</td></tr> <tr><td><i>Geranium robertianum</i></td><td>Herb Robert</td><td>Frequent</td></tr> <tr><td><i>Oxalis acetosella</i></td><td>Wood Sorrel</td><td>Frequent</td></tr> <tr><td><i>Dryopteris dilatata</i></td><td>Broad Buckler Fern</td><td>Occasional</td></tr> <tr><td><i>Hedera helix</i></td><td>Ivy</td><td>Occasional</td></tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Fraxinus excelsior</i>	Ash	Frequent	<i>Corylus avellana</i>	Hazel	Dominant	<i>Crataegus monogyna</i>	Hawthorn	Occasional	<i>Betula sp.</i>	Birch	Occasional	<i>Phyllitis scolopendrium</i>	Hart's Tongue Fern	Frequent	<i>Sambucus nigra</i>	Elder	Occasional	<i>Circaea lutetiana</i>	Enchanters Nightshade	Frequent	<i>Laccaria amethystina</i>	Amethyst Deceiver	Rare	<i>Quercus robur</i>	Pendunculate Oak	Rare	<i>Geranium robertianum</i>	Herb Robert	Frequent	<i>Oxalis acetosella</i>	Wood Sorrel	Frequent	<i>Dryopteris dilatata</i>	Broad Buckler Fern	Occasional	<i>Hedera helix</i>	Ivy	Occasional
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## Photographic Record



**Plate 1:** Note the impoverished ground flora as a result of over grazing



**Plate 2:** A multi stemmed hazel that has possibly been coppiced in the past



TARGET NOTES			
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 10/08/09	
<b>Surveyor:</b> Jean Hamilton		<b>County name:</b> Clare	
<b>1:2,500 Sheet no:</b> 4088-a	<b>Townland:</b> Laghtagoona	<b>Grid Ref:</b> 128697, 189402	
<b>Target note no.:</b> TN1		<b>Area:</b> 8.6ha	
This area is considered to be of <b>High</b> Ecological value in a local context			
<b>Habitat code</b>  <b>WS1 / GS1 / GS2</b>	Large area of Hazel Scrub (WS1) with patches of species-rich Dry Calcareous Grassland (GS1) interspersed throughout, which is grazed. Un-grazed grasslands also occur which are characterized by tall vegetation which is classified as Dry meadows and grassy verges GS2. This habitat is too small to map.		
	<b>Species List – Dry meadows and Grassy Verges Habitat GS1</b>		
	<b>Species (Latin name)</b>	<b>Species (common name)</b>	<b>DAFOR Scale</b>
	<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	Occasional
	<i>Arrhenatherum elatius</i>	False Oat-grass	Frequent
	<i>Briza media</i>	Quaking-grass	Frequent
	<i>Campanula rotundifolia</i>	Harebell	Occasional
	<i>Carex flacca</i>	Glaucous Sedge	Frequent
	<i>Centaurea nigra</i>	Knapweed	Abundant
	<i>Dactylis glomerata</i>	Cocks-foot	Frequent
	<i>Euphrasia</i> agg.	Eyebrights	Frequent
	<i>Gymnadenia conopsea</i>	Fragrant Orchid	Rare
	<i>Hypericum perforatum</i>	St. John's-wort	Abundant
	<i>Leucanthemum vulgare</i>	Ox-eye Daisy	Occasional
	<i>Lotus corniculatus</i>	Bird's-foot Trefoil	Abundant
	<i>Polygala vulgaris</i>	Common Milkwort	Occasional
	<i>Potentilla erecta</i>	Tormentil	Frequent
<i>Rhinanthus minor</i>	Yellow-rattle	Occasional	
<i>Vicia cracca</i>	Tufted Vetch	Abundant	



**Habitat Map****Legend**

Study Area



WS1 Scrub

GS1 Dry Calcareous  
& Neutral Grassland**Photographic Record****Plate 1: Species-rich Calcareous Dry Meadow**





**Plate 2: Common Blue Butterfly (*Polyommatus icarus*) in Dry Meadow habitat**



**Plate 3: Harebell (*Campanula rotundifolia*)**





**Plate 4: Close-up of Dry Meadow vegetation**



TARGET NOTES																																																											
Survey Title: North and Mid Clare Habitat Mapping		Survey date: 12/08/09																																																									
Surveyor: Jean Hamilton		County name: Clare																																																									
1:2,500 Sheet no: 4088-d	Townland: Killeen	Grid Ref: 130171, 187713																																																									
Target note no.: TN1		Area: 0.6ha																																																									
This area is considered to be of <b>High</b> Ecological value in an <b>International</b> context. Corresponds to Priority Habitat, Turloughs (3180) under Annex I of the EU Habitats Directive.																																																											
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FL6	<p>Turlough (FL6) which appears to be at its peak due to heavy rainfall. Pondweed (<i>Potamogeton</i> sp.) is abundant in the middle of the lake, while the margins of the pond are dominated by Yellow Iris (<i>Iris pseudacorus</i>). Beyond this margin is a fringing area of Wet Grassland (GS4) habitat with abundant Silverweed (<i>Potentilla anserina</i>) and the grassy area surrounding the turlough is grazed by cattle. The high water mark of the turlough can be seen on the stone wall, where calcareous deposits were noted.</p> <p><b>Species List: Wet Grassland (GS4)</b></p> <table border="1"> <thead> <tr> <th>Species (<i>Latin name</i>)</th> <th>Species (common name)</th> <th>DAFOR Scale</th> </tr> </thead> <tbody> <tr> <td><i>Carex echinata</i></td> <td>Star Sedge</td> <td>Occasional</td> </tr> <tr> <td><i>Carex flacca</i></td> <td>Sedge, glaucous</td> <td>Occasional</td> </tr> <tr> <td><i>Carex panicea</i></td> <td>Sedge, carnation</td> <td>Occasional</td> </tr> <tr> <td><i>Carex nigra</i></td> <td>Common Sedge</td> <td>Frequent</td> </tr> <tr> <td><i>Filipendula ulmaria</i></td> <td>Meadowsweet</td> <td>Frequent</td> </tr> <tr> <td><i>Holcus lanatus</i></td> <td>Yorkshire Fog</td> <td>Frequent</td> </tr> <tr> <td><i>Iris pseudacorus</i></td> <td>Yellow Iris</td> <td>Abundant</td> </tr> <tr> <td><i>Juncus conglomeratus</i></td> <td>Compact Rush</td> <td>Occasional</td> </tr> <tr> <td><i>Juncus effusus</i></td> <td>Rush, soft</td> <td>Frequent</td> </tr> <tr> <td><i>Juncus articulatus</i></td> <td>Rush, jointed</td> <td>Frequent</td> </tr> <tr> <td><i>Lolium perenne</i></td> <td>Perennial Ryegrass</td> <td>Frequent</td> </tr> <tr> <td><i>Mentha aquatica</i></td> <td>Water mint</td> <td>Occasional</td> </tr> <tr> <td><i>Myosotis scorpioides</i></td> <td>Water Forget-me-not</td> <td>Occasional</td> </tr> <tr> <td><i>Potentilla anserina</i></td> <td>Silverweed</td> <td>Frequent</td> </tr> <tr> <td><i>Ranunculus flammula</i></td> <td>Lesser spearwort</td> <td>Occasional</td> </tr> <tr> <td><i>Rorippa nasturtium-aquaticum</i></td> <td>Watercress</td> <td>Occasional</td> </tr> <tr> <td><i>Trifolium</i> spp</td> <td>Clovers</td> <td>Frequent</td> </tr> <tr> <td><i>Veronica beccabunga</i></td> <td>Brooklime</td> <td>Occasional</td> </tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Carex echinata</i>	Star Sedge	Occasional	<i>Carex flacca</i>	Sedge, glaucous	Occasional	<i>Carex panicea</i>	Sedge, carnation	Occasional	<i>Carex nigra</i>	Common Sedge	Frequent	<i>Filipendula ulmaria</i>	Meadowsweet	Frequent	<i>Holcus lanatus</i>	Yorkshire Fog	Frequent	<i>Iris pseudacorus</i>	Yellow Iris	Abundant	<i>Juncus conglomeratus</i>	Compact Rush	Occasional	<i>Juncus effusus</i>	Rush, soft	Frequent	<i>Juncus articulatus</i>	Rush, jointed	Frequent	<i>Lolium perenne</i>	Perennial Ryegrass	Frequent	<i>Mentha aquatica</i>	Water mint	Occasional	<i>Myosotis scorpioides</i>	Water Forget-me-not	Occasional	<i>Potentilla anserina</i>	Silverweed	Frequent	<i>Ranunculus flammula</i>	Lesser spearwort	Occasional	<i>Rorippa nasturtium-aquaticum</i>	Watercress	Occasional	<i>Trifolium</i> spp	Clovers	Frequent	<i>Veronica beccabunga</i>	Brooklime	Occasional
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**Habitat Map****Legend****Photographic Record****Plate 1: Turlough**






**Plate 2: Stone wall going through turlough**



**Plate 3: Calcareous deposits on stone wall**



TARGET NOTES																																			
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 12/08/09																																	
<b>Surveyor:</b> Jean Hamilton		<b>County name:</b> Clare																																	
<b>1:2,500 Sheet no:</b> 4088-d	<b>Townland:</b> Kileen	<b>Grid Ref:</b> 130327, 187713																																	
<b>Target note no.:</b> TN2		<b>Area:</b> 0.4ha																																	
This area is considered to be of <b>High</b> Ecological value in an <b>International</b> context. Corresponds to the Priority Habitat Limestone Pavements (8240) under the EU Habitats Directive.																																			
<b>Habitat code</b>  <b>ER2 / WS1</b>	<p>Small area of Exposed Calcareous Rock (ER2) at the edge of a large expanse of Hazel Scrub (WS1) and Oak Ash Hazel Woodland (WN2) mosaic. Bare limestone is exposed here, showing the 'clints' and 'grikes' characteristic of Karst Limestone pavement.</p> <p><b>Species List: Exposed Calcareous Rock (ER2)</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Species (<i>Latin name</i>)</th> <th style="text-align: left; padding: 2px;">Species (common name)</th> <th style="text-align: left; padding: 2px;">DAFOR Scale</th> </tr> </thead> <tbody> <tr><td style="padding: 2px;"><i>Galium verum</i></td><td style="padding: 2px;">Lady's Bedstraw</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Geranium robertianum</i></td><td style="padding: 2px;">Herb Robert</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Teucrium scorodonia</i></td><td style="padding: 2px;">Wood Sage</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Anthoxanthum odoratum</i></td><td style="padding: 2px;">Sweet Vernal-grass</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Arrhenatherum elatius</i></td><td style="padding: 2px;">False Oat-grass</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Euphrasia</i> agg.</td><td style="padding: 2px;">Eyebrights</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Euphrasia salisburgensis</i> var. <i>hibernica</i></td><td style="padding: 2px;">Irish Eyebright</td><td style="padding: 2px;">Rare</td></tr> <tr><td style="padding: 2px;"><i>Lotus corniculatus</i></td><td style="padding: 2px;">Bird's-foot Trefoil</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Festuca</i> spp.</td><td style="padding: 2px;">Fescues</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Phyllitis scolopendrium</i></td><td style="padding: 2px;">Hart's-tongue Fern</td><td style="padding: 2px;">Frequent</td></tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Galium verum</i>	Lady's Bedstraw	Occasional	<i>Geranium robertianum</i>	Herb Robert	Occasional	<i>Teucrium scorodonia</i>	Wood Sage	Occasional	<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	Frequent	<i>Arrhenatherum elatius</i>	False Oat-grass	Frequent	<i>Euphrasia</i> agg.	Eyebrights	Frequent	<i>Euphrasia salisburgensis</i> var. <i>hibernica</i>	Irish Eyebright	Rare	<i>Lotus corniculatus</i>	Bird's-foot Trefoil	Occasional	<i>Festuca</i> spp.	Fescues	Frequent	<i>Phyllitis scolopendrium</i>	Hart's-tongue Fern	Frequent
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## Photographic Record



**Plate 1: Exposed Limestone at edge of area of scrub**

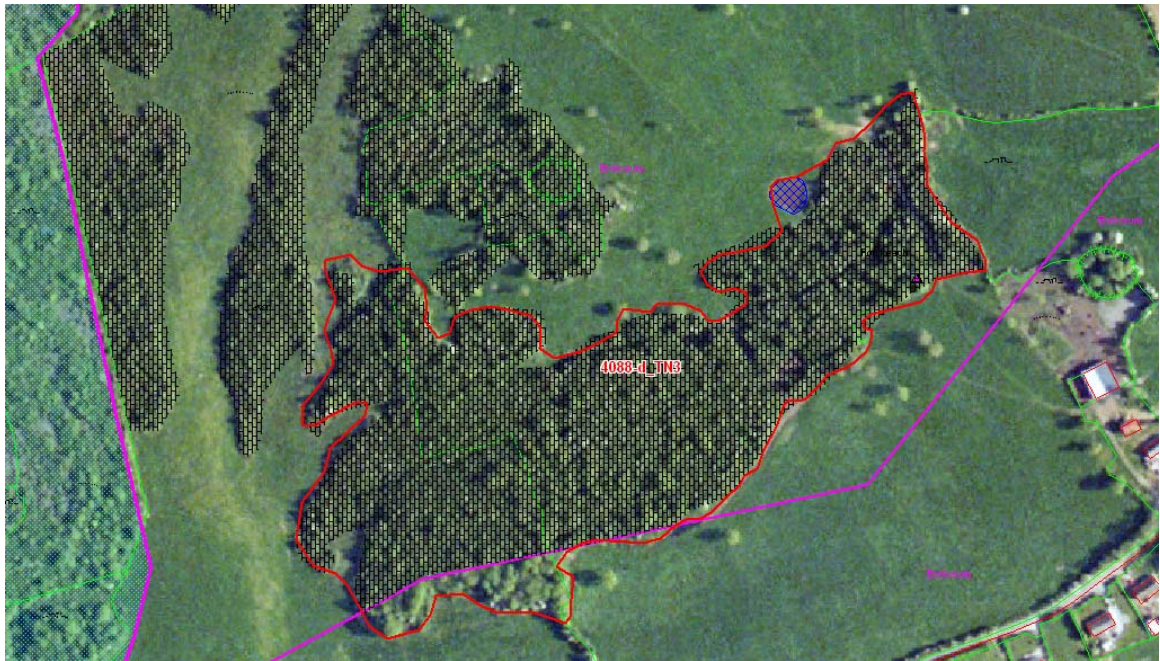


**Plate 2: Vegetation growing in pavement crevices**



TARGET NOTES																																									
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 12/08/09																																							
<b>Surveyor:</b> Jean Hamilton		<b>County name:</b> Clare																																							
<b>1:2,500 Sheet no:</b> 4088-d	<b>Townland:</b> Ooankeagh	<b>Grid Ref:</b> 131390, 187156																																							
<b>Target note no.:</b> TN3		<b>Area:</b> 5.6ha																																							
This area is considered to be of <b>Moderate</b> Ecological value in a local context																																									
<b>Habitat code</b>  <b>FL6/ WS1 / WN2</b>	<p>An area of Hazel Scrub (WS1) and Oak Ash Hazel Woodland (WN2) mosaic, on shallow soils with much limestone outcrop. Hazel (<i>Corylus avellana</i>) is by far the dominant species, but Hawthorn (<i>Crataegus monogyna</i>) is also frequent and there are occasional Rowan (<i>Sorbus aucuparia</i>) and mature Ash (<i>Fraxinus excelsior</i>). The Hazel has many shoots rising up from the bases of the trees, indicating that it has been coppiced in the past. The understorey is comparatively free of Brambles and Bracken, allowing access. There is a rich field layer with a thick covering of moss and a good diversity of herbaceous species, including Broad-leaved Helleborine (<i>Epipactis helleborine</i>). A small Turlough (FL6) occurs to the north east of the site.</p> <p><b>Species List: Oak Ash Hazel Woodland (WN2) mosaic</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Species (<i>Latin name</i>)</th> <th style="text-align: left; padding: 2px;">Species (<i>common name</i>)</th> <th style="text-align: left; padding: 2px;">DAFOR Scale</th> </tr> </thead> <tbody> <tr><td style="padding: 2px;"><i>Arum maculatum</i></td><td style="padding: 2px;">Lords-and-ladies</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Dryopteris dilatata</i></td><td style="padding: 2px;">Broad Buckler-fern</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Epipactis helleborine</i></td><td style="padding: 2px;">Broad-leaved Helleborine</td><td style="padding: 2px;">Rare</td></tr> <tr><td style="padding: 2px;"><i>Geranium robertianum</i></td><td style="padding: 2px;">Herb Robert</td><td style="padding: 2px;">Abundant</td></tr> <tr><td style="padding: 2px;"><i>Geum urbanum</i></td><td style="padding: 2px;">Wood Avens</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Hedera helix</i></td><td style="padding: 2px;">Ivy</td><td style="padding: 2px;">Abundant</td></tr> <tr><td style="padding: 2px;"><i>Oxalis acetosella</i></td><td style="padding: 2px;">Wood-sorrel</td><td style="padding: 2px;">Abundant</td></tr> <tr><td style="padding: 2px;"><i>Phyllitis scolopendrium</i></td><td style="padding: 2px;">Hart's-tongue Fern</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Rubus fruticosus</i></td><td style="padding: 2px;">Bramble</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Vicia</i> sp.</td><td style="padding: 2px;">Vetch</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Viola</i> sp.</td><td style="padding: 2px;">Violet</td><td style="padding: 2px;">Rare</td></tr> <tr><td style="padding: 2px;">Various spp.</td><td style="padding: 2px;">Mosses</td><td style="padding: 2px;">Dominant</td></tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species ( <i>common name</i> )	DAFOR Scale	<i>Arum maculatum</i>	Lords-and-ladies	Occasional	<i>Dryopteris dilatata</i>	Broad Buckler-fern	Occasional	<i>Epipactis helleborine</i>	Broad-leaved Helleborine	Rare	<i>Geranium robertianum</i>	Herb Robert	Abundant	<i>Geum urbanum</i>	Wood Avens	Frequent	<i>Hedera helix</i>	Ivy	Abundant	<i>Oxalis acetosella</i>	Wood-sorrel	Abundant	<i>Phyllitis scolopendrium</i>	Hart's-tongue Fern	Occasional	<i>Rubus fruticosus</i>	Bramble	Frequent	<i>Vicia</i> sp.	Vetch	Occasional	<i>Viola</i> sp.	Violet	Rare	Various spp.	Mosses	Dominant
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**Habitat Map****Legend**

Study Area



FL6 Turloughs

WN2 Oak Ash  
Hazel Woodland

WS1 Scrub

**Photographic Record****Plate 1: Hazel coppice**

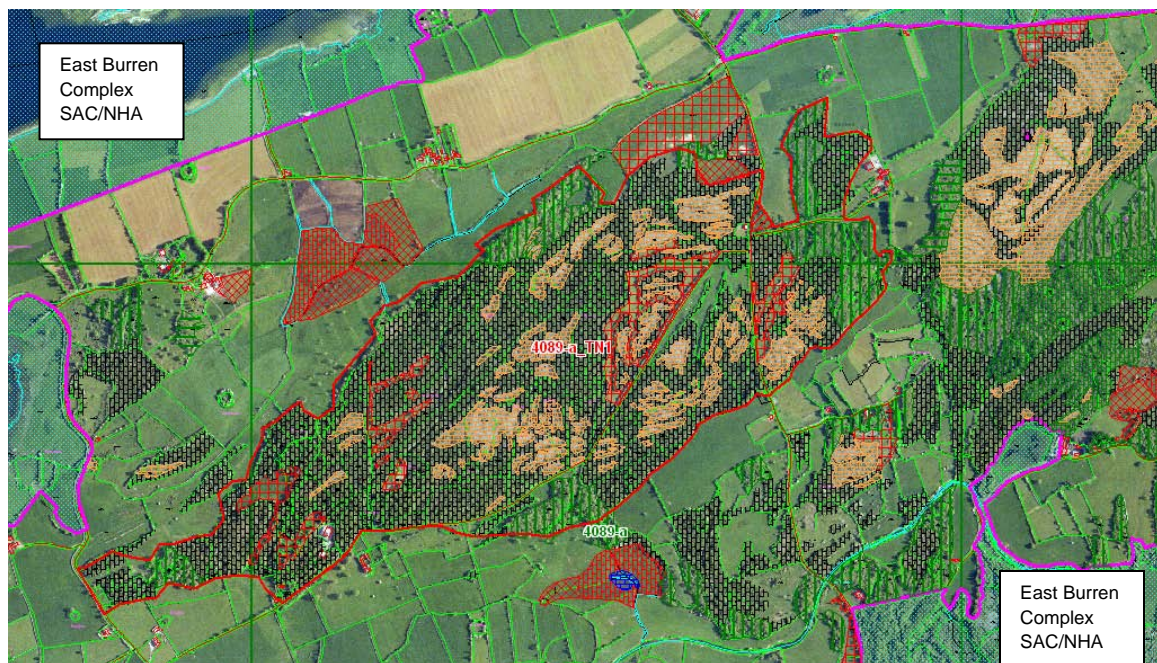


TARGET NOTES																																												
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 17/08/09																																										
<b>Surveyor:</b> Jean Hamilton		<b>County name:</b> Clare																																										
<b>1:2,500 Sheet no:</b> 4089-a	<b>Townland:</b> Teernea Commons	<b>Grid Ref:</b> 132663, 189605																																										
<b>Target note no.:</b> TN1		<b>Area:</b> 124.4																																										
This area is considered to be of <b>High</b> Ecological value in an <b>International</b> context. Corresponds to the Priority Habitat Limestone Pavements (8240) under the EU Habitats Directive.																																												
<b>Habitat code</b>  <b>ER2 / GA1/ GS1/ WN2/ WS1</b>	<p>Large area of dense Hazel Scrub (WS1) with occasional patches of Oak-Ash-Hazel woodland WN2 and open areas of Exposed Calcareous Rock - Limestone pavement (ER2) and some limited areas of Dry Calcareous Grassland (GS1) and Improved Agricultural Grassland (GA1)</p> <p>The areas of Limestone Pavement show typical Karstic features, e.g clints and grikes. Vegetation found growing in cracks included Herb Robert (<i>Geranium robertianum</i>), Ivy (<i>Hedera helix</i>), Bramble (<i>Rubus fruticosus</i>), Bloody Cranesbill (<i>Geranium sanguineum</i>), Wild Thyme (<i>Thymus polytrichus</i>), Lady's Bedstraw (<i>Galium verum</i>), Wood Sage (<i>Teucrium scorodonia</i>) and ferns such as Hart's-tongue Fern (<i>Phyllitis scolopendrium</i>), Rusty-back (<i>Ceterach officinarum</i>), Wall-rue (<i>Asplenium ruta-muraria</i>) and Maidenhair Spleenwort (<i>Asplenium trichomanes</i>).</p> <p>The areas of Scrub (WS1) are dominated by Hazel (<i>Corylus avellana</i>), but there are also occasional Hawthorn (<i>Crataegus monogyna</i>), Blackthorn (<i>Prunus spinosa</i>), Guelder Rose (<i>Viburnum opulus</i>), Rowan (<i>Sorbus aucuparia</i>) and stunted Ash (<i>Fraxinus excelsior</i>). Bracken (<i>Pteridium aquilinum</i>) is also abundant.</p> <p>Dispersed areas of grassland also occur between the patches of Limestone pavement (ER2) and Hazel Scrub (WS1). Most of the areas have been agriculturally improved, with Ryegrasses (<i>Lolium</i> spp.) and Clovers (<i>Trifolium</i> spp.) dominating the sward. Small patches of species-rich Dry Calcareous Grassland (GS1) with many typical Burren species occur sporadically within this larger grassland area, mainly at the edges of the Scrub and Limestone Pavement areas. These small patches of Calcareous grassland are characterized by very shallow soils with much rock outcrop and high species diversity.</p> <p><b>Species List: Dry Calcareous Grassland (GS1)</b></p> <table> <tr> <th>Species (<i>Latin</i> name)</th><th>Species (Common name)</th><th>DAFOR Scale</th></tr> <tr> <td><i>Achillea millefolium</i></td><td>Yarrow</td><td>Occasional</td></tr> <tr> <td><i>Antennaria dioica</i></td><td>Mountain Everlasting</td><td>Frequent</td></tr> <tr> <td><i>Briza media</i></td><td>Quaking Grass</td><td>Frequent</td></tr> <tr> <td><i>Campanula rotundifolia</i></td><td>Harebell</td><td>Rare</td></tr> <tr> <td><i>Carex flacca</i></td><td>Glaucous Sedge</td><td>Abundant</td></tr> <tr> <td><i>Carlina vulgaris</i></td><td>Carlina Thistle</td><td>Occasional</td></tr> <tr> <td><i>Centaurea nigra</i></td><td>Knapweed</td><td>Frequent</td></tr> <tr> <td><i>Cerastium fontanum</i></td><td>Common Mouse-ear</td><td>Occasional</td></tr> <tr> <td><i>Conopodium majus</i></td><td>Pignut</td><td>Occasional</td></tr> <tr> <td><i>Cynosurus cristatus</i></td><td>Crested Dog's-tail</td><td>Frequent</td></tr> <tr> <td><i>Dactylis glomerata</i></td><td>Cock's-foot</td><td>Frequent</td></tr> <tr> <td><i>Galium verum</i></td><td>Lady's Bedstraw</td><td>Frequent</td></tr> <tr> <td><i>Hypericum perforatum</i></td><td>Perforate St. John's-wort</td><td>Frequent</td></tr> </table>		Species ( <i>Latin</i> name)	Species (Common name)	DAFOR Scale	<i>Achillea millefolium</i>	Yarrow	Occasional	<i>Antennaria dioica</i>	Mountain Everlasting	Frequent	<i>Briza media</i>	Quaking Grass	Frequent	<i>Campanula rotundifolia</i>	Harebell	Rare	<i>Carex flacca</i>	Glaucous Sedge	Abundant	<i>Carlina vulgaris</i>	Carlina Thistle	Occasional	<i>Centaurea nigra</i>	Knapweed	Frequent	<i>Cerastium fontanum</i>	Common Mouse-ear	Occasional	<i>Conopodium majus</i>	Pignut	Occasional	<i>Cynosurus cristatus</i>	Crested Dog's-tail	Frequent	<i>Dactylis glomerata</i>	Cock's-foot	Frequent	<i>Galium verum</i>	Lady's Bedstraw	Frequent	<i>Hypericum perforatum</i>	Perforate St. John's-wort	Frequent
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






	<i>Hypochaeris radicata</i>	Cat's-ear	Occasional
	<i>Leucanthemum vulgare</i>	Ox-eye Daisy	Occasional
	<i>Lotus corniculatus</i>	Bird's-foot Trefoil	Abundant
	<i>Potentilla erecta</i>	Tormentil	Occasional
	<i>Prunella vulgaris</i>	Selfheal	Occasional
	<i>Senecio jacobea</i>	Ragwort	Occasional
	<i>Succisa pratensis</i>	Devil's-bit Scabious	Frequent
	<i>Teucrium scorodonia</i>	Wood Sage	Frequent
	<i>Thymus polytrichus</i>	Wild Thyme	Frequent
	<i>Trifolium spp.</i>	Clovers	Frequent

### Habitat Map



### Legend

	Study Area		GS1 Dry Calcareous & Neutral Grassland		WN2 Oak Ash Hazel Woodland		WS1 Scrub		ER2 Exposed Calcareous Rock
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## Photographic Record



**Plate 1: Limestone Pavement**



**Plate 2: Vegetation within the cracks, including Maidenhair Spleenwort, Wood Sage and Herb Robert**





**Plate 3: Area of scrub with Hazel dominant**



**Plate 4: Bloody Cranesbill**



TARGET NOTES		
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 4&5/08/09
<b>Surveyor:</b> George Percival		<b>County name:</b> Clare
<b>1:2,500 Sheet no:</b> 4089-b	<b>Townland:</b> Addroon	<b>Grid Ref:</b> 135945, 188826
<b>Target note no.:</b> TN1		<b>Area:</b> 0.36ha
This area is considered to be of <b>High</b> Ecological value in an <b>International</b> context. Corresponds to the Priority Habitat Limestone Pavements (8240) under the EU Habitats Directive.		
<b>Habitat code</b>	Limestone pavement (ER2) surrounded by Hazel Scrub (WS1) within an improved grassland field (GA1). Corresponds to Annex 1 habitat 8240	
<b>ER2</b>	<b>Species (Latin name)</b>	<b>Species (common name)</b>
	<i>Geranium robertianum</i>	Herb Robert
	<i>Sesleria caerulea</i>	Moor grass, blue
	<i>Geranium sanguineum</i>	Crane's bill, bloody
	<i>Potentilla reptans</i>	Cinquefoil, creeping
	<i>Centaurea nigra</i>	Knapweed, lesser
	<i>Succisa pratensis</i>	Scabious, devil's bit
	<i>Galium verum</i>	Ladies mantle
	<i>Teucrium scorodonia</i>	Sage, wood
	<i>Phyllitis scolopendrium</i>	Hart's tongue fern
	<i>Ceterach officinum</i>	Rusty-back fern
	<i>Asplenium trichomanes</i>	Spleenwort, maidenhair
	<i>Asplenium ruta-muraria</i>	Wall rue
	<i>Rosa pimpinellifolia</i>	Burnet rose
	<i>Thymus polytrichus</i>	Wild thyme
	<i>Calluna vulgaris</i>	Ling heather
	<i>Corylus avellana</i>	Hazel
	<i>Hedera helix</i>	Ivy
	<i>Orchidaceae</i>	Orchid spp



**Habitat Map****Legend**

Study Area

ER2 Exposed Calcareous  
Rock

WS1 Scrub

**Photographic Record****Plate 1: Limestone pavement**





**Plate 2: *Epipactis atrorubens***



TARGET NOTES																																																														
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 20/08/09																																																												
<b>Surveyor:</b> Jean Hamilton		<b>County name:</b> Clare																																																												
<b>1:2,500 Sheet no:</b> 4089-b	<b>Townland:</b> Ballyogan Beg	<b>Grid Ref:</b> 134967, 189883																																																												
<b>Target note no.:</b> TN2		<b>Area:</b> 0.2ha																																																												
This area is considered to be of <b>High</b> Ecological value in an <b>International</b> context. Corresponds to Priority Habitat, Turloughs (3180) under Annex I of the EU Habitats Directive.																																																														
<b>Habitat code</b>  <b>FL6</b>	<p>Large water filled depression classified as a Turlough (FL6)</p> <p>Vegetation is dominated by rushes, Horsetails (<i>Equisetum</i> sp.) and Bogbean (<i>Menyanthes trifoliata</i>). There are some areas of open water, and around the eastern edge is a patch of Yellow Iris (<i>Iris pseudacorus</i>). No <i>Cinclidotus fontinaloides</i> or calcareous deposits were recorded. There is a small fringe of Wet grassland (GS4) and Reed and Tall Sedge Swamp (FS1) surrounding the pond, with rushes (<i>Juncus</i>), Silverweed (<i>Potentilla anserina</i>), Marsh Pennywort (<i>Hydrocotyle vulgaris</i>), Lesser spearwort (<i>Ranunculus flammula</i>) and Watermint (<i>Mentha aquatica</i>).</p> <p><b>Species List: for Wet Grassland (GS4) &amp; Reed and Tall Sedge Swamp (FS1)</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Species (<i>Latin name</i>)</th> <th style="text-align: left; padding: 2px;">Species (<i>common name</i>)</th> <th style="text-align: left; padding: 2px;">DAFOR Scale</th> </tr> </thead> <tbody> <tr><td style="padding: 2px;"><i>Carex echinata</i></td><td style="padding: 2px;">Star Sedge</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Carex flacca</i></td><td style="padding: 2px;">Sedge, glaucous</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Carex panicea</i></td><td style="padding: 2px;">Sedge, carnation</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Carex nigra</i></td><td style="padding: 2px;">Common Sedge</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Holcus lanatus</i></td><td style="padding: 2px;">Yorkshire Fog</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Hydrocotyle vulgaris</i></td><td style="padding: 2px;">Marsh Pennywort</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Juncus conglomeratus</i></td><td style="padding: 2px;">Compact Rush</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Juncus effusus</i></td><td style="padding: 2px;">Rush, soft</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Juncus articulatus</i></td><td style="padding: 2px;">Rush, jointed</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Lolium perenne</i></td><td style="padding: 2px;">Perennial Ryegrass</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Mentha aquatica</i></td><td style="padding: 2px;">Water mint</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Menyanthes trifoliata</i></td><td style="padding: 2px;">Bog-bean</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Myosotis scorpioides</i></td><td style="padding: 2px;">Water Forget-me-not</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Potentilla anserina</i></td><td style="padding: 2px;">Silverweed</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Ranunculus flammula</i></td><td style="padding: 2px;">Lesser spearwort</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Rorippa nasturtium-aquaticum</i></td><td style="padding: 2px;">Watercress</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Schoenoplectus lacustris</i></td><td style="padding: 2px;">Common Club-rush</td><td style="padding: 2px;">Abundant</td></tr> <tr><td style="padding: 2px;"><i>Trifolium</i> spp</td><td style="padding: 2px;">Clovers</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Veronica beccabunga</i></td><td style="padding: 2px;">Brooklime</td><td style="padding: 2px;">Occasional</td></tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species ( <i>common name</i> )	DAFOR Scale	<i>Carex echinata</i>	Star Sedge	Occasional	<i>Carex flacca</i>	Sedge, glaucous	Occasional	<i>Carex panicea</i>	Sedge, carnation	Occasional	<i>Carex nigra</i>	Common Sedge	Frequent	<i>Holcus lanatus</i>	Yorkshire Fog	Frequent	<i>Hydrocotyle vulgaris</i>	Marsh Pennywort	Occasional	<i>Juncus conglomeratus</i>	Compact Rush	Occasional	<i>Juncus effusus</i>	Rush, soft	Frequent	<i>Juncus articulatus</i>	Rush, jointed	Frequent	<i>Lolium perenne</i>	Perennial Ryegrass	Frequent	<i>Mentha aquatica</i>	Water mint	Occasional	<i>Menyanthes trifoliata</i>	Bog-bean	Occasional	<i>Myosotis scorpioides</i>	Water Forget-me-not	Occasional	<i>Potentilla anserina</i>	Silverweed	Frequent	<i>Ranunculus flammula</i>	Lesser spearwort	Occasional	<i>Rorippa nasturtium-aquaticum</i>	Watercress	Occasional	<i>Schoenoplectus lacustris</i>	Common Club-rush	Abundant	<i>Trifolium</i> spp	Clovers	Frequent	<i>Veronica beccabunga</i>	Brooklime	Occasional
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**Habitat Map****Legend****Photographic Record****Plate 1: Wet area in depression in field**





**Plate 2: Open water and fringing vegetation of Yellow Iris (*Iris pseudacorus*)**



**Plate 3: Open water and area dominated by rushes and Bogbean (*Menyanthes trifoliata*)**



TARGET NOTES																																																														
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 17/08/09																																																												
<b>Surveyor:</b> Jean Hamilton		<b>County name:</b> Clare																																																												
<b>1:2,500 Sheet no:</b> 4089-d	<b>Townland:</b> Cloonnagloghaun	<b>Grid Ref:</b> 134559, 187064																																																												
<b>Target note no.:</b> TN1		<b>Area:</b> 1ha																																																												
This area is considered to be of <b>High</b> Ecological value in an <b>International</b> context. Corresponds to Priority Habitat, Turloughs (3180) under Annex I of the EU Habitats Directive.																																																														
<b>Habitat code</b>  <b>FL6/ GS4/ GM1</b>	<p>Wet depression in improved grassland field, possibly a Turlough. Habitats comprise Wet Grassland (GS4) to the edge and Marsh (GM1) habitats towards the centre.</p> <p><b>Species List</b></p> <table border="1"> <thead> <tr> <th>Species (<i>Latin name</i>)</th> <th>Species (common name)</th> <th>DAFOR Scale</th> </tr> </thead> <tbody> <tr><td><i>Anthoxanthum odoratum</i></td><td>Sweet Vernal-grass</td><td>Rare</td></tr> <tr><td><i>Betula pubescens</i></td><td>Downy Birch</td><td>Rare</td></tr> <tr><td><i>Briza media</i></td><td>Quaking-grass</td><td>Occasional</td></tr> <tr><td><i>Carex echinata</i></td><td>Star Sedge</td><td>Frequent</td></tr> <tr><td><i>Drosera rotundifolia</i></td><td>Round-leaved Sundew</td><td>Rare</td></tr> <tr><td><i>Equisetum</i> spp.</td><td>Horsetails</td><td>Frequent</td></tr> <tr><td><i>Eriophorum angustifolium</i></td><td>Common Cottongrass</td><td>Rare</td></tr> <tr><td><i>Filipendula ulmaria</i></td><td>Meadowsweet</td><td>Occasional</td></tr> <tr><td><i>Holcus lanatus</i></td><td>Yorkshire Fog</td><td>Occasional</td></tr> <tr><td><i>Hydrocotyle vulgaris</i></td><td>Marsh Pennywort</td><td>Abundant</td></tr> <tr><td><i>Juncus conglomeratus</i></td><td>Compact Rush</td><td>Frequent</td></tr> <tr><td><i>Juncus effusus</i></td><td>Soft Rush</td><td>Frequent</td></tr> <tr><td><i>Lychnis flos-cuculi</i></td><td>Ragged Robin</td><td>Rare</td></tr> <tr><td><i>Mentha aquatica</i></td><td>Watermint</td><td>Frequent</td></tr> <tr><td><i>Molinia caerulea</i></td><td>Purple Moor-grass</td><td>Abundant</td></tr> <tr><td><i>Potentilla erecta</i></td><td>Tormentil</td><td>Occasional</td></tr> <tr><td><i>Potentilla palustris</i></td><td>Marsh Cinquefoil</td><td>Occasional</td></tr> <tr><td><i>Ranunculus flammula</i></td><td>Lesser Spearwort</td><td>Occasional</td></tr> <tr><td><i>Succisa pratensis</i></td><td>Devil's-bit Scabious</td><td>Rare</td></tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	Rare	<i>Betula pubescens</i>	Downy Birch	Rare	<i>Briza media</i>	Quaking-grass	Occasional	<i>Carex echinata</i>	Star Sedge	Frequent	<i>Drosera rotundifolia</i>	Round-leaved Sundew	Rare	<i>Equisetum</i> spp.	Horsetails	Frequent	<i>Eriophorum angustifolium</i>	Common Cottongrass	Rare	<i>Filipendula ulmaria</i>	Meadowsweet	Occasional	<i>Holcus lanatus</i>	Yorkshire Fog	Occasional	<i>Hydrocotyle vulgaris</i>	Marsh Pennywort	Abundant	<i>Juncus conglomeratus</i>	Compact Rush	Frequent	<i>Juncus effusus</i>	Soft Rush	Frequent	<i>Lychnis flos-cuculi</i>	Ragged Robin	Rare	<i>Mentha aquatica</i>	Watermint	Frequent	<i>Molinia caerulea</i>	Purple Moor-grass	Abundant	<i>Potentilla erecta</i>	Tormentil	Occasional	<i>Potentilla palustris</i>	Marsh Cinquefoil	Occasional	<i>Ranunculus flammula</i>	Lesser Spearwort	Occasional	<i>Succisa pratensis</i>	Devil's-bit Scabious	Rare
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**Habitat Map****Legend****Photographic Record****Plate 1:** Turlough





**Plate 2:** Wet Grassland (GS4) to the edge and Marsh (GM1)

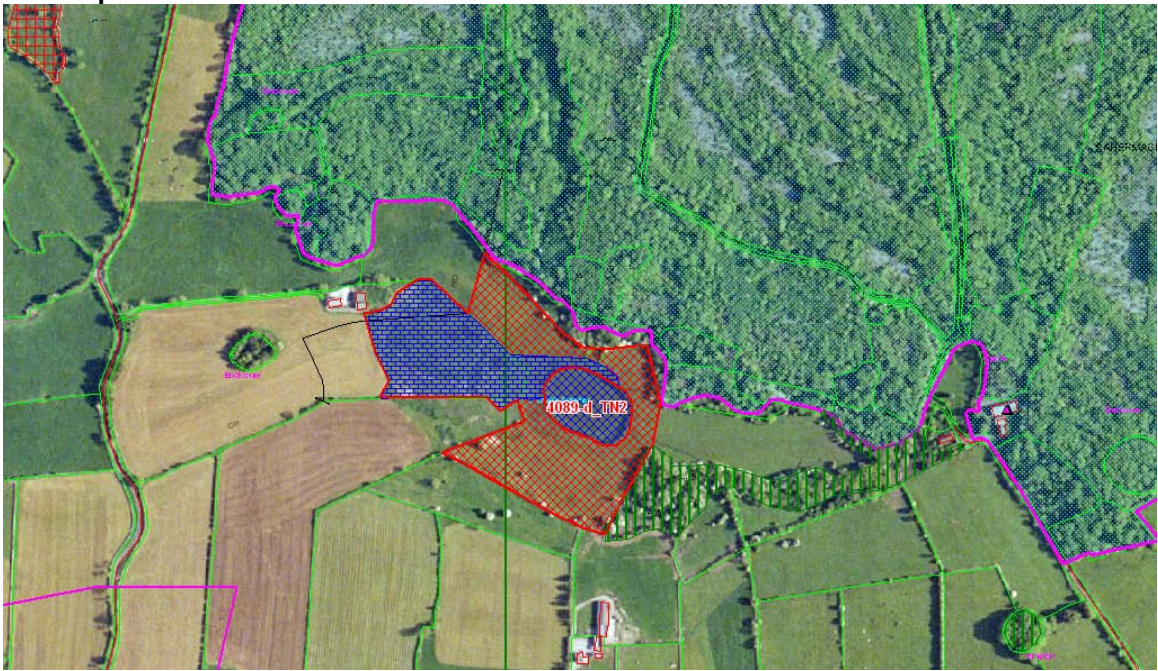


**Plate 3:** Close-up of vegetation in wet area



TARGET NOTES		
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 17/08/09
<b>Surveyor:</b> Jean Hamilton		<b>County name:</b> Clare
<b>1:2,500 Sheet no:</b> 4089-d	<b>Townland:</b> Cloonnagloghaun	<b>Grid Ref:</b> 134083, 187885
<b>Target note no.:</b> TN2		<b>Area:</b> 4.2ha
This area is considered to be of <b>High</b> Ecological value in an <b>International</b> context. Corresponds to Priority Habitat, Turloughs (3180) under Annex I of the EU Habitats Directive.		
<b>Habitat code</b>  <b>FL6/FS1/GS4</b>	On the day of the field visit the Turlough was in full flood. There is a large body of open water in the middle with a fringe of rushes and Bogbean ( <i>Menyanthes trifoliata</i> ). Concentric rings of vegetation emerge from this including Reed and large sedge swamp (FS1) and Wet grassland (GS4).	
	<b>Species List: for Wet Grassland (GS4) &amp; Reed and Tall Sedge Swamp (FS1)</b>	
	<b>Species (Latin name)</b>	<b>Species (common name)</b>
	<i>Carex echinata</i>	Star Sedge
	<i>Carex flacca</i>	Sedge, glaucous
	<i>Carex panicea</i>	Sedge, carnation
	<i>Carex nigra</i>	Common Sedge
	<i>Holcus lanatus</i>	Yorkshire Fog
	<i>Juncus conglomeratus</i>	Compact Rush
	<i>Juncus effusus</i>	Rush, soft
	<i>Juncus articulatus</i>	Rush, jointed
	<i>Lolium perenne</i>	Perennial Ryegrass
	<i>Mentha aquatica</i>	Water mint
	<i>Menyanthes trifoliata</i>	Bog-bean
	<i>Myosotis scorpioides</i>	Water Forget-me-not
	<i>Ranunculus flammula</i>	Creeping Buttercup
	<i>Rorippa nasturtium-aquaticum</i>	Watercress
	<i>Phragmites australis</i>	Common Reed
	<i>Schoenoplectus lacustris</i>	Common Club-rush
	<i>Trifolium</i> spp	Clovers
	<i>Veronica beccabunga</i>	Brooklime
		Occasional



**Habitat Map****Legend****Photographic Record****Plate 1: View looking down over turlough**





**Plate 2: Closer view of turlough with surrounding swamp vegetation**



**Plate 3: View of turlough showing distinct boundaries of habitats**



TARGET NOTES																							
Survey Title: North and Mid Clare Habitat Mapping		Survey date: 14/08/09																					
Surveyor: George Percival		County name: Clare																					
1:2,500 Sheet no: 4090-c	Townland: Carrowkeel More	Grid Ref: 136261, 188005																					
Target note no.: TN1		Area: 0.8ha																					
This area is considered to be of <b>Moderate</b> Ecological value in a local context																							
Habitat code	<p>Small area of Oak-Birch-Holly Woodland (WN1). Good network of Hedgerows (WL1) and Treelines (WL2) in the surrounding landscape.</p>																						
WN1	<p><b>Species list: Oak-Birch-Holly Woodland (WN1)</b></p> <table border="1"> <thead> <tr> <th>Species (<i>Latin name</i>)</th> <th>Species (common name)</th> <th>DAFOR Scale</th> </tr> </thead> <tbody> <tr> <td><i>Betula spp.</i></td> <td>Birch</td> <td>Abundant</td> </tr> <tr> <td><i>Pteridium aquilinum</i></td> <td>Bracken</td> <td>Dominant</td> </tr> <tr> <td><i>Quercus robur</i></td> <td>Pendunculate oak</td> <td>Occasional</td> </tr> <tr> <td><i>Rubus fruticosus agg.</i></td> <td>Brambles</td> <td>Abundant</td> </tr> <tr> <td><i>Salix sp.</i></td> <td>Willow species</td> <td>Abundant</td> </tr> <tr> <td><i>Sorbus aucuparia</i></td> <td>Rowan</td> <td>Occasional</td> </tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Betula spp.</i>	Birch	Abundant	<i>Pteridium aquilinum</i>	Bracken	Dominant	<i>Quercus robur</i>	Pendunculate oak	Occasional	<i>Rubus fruticosus agg.</i>	Brambles	Abundant	<i>Salix sp.</i>	Willow species	Abundant	<i>Sorbus aucuparia</i>	Rowan	Occasional
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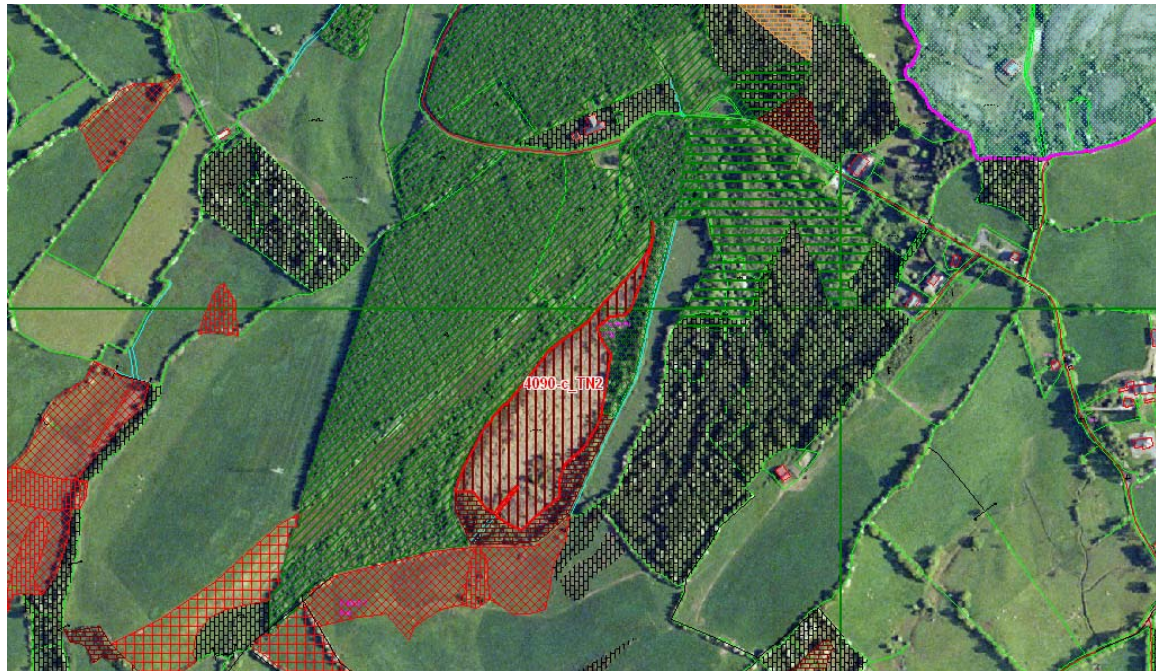







**Photographic Record**



**Plate 1: Oak, Birch and Rowan in woodland**



TARGET NOTES																							
Survey Title: North and Mid Clare Habitat Mapping		Survey date: 14/08/09																					
Surveyor: George Percival		County name: Clare																					
1:2,500 Sheet no: 4090-c	Townland: Gortlurkaun	Grid Ref: 137650, 188370																					
Target note no.: TN2		Area: 2.3ha																					
This area is considered to be of <b>Moderate</b> Ecological value in a local context																							
Habitat code	Area formerly cleared within the conifer plantation WD4. Now grown over with bracken (HD1) with abundant Purple Moorgrass ( <i>Molinia caerulea</i> ) and Ling heather ( <i>Calluna vulgaris</i> ). Between the conifer plantation and heath an intermediate scrub zone with a mix if gorse, birch and willow occurs.																						
HH3/HD1	Species List: Wet Heath (HH3)																						
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	Study Area		HH3 Wet Heath		WN7 Bog Woodland		WD4 Conifer Plantation		WS1 Scrub														



**Photographic Record**



**Plate 1: Wet heath surrounded by dense bracken, birch / willow scrub and conifer plantation.**



TARGET NOTES																																																																													
Survey Title: North and Mid Clare Habitat Mapping		Survey date: 18/08/09																																																																											
Surveyor: George Percival		County name: Clare																																																																											
1:2,500 Sheet no: 4090-d	Townland: Crusheen	Grid Ref: 139720, 188287																																																																											
Target note no.: TN1		Area: 0.6ha																																																																											
This area is considered to be of <b>Moderate</b> Ecological value in a local context																																																																													
<b>Habitat code</b>  <b>GS1/GS4/WS1/HD1</b>	<p>This is a small but species rich Dry Calcareous Grassland (GS1). This habitat occurs on the steep bank of limestone outcrop, Bracken (HD1) and Scrub (WS1) above, Wet Grassland (GS4) below. A pair of foxes were sighted very near this location.</p> <p><b>Species List: Dry Calcareous Grassland (GS1)</b></p> <table border="1"> <thead> <tr> <th>Species (<i>Latin name</i>)</th> <th>Species (common name)</th> <th>DAFOR Scale</th> </tr> </thead> <tbody> <tr><td><i>Leucanthemum vulgare</i></td><td>Ox-eye daisy</td><td>Frequent</td></tr> <tr><td><i>Daucus carota</i></td><td>Wild carrot</td><td>Frequent</td></tr> <tr><td><i>Trifolium pretense</i></td><td>Clover, red</td><td>Frequent</td></tr> <tr><td><i>Lotus corniculatus</i></td><td>Trefoil, bird's foot</td><td>Frequent</td></tr> <tr><td><i>Anthoxanthum odoratum</i></td><td>Vernal grass, sweet</td><td>Frequent</td></tr> <tr><td><i>Lolium perenne</i></td><td>Rye grass, perennial</td><td>Abundant</td></tr> <tr><td><i>Cynosurus cristatus</i></td><td>Dog's tail, crested</td><td>Occasional</td></tr> <tr><td><i>Holcus lanatus</i></td><td>Yorkshire fog</td><td>Occasional</td></tr> <tr><td><i>Dactylis glomerata</i></td><td>Cock's foot</td><td>Occasional</td></tr> <tr><td><i>Plantago lanceolata</i></td><td>Plantain, ribwort</td><td>Occasional</td></tr> <tr><td><i>Agrimonia eupatoria</i></td><td>Agrimony</td><td>Rare</td></tr> <tr><td><i>Centaurea nigra</i></td><td>Knapweed, common</td><td>Occasional</td></tr> <tr><td><i>Euphrasia sp.</i></td><td>Euphrasia species</td><td>Rare</td></tr> <tr><td><i>Prunella vulgaris</i></td><td>Selfheal</td><td>Occasional</td></tr> <tr><td><i>Odontites vernus</i></td><td>Red bartsia</td><td>Rare</td></tr> <tr><td><i>Crepis capillaris</i></td><td>Hawk's –beard, smooth</td><td>Frequent</td></tr> <tr><td><i>Potentilla anserina</i></td><td>Silverweed</td><td>Rare</td></tr> <tr><td><i>Vicia sepium</i></td><td>Vetch, bush</td><td>Rare</td></tr> <tr><td><i>Galium verum</i></td><td>Lady's bedstraw</td><td>Occasional</td></tr> <tr><td><i>Trifolium dubium</i></td><td>Trefoil, lesser</td><td>Rare</td></tr> <tr><td><i>Succisa pratensis</i></td><td>Scabious, devil's bit</td><td>Occasional</td></tr> <tr><td><i>Linum catharticum</i></td><td>Fairyflax</td><td>Rare</td></tr> <tr><td><i>Pteridium aquilinum</i></td><td>Bracken</td><td>Occasional</td></tr> <tr><td><i>Carex flacca</i></td><td>Sedge, glaucous</td><td>Occasional</td></tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Leucanthemum vulgare</i>	Ox-eye daisy	Frequent	<i>Daucus carota</i>	Wild carrot	Frequent	<i>Trifolium pretense</i>	Clover, red	Frequent	<i>Lotus corniculatus</i>	Trefoil, bird's foot	Frequent	<i>Anthoxanthum odoratum</i>	Vernal grass, sweet	Frequent	<i>Lolium perenne</i>	Rye grass, perennial	Abundant	<i>Cynosurus cristatus</i>	Dog's tail, crested	Occasional	<i>Holcus lanatus</i>	Yorkshire fog	Occasional	<i>Dactylis glomerata</i>	Cock's foot	Occasional	<i>Plantago lanceolata</i>	Plantain, ribwort	Occasional	<i>Agrimonia eupatoria</i>	Agrimony	Rare	<i>Centaurea nigra</i>	Knapweed, common	Occasional	<i>Euphrasia sp.</i>	Euphrasia species	Rare	<i>Prunella vulgaris</i>	Selfheal	Occasional	<i>Odontites vernus</i>	Red bartsia	Rare	<i>Crepis capillaris</i>	Hawk's –beard, smooth	Frequent	<i>Potentilla anserina</i>	Silverweed	Rare	<i>Vicia sepium</i>	Vetch, bush	Rare	<i>Galium verum</i>	Lady's bedstraw	Occasional	<i>Trifolium dubium</i>	Trefoil, lesser	Rare	<i>Succisa pratensis</i>	Scabious, devil's bit	Occasional	<i>Linum catharticum</i>	Fairyflax	Rare	<i>Pteridium aquilinum</i>	Bracken	Occasional	<i>Carex flacca</i>	Sedge, glaucous	Occasional
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## Habitat Map



## Legend



## Photographic Record



Plate 1: Dry Calcareous Grassland (GS1 grassland bank)



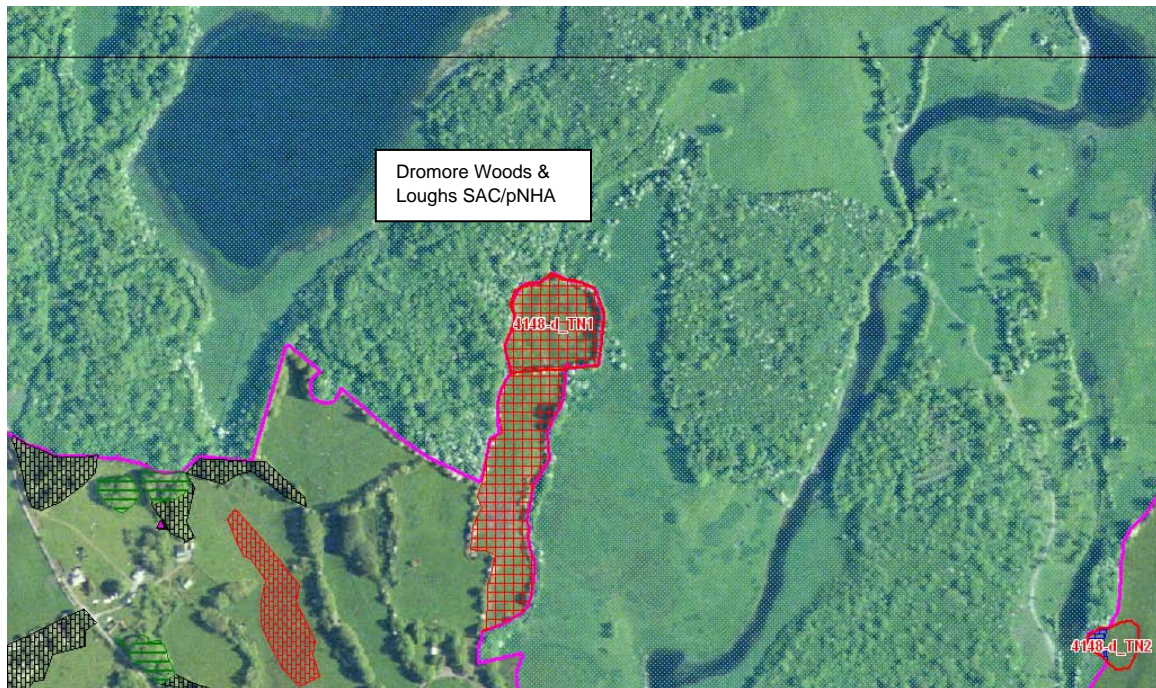


**Plate 2: View down from bank toward wet grassland and surface water**



TARGET NOTES			
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b>	
<b>Surveyor:</b> George Percival		<b>County name:</b> Clare	
<b>1:2,500 Sheet no:</b> 4148-d	<b>Townland:</b> Aughrim	<b>Grid Ref:</b> 134709, 185186	
<b>Target note no.:</b> TN1		<b>Area:</b> 1.1ha	
This area is considered to be of <b>Moderate</b> Ecological value in a local context			
<b>Habitat code</b>  <b>GS4</b>	An area of species-rich Wet Grassland (GS4) on the boundary of Dromore Woods SAC and NHA.		
	<b>Species List: Wet Grassland (GS4)</b>		
	<b>Species (Latin name)</b>	<b>Species (common name)</b>	<b>DAFOR Scale</b>
	<i>Achillea millefolium</i>	Yarrow	Occasional
	<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass	Abundant
	<i>Carex panicea</i>	Carnation Sedge	Occasional
	<i>Carex</i> sp.	Sedge	Rare
	<i>Cirsium dissectum</i>	Meadow Thistle	Occasional
	<i>Crepis capillaris</i>	Smooth Hawk's-beard	Occasional
	<i>Cynosurus cristatus</i>	Crested Dog's-tail	Occasional
	<i>Epilobium palustre</i>	Marsh Willowherb	Occasional
	<i>Juncus articulatus</i>	Jointed Rush	Occasional
	<i>Iris pseudacorus</i>	Yellow Iris	Abundant
	<i>Odontites vernus</i>	Red Bartsia	Frequent
	<i>Plantago lanceolata</i>	Ribwort Plantain	Rare
	<i>Plantago major</i>	Greater Plantain	Rare
	<i>Potentilla anserina</i>	Silverweed	Abundant
	<i>Prunella vulgaris</i>	Selfheal	Occasional
<i>Ranunculus</i> sp.	Buttercup	Frequent	
<i>Trifolium pratense</i>	Red Clover	Frequent	



**Habitat Map****Legend****Photographic Record****Plate 1: Species Rich Wet Grassland GS4**



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<b>Surveyor:</b> David Fallon		<b>County name:</b> Clare																																																																														
<b>1:2,500 Sheet no.:</b> 4149-a	<b>Townland:</b> Carrownacloghy	<b>Grid Ref:</b> 137265, 186973																																																																														
<b>Target note no.:</b> TN1		<b>Area:</b> 0.1 ha																																																																														
<p>This area is considered to be of <b>High</b> Ecological value in an <b>International</b> context. Corresponds to two Annex I Habitats, Alkaline fens (7230)' and the Priority Habitat, Calcareous fens with <i>Cladium mariscus</i> and species of the Caricion davallianae (7210)'.</p>																																																																																
<b>Habitat code</b>  <b>HH2, HD1, WS1</b>	<p>Mosaic of habitats comprising Rich Fen and Flush (PF1), Reed and Large Sedge Swamp (FS1), Wet Grassland (GS4), Dense Bracken (HD1) and Scrub (WS1). A small area to the north east of the site supports Great Fen Sedge (<i>Cladium mariscus</i>), which links this site to the Annex I Priority Habitat. The site is connected to Dromore Woods and Loughs SAC/NHA, by similar habitats and a network of Drains (FW4), Hedgerows (WL1) and Treelines (WL2). There is evidence of some grazing on site and the site is subject to fluctuating water levels. The Reed and Large Sedge Swamp is an important habitat locally with Merlin and Fox family present. Sedge Warbler was also recorded within this site.</p> <p><b>Species list: Rich Fen and Flush (PF1),</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Species (<i>Latin name</i>)</th> <th style="text-align: left; padding: 2px;">Species (common name)</th> <th style="text-align: left; padding: 2px;">DAFOR Scale</th> </tr> </thead> <tbody> <tr><td><i>Angelica sylvestris</i></td><td>Angelica</td><td>Occasional</td></tr> <tr><td><i>Carex nigra</i></td><td>Common Sedge</td><td>Frequent</td></tr> <tr><td><i>Cladium mariscus</i></td><td>Great Fen Sedge</td><td>Occasional</td></tr> <tr><td><i>Dactylorhiza</i> spp</td><td>Orchid spp.</td><td>Occasional</td></tr> <tr><td><i>Erica cinerea</i></td><td>Bell Heather</td><td>Frequent</td></tr> <tr><td><i>Eriophorum angustifolium</i></td><td>Common Cottongrass</td><td>Occasional</td></tr> <tr><td><i>Filipendula ulmaria</i></td><td>Meadowsweet</td><td>Occasional</td></tr> <tr><td><i>Juncus conglomeratus</i></td><td>Compact Rush</td><td>Occasional</td></tr> <tr><td><i>Lythrum salicaria</i></td><td>Purple-loosestrife</td><td>Occasional</td></tr> <tr><td><i>Mentha</i> sp.</td><td>Mint</td><td>Occasional</td></tr> <tr><td><i>Menyanthes trifoliata</i></td><td>Bog Bean</td><td>Frequent</td></tr> <tr><td><i>Molinia caerulea</i></td><td>Purple Moor-grass</td><td>Dominant</td></tr> <tr><td><i>Parnassia palustris</i></td><td>Grass of Parnassus</td><td>Occasional</td></tr> <tr><td><i>Potentilla erecta</i></td><td>Tormentil</td><td>Frequent</td></tr> <tr><td><i>Potentilla palustris</i></td><td>Marsh Cinquefoil</td><td>Occasional</td></tr> <tr><td><i>Rubus fruticosus</i></td><td>Bramble</td><td>Occasional</td></tr> <tr><td><i>Salix cinerea</i> subsp. <i>oleifolia</i></td><td>Grey Willow</td><td>Rare</td></tr> <tr><td><i>Schoenus nigricans</i></td><td>Black Bog rush</td><td>Frequent</td></tr> <tr><td><i>Succisa pratensis</i></td><td>Devil's-bit Scabious</td><td>Frequent</td></tr> </tbody> </table> <p><b>Species list: Reed and Large Sedge Swamp (FS1)</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Species (<i>Latin name</i>)</th> <th style="text-align: left; padding: 2px;">Species (common name)</th> <th style="text-align: left; padding: 2px;">DAFOR Scale</th> </tr> </thead> <tbody> <tr><td><i>Carex flacca</i></td><td>Glaucous Sedge</td><td>Occasional</td></tr> <tr><td><i>Carex riparia</i></td><td>Greater Pond Sedge</td><td>Dominant</td></tr> <tr><td><i>Equisetum</i> spp.</td><td>Horsetails</td><td>Occasional</td></tr> <tr><td><i>Filipendula ulmaria</i></td><td>Meadowsweet</td><td>Frequent</td></tr> <tr><td><i>Heracleum sphondylium</i></td><td>Hogweed</td><td>Rare</td></tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Angelica sylvestris</i>	Angelica	Occasional	<i>Carex nigra</i>	Common Sedge	Frequent	<i>Cladium mariscus</i>	Great Fen Sedge	Occasional	<i>Dactylorhiza</i> spp	Orchid spp.	Occasional	<i>Erica cinerea</i>	Bell Heather	Frequent	<i>Eriophorum angustifolium</i>	Common Cottongrass	Occasional	<i>Filipendula ulmaria</i>	Meadowsweet	Occasional	<i>Juncus conglomeratus</i>	Compact Rush	Occasional	<i>Lythrum salicaria</i>	Purple-loosestrife	Occasional	<i>Mentha</i> sp.	Mint	Occasional	<i>Menyanthes trifoliata</i>	Bog Bean	Frequent	<i>Molinia caerulea</i>	Purple Moor-grass	Dominant	<i>Parnassia palustris</i>	Grass of Parnassus	Occasional	<i>Potentilla erecta</i>	Tormentil	Frequent	<i>Potentilla palustris</i>	Marsh Cinquefoil	Occasional	<i>Rubus fruticosus</i>	Bramble	Occasional	<i>Salix cinerea</i> subsp. <i>oleifolia</i>	Grey Willow	Rare	<i>Schoenus nigricans</i>	Black Bog rush	Frequent	<i>Succisa pratensis</i>	Devil's-bit Scabious	Frequent	Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Carex flacca</i>	Glaucous Sedge	Occasional	<i>Carex riparia</i>	Greater Pond Sedge	Dominant	<i>Equisetum</i> spp.	Horsetails	Occasional	<i>Filipendula ulmaria</i>	Meadowsweet	Frequent	<i>Heracleum sphondylium</i>	Hogweed	Rare
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<i>Lythrum salicaria</i>	Purple-loosestrife	Frequent
<i>Phalaris arundinaceae</i>	Reed Canary-grass	Dominant
<i>Phragmites australis</i>	Common Reed	Frequent
<i>Salix cinerea subsp. oleifolia</i>	Grey Willow	Rare
<i>Ulex europaeus</i>	Common Gorse	Occasional

### Habitat Map



### Legend



### Photographic Record



**Plate 2: Reed and Large Sedge Swamp FS1**



TARGET NOTES		
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 11/08/09
<b>Surveyor:</b> David Fallon		<b>County name:</b> Clare
<b>1:2,500 Sheet no:</b> 4149-a	<b>Townland:</b> Carrownacloghy	<b>Grid Ref:</b> 137010, 186930
<b>Target note no.:</b> TN2		<b>Area:</b> 0.74ha
This area is considered to be of <b>High</b> Ecological value in an <b>International</b> context. Corresponds to the Annex I Habitat, 'alkaline fens (7230)', under the EU Habitats Directive.		
<b>Habitat code</b>  <b>FS1</b>	An area of Rich Fen and Flush (PF1), which is bisected by a farm track. It is a low lying waterlogged area which is fed by a spring to the north. Eyebright ( <i>Euphrasia nemorosa</i> ) is growing in abundance on the roadway.	
	<b>Species List: Rich Fen and Flush (PF1)</b>	
	<b>Species (Latin name)</b>	<b>Species (common name)</b>
	<i>Carex nigra</i>	Common sedge
	<i>Equisetaceae agg.</i>	Horsetails
	<i>Juncus effusus</i>	Soft rush
	<i>Juncus conglomeratus</i>	Compact Rush
	<i>Iris pseudacorus</i>	Yellow Flag Iris
	<i>Lythrum salicaria</i>	Purple Loose-strife
	<i>Mentha aquatica</i>	Water mint
	<i>Menyanthes trifoliata</i>	Bog Bean
	<i>Molinia caerulea</i>	Purple Moor-grass
	<i>Potentilla erecta</i>	Tormentil
	<i>Schoenus nigricans</i>	Black Bog rush
	<i>Typha latifolia</i>	Bulrush



**Habitat Map****Legend****Photographic Record****Plate 1:** of Rich Fen and Flush (PF1)



## TARGET NOTES

<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 11/08/09
<b>Surveyor:</b> David Fallon		<b>County name:</b> Clare
<b>1:2,500 Sheet no:</b> 4149-d	<b>Townland:</b> Cappaghfeean	<b>Grid Ref:</b> 139920, 184710
<b>Target note no.:</b> TN1		<b>Area:</b> 7.6ha

This area is considered to be of **High** Ecological value in a local context.

**Habitat code**

**FL2/ FS1/  
FS2/ HH3/  
GS4**

Wet Heath (HH3) habitat on the western shores of Cappaghfeean Lough. This lake is classified as an Acid Oligotrophic Lake (FL2). Reed and Large Sedge Swamps FS1, Tall Herb Swamp (FS2) fringes this lake, which grades into the Wet Heath (HH3) and Wet Grassland (GS4) habitat.

**Species List: Wet Heath (HH3)**

Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale
<i>Carex Nigra</i>	Common Sedge	Occasional
<i>Dactylorhiza fuchsii</i>	Spotted Orchid	Occasional
<i>Erica cinerea</i>	Bell heather	Frequent
<i>Juncus spp.</i>	Rush spp.	Occasional
<i>Molinia caerulea</i>	Purple moor grass	Frequent
<i>Myrica gale</i>	Bog Myrtle	Dominant
<i>Typha latifolia</i>	Bulrush	Occasional
<i>Salix cinerea</i>	Grey Willow	Frequent
<i>Schoenus nigricans</i>	Black bog rush	Frequent
<i>Lythrum salicaria</i>	Purple loose-strife	Rare
<i>Phalaris arundinaceae</i>	Reed Canary Grass	Frequent

**Habitat Map****Legend**

	Study Area		FL2 Acid Oligotrophic Lakes		FS2 Tall Herb Swamps		GS4 Wet Grassland		HH3 Wet Heath
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## Photographic Record



**Plate 1: Looking north across Wet Heath (HH3) Habitat**

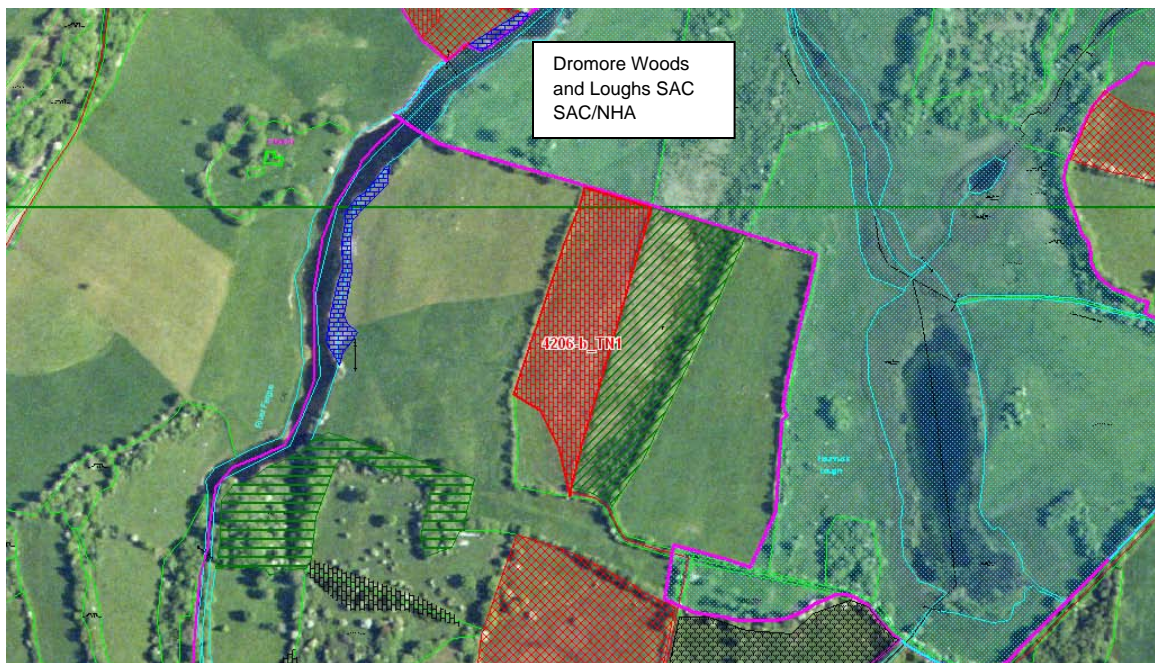


**Plate 2: Note abundance of Bog Myrtle**



TARGET NOTES																																																					
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 10/08/09																																																			
<b>Surveyor:</b> George Percival		<b>County name:</b> Clare																																																			
<b>1:2,500 Sheet no.:</b> 4206-b	<b>Townland:</b> Nutfield	<b>Grid Ref:</b> 134714, 183906																																																			
<b>Target note no.:</b> TN1		<b>Area:</b> 1.3ha																																																			
This area is considered to be of <b>Medium</b> Ecological value in a local context																																																					
<b>Habitat code</b>  <b>GMI</b>	<p>Entrance to field wet, but has a lot of recently dumped rubble (ED2). Marsh (GM1) tends to wet grassland (GS4) with some limestone outcropping (ER2) to west and a conifer plantation (WD4) borders to the east. Some willow grows along drains between marsh and the conifer plantation. The site extends without a boundary to a turlough further north in the Dromore Woods and Loughs SAC. Cattle are grazing the entire area.</p> <p><b>Species List: Marsh GM1</b></p> <table border="1"> <thead> <tr> <th>Species (<i>Latin name</i>)</th> <th>Species (common name)</th> <th>DAFOR Scale</th> </tr> </thead> <tbody> <tr> <td><i>Juncus conglomeratus</i></td> <td>Rush, compact</td> <td>Frequent</td> </tr> <tr> <td><i>Juncus effusus</i></td> <td>Rush, soft</td> <td>Frequent</td> </tr> <tr> <td><i>Iris pseudacorus</i></td> <td>Flag iris</td> <td>Frequent</td> </tr> <tr> <td><i>Lythrum salicaria</i></td> <td>Purple loosestrife</td> <td>Occasional</td> </tr> <tr> <td><i>Mentha aquatica</i></td> <td>Mint, water</td> <td>Occasional</td> </tr> <tr> <td><i>Triglochin palustris</i></td> <td>Arrow-grass, marsh</td> <td>Frequent</td> </tr> <tr> <td><i>Carex echinata</i></td> <td>Sedge, star</td> <td>Occasional</td> </tr> <tr> <td><i>Carex nigra</i></td> <td>Sedge, common</td> <td>Frequent</td> </tr> <tr> <td><i>Molinia caerulea</i></td> <td>Moor grass, purple</td> <td>Frequent</td> </tr> <tr> <td><i>Potentilla anserina</i></td> <td>Silverweed</td> <td>Frequent</td> </tr> <tr> <td><i>Hydrocotyle vulgaris</i></td> <td>Pennywort, marsh</td> <td>Occasional</td> </tr> <tr> <td><i>Rhinanthus minor</i></td> <td>Rattle, yellow</td> <td>Rare</td> </tr> <tr> <td><i>Filipendula ulmaria</i></td> <td>Meadowsweet</td> <td>Occasional</td> </tr> <tr> <td><i>Myrica gale</i></td> <td>Bog myrtle</td> <td>Rare</td> </tr> <tr> <td><i>Euphrasia spp.</i></td> <td>Euphrasia species</td> <td>Occasional</td> </tr> <tr> <td><i>Orchis spp.</i></td> <td>Orchid species</td> <td>Rare</td> </tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Juncus conglomeratus</i>	Rush, compact	Frequent	<i>Juncus effusus</i>	Rush, soft	Frequent	<i>Iris pseudacorus</i>	Flag iris	Frequent	<i>Lythrum salicaria</i>	Purple loosestrife	Occasional	<i>Mentha aquatica</i>	Mint, water	Occasional	<i>Triglochin palustris</i>	Arrow-grass, marsh	Frequent	<i>Carex echinata</i>	Sedge, star	Occasional	<i>Carex nigra</i>	Sedge, common	Frequent	<i>Molinia caerulea</i>	Moor grass, purple	Frequent	<i>Potentilla anserina</i>	Silverweed	Frequent	<i>Hydrocotyle vulgaris</i>	Pennywort, marsh	Occasional	<i>Rhinanthus minor</i>	Rattle, yellow	Rare	<i>Filipendula ulmaria</i>	Meadowsweet	Occasional	<i>Myrica gale</i>	Bog myrtle	Rare	<i>Euphrasia spp.</i>	Euphrasia species	Occasional	<i>Orchis spp.</i>	Orchid species	Rare
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**Habitat Map****Legend**

	Study Area		GM1 Marsh		WD4 Conifer Plantation
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**Photographic Record**

**Plate 1: Looking over rubble to marsh in north**



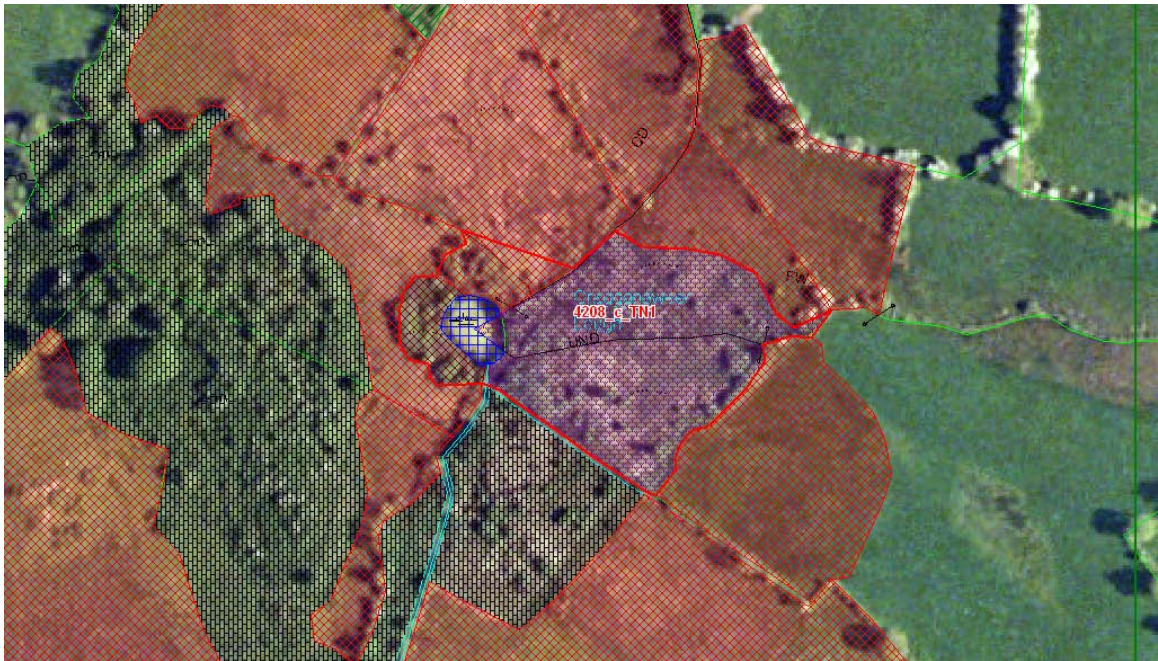


**Plate 2: Marsh GM1**



TARGET NOTES																																																														
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 30/07/09																																																												
<b>Surveyor:</b> David Fallon		<b>County name:</b> Clare																																																												
<b>1:2,500 Sheet no:</b> 4208-c	<b>Townland:</b> Cragganaweer	<b>Grid Ref:</b> 142138, 179862																																																												
<b>Target note no.:</b> TN1		<b>Area:</b> 1.0ha																																																												
This area is considered to be of <b>High</b> Ecological value in a local context																																																														
<b>Habitat code</b>  <b>FL3/PF1/HH1</b>	<p>Area of Rich Fen and Flush Habitat (PF1) bordering an infilling Limestone-marl lake (FL3) known as Cragganaweer Lough. The habitat is wet towards the centre and dryer towards the edge where Dry Heath Habitat (HH1) occurs.</p> <p><b>Species List: Rich Fen and Flush Habitat (PF1)</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Species (<i>Latin name</i>)</th> <th style="text-align: left; padding: 2px;">Species (common name)</th> <th style="text-align: left; padding: 2px;">DAFOR Scale</th> </tr> </thead> <tbody> <tr><td style="padding: 2px;"><i>Carex spp.</i></td><td style="padding: 2px;">Sedge spp.</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Juncus spp.</i></td><td style="padding: 2px;">Rush spp.</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Menyanthes trifoliata</i></td><td style="padding: 2px;">Bog Bean</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Molinia caerulea</i></td><td style="padding: 2px;">Purple moor grass</td><td style="padding: 2px;">Dominant</td></tr> <tr><td style="padding: 2px;"><i>Myrica gale</i></td><td style="padding: 2px;">Bog Myrtle</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Phalaris arundinaceae</i></td><td style="padding: 2px;">Reed Canary-grass</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Phragmites australis</i></td><td style="padding: 2px;">Common Reed</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Potentilla erecta</i></td><td style="padding: 2px;">Tormentil</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Schoenus nigricans</i></td><td style="padding: 2px;">Black Bog-rush</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Sphagnum spp.</i></td><td style="padding: 2px;">Sphagnum moss</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Typha latifolia</i></td><td style="padding: 2px;">Bulrush</td><td style="padding: 2px;">Frequent</td></tr> </tbody> </table> <p><b>Species List for Dry Heath (HH1)</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Species (<i>Latin name</i>)</th> <th style="text-align: left; padding: 2px;">Species (common name)</th> <th style="text-align: left; padding: 2px;">DAFOR Scale</th> </tr> </thead> <tbody> <tr><td style="padding: 2px;"><i>Betula pubescens</i></td><td style="padding: 2px;">Birch</td><td style="padding: 2px;">Rare</td></tr> <tr><td style="padding: 2px;"><i>Carex nigra.</i></td><td style="padding: 2px;">Sedge spp.</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Calluna vulgaris</i></td><td style="padding: 2px;">Ling Heather</td><td style="padding: 2px;">Dominant</td></tr> <tr><td style="padding: 2px;"><i>Cladonia sp.</i></td><td style="padding: 2px;">Lichen</td><td style="padding: 2px;">Occasional</td></tr> <tr><td style="padding: 2px;"><i>Molinia caerulea</i></td><td style="padding: 2px;">Purple moor grass</td><td style="padding: 2px;">Dominant</td></tr> <tr><td style="padding: 2px;"><i>Potentilla erecta</i></td><td style="padding: 2px;">Tormentil</td><td style="padding: 2px;">Frequent</td></tr> <tr><td style="padding: 2px;"><i>Salix spp.</i></td><td style="padding: 2px;">Willows</td><td style="padding: 2px;">Occasional</td></tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Carex spp.</i>	Sedge spp.	Occasional	<i>Juncus spp.</i>	Rush spp.	Occasional	<i>Menyanthes trifoliata</i>	Bog Bean	Frequent	<i>Molinia caerulea</i>	Purple moor grass	Dominant	<i>Myrica gale</i>	Bog Myrtle	Frequent	<i>Phalaris arundinaceae</i>	Reed Canary-grass	Frequent	<i>Phragmites australis</i>	Common Reed	Frequent	<i>Potentilla erecta</i>	Tormentil	Occasional	<i>Schoenus nigricans</i>	Black Bog-rush	Frequent	<i>Sphagnum spp.</i>	Sphagnum moss	Frequent	<i>Typha latifolia</i>	Bulrush	Frequent	Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Betula pubescens</i>	Birch	Rare	<i>Carex nigra.</i>	Sedge spp.	Occasional	<i>Calluna vulgaris</i>	Ling Heather	Dominant	<i>Cladonia sp.</i>	Lichen	Occasional	<i>Molinia caerulea</i>	Purple moor grass	Dominant	<i>Potentilla erecta</i>	Tormentil	Frequent	<i>Salix spp.</i>	Willows	Occasional
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**Habitat Map****Legend****Photographic Record****Plate 1:** Area of dry siliceous heath (HH1)



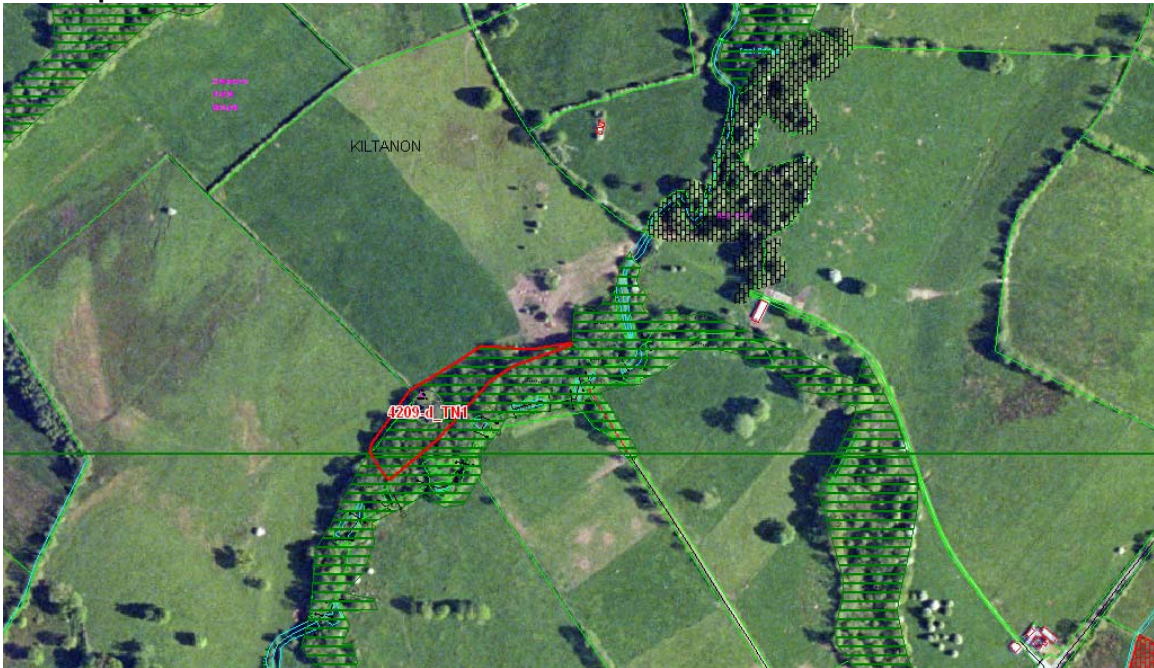


**Plate 2:** Rich fen and flush (PF1)



TARGET NOTES		
Survey Title: North and Mid Clare Habitat Mapping		Survey date: 06/08/09
Surveyor: Jean Hamilton		County name: Clare
1:2,500 Sheet no: 4209-d	Townland: Kiltanon	Grid Ref: 146553, 181043
Target note no.: TN1		Area: 6.2ha
This area is considered to be of <b>High</b> Ecological value in a local context.		
Habitat code	<p>A river flows through a large limestone ravine which disappears into a cave system for about 0.5km. Ferns, mosses and Ivy are abundant on the rocks, and the caves are surrounded by non-native Broadleaved Woodland (WD1), with species such as Beech (<i>Fagus sylvatica</i>), Sycamore (<i>Acer pseudoplatanus</i>), Ash (<i>Fraxinus excelsior</i>), Birch (<i>Betula</i> spp), Horse Chestnut (<i>Aesculus hippocastanum</i>), Hawthorn (<i>Crataegus monogyna</i>) and Hazel (<i>Corylus avellana</i>). Some large and very mature trees grow up from the bottom of the ravine.</p> <p>The caves known locally as “Tomeens” and woodland was once part of a landlord’s estate, and tours were given to visitors. The caves are now owned by a farmer and were opened during Heritage Week 2008.</p>	
EU1/ WD1		

### Habitat Map



### Legend

Study Area

EU1 Non-Marine Caves

WD1 Mixed Broadleaved Woodland

GSI Karst Features



## Photographic Record

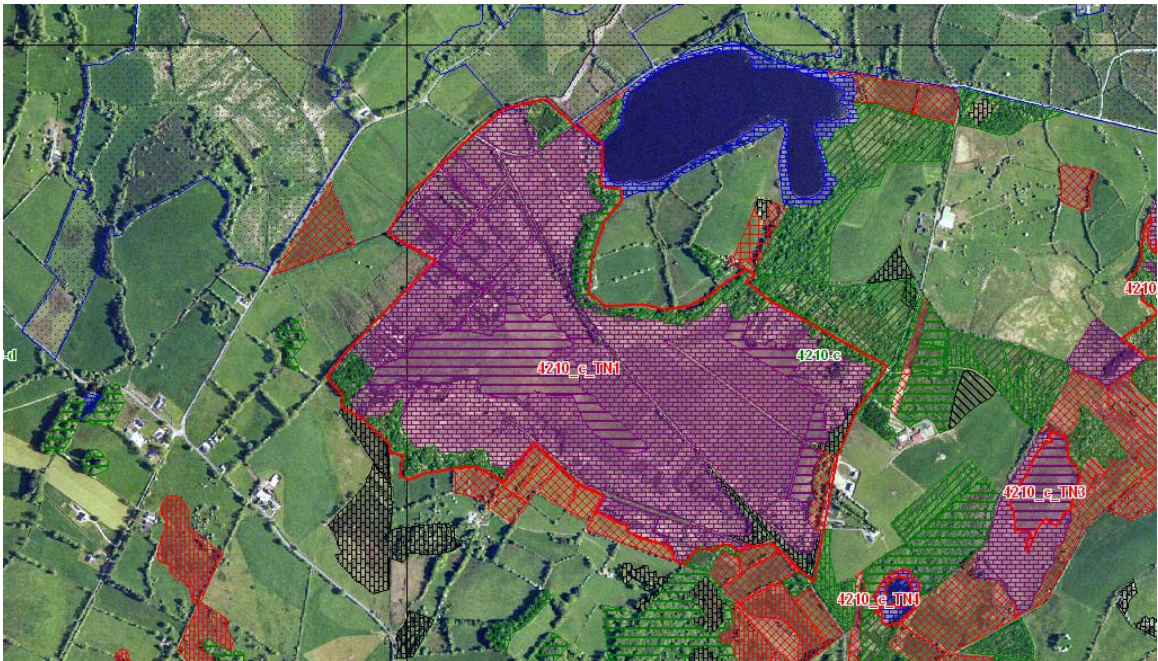


**Plate 1:** Tree growing up from bottom of ravine and cave beneath



TARGET NOTES																																																																	
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 29/07/09																																																															
<b>Surveyor:</b> David Fallon / Jean Hamilton / George Percival		<b>County name:</b> Clare																																																															
<b>1:2,500 Sheet no:</b> 4210-c	<b>Townland:</b> Annagh/Cloonaleary	<b>Grid Ref:</b> 148250, 181734																																																															
<b>Target note no.:</b> TN1		<b>Area:</b> 77ha																																																															
This area is considered to be of <b>High</b> Ecological value. This habitat corresponds to the <b>Annex I Priority Habitat</b> , Active Raised Bogs (7110) and the Annex I habitat, Depressions on peat substrates of the Rhynchosporion (7150)', under the EU Habitat Directive.																																																																	
<b>Habitat code</b>  <b>PB1/ PB4/ WN7</b>	<p>Small areas of intact Raised Bog (PB1) within an extensive area of Cutover Bog (PB4) to the north, south and east. Bog Woodland (WN7) is developing in the north and west of the Cutover Bog (PB4).</p> <p>Drains border and traverse the bog, which has resulted in the bog drying out significantly. The drying out of the bog has resulted in the diminished covering of Sphagnum moss.</p> <p>Heather (<i>Calluna vulgaris</i>) is the dominant species throughout much of the site. Bog Myrtle (<i>Myrica gale</i>) is also frequently present. The drier areas support species such as Deergrass (<i>Trichophorum cespitosum</i>), Carnation Sedge (<i>Carex panicea</i>) and Cross-leaved Heath (<i>Erica tetralix</i>). There is evidence of some regeneration within the Cutover Bog (PB4) with an abundance of <i>Sphagnum</i> and other active bog species. Occasional pockets of the White Beak-sedge (<i>Rhynchospora alba</i>) occur.</p> <p>Although this bog has been damaged by drainage and peat harvesting, it is considered to be at least of local scientific importance.</p> <p><b>Species List: Raised Bog (PB1) Cutover Bog (PB4)</b></p> <table> <tr> <th>Species (<i>Latin name</i>)</th><th>Species (<i>common name</i>)</th><th>DAFOR Scale</th></tr> <tr> <td><i>Andromeda polifolia</i></td><td>Bog Rosemary</td><td>Occasional</td></tr> <tr> <td><i>Betula sp.</i></td><td>Birch</td><td>Abundant at edges</td></tr> <tr> <td><i>Carex spp.</i></td><td>Sedge spp.</td><td>Occasional</td></tr> <tr> <td><i>Calluna vulgaris</i></td><td>Ling Heather</td><td>Abundant</td></tr> <tr> <td><i>Cladonia sp.</i></td><td>Lichen</td><td>Occasional</td></tr> <tr> <td><i>Dactylorhiza fuchsii</i></td><td>Common Spotted-orchid</td><td>Rare</td></tr> <tr> <td><i>Erica tetralix</i></td><td>Cross-leaved Heath</td><td>Abundant</td></tr> <tr> <td><i>Eriophorum angustifolium</i></td><td>Common Cottongrass</td><td>Occasional</td></tr> <tr> <td><i>Eriophorum vaginatum</i></td><td>Hare's tail Cotton Grass</td><td>Occasional</td></tr> <tr> <td><i>Juncus spp.</i></td><td>Rush spp.</td><td>Occasional</td></tr> <tr> <td><i>Melampyrum pratense</i></td><td>Common Cow Wheat</td><td>Rare</td></tr> <tr> <td><i>Molinia caerulea</i></td><td>Purple moor grass</td><td>Frequent</td></tr> <tr> <td><i>Myrica gale</i></td><td>Bog Myrtle</td><td>Frequent</td></tr> <tr> <td><i>Narthecium ossifragum</i></td><td>Bog Asphodel</td><td>Abundant</td></tr> <tr> <td><i>Potentilla erecta</i></td><td>Tormentil</td><td>Rare</td></tr> <tr> <td><i>Pteridium aquilinum</i></td><td>Bracken</td><td>On verges</td></tr> <tr> <td><i>Rhynchospora alba</i></td><td>White-beaked Sedge</td><td>Rare</td></tr> <tr> <td><i>Sphagnum spp.</i></td><td>Sphagnum moss</td><td>Frequent</td></tr> <tr> <td><i>Trichophorum cespitosum</i></td><td>Deer Grass</td><td>Abundant</td></tr> <tr> <td><i>Vaccinium myrtillus</i></td><td>Billberry</td><td>Occasional</td></tr> </table>		Species ( <i>Latin name</i> )	Species ( <i>common name</i> )	DAFOR Scale	<i>Andromeda polifolia</i>	Bog Rosemary	Occasional	<i>Betula sp.</i>	Birch	Abundant at edges	<i>Carex spp.</i>	Sedge spp.	Occasional	<i>Calluna vulgaris</i>	Ling Heather	Abundant	<i>Cladonia sp.</i>	Lichen	Occasional	<i>Dactylorhiza fuchsii</i>	Common Spotted-orchid	Rare	<i>Erica tetralix</i>	Cross-leaved Heath	Abundant	<i>Eriophorum angustifolium</i>	Common Cottongrass	Occasional	<i>Eriophorum vaginatum</i>	Hare's tail Cotton Grass	Occasional	<i>Juncus spp.</i>	Rush spp.	Occasional	<i>Melampyrum pratense</i>	Common Cow Wheat	Rare	<i>Molinia caerulea</i>	Purple moor grass	Frequent	<i>Myrica gale</i>	Bog Myrtle	Frequent	<i>Narthecium ossifragum</i>	Bog Asphodel	Abundant	<i>Potentilla erecta</i>	Tormentil	Rare	<i>Pteridium aquilinum</i>	Bracken	On verges	<i>Rhynchospora alba</i>	White-beaked Sedge	Rare	<i>Sphagnum spp.</i>	Sphagnum moss	Frequent	<i>Trichophorum cespitosum</i>	Deer Grass	Abundant	<i>Vaccinium myrtillus</i>	Billberry	Occasional
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**Habitat Map****Legend****Photographic Record****Plate 1: Overview of intact bog**





**Plate 2:** Bog vegetation with *Erica tetralix*, *Narthecium ossifragum*, *Eriophorum* sp. and sedges



**Plate 3:** Pool of *Sphagnum* and *Rhynchospora alba*



TARGET NOTES																																																					
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 30/07/09																																																			
<b>Surveyor:</b> Jean Hamilton		<b>County name:</b> Clare																																																			
<b>1:2,500 Sheet no:</b> 4210-c	<b>Townland:</b> Cloondorney Beg	<b>Grid Ref:</b> 149827, 181859																																																			
<b>Target note no.:</b> TN2		<b>Area:</b> 1.5ha																																																			
This area is considered to be of <b>High</b> Ecological value in a local context. This habitat corresponds to the Annex I <b>Priority Habitat</b> , Active Raised Bogs (7110)																																																					
<b>Habitat code</b>  <b>PB1/ PB4/ WN7</b>	<p>This is a small area of intact Raised Bog (PB1) which is bordered by an extensive area of Cutover Bog (PB4) to the north, south and east. A small area of Bog Woodland (WN7) occurs to the west.</p> <p>Drains border and traverse the bog, which has resulted in the bog drying out significantly. The drying out of the bog has resulted in the diminished covering of Sphagnum moss.</p> <p>Heather (<i>Calluna vulgaris</i>) is the dominant species throughout much of the site. Bog Myrtle (<i>Myrica gale</i>) is also frequently present.</p> <p>The drier areas support species such as Deergrass (<i>Trichophorum caespitosum</i>), Carnation Sedge (<i>Carex panicea</i>) and Cross-leaved Heath (<i>Erica tetralix</i>).</p> <p>This bog has been damaged by drainage and hand-cutting of peat.</p> <p><b>Species List: Raised Bog (PB1)</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 5px;">Species (<i>Latin name</i>)</th> <th style="text-align: left; padding: 5px;">Species (common name)</th> <th style="text-align: left; padding: 5px;">DAFOR Scale</th> </tr> </thead> <tbody> <tr><td style="padding: 5px;"><i>Andromeda polifolia</i></td><td style="padding: 5px;">Bog Rosemary</td><td style="padding: 5px;">Occasional</td></tr> <tr><td style="padding: 5px;"><i>Carex spp.</i></td><td style="padding: 5px;">Sedge spp.</td><td style="padding: 5px;">Occasional</td></tr> <tr><td style="padding: 5px;"><i>Calluna vulgaris</i></td><td style="padding: 5px;">Ling Heather</td><td style="padding: 5px;">Abundant</td></tr> <tr><td style="padding: 5px;"><i>Cladonia sp.</i></td><td style="padding: 5px;">Lichen</td><td style="padding: 5px;">Occasional</td></tr> <tr><td style="padding: 5px;"><i>Erica tetralix</i></td><td style="padding: 5px;">Cross-leaved Heath</td><td style="padding: 5px;">Abundant</td></tr> <tr><td style="padding: 5px;"><i>Eriophorum vaginatum</i></td><td style="padding: 5px;">Hare's tail Cotton Grass</td><td style="padding: 5px;">Occasional</td></tr> <tr><td style="padding: 5px;"><i>Juncus spp.</i></td><td style="padding: 5px;">Rush spp.</td><td style="padding: 5px;">Occasional</td></tr> <tr><td style="padding: 5px;"><i>Melampyrum pratense</i></td><td style="padding: 5px;">Common Cow Wheat</td><td style="padding: 5px;">Rare</td></tr> <tr><td style="padding: 5px;"><i>Molinia caerulea</i></td><td style="padding: 5px;">Purple moor grass</td><td style="padding: 5px;">Frequent</td></tr> <tr><td style="padding: 5px;"><i>Myrica gale</i></td><td style="padding: 5px;">Bog Myrtle</td><td style="padding: 5px;">Frequent</td></tr> <tr><td style="padding: 5px;"><i>Narthecium ossifragum</i></td><td style="padding: 5px;">Bog Asphodel</td><td style="padding: 5px;">Abundant</td></tr> <tr><td style="padding: 5px;"><i>Potentilla erecta</i></td><td style="padding: 5px;">Tormentil</td><td style="padding: 5px;">Rare</td></tr> <tr><td style="padding: 5px;"><i>Rhynchospora alba</i></td><td style="padding: 5px;">White-beaked Sedge</td><td style="padding: 5px;">Rare</td></tr> <tr><td style="padding: 5px;"><i>Sphagnum spp.</i></td><td style="padding: 5px;">Sphagnum moss</td><td style="padding: 5px;">Frequent</td></tr> <tr><td style="padding: 5px;"><i>Trichophorum cespitosum</i></td><td style="padding: 5px;">Deer Grass</td><td style="padding: 5px;">Abundant</td></tr> <tr><td style="padding: 5px;"><i>Vaccinium myrtillus</i></td><td style="padding: 5px;">Billberry</td><td style="padding: 5px;">Occasional</td></tr> </tbody> </table> <p>Birch and Willow dominate the Bog Woodland (WS1) canopy. Ground layer comprises layer of bramble, bracken and ivy.</p>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Andromeda polifolia</i>	Bog Rosemary	Occasional	<i>Carex spp.</i>	Sedge spp.	Occasional	<i>Calluna vulgaris</i>	Ling Heather	Abundant	<i>Cladonia sp.</i>	Lichen	Occasional	<i>Erica tetralix</i>	Cross-leaved Heath	Abundant	<i>Eriophorum vaginatum</i>	Hare's tail Cotton Grass	Occasional	<i>Juncus spp.</i>	Rush spp.	Occasional	<i>Melampyrum pratense</i>	Common Cow Wheat	Rare	<i>Molinia caerulea</i>	Purple moor grass	Frequent	<i>Myrica gale</i>	Bog Myrtle	Frequent	<i>Narthecium ossifragum</i>	Bog Asphodel	Abundant	<i>Potentilla erecta</i>	Tormentil	Rare	<i>Rhynchospora alba</i>	White-beaked Sedge	Rare	<i>Sphagnum spp.</i>	Sphagnum moss	Frequent	<i>Trichophorum cespitosum</i>	Deer Grass	Abundant	<i>Vaccinium myrtillus</i>	Billberry	Occasional
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**Species List: Bog Woodland (WS1)**

Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale
<i>Betula pubescens</i>	Downy Birch	Dominant
<i>Hedera helix</i>	Ivy	Occasional
<i>Pteridium aquilinum</i>	Bracken	Frequent
<i>Rubus fruticosus agg.</i>	Bramble	Frequent
<i>Salix fragilis</i>	Crack Willow	Dominant
<i>Sorbus aucuparia</i>	Rowan	Occasional
<i>Ulex europaeus</i>	Gorse	Frequent

**Habitat Map****Legend**

Study Area



PB1 Raised Bog



PB4 Cutover Bog



WN7 Bog Woodland



## Photographic Record



**Plate 1: View of intact Raised bog**

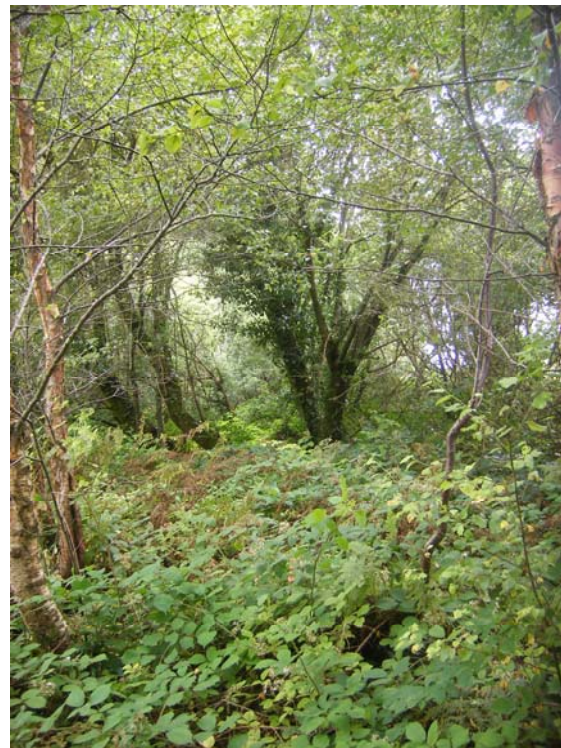


**Plate 2: Peat bank at edge of intact area**






**Plate 3:** Common Cow Wheat (*Melampyrum pratense*)



**Plate 4:** Bog woodland dominated by Birch



TARGET NOTES																																						
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 31/07/09																																				
<b>Surveyor:</b> Jean Hamilton		<b>County name:</b> Clare																																				
<b>1:2,500 Sheet no:</b> 4210-c	<b>Townland:</b> Drummaghmartin	<b>Grid Ref:</b> 149540, 181420																																				
<b>Target note no.:</b> TN3		<b>Area:</b> 2.5ha																																				
This area is considered to be of <b>High</b> Ecological value in a local context. This habitat corresponds to the Annex I <b>Priority Habitat</b> , Active Raised Bogs (7110)																																						
<b>Habitat code</b>  <b>PB1/ PB4/ WN7/ WD1</b>	<p>Area of intact Raised Bog (PB1) which is bordered by an extensive area of Cutover Bog (PB4) to the north, south and east. Plantation Broadleaved Woodland (WD1) occurs to the west and Bog Woodland (WN7) is encroaching from the north. The intact area of bog is under threat from drainage and peat harvesting. The bog has dried out significantly.</p> <p><b>Species List: Raised Bog (PB1)</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Species (<i>Latin name</i>)</th> <th style="text-align: left; padding: 2px;">Species (common name)</th> <th style="text-align: left; padding: 2px;">DAFOR Scale</th> </tr> </thead> <tbody> <tr><td><i>Carex spp.</i></td><td>Sedge spp.</td><td>Frequent</td></tr> <tr><td><i>Calluna vulgaris</i></td><td>Ling Heather</td><td>Dominant</td></tr> <tr><td><i>Cladonia sp.</i></td><td>Lichen</td><td>Abundant</td></tr> <tr><td><i>Erica tetralix</i></td><td>Cross-leaved Heath</td><td>Abundant</td></tr> <tr><td><i>Eriophorum spp.</i></td><td>Cotton Grass</td><td>Frequent</td></tr> <tr><td><i>Molinia caerulea</i></td><td>Purple Moor-grass</td><td>Frequent</td></tr> <tr><td><i>Myrica gale</i></td><td>Bog Myrtle</td><td>Abundant</td></tr> <tr><td><i>Narthecium ossifragum</i></td><td>Bog Asphodel</td><td>Frequent</td></tr> <tr><td><i>Rhynchospora alba</i></td><td>White-beaked Sedge</td><td>Occasional</td></tr> <tr><td><i>Sphagnum spp.</i></td><td>Sphagnum moss</td><td>Frequent</td></tr> <tr><td><i>Trichophorum cespitosum</i></td><td>Deer Grass</td><td>Abundant</td></tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Carex spp.</i>	Sedge spp.	Frequent	<i>Calluna vulgaris</i>	Ling Heather	Dominant	<i>Cladonia sp.</i>	Lichen	Abundant	<i>Erica tetralix</i>	Cross-leaved Heath	Abundant	<i>Eriophorum spp.</i>	Cotton Grass	Frequent	<i>Molinia caerulea</i>	Purple Moor-grass	Frequent	<i>Myrica gale</i>	Bog Myrtle	Abundant	<i>Narthecium ossifragum</i>	Bog Asphodel	Frequent	<i>Rhynchospora alba</i>	White-beaked Sedge	Occasional	<i>Sphagnum spp.</i>	Sphagnum moss	Frequent	<i>Trichophorum cespitosum</i>	Deer Grass	Abundant
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<b>Legend</b> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; border: 2px solid red; margin-right: 5px;"></div> <span>Study Area</span> </div> <div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, purple 2px, purple 4px); border: 1px solid purple; margin-right: 5px;"></div> <span>PB1 Raised Bog</span> </div> <div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; background: repeating-linear-gradient(-45deg, transparent, transparent 2px, brown 2px, brown 4px); border: 1px solid brown; margin-right: 5px;"></div> <span>PB4 Cutover Bog</span> </div> <div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; background: repeating-linear-gradient(-45deg, transparent, transparent 2px, green 2px, green 4px); border: 1px solid green; margin-right: 5px;"></div> <span>WN7 Bog Woodland</span> </div> </div>																																						



## Photographic Record



**Plate 1: Overview of area**



**Plate 2: Close up of bog vegetation**





**Plate 3: Bog Woodland WN7 encroaching from the north**



TARGET NOTES																																															
Survey Title: North and Mid Clare Habitat Mapping		Survey date: 30/07/09																																													
Surveyor: Jean Hamilton		County name: Clare																																													
1:2,500 Sheet no: 4210-c	Townland: Drummaghmartin	Grid Ref: 149150, 181160																																													
Target note no.: TN4		Area: 0.67ha																																													
This area is considered to be of <b>Moderate</b> Ecological value in a local context.																																															
Habitat code  <b>FL4/ FS1/ WN6</b>	<p>Small Mesotrophic Lake (FL4) surrounded by Tall Reed and Sedge Swamp (FS1). Common Reed (<i>Phragmites australis</i>) dominates this habitat. Wet Willow Alder Ash Woodland (WN6) occurs which is dominated by Willows (<i>Salix</i> spp).</p> <p><b>Species List</b></p> <table border="1"> <thead> <tr> <th>Species (Latin name)</th> <th>Species (common name)</th> <th>DAFOR Scale</th> </tr> </thead> <tbody> <tr> <td><i>Agrostis stolonifera</i></td> <td>Creeping Bent</td> <td>Occasional</td> </tr> <tr> <td><i>Betula pubescens</i></td> <td>Downy Birch</td> <td>Occasional</td> </tr> <tr> <td><i>Carex</i> spp.</td> <td>Sedge spp.</td> <td>Frequent</td> </tr> <tr> <td><i>Filipendula ulmaria</i></td> <td>Meadowsweet</td> <td>Frequent</td> </tr> <tr> <td><i>Galium palustre</i></td> <td>Marsh Bedstraw</td> <td>Occasional</td> </tr> <tr> <td><i>Juncus</i> spp.</td> <td>Rush spp.</td> <td>Frequent</td> </tr> <tr> <td><i>Lythrum salicaria</i></td> <td>Purple-loosestrife</td> <td>Frequent</td> </tr> <tr> <td><i>Mentha aquatica</i></td> <td>Watermint</td> <td>Frequent</td> </tr> <tr> <td><i>Phragmites australis</i></td> <td>Common Reed</td> <td>Dominant</td> </tr> <tr> <td><i>Potentilla anserina</i></td> <td>Silverweed</td> <td>Occasional</td> </tr> <tr> <td><i>Potentilla erecta</i></td> <td>Tormentil</td> <td>Frequent</td> </tr> <tr> <td><i>Potentilla palustre</i></td> <td>Marsh Cinquefoil</td> <td>Frequent</td> </tr> <tr> <td><i>Salix</i> spp.</td> <td>Willows</td> <td>Frequent</td> </tr> <tr> <td><i>Valeriana officinalis</i></td> <td>Common Valerian</td> <td>Occasional</td> </tr> </tbody> </table>		Species (Latin name)	Species (common name)	DAFOR Scale	<i>Agrostis stolonifera</i>	Creeping Bent	Occasional	<i>Betula pubescens</i>	Downy Birch	Occasional	<i>Carex</i> spp.	Sedge spp.	Frequent	<i>Filipendula ulmaria</i>	Meadowsweet	Frequent	<i>Galium palustre</i>	Marsh Bedstraw	Occasional	<i>Juncus</i> spp.	Rush spp.	Frequent	<i>Lythrum salicaria</i>	Purple-loosestrife	Frequent	<i>Mentha aquatica</i>	Watermint	Frequent	<i>Phragmites australis</i>	Common Reed	Dominant	<i>Potentilla anserina</i>	Silverweed	Occasional	<i>Potentilla erecta</i>	Tormentil	Frequent	<i>Potentilla palustre</i>	Marsh Cinquefoil	Frequent	<i>Salix</i> spp.	Willows	Frequent	<i>Valeriana officinalis</i>	Common Valerian	Occasional
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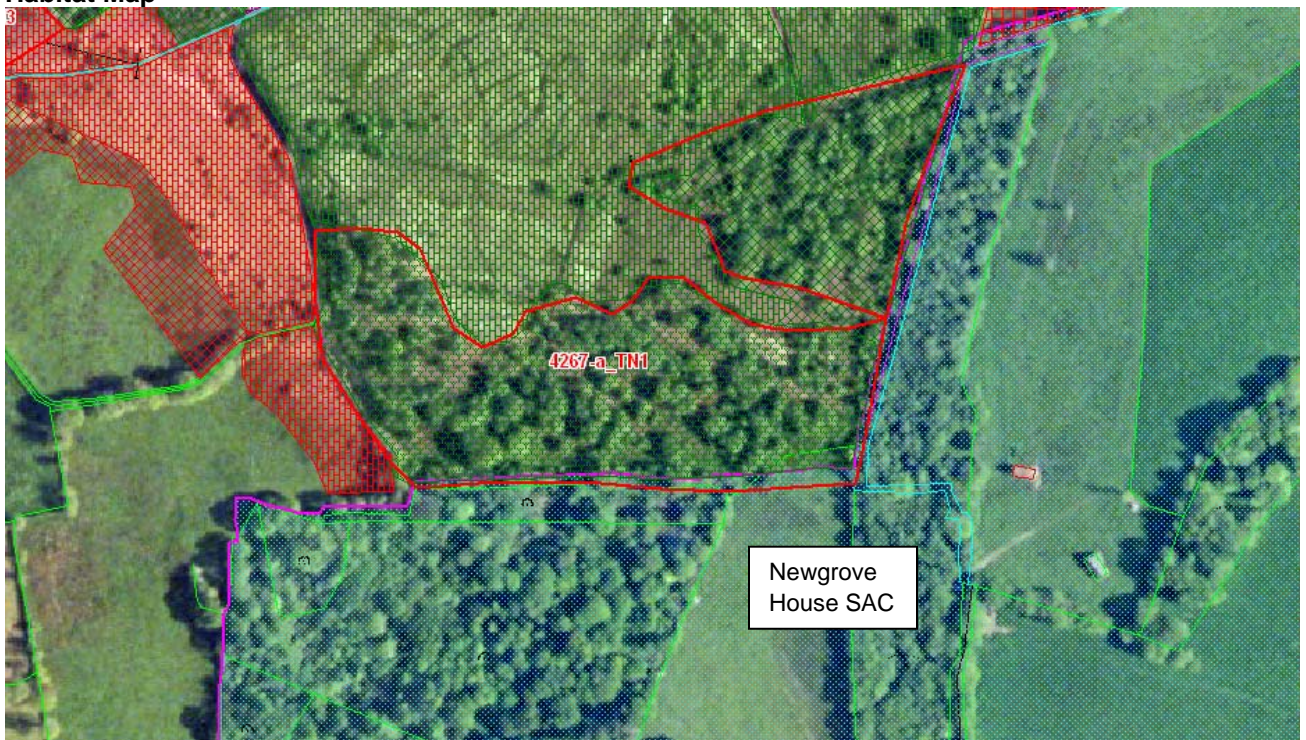



**Habitat Map****Legend****Photographic Record****Plate 1: Reed and large sedge swamp with woodland in background**





**Plate 2: Reed and large sedge swamp with *Phragmites* dominant**



TARGET NOTES		
Survey Title: North and Mid Clare Habitat Mapping		Survey date: 07/08/09
Surveyor: Jean Hamilton		County name: Clare
1:2,500 Sheet no: 4267-a	Townland: Ballyslattery	Grid Ref: 144521, 180843
Target note no.: TN1		Area: 1.3ha
This area is considered to be of <b>High</b> Ecological value in a local context.		
Habitat code	<p>Bog Woodland (WN7) which borders Newgrove House SAC. This house and surrounding woodlands are for Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>), a species listed on Annex II of the EU Habitats Directive, which use the house as a hibernation roost</p> <p>The Bog Woodland (WN7) has developed on an area of Cutover Bog (PB4) and is dominated by Ash (<i>Fraxinus excelsior</i>), Willow (<i>Salix</i> spp.), Downy Birch (<i>Betula pendula</i>) and Alder (<i>Alnus glutinosa</i>). This habitat occurs just beside an area which has recently been planted with a Mixed Broadleaf and Conifer Plantation (WD2). Other tree species present in this woodland are Rowan (<i>Sorbus aucuparia</i>) and Hawthorn (<i>Crataegus monogyna</i>). The understorey comprises, Ivy (<i>Hedera helix</i>) and Bramble (<i>Rubus fruticosus</i>) dominates the field layer but Meadowsweet (<i>Filipendula ulmaria</i>), Remote Sedge (<i>Carex remota</i>), Watermint (<i>Mentha aquatica</i>), Horsetails (<i>Equisetum</i> spp.), Watercress (<i>Rorippa nasturtium-aquaticum</i>), Marsh Thistle, mosses and ferns are also abundant. The maintenance of woodlands and ecological corridors surrounding the SAC are necessary to provide foraging and commuting routes for the Lesser Horseshoe Bats.</p>	
WN7		
Habitat Map		
		
Legend		
	Study Area	 WN7 Bog Woodland
		 WD2 Mixed Broadleaved Conifer Woodland



## Photographic Record







**Plate 1: Woodland sub-canopy**



**Plate 2: Field layer**



TARGET NOTES		
Survey Title: North and Mid Clare Habitat Mapping		Survey date: 07/08/09
Surveyor: Jean Hamilton		County name: Clare
1:2,500 Sheet no: 4267-a	Townland: Ballyslattery	Grid Ref: 144081, 180935
Target note no.: TN2		Area: 0.5ha
This area is considered to be of <b>High</b> Ecological value in a local context.		
Habitat code		
FS1	Reed and large sedge swamp dominated by Common Reed ( <i>Phragmites australis</i> ), but with a good diversity of herbaceous species, including Meadowsweet ( <i>Filipendula ulmaria</i> ), ( <i>Lythrum salicaria</i> ) and Wild Angelica ( <i>Angelica sylvestris</i> ). Perforate St. John's-wort ( <i>Hypericum perforatum</i> ), Watermint ( <i>Mentha aquatica</i> ) and Bindweed ( <i>Calystegia sepium</i> ). <i>Phragmites</i> accounts for more than 50% of the vegetation however, so this habitat is put in to the category Reed and large sedge swamp. This habitat grades in to Marsh GM1.	
Habitat Map		
		
Legend		
	Study Area	 FS1 Reed & Large Sedge Swamps
		 GM1 Marsh



## Photographic Record



**Plate 1: Tall reed and sedge swamp**

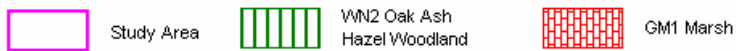


**Plate 2: Close-up of Reed and large sedge swamp**



TARGET NOTES																																																																										
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 04/08/09																																																																								
<b>Surveyor:</b> Jean Hamilton		<b>County name:</b> Clare																																																																								
<b>1:2,500 Sheet no:</b> 4267-b	<b>Townland:</b> Poulaforia	<b>Grid Ref:</b> 147398, 180846																																																																								
<b>Target note no.:</b> TN1		<b>Area:</b> 2.5ha																																																																								
This area is considered to be of <b>High</b> Ecological value in a local context. Although this woodland category is not an annexed habitat, it is very limited in extent in Ireland and should be regarded as being of conservation importance																																																																										
<b>Habitat code</b>  <b>WN2</b>	<p>Good example of Oak Ash Hazel Woodland (WN2). Ash dominates the canopy, with occasional Pendunculate Oak. The sub-canopy layer comprises Hazel, Hawthorn and Blackthorn. This habitat supports a species rich ground flora including an abundance of mosses, ivy and ferns. Smaller examples of this woodland can be found in the field boundaries in the surrounding landscape.</p> <p><b>Species List: Oak Ash Hazel Woodland (WN2)</b></p> <table border="1"> <thead> <tr> <th>Species (Latin name)</th> <th>Species (Common name)</th> <th>DAFOR Scale</th> </tr> </thead> <tbody> <tr><td><i>Athyrium filix-femina</i></td><td>Lady Fern</td><td>Occasional</td></tr> <tr><td><i>Arum maculatum</i></td><td>Lords and Ladies</td><td>Occasional</td></tr> <tr><td><i>Circaea lutetiana</i></td><td>Enchanters-nightshade</td><td>Occasional</td></tr> <tr><td><i>Corylus avellana</i></td><td>Hazel</td><td>Frequent</td></tr> <tr><td><i>Crataegus monogyna</i></td><td>Hawthorn</td><td>Occasional</td></tr> <tr><td><i>Deschampsia flexuosa</i></td><td>Wavy Hair-grass</td><td>Frequent</td></tr> <tr><td><i>Dryopteris dilatata</i></td><td>Broad Buckler Fern</td><td>Frequent</td></tr> <tr><td><i>Dryopteris filix-mas</i></td><td>Male Fern</td><td>Occasional</td></tr> <tr><td><i>Euonymus europaeus</i></td><td>Spindle</td><td>Occasional</td></tr> <tr><td><i>Fraxinus excelsior</i></td><td>Ash</td><td>Abundant</td></tr> <tr><td><i>Geum urbanum</i></td><td>Wood Avens</td><td>Occasional</td></tr> <tr><td><i>Geranium robertianum</i></td><td>Herb-Robert</td><td>Frequent</td></tr> <tr><td><i>Hedera helix</i></td><td>Ivy</td><td>Abundant</td></tr> <tr><td><i>Oxalis acetosella</i></td><td>Wood-sorrel</td><td>Occasional</td></tr> <tr><td><i>Phyllitis scolopendrium</i></td><td>Hart's-tongue Fern</td><td>Frequent</td></tr> <tr><td><i>Potentilla sterilis</i></td><td>Barren Strawberry</td><td>Occasional</td></tr> <tr><td><i>Primula veris</i></td><td>Cowslip</td><td>Occasional</td></tr> <tr><td><i>Prunus spinosa</i></td><td>Blackthorn</td><td>Occasional</td></tr> <tr><td><i>Quercus robur</i></td><td>Pendunculate Oak</td><td>Occasional</td></tr> <tr><td><i>Rubus fruticosus</i></td><td>Bramble</td><td>Frequent</td></tr> <tr><td><i>Sambucus nigra</i></td><td>Elder</td><td>Occasional</td></tr> <tr><td><i>Veronica montana</i></td><td>Wood Speedwell</td><td>Occasional</td></tr> <tr><td><i>Viola reichenbachiana</i></td><td>Early Dog-violet</td><td>Occasional</td></tr> </tbody> </table>		Species (Latin name)	Species (Common name)	DAFOR Scale	<i>Athyrium filix-femina</i>	Lady Fern	Occasional	<i>Arum maculatum</i>	Lords and Ladies	Occasional	<i>Circaea lutetiana</i>	Enchanters-nightshade	Occasional	<i>Corylus avellana</i>	Hazel	Frequent	<i>Crataegus monogyna</i>	Hawthorn	Occasional	<i>Deschampsia flexuosa</i>	Wavy Hair-grass	Frequent	<i>Dryopteris dilatata</i>	Broad Buckler Fern	Frequent	<i>Dryopteris filix-mas</i>	Male Fern	Occasional	<i>Euonymus europaeus</i>	Spindle	Occasional	<i>Fraxinus excelsior</i>	Ash	Abundant	<i>Geum urbanum</i>	Wood Avens	Occasional	<i>Geranium robertianum</i>	Herb-Robert	Frequent	<i>Hedera helix</i>	Ivy	Abundant	<i>Oxalis acetosella</i>	Wood-sorrel	Occasional	<i>Phyllitis scolopendrium</i>	Hart's-tongue Fern	Frequent	<i>Potentilla sterilis</i>	Barren Strawberry	Occasional	<i>Primula veris</i>	Cowslip	Occasional	<i>Prunus spinosa</i>	Blackthorn	Occasional	<i>Quercus robur</i>	Pendunculate Oak	Occasional	<i>Rubus fruticosus</i>	Bramble	Frequent	<i>Sambucus nigra</i>	Elder	Occasional	<i>Veronica montana</i>	Wood Speedwell	Occasional	<i>Viola reichenbachiana</i>	Early Dog-violet	Occasional
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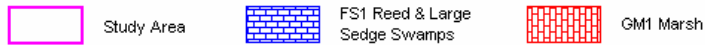
**Habitat Map****Photographic Record**

**Plate 1: View of woodland from field.**



Rev F01

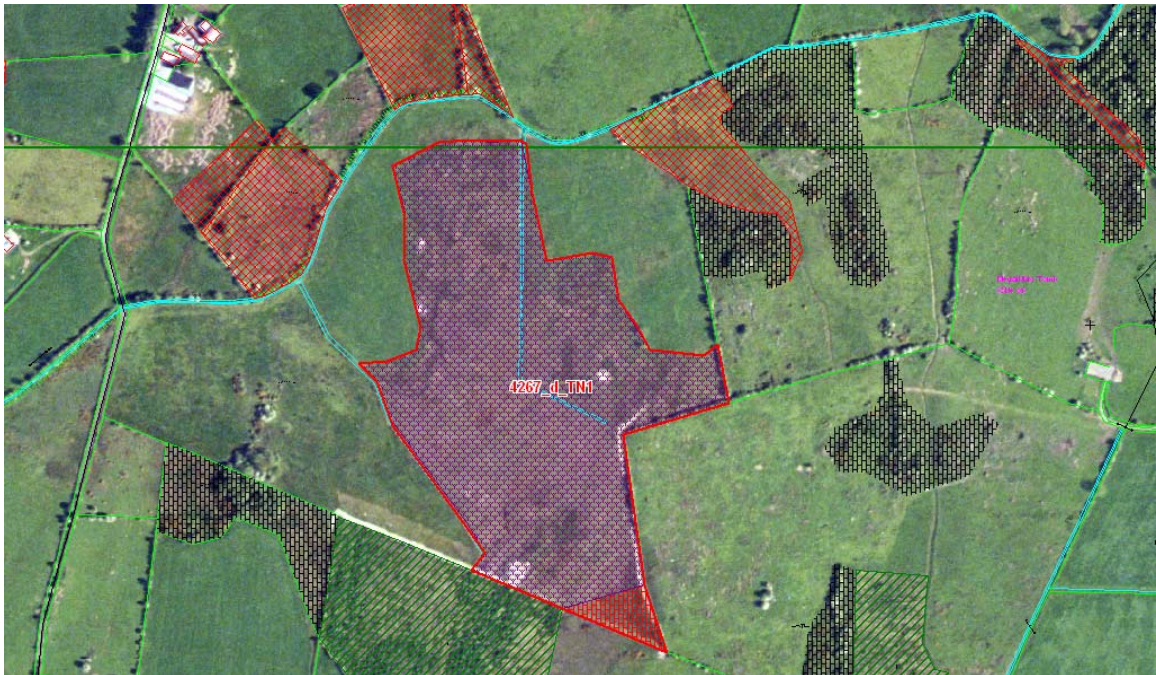
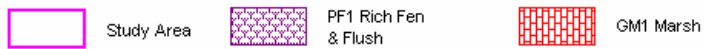


**Habitat Map****Legend****Photographic Record****Plate 1: Marsh**



TARGET NOTES																																																																				
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 7/08/09																																																																		
<b>Surveyor:</b> George Percival		<b>County name:</b> Clare																																																																		
<b>1:2,500 Sheet no.:</b> 4267-d	<b>Townland:</b> Moymore	<b>Grid Ref:</b> 146630, 179290																																																																		
<b>Target note no.:</b> TN1		<b>Area:</b> 8.3ha																																																																		
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<b>Habitat code</b>  <b>PF1</b>	Well grazed field but with some Rich Fen and Flush (PF1) vegetation in wetter parts, especially in east of field zone. Occasional limestone outcropping. Hare observed.																																																																			
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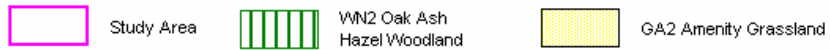


**Habitat Map****Legend****Photographic Record****Plate 1: Fen species *Parnassia palustris***



TARGET NOTES																																																																																						
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 05/08/09																																																																																				
<b>Surveyor:</b> Jean Hamilton		<b>County name:</b> Clare																																																																																				
<b>1:2,500 Sheet no:</b> 4268-a	<b>Townland:</b> Cragg	<b>Grid Ref:</b> 148620, 180671																																																																																				
<b>Target note no.:</b> TN1		<b>Area:</b> 17.3ha																																																																																				
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<b>Habitat code</b>  <b>WN2</b>	<p>Large area of Oak Ash Hazel Woodland (WN2) where the canopy is composed almost entirely of Ash (<i>Fraxinus excelsior</i>). There is much regeneration is taking place, with Hazel (<i>Corylus avellana</i>) and Hawthorn (<i>Crataegus monogyna</i>) frequent in the sub-canopy layer. The ground layer is dense and is dominated by mosses, brambles and ferns. A sports ground has recently been constructed in the middle of the woodland. The approximate location of the grounds is indicated on the habitat map.</p> <p><b>Species List: Oak Ash Hazel Woodland (WN2)</b></p> <table> <tr> <th>Species (<i>Latin name</i>)</th><th>Species (<i>Common name</i>)</th><th>DAFOR Scale</th></tr> <tr><td><i>Angelica sylvestris</i></td><td>Wild Angelica</td><td>Occasional</td></tr> <tr><td><i>Athyrium filix-femina</i></td><td>Lady Fern</td><td>Occasional</td></tr> <tr><td><i>Arum maculatum</i></td><td>Lords and Ladies</td><td>Occasional</td></tr> <tr><td><i>Circaea lutetiana</i></td><td>Enchanters-nightshade</td><td>Occasional</td></tr> <tr><td><i>Corylus avellana</i></td><td>Hazel</td><td>Frequent</td></tr> <tr><td><i>Crataegus monogyna</i></td><td>Hawthorn</td><td>Occasional</td></tr> <tr><td><i>Deschampsia flexuosa</i></td><td>Wavy Hair-grass</td><td>Frequent</td></tr> <tr><td><i>Dryopteris dilatata</i></td><td>Broad Buckler Fern</td><td>Frequent</td></tr> <tr><td><i>Dryopteris filix-mas</i></td><td>Male Fern</td><td>Occasional</td></tr> <tr><td><i>Euonymus europaeus</i></td><td>Spindle</td><td>Occasional</td></tr> <tr><td><i>Fraxinus excelsior</i></td><td>Ash</td><td>Abundant</td></tr> <tr><td><i>Geum urbanum</i></td><td>Wood Avens</td><td>Occasional</td></tr> <tr><td><i>Geranium robertianum</i></td><td>Herb-Robert</td><td>Frequent</td></tr> <tr><td><i>Glechoma hederacea</i></td><td>Ground Ivy</td><td>Occasional</td></tr> <tr><td><i>Hedera helix</i></td><td>Ivy</td><td>Abundant</td></tr> <tr><td><i>Oxalis acetosella</i></td><td>Wood-sorrel</td><td>Occasional</td></tr> <tr><td><i>Phyllitis scolopendrium</i></td><td>Hart's-tongue Fern</td><td>Frequent</td></tr> <tr><td><i>Polypodium vulgare</i></td><td>Polypody</td><td>Occasional</td></tr> <tr><td><i>Potentilla sterilis</i></td><td>Barren Strawberry</td><td>Occasional</td></tr> <tr><td><i>Primula veris</i></td><td>Cowslip</td><td>Occasional</td></tr> <tr><td><i>Prunus spinosa</i></td><td>Blackthorn</td><td>Occasional</td></tr> <tr><td><i>Quercus robur</i></td><td>Pendunculate Oak</td><td>Occasional</td></tr> <tr><td><i>Rubus fruticosus</i></td><td>Bramble</td><td>Frequent</td></tr> <tr><td><i>Sambucus nigra</i></td><td>Elder</td><td>Occasional</td></tr> <tr><td><i>Vicia</i> spp.</td><td>Vetch</td><td>Occasional</td></tr> <tr><td><i>Veronica chamaedrys</i></td><td>Germander Speedwell</td><td>Occasional</td></tr> <tr><td><i>Viola riviniana</i></td><td>Common Dog-violet</td><td>Occasional</td></tr> </table>		Species ( <i>Latin name</i> )	Species ( <i>Common name</i> )	DAFOR Scale	<i>Angelica sylvestris</i>	Wild Angelica	Occasional	<i>Athyrium filix-femina</i>	Lady Fern	Occasional	<i>Arum maculatum</i>	Lords and Ladies	Occasional	<i>Circaea lutetiana</i>	Enchanters-nightshade	Occasional	<i>Corylus avellana</i>	Hazel	Frequent	<i>Crataegus monogyna</i>	Hawthorn	Occasional	<i>Deschampsia flexuosa</i>	Wavy Hair-grass	Frequent	<i>Dryopteris dilatata</i>	Broad Buckler Fern	Frequent	<i>Dryopteris filix-mas</i>	Male Fern	Occasional	<i>Euonymus europaeus</i>	Spindle	Occasional	<i>Fraxinus excelsior</i>	Ash	Abundant	<i>Geum urbanum</i>	Wood Avens	Occasional	<i>Geranium robertianum</i>	Herb-Robert	Frequent	<i>Glechoma hederacea</i>	Ground Ivy	Occasional	<i>Hedera helix</i>	Ivy	Abundant	<i>Oxalis acetosella</i>	Wood-sorrel	Occasional	<i>Phyllitis scolopendrium</i>	Hart's-tongue Fern	Frequent	<i>Polypodium vulgare</i>	Polypody	Occasional	<i>Potentilla sterilis</i>	Barren Strawberry	Occasional	<i>Primula veris</i>	Cowslip	Occasional	<i>Prunus spinosa</i>	Blackthorn	Occasional	<i>Quercus robur</i>	Pendunculate Oak	Occasional	<i>Rubus fruticosus</i>	Bramble	Frequent	<i>Sambucus nigra</i>	Elder	Occasional	<i>Vicia</i> spp.	Vetch	Occasional	<i>Veronica chamaedrys</i>	Germander Speedwell	Occasional	<i>Viola riviniana</i>	Common Dog-violet	Occasional
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<i>Viola riviniana</i>	Common Dog-violet	Occasional																																																																																				



**Habitat Map****Legend****Photographic Record****Plate 1: Ash-dominated woodland**





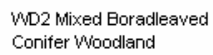
**Plate 2:** Field layer with Hart's-tongue Fern (*Phyllitis scolopendrium*)



TARGET NOTES																																																																																						
Survey Title: North and Mid Clare Habitat Mapping		Survey date: 30/07/09																																																																																				
Surveyor: George Percival/David Fallon		County name: Clare																																																																																				
1:2,500 Sheet no: 4325-c/4325-d	Townland: Dangan	Grid Ref: 145590, 175570																																																																																				
Target note no.: TN1		Area: 44.7ha																																																																																				
This area is considered to be of <b>High</b> Ecological value in a local context.																																																																																						
Habitat code	<p>Large Mixed Broadleaved and Conifer Woodland (WD2), surrounding the ruins of Dangan Castle. A large mature woodland with a good variety of tree species, a relatively good understorey and ground flora present despite some grazing (possibly deer). Deadwood (both fallen and standing) is common and helps to encourage biodiversity in such habitats. Limestone outcrops occur throughout the woodland. This area of woodland provided excellent connectivity with other habitats and an abundance of roosting and nesting habitats for birds and mammals. Jays (<i>Garrulus glandarius</i>) are present within the woodland. The woodland to the west of the castle is dominated by broadleaved tree species including; Beech (<i>Fagus sylvatica</i>) and Ash (<i>Fraxinus excelsior</i>), whereas the woodland to the east is dominated by Scots Pine (<i>Pinus sylvestris</i>).</p> <p><b>Species List Mixed Broadleaved and Conifer Woodland (WD2)</b></p> <table><tr><th>Species (<i>Latin name</i>)</th><th>Species (common name)</th><th>DAFOR Scale</th></tr><tr><td><i>Acer pseudoplatanus</i></td><td>Sycamore</td><td>Occasional</td></tr><tr><td><i>Agrostis stolonifera</i></td><td>Creeping Bent</td><td>Frequent</td></tr><tr><td><i>Arum maculatum</i></td><td>Lords and Ladies</td><td>Occasional</td></tr><tr><td><i>Chamaecyparis lawsoniana</i></td><td>Lawson Cypress</td><td>Abundant</td></tr><tr><td><i>Circaea lutetiana</i></td><td>Enchanters-nightshade</td><td>Occasional</td></tr><tr><td><i>Corylus avellana</i></td><td>Hazel</td><td>Frequent</td></tr><tr><td><i>Crataegus monogyna</i></td><td>Hawthorn</td><td>Occasional</td></tr><tr><td><i>Deschampsia flexuosa</i></td><td>Wavy Hair-grass</td><td>Frequent</td></tr><tr><td><i>Dryopteris dilatata</i></td><td>Broad Buckler Fern</td><td>Frequent</td></tr><tr><td><i>Euonymus europaeus</i></td><td>Spindle</td><td>Occasional</td></tr><tr><td><i>Fagus sylvatica</i></td><td>Beech</td><td>Dominant</td></tr><tr><td><i>Fraxinus excelsior</i></td><td>Ash</td><td>Abundant</td></tr><tr><td><i>Glechoma hederacea</i></td><td>Ground-Ivy</td><td>Occasional</td></tr><tr><td><i>Hedera helix</i></td><td>Ivy</td><td>Abundant</td></tr><tr><td><i>Juncus</i> spp.</td><td>Rush spp.</td><td>Occasional</td></tr><tr><td><i>Lolium perenne</i></td><td>Perennial Ryegrass</td><td>Frequent</td></tr><tr><td><i>Phyllitis scolopendrium</i></td><td>Hart's-tongue Fern</td><td>Frequent</td></tr><tr><td><i>Pinus sylvatica</i></td><td>Scots Pine</td><td>Abundant</td></tr><tr><td><i>Poa</i> spp.</td><td>Meadow grasses</td><td>Frequent</td></tr><tr><td><i>Prunus spinosa</i></td><td>Blackthorn</td><td>Occasional</td></tr><tr><td><i>Quercus robur</i></td><td>Pendunculate Oak</td><td>Frequent</td></tr><tr><td><i>Rubus fruticosus</i></td><td>Bramble</td><td>Occasional</td></tr><tr><td><i>Salix</i> spp.</td><td>Willows</td><td>Occasional</td></tr><tr><td><i>Sambucus nigra</i></td><td>Elder</td><td>Occasional</td></tr><tr><td><i>Tilia cordata</i></td><td>Lime</td><td>Rare</td></tr><tr><td><i>Ulmus glabra</i></td><td>Wych Elm</td><td>Frequent</td></tr><tr><td><i>Urtica dioica</i></td><td>Nettle</td><td>Frequent</td></tr></table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Acer pseudoplatanus</i>	Sycamore	Occasional	<i>Agrostis stolonifera</i>	Creeping Bent	Frequent	<i>Arum maculatum</i>	Lords and Ladies	Occasional	<i>Chamaecyparis lawsoniana</i>	Lawson Cypress	Abundant	<i>Circaea lutetiana</i>	Enchanters-nightshade	Occasional	<i>Corylus avellana</i>	Hazel	Frequent	<i>Crataegus monogyna</i>	Hawthorn	Occasional	<i>Deschampsia flexuosa</i>	Wavy Hair-grass	Frequent	<i>Dryopteris dilatata</i>	Broad Buckler Fern	Frequent	<i>Euonymus europaeus</i>	Spindle	Occasional	<i>Fagus sylvatica</i>	Beech	Dominant	<i>Fraxinus excelsior</i>	Ash	Abundant	<i>Glechoma hederacea</i>	Ground-Ivy	Occasional	<i>Hedera helix</i>	Ivy	Abundant	<i>Juncus</i> spp.	Rush spp.	Occasional	<i>Lolium perenne</i>	Perennial Ryegrass	Frequent	<i>Phyllitis scolopendrium</i>	Hart's-tongue Fern	Frequent	<i>Pinus sylvatica</i>	Scots Pine	Abundant	<i>Poa</i> spp.	Meadow grasses	Frequent	<i>Prunus spinosa</i>	Blackthorn	Occasional	<i>Quercus robur</i>	Pendunculate Oak	Frequent	<i>Rubus fruticosus</i>	Bramble	Occasional	<i>Salix</i> spp.	Willows	Occasional	<i>Sambucus nigra</i>	Elder	Occasional	<i>Tilia cordata</i>	Lime	Rare	<i>Ulmus glabra</i>	Wych Elm	Frequent	<i>Urtica dioica</i>	Nettle	Frequent
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## Habitat Map



## A photograph of a dense forest. The scene is filled with numerous trees, many of which have thick, moss-covered trunks. The ground is covered in a lush, green carpet of ferns and other low-lying vegetation. Sunlight filters through the dense canopy, creating bright patches on the forest floor and highlighting the textures of the moss and leaves. The overall atmosphere is one of a healthy, mature woodland.

**Plate 1:** Plate 1 shows the diverse ground flora present in this woodland






**Plate 2:** Ferns and some limestone outcrops that occur throughout the woodland



**Plate 3:** Bracket Fungus on Beech Tree



TARGET NOTES																																												
<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 30/07/09																																										
<b>Surveyor:</b> David Fallon		<b>County name:</b> Clare																																										
<b>1:2,500 Sheet no.:</b> 4325-c	<b>Townland:</b> Dangan	<b>Grid Ref:</b> 144906, 176273																																										
<b>Target note no.:</b> TN2		<b>Area:</b> 8.8ha																																										
This area is considered to be of <b>Moderate</b> Ecological value in a local context.																																												
<b>Habitat code</b>  <b>WN2/ WS1</b>	<p>Large area of Scrub (WS1) that is developing into Oak Ash Hazel Woodland (WN2). An abundance of fungi is to be found in this woodland.</p> <p><b>Species List</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">Species (<i>Latin name</i>)</th> <th style="text-align: left; padding: 2px;">Species (common name)</th> <th style="text-align: left; padding: 2px;">DAFOR Scale</th> </tr> </thead> <tbody> <tr><td><i>Amanita phalloides</i></td><td>Deathcap Fungus</td><td>Rare</td></tr> <tr><td><i>Armillaria mellea</i></td><td>Honey Fungus</td><td>Occasional</td></tr> <tr><td><i>Circaea lutetiana</i></td><td>Enchanters-nightshade</td><td>Occasional</td></tr> <tr><td><i>Corylus avellana</i></td><td>Hazel</td><td>Frequent</td></tr> <tr><td><i>Crataegus monogyna</i></td><td>Hawthorn</td><td>Occasional</td></tr> <tr><td><i>Deschampsia flexuosa</i></td><td>Wavy Hair-grass</td><td>Frequent</td></tr> <tr><td><i>Euonymus europaeus</i></td><td>Spindle</td><td>Occasional</td></tr> <tr><td><i>Fraxinus excelsior</i></td><td>Ash</td><td>Abundant</td></tr> <tr><td><i>Heracleum sphondylium</i></td><td>Hogweed</td><td>Occasional</td></tr> <tr><td><i>Laccaria amethystina</i></td><td>Amethyst Deceiver Fungus</td><td>Rare</td></tr> <tr><td><i>Prunus spinosa</i></td><td>Blackthorn</td><td>Occasional</td></tr> <tr><td><i>Quercus robur</i></td><td>Pendunculate Oak</td><td>Frequent</td></tr> <tr><td><i>Rubus fruticosus</i></td><td>Bramble</td><td>Occasional</td></tr> </tbody> </table>		Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale	<i>Amanita phalloides</i>	Deathcap Fungus	Rare	<i>Armillaria mellea</i>	Honey Fungus	Occasional	<i>Circaea lutetiana</i>	Enchanters-nightshade	Occasional	<i>Corylus avellana</i>	Hazel	Frequent	<i>Crataegus monogyna</i>	Hawthorn	Occasional	<i>Deschampsia flexuosa</i>	Wavy Hair-grass	Frequent	<i>Euonymus europaeus</i>	Spindle	Occasional	<i>Fraxinus excelsior</i>	Ash	Abundant	<i>Heracleum sphondylium</i>	Hogweed	Occasional	<i>Laccaria amethystina</i>	Amethyst Deceiver Fungus	Rare	<i>Prunus spinosa</i>	Blackthorn	Occasional	<i>Quercus robur</i>	Pendunculate Oak	Frequent	<i>Rubus fruticosus</i>	Bramble	Occasional
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<b>Habitat Map</b> <div style="text-align: center;">  </div>																																												
<b>Legend</b> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%; text-align: center; padding: 5px;"> <div style="border: 2px solid red; width: 30px; height: 15px; display: inline-block; margin-bottom: 5px;"></div> Study Area </td> <td style="width: 33%; text-align: center; padding: 5px;"> <div style="display: inline-block; width: 20px; height: 10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, green 2px, green 4px); border: 1px solid green; margin-bottom: 5px;"></div> WN2 Oak Ash Hazel Woodland </td> <td style="width: 33%; text-align: center; padding: 5px;"> <div style="display: inline-block; width: 20px; height: 10px; background: repeating-linear-gradient(-45deg, transparent, transparent 2px, black 2px, black 4px); border: 1px solid black; margin-bottom: 5px;"></div> WS1 Scrub </td> </tr> </table>			<div style="border: 2px solid red; width: 30px; height: 15px; display: inline-block; margin-bottom: 5px;"></div> Study Area	<div style="display: inline-block; width: 20px; height: 10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, green 2px, green 4px); border: 1px solid green; margin-bottom: 5px;"></div> WN2 Oak Ash Hazel Woodland	<div style="display: inline-block; width: 20px; height: 10px; background: repeating-linear-gradient(-45deg, transparent, transparent 2px, black 2px, black 4px); border: 1px solid black; margin-bottom: 5px;"></div> WS1 Scrub																																							
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### Photographic Record



**Plate 1:** Hazel Scrub (WS1) developing into closed canopy Oak Ash Hazel Woodland (WN2)



**TARGET NOTES****Survey Title:** North and Mid Clare Habitat Mapping**Survey date:** 30/07/09**Surveyor:** David Fallon**County name:** Clare**1:2,500 Sheet no:** 4326-a**Townland:** Derrymore West**Grid Ref:** 148182, 176688**Target note no.:** TN1**Area:** 2.1haThis area is considered to be of **Moderate** Ecological value in a local context**Habitat code****GS1**

Dry Calcareous and Neutral Grassland (GS1) with some limestone rocky outcrops and occasional Ash and Blackthorn.

**Species List: Dry Calcareous and Neutral Grassland (GS1)**

Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale
<i>Achillea millefolium</i>	Yarrow	Occasional
<i>Agrostis capillaris</i>	Common Bent Grass	Abundant
<i>Anthoxanthum odoratum</i>	Sweet Vernal Grass	Occasional
<i>Arrhenatherum elatius</i>	False-Oat Grass	Frequent
<i>Blackstonia perfoliata</i>	Yellow-Wort	Rare
<i>Briza media</i>	Quaking Grass	Occasional
<i>Centaurea nigra</i>	Common Knapweed	Abundant
<i>Dactylis glomerata</i>	Cocks Foot	Abundant
<i>Fraxinus excelsior</i>	Ash	Occasional
<i>Leucanthemum vulgare</i>	Ox-Eye Daisy	Occasional
<i>Phleum pratense</i>	Timothy Grass	Abundant
<i>Prunella vulgaris</i>	Selfheal	Rare
<i>Prunus spinosa</i>	Blackthorn	Occasional
<i>Trifolium pratense</i>	Red Clover	Frequent

**Habitat Map****Legend**

Study Area

GS1 Dry Calcareous  
& Neutral GrasslandGS4 Wet  
GrasslandWD1 Mixed Broadleaved  
Woodland



## Photographic Record



**Plate 1:** Dry Calcareous grassland (GS1)

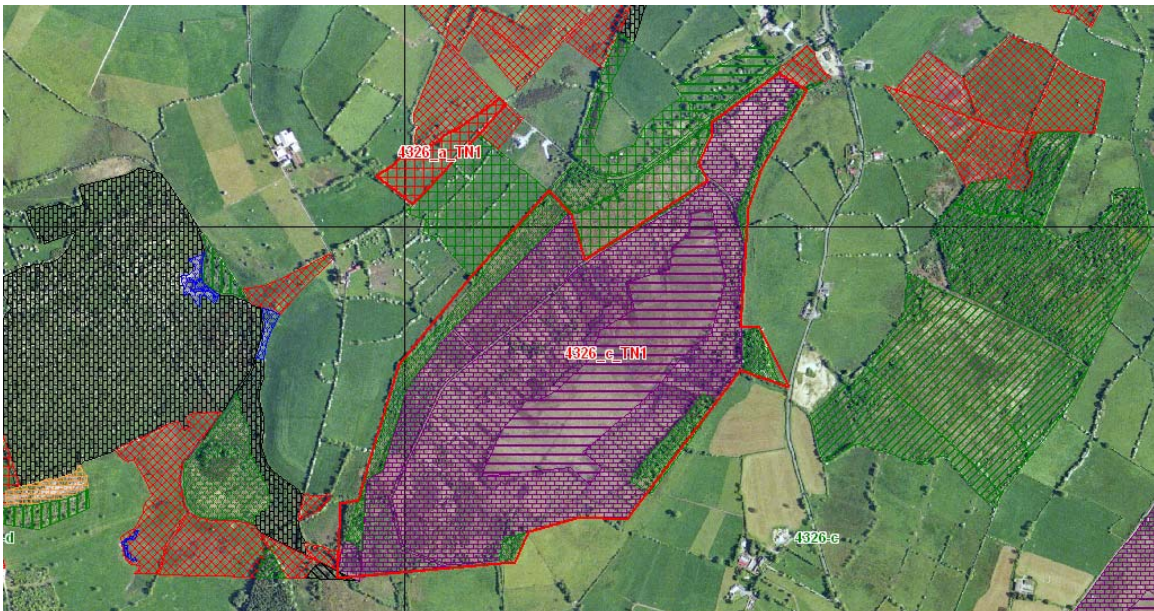


**Plate 2:** Dry Calcareous grassland (GS1) with occasional standard trees





TARGET NOTES			
Survey Title: North and Mid Clare Habitat Mapping		Survey date: 30/07/09	
Surveyor: David Fallon		County name: Clare	
1:2,500 Sheet no: 4326-c	Townland: Ballyblood	Grid Ref: 148830, 176730	
Target note no.: TN1		Area: 4.1ha	
This area is considered to be of <b>High</b> Ecological value in a local context. This habitat corresponds to the <b>Annex I Priority Habitat</b> , Active Raised Bogs (7110) and the Annex I habitat, Depressions on peat substrates of the Rhynchosporion (7150)', under the EU Habitat Directive.			
Habitat code	Large area of Raised Bog (PB1) with significant areas of Cutover Bog (PB4). The centre remains intact, but is under threat from peat harvesting and encroaching Willow Scrub WS1. There is also evidence of recent burning on the bog.		
PB1/ PB4/ WS1	<b>Species List: Cutover Bog (PB4)</b>		
	Species (Latin name)	Species (common name)	DAFOR Scale
	Betula pendula	Birch	Abundant
	Carex spp.	Sedge spp.	Occasional
	Equisetum spp.	Horsetail spp.	Rare
	Filipendula ulmaria	Meadowsweet	Occasional
	Juncus effusus	Soft Rush	Abundant
	Lotus corniculatus	Common Birds-foot-trefoil	Occasional
	Mentha aquatica	Watermint	Occasional
	Molinia caerulea	Purple Moor-grass	Abundant
	Pteridium aquilinum	Bracken	Occasional
	Salix cinerea	Grey Willow	Abundant
	Typha latifolia	Bulrush	Occasional
	Ulex europaeus	Gorse	Abundant


Habitat Map




Legend

 Study Area

 PB1 Raised Bog

 PB4 Cutover Bog

 WN7 Bog Woodland



## Photographic Record



**Plate 1:** Cutover bog (PB4) that has been burned in the recent past.



**Plate 2:** Encroaching shrub layer.



**TARGET NOTES**

<b>Survey Title:</b> North and Mid Clare Habitat Mapping		<b>Survey date:</b> 4/08/09
<b>Surveyor:</b> David Fallon		<b>County name:</b> Clare
<b>1:2,500 Sheet no:</b> 4383-a	<b>Townland:</b> Carrowgar	<b>Grid Ref:</b> 145132, 174808
<b>Target note no.:</b> TN1		<b>Area:</b> 4.7ha

This area is considered to be of **Moderate** Ecological value in a local context

**Habitat code****WD5**

Scattered Trees and Parkland (WD5) where scrub has been recently removed and tall trees remain.

Species ( <i>Latin name</i> )	Species (common name)	DAFOR Scale
<i>Cirsium vulgare</i>	Spear Thistle	Occasional
<i>Dactylis glomerata</i>	Cocks Foot	Abundant
<i>Fraxinus excelsior</i>	Ash	Frequent
<i>Holcus lanatus</i>	Yorkshire Fog	Frequent
<i>Juncus effusus</i>	Soft Rush	Occasional
<i>Lolium perenne</i>	Rye Grass	Dominant
<i>Quercus robur</i>	Pendunculate Oak	Frequent
<i>Senecio jacobaea</i>	Ragwort	Occasional
<i>Trifolium pratense</i>	Red Clover	Occasional
<i>Trifolium repens</i>	White Clover	Occasional

**Habitat Map****Legend**

Study Area

WD5 Scattered Trees  
& Parkland



## Photographic Record



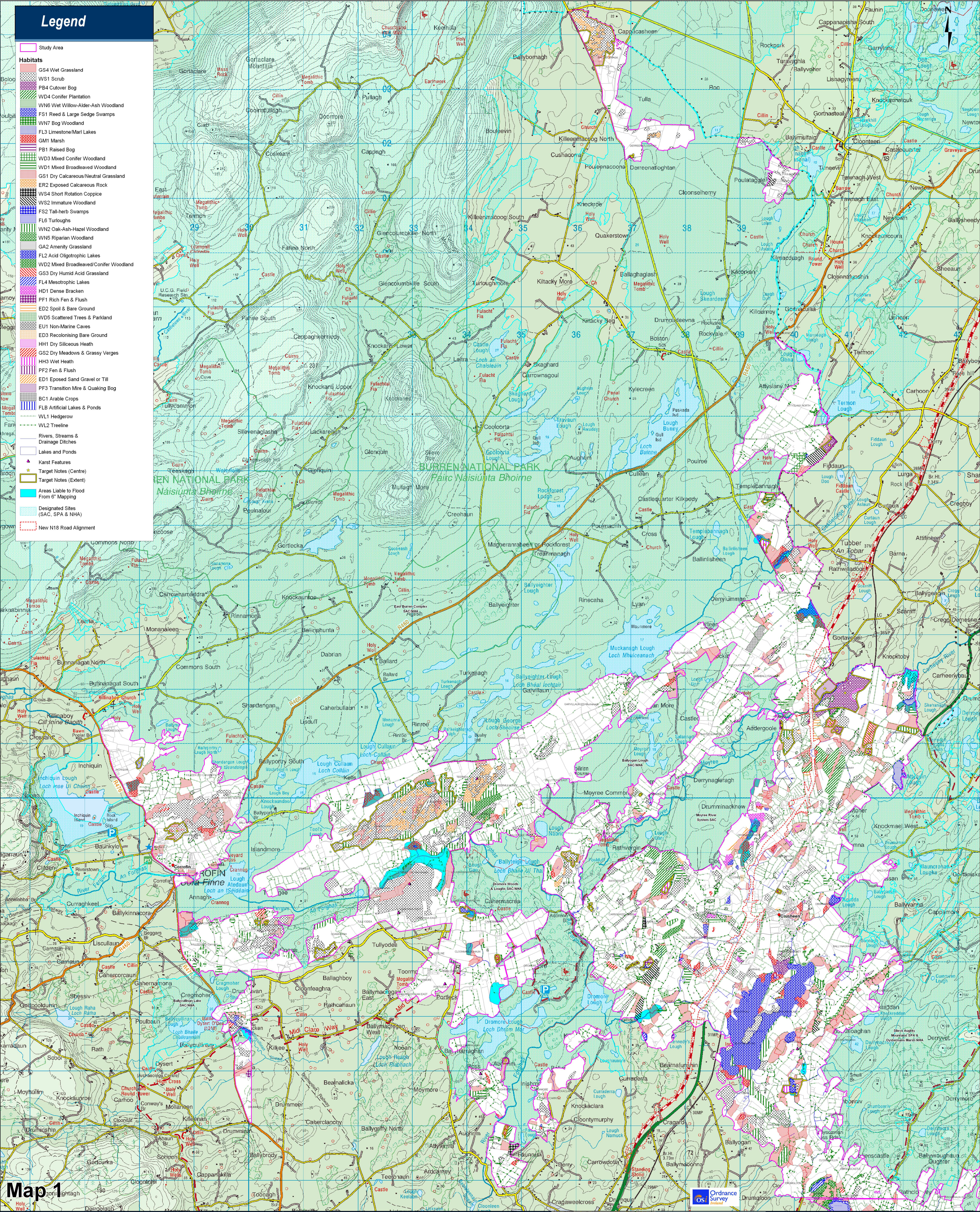
**Plate 1:** Area that has been cleared of scrub but now contains grassland with single trees remaining



## **APPENDIX B**

### **HABITAT MAP**





Lyrr Building,  
IDA Business & Technology Park,  
Mervue, Galway,  
Ireland

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F +353 91 534199  
E ireland@rpsgroup.com  
W rpsgroup.com/ireland

Project

**Survey and Mapping of Habitats  
in North and Mid Clare**

Title

**Habitat Map North and  
Mid Clare**

Figure

Issue Details

Drawn by:	PK	Project No.	MGE0174
Checked by:	JM	File Ref.	
Approved by:	WM	MI0005	
Scale:	1 : 22,000	Drawing No.	Rev.
Date:	April 2010	MI0005	F01

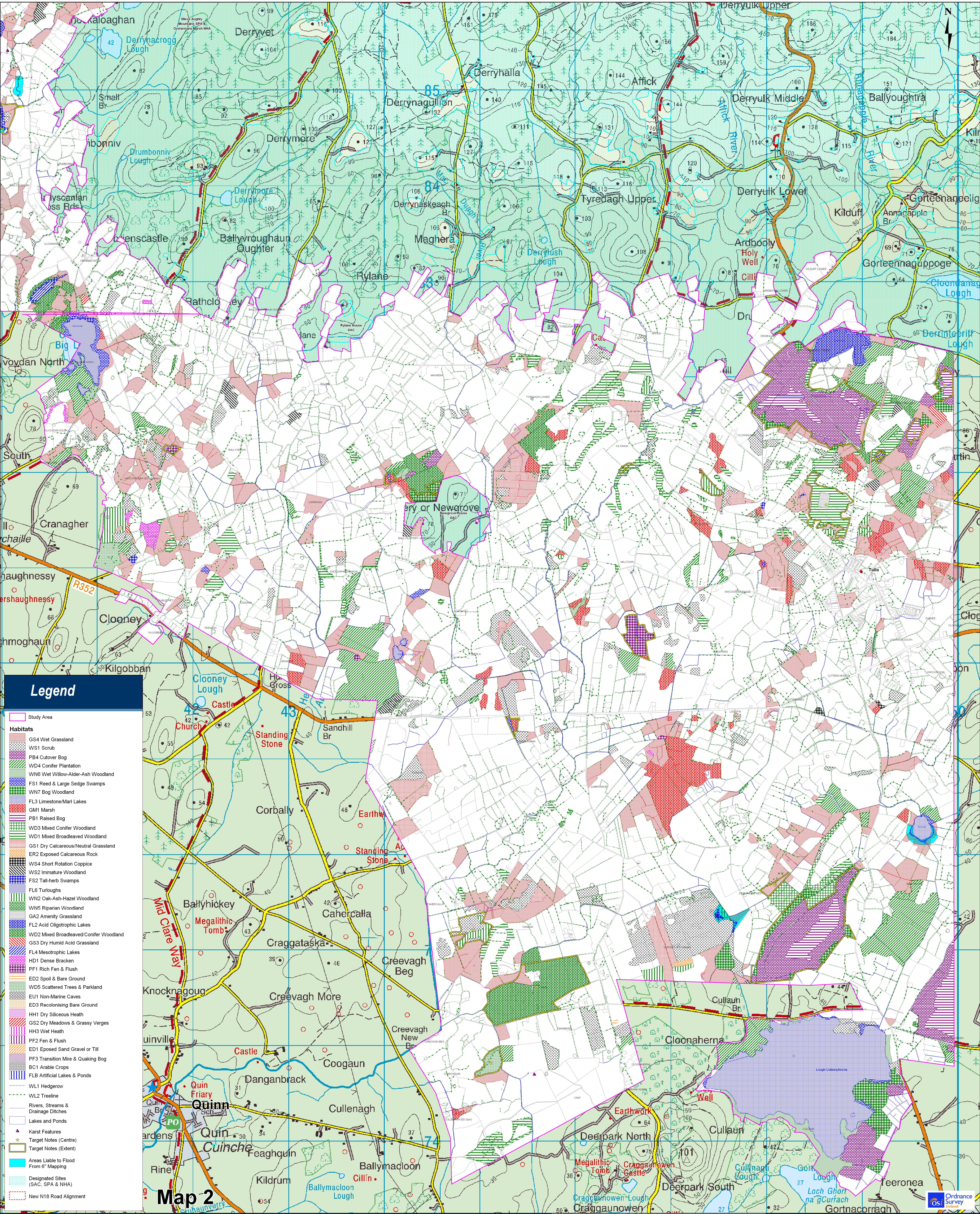
Notes

1. This drawing is the property of Clare County Council. It is a confidential document and must not be copied, used, or its contents divulged without prior written consent.

2. All levels are referred to Ordnance Datum, Mean Head.

3. Includes Ordnance Survey Ireland data reproduced under OSI License number 200504/CCMA Clare County Council. Unauthorised reproduction infringes Ordnance Survey Ireland and Government of Ireland copyright ©Ordnance Survey Ireland, 2009





### Legend

- Study Area
- Habitats**
  - GS4 Wet Grassland
  - WS1 Scrub
  - PB4 Cutover Bog
  - WD4 Conifer Plantation
  - WN6 Wet Willow-Alder-Ash Woodland
  - FS1 Reed & Large Sedge Swamps
  - WN7 Bog Woodland
  - FL3 Limestone/Marl Lakes
  - GM1 Marsh
  - PB1 Raised Bog
  - WD3 Mixed Conifer Woodland
  - WD1 Mixed Broadleaved Woodland
  - GS1 Dry Calcareous/Neutral Grassland
  - ER2 Exposed Calcareous Rock
  - WS4 Short Rotation Coppice
  - WS2 Immature Woodland
  - FS2 Tall-herb Swamps
  - FL6 Turloughs
  - WN2 Oak-Ash-Hazel Woodland
  - WN5 Riparian Woodland
  - GA2 Amenity Grassland
  - FL2 Acid Oligotrophic Lakes
  - WD2 Mixed Broadleaved/Conifer Woodland
  - GS3 Dry Humid Acid Grassland
  - FL4 Mesotrophic Lakes
  - HD1 Dense Bracken
  - PF1 Rich Fen & Flush
  - ED2 Spoil & Bare Ground
  - WD5 Scattered Trees & Parkland
  - EU1 Non-Marine Caves
  - ED3 Recolonising Bare Ground
  - HH1 Dry Siliceous Heath
  - GS2 Dry Meadows & Grassy Verges
  - HH3 Wet Heath
  - PF2 Fen & Flush
  - ED1 Eposed Sand Gravel or Till
  - PF3 Transition Mire & Quaking Bog
  - BC1 Arable Crops
  - FLB Artificial Lakes & Ponds
  - WL1 Hedgerow
  - WL2 Treeline
  - Rivers, Streams & Drainage Ditches
  - Lakes and Ponds
  - Karst Features
  - Target Notes (Centre)
  - Target Notes (Extent)
  - Areas Liable to Flood From 6" Mapping
  - Designated Sites (SAC, SPA & NHA)
  - New N18 Road Alignment

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**Project**

*Survey and Mapping of Habitats  
in North and Mid Clare*

**Title**

**Habitat Map North and  
Mid Clare**

**Figure**

**Issue Details**

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**Notes**

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An Chomhairle Oidhreacht  
The Heritage Council

Clare Biodiversity

Clare Heritage