

APPROPRIATE ASSESSMENT
IN ACCORDANCE WITH THE REQUIREMENTS OF
ARTICLE 6(3)
OF THE
EU HABITATS DIRECTIVE

OF THE
COUNTY GALWAY DEVELOPMENT PLAN
2009-2015



for: **Galway County Council**
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Galway



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March 2009

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List of Abbreviations

AA	Appropriate Assessment
CDP	County Development Plan
CSO	Central Statistics Office
DEHLG	Department of the Environment, Heritage and Local Government
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EU	European Union
GCC	Galway County Council
GSI	Geological Survey of Ireland
NHA	Natural Heritage Area
NSS	National Spatial Strategy
RBD	River Basin District
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SEO	Strategic Environmental Objective
SI No.	Statutory Instrument Number
SPA	Special Protection Area
WFD	Water Framework Directive

Glossary

Biodiversity and Flora and Fauna

Biodiversity is the variability among living organisms from all sources including inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems' (United Nations Convention on Biological Diversity 1992).

Flora is all of the plants found in a given area.

Fauna is all of the animals found in a given area.

Biotic Index Values (Q Values)

The Biotic Index Values, or Q values, are assigned to rivers in accordance with biological monitoring of surface waters - low Q ratings, as low as Q1, are indicative of low biodiversity and polluted waters, and high Q ratings, as high as Q5, are indicative of high biodiversity and unpolluted waters. Good status as defined by the Water Framework Directive equates to approximately Q4 in the national scheme of biological classification of rivers as set out by the Environmental Protection Agency.

Environmental Problems

Annex I of Directive 2001/42/EC of the European Parliament and of the Council of Ministers, of 27 June 2001, on the assessment of the effects of certain plans and programmes on the environment (the Strategic Environmental Assessment Directive) requires that information is provided on 'any existing environmental problems which are relevant to the plan or programme', thus, helping to ensure that the proposed strategic action does not make existing environmental problems worse.

Environmental problems arise where there is a conflict between current environmental conditions and ideal targets. If environmental problems are identified at the offset they can help focus attention on important issues and geographical areas where environmental effects of the plan or programme may be likely.

Environmental Vectors

Environmental vectors are environmental components, such as air, water or soil, through which contaminants or pollutants, which have the potential to cause harm, can be transported so that they come into contact with human beings.

European Site

A Site designated for protection as part of the Natura 2000 network of sites.

Mitigate

To make or become less severe or harsh

Mitigation Measures

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing a human action, be it a plan, programme or project. Mitigation involves ameliorating significant negative effects. Where there are significant negative effects, consideration should be given in the first instance to preventing such effects or, where this is not possible, to lessening or offsetting those effects. Mitigation measures can be roughly divided into those that: *avoid* effects; *reduce* the magnitude or extent, probability and/or severity of effects; *repair* effects after they have occurred; and *compensate* for effects, balancing out negative impacts with other positive ones.

Qualifying Interest

The Constituent Habitats of a Designated Site that are the reason for the Site's designation. These habitats are scheduled for protection by the Habitats Directive.

Scoping

Scoping is the process of determining what issues are to be addressed, and setting out a methodology in which to address them in a structured manner appropriate to the plan or programme. Scoping is carried out in consultation with the appropriate bodies.

Strategic Actions

Strategic actions include: *Policies*, which may be considered as inspiration and guidance for action and which set the framework for plans and programmes; *Plans*, sets of co-ordinated and timed objectives for the implementation of the policy; and *Programmes*, sets of projects in a particular area.

Strategic Environmental Assessment (SEA)

Strategic Environmental Assessment (SEA) is the formal, systematic evaluation of the likely significant environmental effects of implementing a plan or programme before a decision is made to adopt it.

Strategic Environmental Objective (SEO)

Strategic Environmental Objectives (SEOs) are methodological measures which are developed from international, national and regional policies which generally govern environmental protection objectives and against which the environmental effects of the CDP can be tested. The SEOs are used as standards against which the objectives of the CDP can be evaluated in order to help identify areas in which significant adverse impacts are likely to occur, if not mitigated.

Section 1 Preamble

Having regard to;

- the level in the hierarchy and detail of the Plan and that the County Development Plan [notwithstanding the use of the title 'Plan'] provides a *Strategic Framework Document*,
- that the Plan does not dictate or indicate the location, extent, use, character or intensity of specific or any future landuses or developments - to a level that permits the prediction of locations of likely effect,
- the absence of either published management plans or conservation objects for European Sites,

Galway County Council have, through the application of the precautionary principle, to assume that due to the level in the hierarchy and detail of the Plan and to the current state of knowledge of the European Sites and their conservation objectives that is necessary to adopt a Plan that;

- integrates the requirement that further appropriate assessments will be required to ascertain that any subordinate plans will not adversely affect any European site,
- makes explicit that any subsequent plan or project will only be compliant if further appropriate assessments of any subordinate plans – or developments will not adversely affect any European site,
- includes policies, objectives and measures to mitigate or restrict the permitting of subsidiary plans, landuses or developments that might give rise to adverse effects on any European site,

Notwithstanding these considerations an assessment is provided hereunder of the impact of the Plan, alone or in combination with other plans and projects, on all relevant European sites, as required by Article 6(3) of the Habitats Directive - that is proportional to the level in the hierarchy and detail of the Plan and is as rigorous an assessment as is practicable in the context of the this plan - as acknowledged by the EC in their Article 6 guidance.

Accordingly the effects on European site interests will be assessed at this and at each relevant future stage, in accordance with the principle of subsidiarity – from County Development Plan through Local Area (or other plan) Plan to Development Control (including EIS if relevant) so that the assessment will be re-visited with increasing specificity at each subsequent stages. In this way more specific assessments, determinations, conditions or mitigations may be applied in light of the level of knowledge that

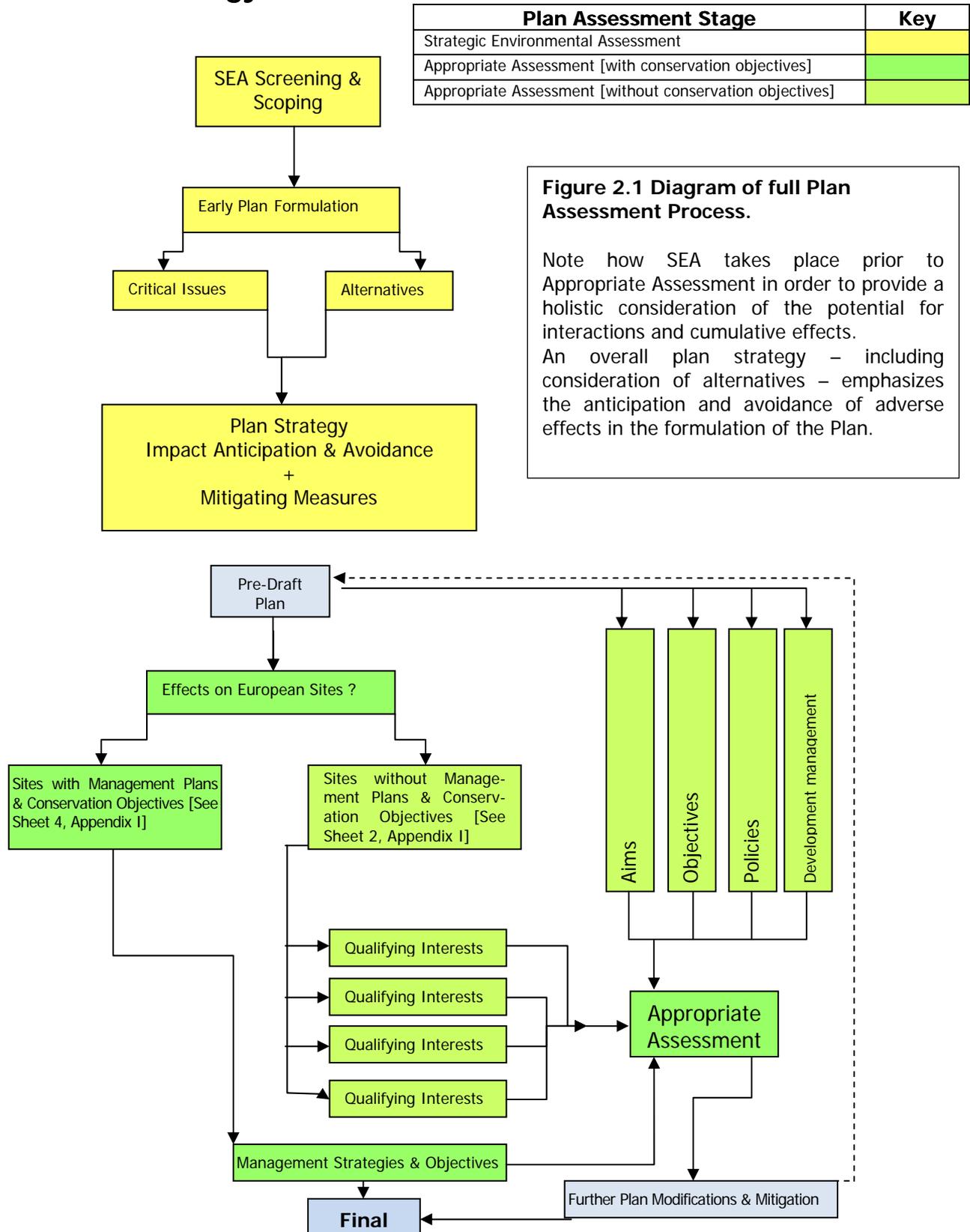
may reasonably be expected to be available at each such stage.

The assessment provides a full record of the information used, the sources of that information and of the appraisal carried out in the assessment to justify the conclusions. This information has been used to inform the development and evaluation of alternative plan scenarios in the early stages of plan development and to subsequently develop appropriate avoidance mitigation policies and objectives.

Galway County Council have given consideration to a level of assessment which is appropriate for the contents of the Plan and future subsidiary plans in order to determine the likely impact of the Plan's provisions. The assessment method followed is deemed to be proportionate, fit for purpose, scientifically sound and pragmatic. Specifically it aims to identify whether and how the Plan is likely to affect the conservation objectives of European sites (Sheet 2, Appendix I) and, where these are not currently published, to identify the general factors that help to maintain the favourable status of the key habitats and species of these sites (Sheet3, Appendix I). This facilitates an assessment of whether and where effective provisions to protect the integrity of European Sites exist in The Plan or in other more specific instruments/measures – such as pollution control legislation, River Basin Management Plans etc.

Section 2 Appropriate Assessment

2.1 Methodology



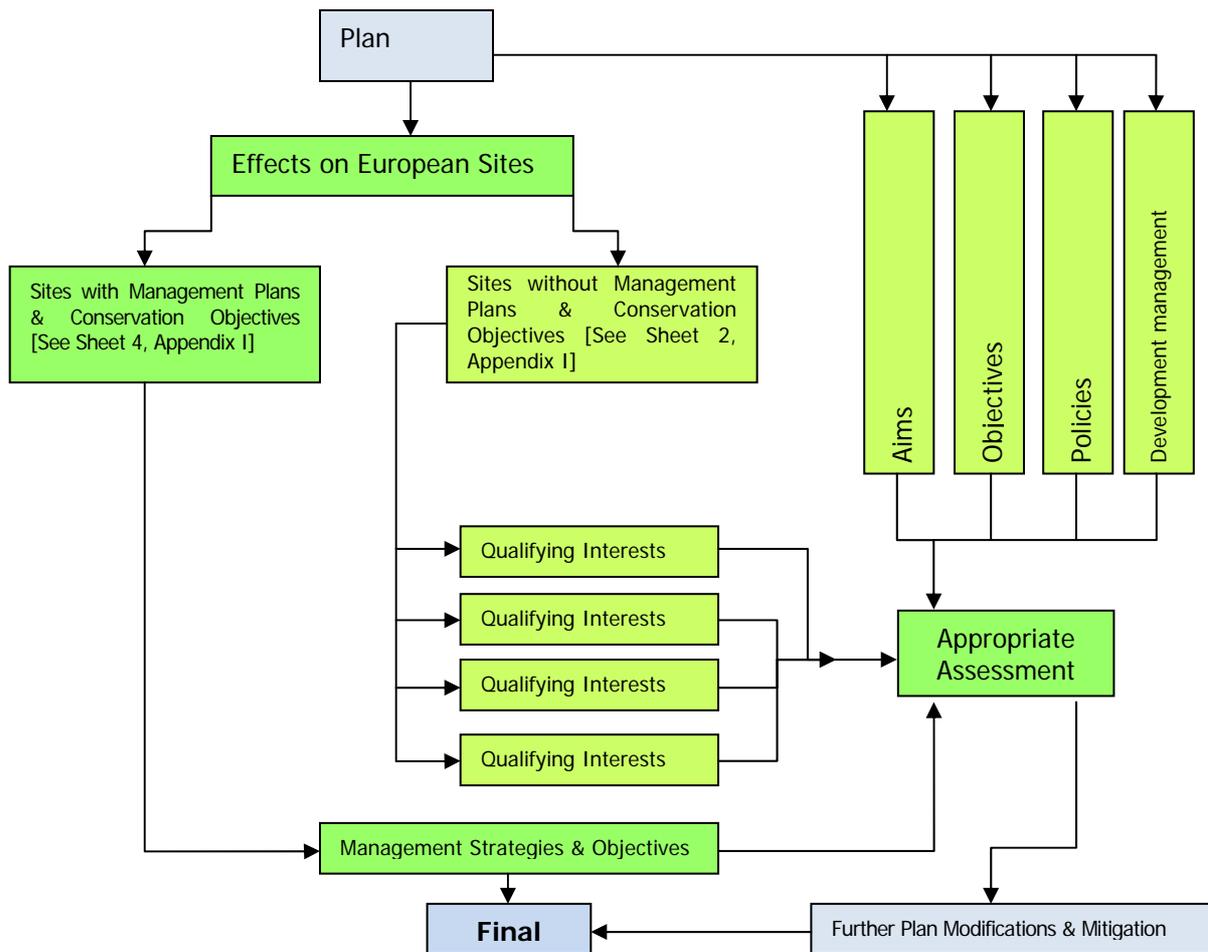


Figure 2.2 Diagram of Appropriate Assessment Process

A Development Plan is assessed to examine the potential effects on European Sites in accordance with the requirements of Article 6 (3) of the Habitats Directive which calls for an evaluation of the likely effects of the proposed Plan on the conservation objectives of the European Site.

Where Management Plans have been published, containing Conservation Objectives, then the specific strategies and objectives for the key indicators of the site are assessed to determine what effects – if any – are likely to occur, whether the Plan anticipates and mitigates against these impacts and whether there is likely to be any adverse effects on the integrity of the site.

Where Management Plans have not yet been published then General Conservation Objectives are inferred for European Sites by identifying the Critical Resources necessary to sustain each of the Qualifying Interests that make up each Site.

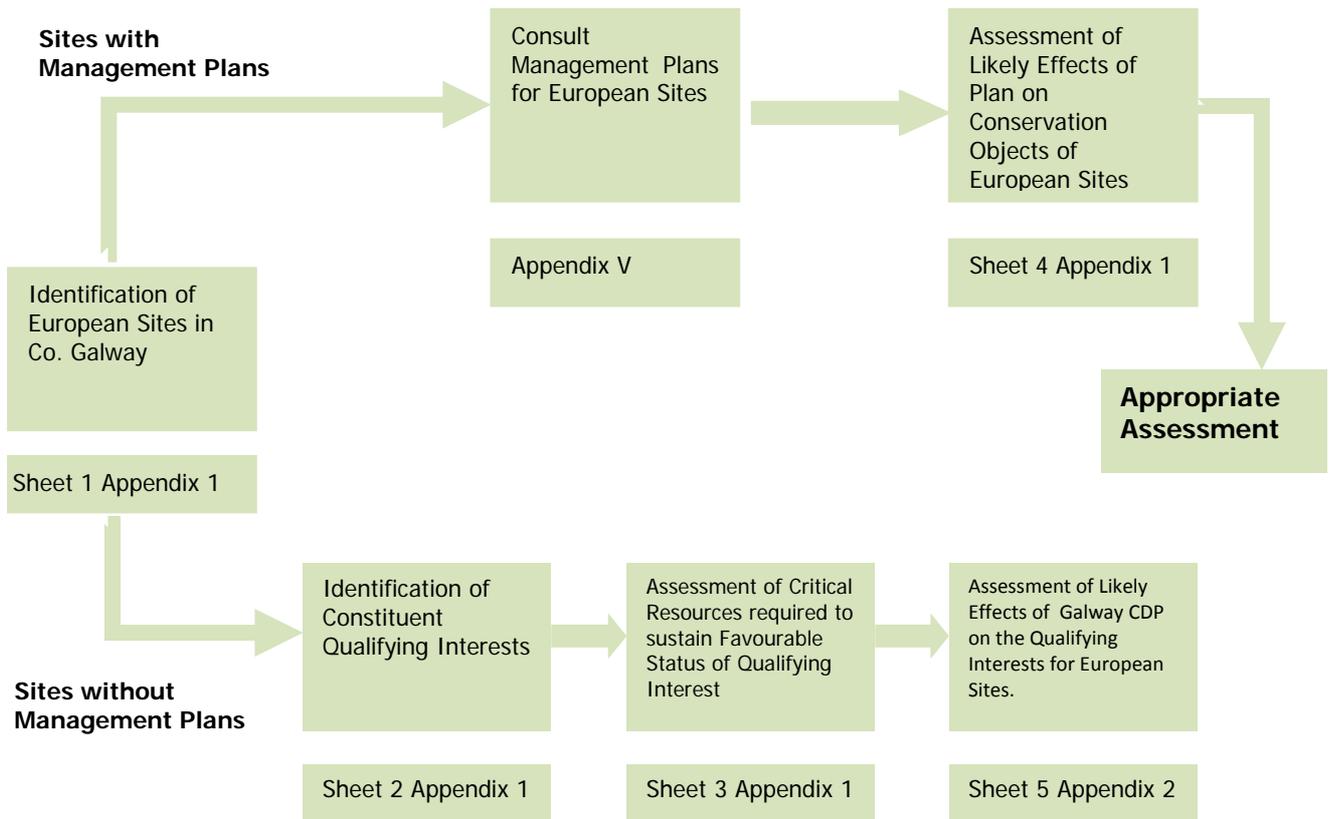


Figure 2.4 Flowchart illustrating how the Plan is assessed

The upper stream illustrates how Sites with Management plans are assessed – by assessing the likely effects of the relevant parts of the Plan on the Conservation Objectives for the Site. The lower stream illustrates how Conservation Objectives are inferred [as ‘Critical Resource Requirements’] for the Qualifying Interests of Sites without Management Plans - which facilitates a generalized assessment – appropriate to this level of plan making. This assessment identifies those policies and objectives that will require further assessment at subsidiary levels of plan-making and project evaluation - see below.

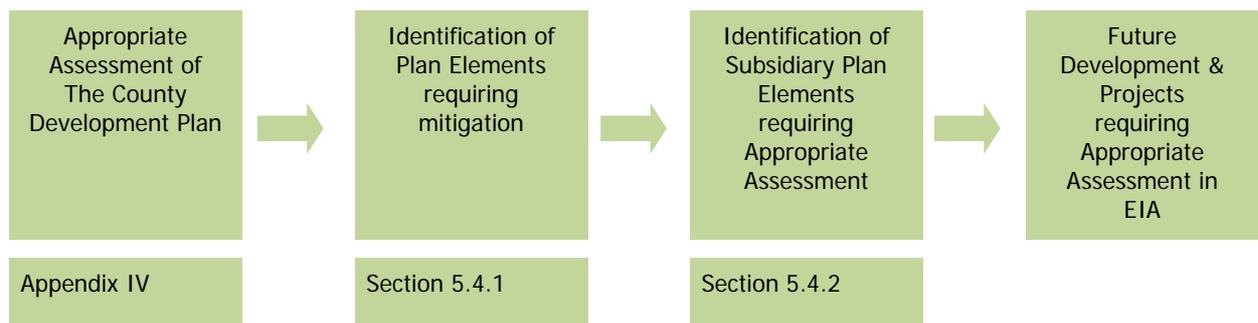


Figure 2.3 Flowchart illustrating the subsidiarity of Assessment

This identifies those elements that are assessed at this stage and which subsidiary elements - such as town or local area plans - will be assessed at a more appropriate level of detail in the future.

Section 3 Assessment Subjects



Figure 3.1 Context of County Galway in relation to the island of Ireland and surrounding counties

3.1 The Existing Environment

3.1.1 The Ecology & Habitats of Galway

The environmental baseline of County Galway is described in this section. This baseline is used in order to identify, describe and evaluate whether any significant environmental effects are likely to occur to designated European Sites due the implementation of the County Development Plan.

County Galway is the second largest county in Ireland with an area of 6,148 square kilometres and a population of 231,035 persons as of Census 2006¹, 159,052 of which live in the administrative area of Galway County Council and 71,983 of which live in Galway City.

¹ CSO (2007) *Census 2006 Volume 1 - Population Classified by Area* Cork: CSO

Located in the west of Ireland, the County shares borders with five other counties - Mayo, Roscommon, Offaly, Tipperary and Clare and borders the Atlantic Ocean to its east with a coastline of around 689 kilometres, excluding that of its many off shore islands.

Human interaction with the land and sea is evident from the earliest of times up to the present, from archaeological remains to farmland to growing urban centres such as Galway City, Athenry, Ballinasloe, Clifden, Gort, Headford, Loughrea, Oranmore, Oughterard, Portumna and Tuam.

West Galway is characterised by mountains, bogs, rivers and lakes while East Galway is characterised by a low-lying rolling topography of a fertile limestone plain, rich pasturelands, bog, and the River Shannon with its Callows and Lough Derg.

Due to its geology, the mild climate and plentiful rainfall, the Galway landscape has an abundance and diversity of wetlands, peatlands and freshwater features.

3.2 Biodiversity and Flora and Fauna

3.2.1 Overview of High Value Biodiversity²

3.2.1.1 Introduction

County Galway contains a variety of natural habitats including many of international nature importance such as blanket bogs, fens, heath, ancient oak woodland, turloughs, species-rich calcareous grassland and limestone pavement. The County also contains a large number of rare, threatened and uncommon species, including a large number of plants and animals that are protected under national and European Union legislation. A number of these species are found within the habitats of high value mentioned below as well as within the County's designated ecological sites (see Section 3.2.4).

² Text in this section is sourced from the Galway County Draft Biodiversity Action Plan 2008 - 2013 which provides a detailed overview of the County's biodiversity [Galway County Council (2008) *Draft Biodiversity Action Plan for County Galway 2008 - 2013* Galway: Galway County Council].

3.2.1.2 Peatlands

Peatlands such as raised and blanket bogs, wet and dry heath, and fens are of particular value because of the rarity of these habitats in an international context, and because of the characteristic flora and fauna that live in these wet, peaty and often highly acidic places.

Irish raised bogs account for 50% of all the conservation-worthy raised bogs remaining in Europe. A number of high quality active raised bogs are found in the north and east of County Galway, as well as large areas of cutover and degraded raised bog.

Ireland, and in particular, Galway, contains some of the best examples of intact blanket bog in Europe. The most extensive habitat of nature importance within County Galway is lowland blanket bog, found mainly in south Connemara. This habitat, which often occurs in close association with nutrient-poor lakes and rivers, provides a habitat for a large number of rare plants including Slender Cotton Grass, Bog Orchid and Pillwort. The mountains of Connemara and other upland areas in the County are generally dominated by upland blanket bog, wet, dry and montane heath.

A number of birds live and breed on bogs including Red Grouse, Golden Plover and the Curlew. These birds are very vulnerable to loss of good quality bog habitat and their numbers have been declining for many years. Blanket bog, heath and young coniferous forestry habitats in the Slieve Aughties are important breeding ground for the Hen Harrier.

The coastal areas of Connemara tend to be dominated by extensive areas of dry heath and outcropping bedrock (mostly granite). The shallow, peaty soils found in these coastal heaths provide a habitat for a range of rare plants including Pyramidal Bugle, Pale Dog-violet, Green-winged Orchid and Spotted Rock-rose.

Fens are another important but less abundant peatland type found in Galway, which often occurs in association with raised bogs, eskers and/ or lakes. The Marsh Fritillary is one of the most endangered species in Europe due to the loss of its habitat across much of its range. County Galway contains a large proportion of the Irish population and colonies can be found on a number of fens and raised bog sites in the east of the County.

3.2.1.3 Limestone Pavement

Limestone pavement is a unique habitat found in the Burren region in Clare, south County Galway and on the Aran Islands. Exposed limestone outcrops and the associated habitats of limestone heath, scrub and woodland form some special habitat mosaics with many uncommon plant species and unusual plant assemblages present. Extensive areas of limestone pavement still occur to the south of Kinvarra with a number of small, isolated patches occurring along a corridor from Kilcolgan to Tuam and near Moycullen. These areas of limestone pavement often occur in close association with species-rich calcareous grassland and sometimes support the protected species, Wood Bitter-vech. Often associated with limestone pavement, orchid-rich calcareous grasslands are another priority habitat. These species-rich semi-natural grasslands are becoming increasingly scarce in Ireland due to changes in agricultural practice and housing development. Some good examples can still be seen in the Aran Islands and around Castletaylor - both areas of which are designated as Special Areas of Conservation - and in the Cow Park in Clarinbridge.

Underground limestone caves can be important hibernation areas for bats such as the Lesser Horseshoe, which is found in just six counties on the western seaboard including Galway. The Irish population of Lesser Horseshoe bats is internationally important as the species is now in serious decline and even extinct in much of Europe.

3.2.1.4 Woodland

Native woodland is a relatively uncommon habitat in County Galway. In west Galway, Derryclare and Ballinahinch in Connemara are important native woodland sites, while in east Galway, significant areas of oak-birch-holly woodland include Gortnacarnaun, Drummin, and Woodford. An extensive area of oak-ash woodland is found in association with the turloughs of Coole and Garryland. These woodlands support many rare plant species including the Narrow-leaved Helleborine, Bird Cherry and Yellow Bird's Nest. They are also home to the Brown Hairstreak, a much localised butterfly species that is found only in Galway, Clare and North Tipperary living in limestone woodlands and hedges.

Even when dominated by non-native broadleaf trees - such as beech or sycamore - woodland

habitats can support a wide range of plants and animals. Forests such as Portumna Forest Park and Kilcornan Woods in Clarinbridge are home to important populations of Red Squirrel, a species that is in rapid decline in most of the east of the country due to competition from the introduced American Grey Squirrel. The Pine Marten is another important native mammal found in Galway woodlands. Due to centuries of persecution, Pine Marten numbers were critically reduced but now its range is expanding due to legal protection and increasing cover of coniferous forestry and scrub woodland.

3.2.1.5 Eskers

Eskers are distinctive Irish habitats found mostly in the midlands. They are long sinuous rounded hills which were formed at the end of the last ice age when silt, sand and gravel were deposited by rivers of glacial melt water under the ice. As well as being geomorphological features, eskers are important for the characteristic woodland and grassland habitats they support, including species-rich grasslands with abundant orchids. A number of eskers are found in the north and east of the County including Richmond Esker, a Nature Reserve near Kilkerrin, which has two of the few esker ridges left in the country which still carry native woodland.

3.2.1.6 Freshwater Aquatic Habitats

Turloughs, a priority habitat under the EU Habitats Directive, are unique to limestone regions in the west of Ireland. These seasonal lakes are home to a characteristic suite of animals and plants that are adapted to the fluctuating water table and include some rarities such as Fen Violet, Alder Buckthorn and Dropwort. Turloughs are abundant in north, east and south County Galway and there are a number of exceptional turlough sites in the region such as Coolcam, Croaghill, Ballinastack, Coole-Garryland and Glenamaddy Turloughs. Rahasane Turlough near Craughwell is the largest in Ireland and is important for over-wintering birds.

Galway also has an abundance of permanent freshwater lakes, the largest of which, Lough Corrib divides the geographically distinct regions of the east and west of the County. The shores of Lough Corrib provide habitat for a number of rare plant species including Irish Lady's Tresses, Shrubby Cinquefoil and Alder Buckthorn. Many of the rivers and lakes in County Galway have relatively good water quality. These water

bodies support a number of rare and important plant and animal species including important fisheries of salmon and brown trout.

The Arctic Char is a very rare fish similar in ecology and appearance to the brown trout. One of the first fish to colonise Ireland after the Ice Age, it is confined to just a few of the cold, deeper lakes including Lough Inagh, Fermoye Lough and Athry in County Galway. It is now believed that one third of all native populations of the Arctic Char in Ireland are likely to be extinct, while the status of a further twenty one populations is unknown. In Galway, Arctic Char is believed to be extinct in three lakes while the population status of a further thirteen lakes is unknown. Pollan, another very rare fish, is found in Lough Derg. In Western Europe, its distribution is limited to just five lakes in Ireland.

The Fresh Water Pearl Mussel is a critically endangered species due to pollution, habitat destruction and over-fishing. It requires particularly clean, clear and well-oxygenated water to survive and in Galway it is restricted to just a few soft-water sites in the west of the County including the Owenriff River in Oughterard. The presence of Freshwater Pearl Mussels in a river system is indicative of water of the highest quality.

The White Clawed Crayfish is protected in Ireland and under EU legislation. It prefers calcareous waters and is found in Lough Corrib, Lough Derg and other rivers of the Shannon catchment. The Irish crayfish population is especially important, as it remains free of a fungal disease that has decimated populations elsewhere in Europe.

The callows, seasonally flooded grasslands of the floodplains of the Shannon and Suck Rivers, form important wildlife habitats and add to the rich habitat mosaic found along these rivers. During the summer the callows support exceptional flower rich wet meadows, and are home to the globally endangered Corncrake. In the winter they provide food and shelter for large numbers of over-wintering wild fowl including Whooper Swan, Wigeon and Lapwing and a large flock of Greenland White-fronted Geese, an Annex I species under the EU Birds Directive.

3.2.1.7 Coastal Habitats

The coastline of County Galway - including its various offshore islands - stretches for over

2,000 km. It is highly indented and supports a diverse range of habitats including rocky and sandy shores, shingle beaches, and saltwater lagoons.

Coastal sand dunes and grasslands are important habitats for many species of invertebrates including rare snails, dragonfly and butterfly species. Machair (flat sandy grassland) is a priority habitat found only along the coast of Ireland and Scotland. In Ireland the distribution of machair is limited to the north-west coast, from Galway Bay to Malin Head in Donegal. Many machair sites have traditionally been used for low intensity mixed-farming, often as commonage land. High quality machair is found at a few sites in Connemara including Dog's Bay near Roundstone and Slyne Head. These areas are awash with orchids and other wildflowers during the summer months.

South Connemara is home to the best site in the country for another priority habitat under EU legislation, coastal lagoons, including some saline lake lagoons situated on peat. The Foxtail Stonewort, a protected species of algae that grows in highly saline lagoons, has only been recorded at five locations in Ireland, three of which are in Connemara.

Salt marshes occur frequently in sheltered locations along the Galway coast. They contain a suite of species able to cope with the saline conditions and often are important habitats for Otters and a wide range of birds.

Underwater reefs are found off the Aran Islands and Kilkieran Bay (Ireland's first marine SAC), and support a biodiversity of marine invertebrates including rare echinoderms, anemones, sponges, soft corals and sea fans. Ireland's only known sublittoral population of the Purple Sea Urchin is found on a reef on the west coast of Inishmore.

Ireland has one of the most species-rich seaweed floras in Europe with many potential 'hot-spots' of seaweed diversity identified including Galway Bay, the coast of the Burren and Connemara. Of particular interest are the maerl beds found in western parts of the coasts of County Galway. These rare habitats are composed of deep deposits of calcareous red algae which produce the distinctive 'coral' beaches found around Carraroe.

The Atlantic waters off the Galway coast are home to a great diversity of large marine mammals including Bottlenose Dolphins and the Common and Grey Seal. The coast offers a variety of habitats for all manner of sea birds, including the Chough, which breeds on rocky coastal sites, and the Little Tern, which nests on sandy shores.

3.2.2 Ecological Networks and Connectivity

Ecological networks are important in connecting areas of local biodiversity with each other and with nearby designated sites so as to prevent islands of habitat from being isolated entities. They are composed of linear features, such as treelines, hedgerows and rivers/streams, which provide corridors or stepping stones for wildlife species moving within their normal range. They are important for the migration, dispersal and genetic exchange of species of flora and fauna particularly for mammals, especially for bats and small birds. They facilitate linkages both between and within designated ecological sites, the non-designated surrounding countryside and the more urban areas of the County.

The County is dissected by many rivers and lakes with Lough Corrib, Ireland's second largest, lake at its centre. The banks of these aquatic features together with the extensive coastline of the County provide significant connectivity across the County.

Hedgerows are a familiar landscape feature in the countryside of the County, particularly east of Lough Corrib. As well as providing food and shelter for insects, birds and other animals, hedgerows also act as important corridors. Typically, older, denser hedges support a greater abundance and diversity of wildlife.

As traditional species-rich grasslands decline, grassy roadside verges and other marginal grasslands act as important habitats and ecological networks for many species of wild flowers and the invertebrates they support. Because of a management regime which is generally of low-intensity, many grassy verges growing along roads contain a great variety of wild flowers. In Connemara, long stretches of grassy verges may contain a great variety of orchid species.

Manmade structures such as stone walls, bridges and buildings can also be very important for

wildlife and provide feeding, hibernating and roosting sites for many species of invertebrates, birds and bats. A diversity of mosses, lichens and other plants are often found on old stone built structures.

3.2.3 Land Cover and Habitat Mapping

3.2.3.1 CORINE Land Cover Mapping³

The CORINE land cover mapping⁴ for County Galway classifies land cover under various headings. CORINE land cover mapping for County Galway for the year 2000 is shown on Figure 3.2.

The mapping shows an overall difference between land cover to the west of Lough Corrib and land cover to the east of the Lough.

The western half of the County is primarily covered by the *peat bogs* category of land cover whereas the eastern half of the County is primarily covered by *pastures* as well as significant portions of *peat bogs* and *complex cultivation patterns*.

Water bodies are spread across the western half of the County as are pockets of *transitional woodland scrub* and *coniferous forest*.

Agricultural lands with natural vegetation are found near the banks of the Corrib system and other lakes as well as being spread across the north of the County - to the south of Headford and to the north west of Tuam - and across the south west corner of the County.

³ CORINE Land Cover (CLC) is a map of the European environmental landscape based on interpretation of satellite images. Land cover is the observed physical cover, as seen from the ground or through remote sensing, including for example natural or planted vegetation, water and human constructions which cover the earth's surface. Because of the scale of the CORINE data and the method by which it was collected there are likely to be a number of inaccuracies at the local level. It is noted, however, that the land cover shown on the maps is generally accurate at the County level. The European Environment Agency, in conjunction with the European Space Agency, the European Commission and member countries is currently updating the CORINE land cover database.

⁴ European Environment Agency Coordination of Information on the Environment (2004) *Ireland's Corine Land Cover 2000 (CLC2000)* Copenhagen: EEA

A mosaic of *peat bogs*, *transitional woodland scrub* and *coniferous forests* is found over a wide area located between Gort and Portumna, in the vicinity of the Slieve Aughty Mountains.

Land Cover differences between the CORINE 1990 data and the data for the year 2000⁵ (see Figure 3.3) show that in the west of the County there are new pockets of *transitional woodland scrub* and *coniferous forest*, replacing *peat bogs*. In addition, areas which were identified by the 1990 data as being *coniferous forest* were identified by the 2000 data as being *transitional woodland scrub*. These changes in the data reflect the land cover changes as a result of the planting, maturing and felling of *coniferous forests*. Similar changes to these were experienced in the east of the County in the vicinity of the Slieve Aughty Mountains.

Elsewhere in the east of the County, *non irrigated arable land* and *natural grassland* were identified as having replaced *pastures* - reflecting local agricultural changes - and *transitional woodland scrub* was identified as having replaced *coniferous forests* - again, reflecting the felling of trees.

Changes in land cover from natural/semi natural land cover categories - such as *pastures* - to the category of *discontinuous urban fabric* were identified by the data primarily emanating from Galway City but also at Athenry, Ballinasloe, Clifden, Gort, Headford, Loughrea, Oranmore, Oughterard, Tuam, Kilconnell, Bunowen Bay and Craughwell.

These changes between 1990 and 2000 land cover indicate a cumulative loss of natural/agricultural vegetation and associated habitats - and their flora and fauna - at the fringes of the County's largest settlements.

Other changes indicated were the replacement of agricultural categories of land cover with the category of *mineral abstraction sites* to the north of Auclogheen, to the east of Beagh and to the north west of Portumna.

⁵ European Environment Agency Coordination of Information on the Environment (various) *Ireland's Corine Land Cover 2000 (CLC2000)* and *Ireland's Corine Land Cover 1990 (CLC1990)* Copenhagen: EEA

3.2.3.2 FIPS Habitat Mapping⁶

Forest Inventory and Planning System (FIPS) Habitat Indicator Mapping was sought for inclusion in this study however it was not received by the date of publication and was therefore omitted. The findings of the CORINE land cover mapping in the previous section would have been likely to be consistent with findings arising out of the FIPS Habitat Indicator Mapping.

⁶Teagasc Spatial Analysis Group, Teagasc, Kinsealy Research Centre, Dublin: Forest Inventory and Planning System (FIPS) Habitat Indicator Mapping aims to indicate the likely distribution of particular habitats throughout Ireland. The mapping is an enhancement of the FIPS land cover map by increasing the classification and spatial resolution of many of the land cover thematic classes. These land cover classes are indicative of habitat type in a very broad sense only in that they represent combinations of more detailed habitat classes.

The habitat indicator classes reflect habitat type in a broad sense and represent conflation of more detailed habitat classes. The habitat indicator classes have been attributed corresponding codes from *A Guide to Habitats in Ireland (Fossitt, 2000)*.

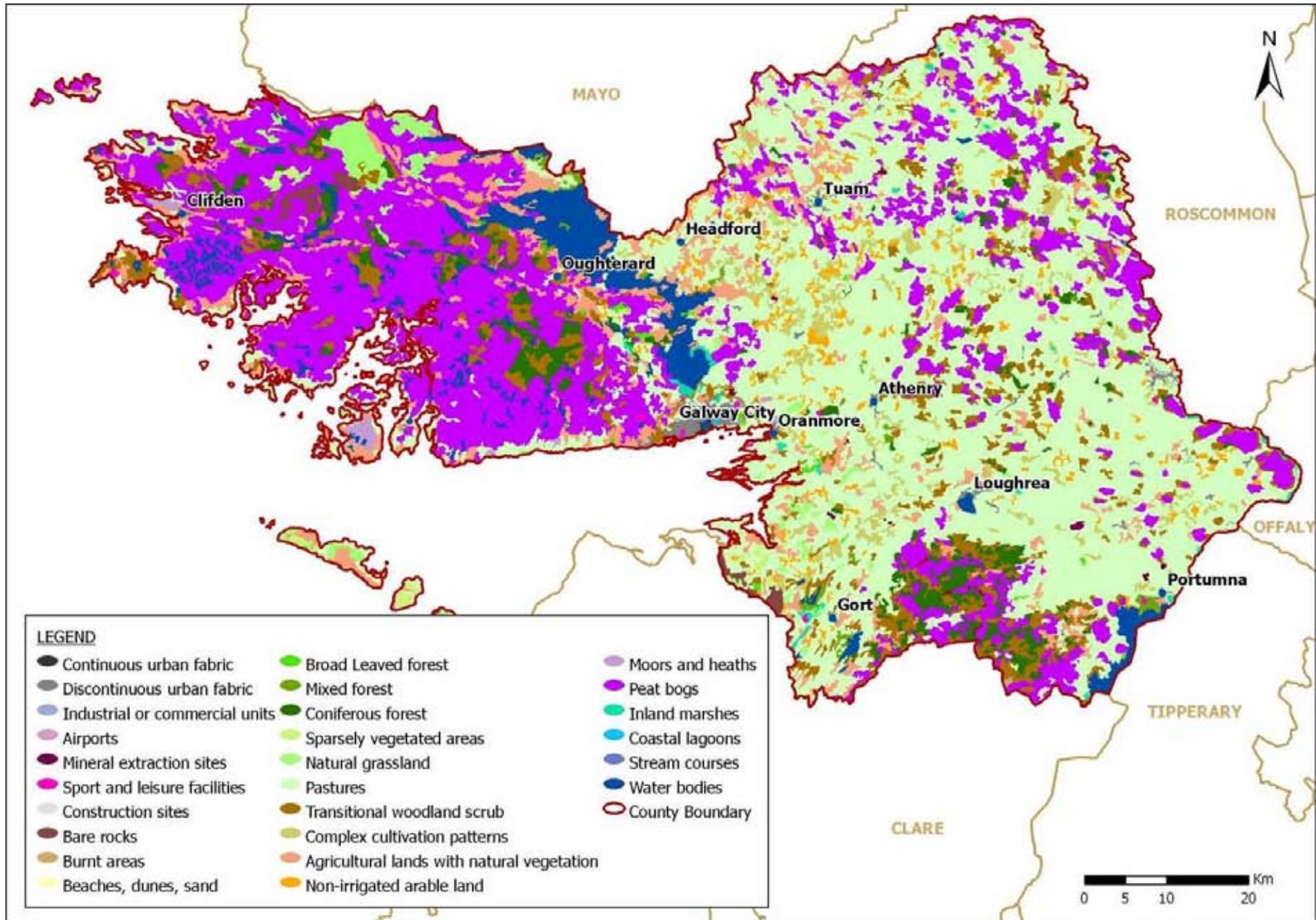


Figure 3.2 CORINE Land Cover 2000

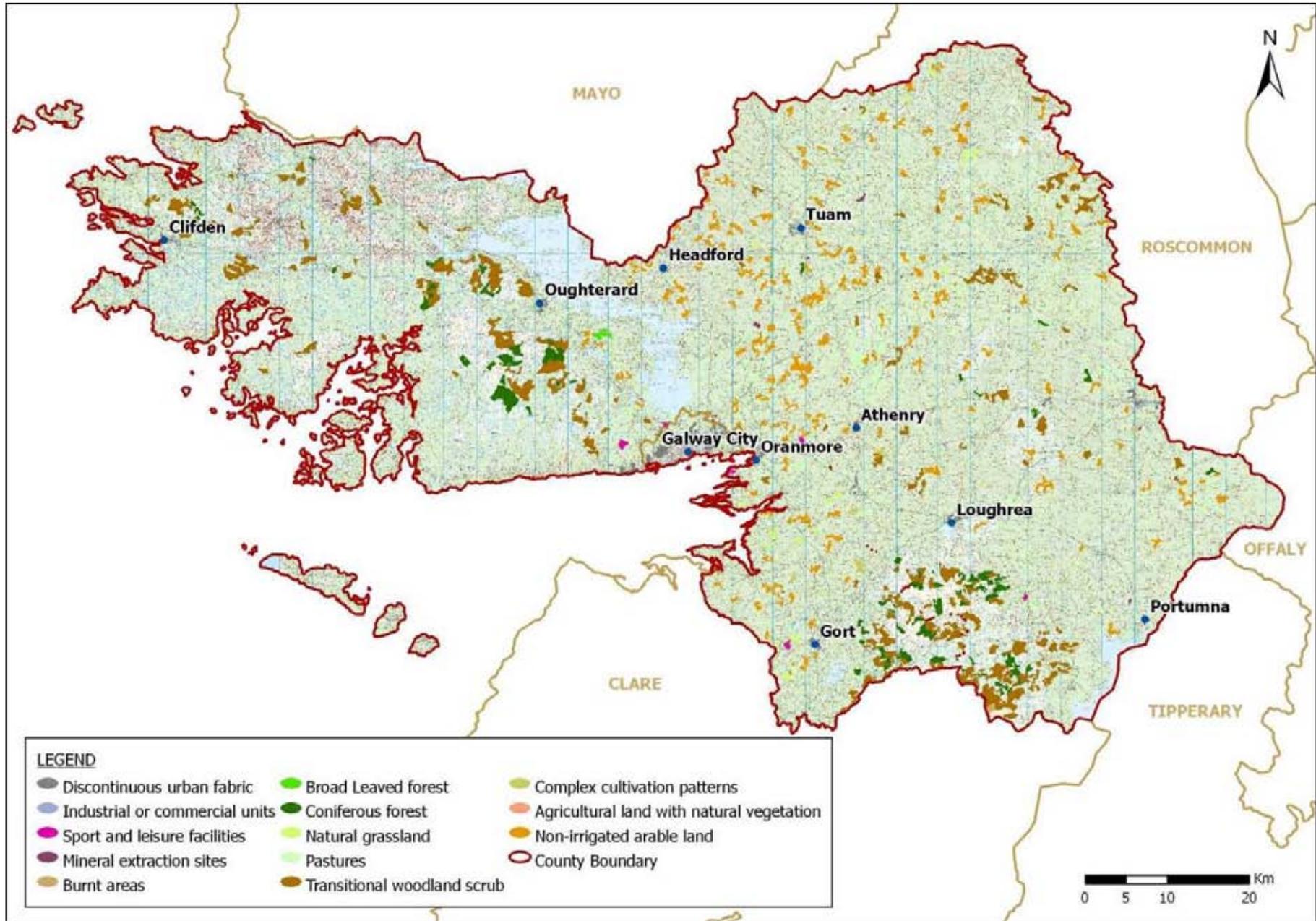


Figure 3.3 CORINE Land Cover Changes 1990-2000

3.2.4 Designations

3.2.4.1 Introduction

The international significance of Galway's natural heritage is reflected in the fact that a high proportion of the County is designated for nature conservation under European and National legislation. Figure 3.4 shows the spatial distribution of Special Area of Conservation (SAC), Special Protection Area (SPA) and Natural Heritage Area (NHA) designations across the County. As can be seen from the Figure 3.4, many of these sites overlap with each other. Other categories of designations are present in the County and are identified in proceeding sections however these generally overlap with those shown on Figure 3.4.

The majority of the western half of the County - including Lough Corrib, inner Galway Bay and most of the County's islands - is covered by designated sites, the largest of which is the Connemara Bog Complex SAC and NHA which covers much of the County's peatlands to the west of the Lough Corrib SPA, candidate SAC and proposed NHA. Kilkieran Bay and its islands comprise a candidate SAC and there is an SAC designation covering part of Inishmore Island and its waters. The Galway Bay Complex SAC and pNHA and the Inner Galway Bay SPA together cover an area of the Bay stretching from Salthill (in the east of the Galway City) to Aughinish (on the Galway/Clare border) - as indicated by Figure 3.4 - and further into County Clare's offshore waters.

The eastern half of the County is covered to a significantly lesser extent by such designations; nevertheless a number of important areas are located in this half of the County. The Grange/Clare/Albert/Sinking River system which drains into Lough Corrib is part of the Corrib designated system and the designated River Suck and River Shannon Callows and Lough Derg comprise much of the County's western border. The Slieve Aughty Mountains SPA covers a wide area located between the settlements of Gort and Portumna.

3.2.4.2 Candidate Special Areas of Conservation

Candidate Special Areas of Conservation (cSACs) have been selected for protection under the European Council Directive on the conservation of natural habitats and of wild fauna and flora

(92/43/EEC) by the DEHLG due to their conservation value for habitats and species of importance in the European Union. The sites are *candidate* sites because they are currently under consideration by the Commission of the European Union.

A total of 73 cSACs have been selected in County Galway for 47 Annex I habitats including 10 priority habitats. Annex I habitats are recognised by the European Union to be of particularly high nature conservation value.

Candidate SACs in Galway provide examples of bogs, callows, machair, limestone pavement, headlands, bays, loughs, turloughs, islands, woods and caves.

Candidate SACs are listed under Table 3.1 and mapped on Figure 3.4⁷.

On designation, these cSACs together with the SPAs identified below will become part of Natura 2000 - a network of protected areas throughout the EU established under the Habitats Directive.

3.2.4.3 Special Protection Areas

Special Protection Areas (SPAs) have been selected for protection under the 1979 European Council Directive on the Conservation of Wild Birds (79/409/EEC) by the DEHLG due to their conservation value for birds of importance in the European Union.

16 SPAs have been designated in County Galway covering, inter alia, certain bays, loughs, islands, turloughs, callows, woods and marshes. These SPAs along with SACs comprise Natura 2000 - a network of protected areas throughout the EU established under the Habitats Directive.

SPAs are listed under Table 3.2 and mapped on Figure 3.4⁸.

3.2.4.4 Natural Heritage Areas

Natural Heritage Areas (NHAs) are designated due to their national conservation value for ecological and/or geological/geomorphological

⁷ Site synopses for cSACs are available to download from the website of the National Parks and Wildlife Service at <http://www.npws.ie/en/ConservationSites/> and are provided as Appendix I to this report.

⁸ Site synopses for SPAs are available to download from the website of the National Parks and Wildlife Service at <http://www.npws.ie/en/ConservationSites/> and are provided as Appendix I to this report.

heritage. They cover nationally important semi-natural and natural habitats, landforms or geomorphological features, wildlife plant and animal species or a diversity of these natural attributes. NHAs are designated under the Wildlife (Amendment) Act 2000.

39 NHAs have been designated in County Galway - mainly covering bog habitats with examples of marshes and eskers also included - and there are 106 sites for which Natural Heritage Area designations are proposed, including various bogs, eskers and woods.

NHAs are listed under Table 3.3 and mapped on Figure 3.4⁹. Proposed NHAs are listed under Table 3.4 and Table 3.5.

3.2.4.5 Ramsar Sites

Ramsar sites are designated and protected under the Convention of Wetlands of International Importance, especially as Water Fowl Habitat, which was established at Ramsar in 1971 and ratified by Ireland in 1984. Ireland presently has 45 sites designated as Wetlands of International Importance, with surface areas of 66,994 hectares. Three Ramsar sites are located in County Galway comprising 29,997 hectares in total or 44.7% of the national total.

The following synopses¹⁰ provide details on each of the three sites:

- **Lough Corrib**

Designated: 11/06/96
Area: 17,728 ha
Ramsar site no.: 846

The second largest lake in Ireland supports one of the largest areas of wetland vegetation consisting of reed, sedge and rush communities in the Country. Other habitats include Sessile Oak woodland, calcareous fen, callows grassland, marsh and raised bog with a soak system. The site provides important feeding grounds for waterbirds and supports internationally important numbers of several breeding and wintering waterbirds and

⁹ Site synopses for NHAs are available to download from the website of the National Parks and Wildlife Service at <http://www.npws.ie/en/ConservationSites/> and are provided as Appendix I to this report.

¹⁰ Ramsar Convention Secretariat (2000) *The Annotated Ramsar List of Wetlands of International Importance* Switzerland: Ramsar Convention Secretariat

nationally important numbers of numerous other waterbird species. The site supports the otter and numerous rare and threatened plant and fish species. Human activities include fishing and hunting.

- **Coole Lough and Garryland Wood**

Designated: 30/05/90
Area: 364 ha
Ramsar site no.: 473

Part of a low-lying karstic limestone area characterized by a subterranean drainage system and seasonal lakes, known as turloughs, set in a matrix of woodland, limestone heath and grassland. The site together with the adjacent nutrient-poor lakes is the most important turlough complex in Ireland. Many rare species of flora and fauna and communities associated with the turlough to woodland transition are supported. Water levels fluctuate widely. The lakes are fringed by aquatic vegetation grading into grassland, tall grass and herb communities and, beyond the level of summer flooding, into scrub and high forest.

- **Inner Galway Bay**

Designated: 11/06/96
Area: 11,905 ha
Ramsar site no.: 838

The shallow sheltered part of a large sea bay with numerous intertidal inlets and small low islands composed of glacial deposits. The area provides important habitat for marine life along Ireland's west coast. The site supports the richest seaweed flora on the Irish Coast (500+ species) and 65% of the Irish marine algal flora occur in the area. The site supports internationally and nationally important numbers of numerous species of waterbirds. There is a large cormorant colony on Teer Island. Human activities include aquaculture.

3.2.4.6 Nature Reserve

A Nature Reserve is an area of importance to wildlife, which is protected under Ministerial order. There are currently 78 Statutory Nature Reserves. Most are owned by the State but some are owned by organisations or private landowners.

There are six of Nature Reserves in County Galway the descriptions of which are given below¹¹:

- **Ballynastaig Wood and Coole-Garryland Nature Reserves (9.76ha and 363.58 ha)**

Located near Gort, State owned and established in 1983, these two reserves, through their combination of deciduous woods, limestone reefs, lakes and turloughs, constitute one of the most interesting Irish vegetation and faunal complexes still in existence. The Coole-Garryland reserve contains a variety of floral habitats including well-formed high forest on deep pockets of soil, dwarf woodland on limestone pavement, a turlough complex in the Callows and Coole Lake.

- **Clochar na gCon/Bealacooan Bog Nature Reserve (1,247 ha)**

Situated in South Connemara, State owned and established in 1999, this bog forms part of the greater Connemara Bog Complex. It is a classic and intact example of Atlantic or oceanic blanket bog, with a diverse flora which includes a number of scarce plant species and a blanket bog fauna which includes many of Ireland's and Europe's more important and threatened species. Actively growing bog is a priority EU habitat.

- **Derrycrag Wood and Rosturra Wood Nature Reserves (110.48 and 17.68)**

Located near Woodford, State owned and established in 1983, these two Reserves comprise fragments of a once extensive forest and now contain stands of oak and ash with an understorey of holly and hazel and a rich ground flora.

- **Leam West Bog Nature Reserve (373.48 ha)**

Situated two miles south east of Maam Cross, State owned and established in 1991, this bog is of international importance. It is an area of very diverse blanket bog developed over both acid and base rich rocks at the north east limit of the Connemara blanket bogs. It forms part of one of

the largest areas of intact bog in Connemara and it is one of the few sites containing both lowland and highland bog. A large number of habitats occur including rock outcrops, bog pools, extremely wet quaking areas, streams and relatively nutrient rich flushes.

- **Pollnacknockaun Wood (38.85 ha)**

Located 1 km north-east of Woodford village, State owned and established in 1983, this is a semi-natural woodland which once formed part of the extensive forest referred to under the Derrycrag Wood and Rosturra Wood Nature Reserves above.

- **Richmond Esker Nature Reserve (15.7 ha)**

Located 4 km. north-west of Moylough, State owned and established in 1985, this Nature Reserve is, along with Timahoe Esker Nature Reserve, one of the few esker ridges supporting native woodland left in the country. Although extensively planted with conifers and other exotic species it is planned to expand the native woodland using appropriate management techniques.

3.2.4.7 Connemara National Park

National parks are almost entirely state owned areas designated nationally with the aims of nature conservation and public recreation and appreciation.

Situated in the West of Ireland in County Galway, Connemara National Park covers some 2,957 hectares of scenic mountains, expanses of bogs, heaths, grasslands and woodlands. Some of the Park's mountains, namely Benbaun, Bencullagh, Benbrack and Muckanaght, are part of the famous Twelve Bens or Beanna Beola range. Connemara National Park was established and opened to the public in 1980.

Much of the present Park lands formed part of the Kylemore Abbey Estate and the Letterfrack Industrial School, the remainder having been owned by private individuals. The Park lands are now wholly owned by the State and managed solely for National Park purposes¹².

¹¹ National Parks and Wildlife Service (various) *Statutory Nature Reserves: County Galway* Dublin: Government of Ireland

¹² National Parks and Wildlife Service (unknown) *Connemara National Park* Dublin: Government of Ireland

3.2.4.8 Shellfish Waters

The indented nature of County Galway's coastline protects certain bays from the full force of Atlantic waves and storms and allows for the mixture of fresh and salt water which is vital for producing high quality shellfish such as oysters which are significantly important to tourism and certain local economies along the County's coastline.

At present, there are 14 areas in Ireland designated and afforded protection as Shellfish Waters under the European Communities (Quality of Shellfish Waters) Regulations 2006 (SI No. 268 of 2006) which transposes the Shellfish Waters Directive 1979 (79/923/EEC) into Irish law. These regulations together with the Quality of Shellfish Waters Regulations 1994 (SI No. 200 of 1994) require that the shellfish waters are protected from the effects of the functions of planning authorities and require such functions to be performed in a manner that will comply with certain values for water quality which are specified in the Regulations.

Four Shellfish Waters are located along the coastline of County Galway. These Shellfish Waters are mapped on Figure 3.5. The following descriptions are taken from the action programmes for these waters which were published in May 2006:

- **Killary Harbour**

Killary Harbour is a fiord-like inlet straddling the County boundaries of Galway to the south and Mayo to the north on the West Coast of Ireland. The landscape is dominated by Mweelrea Mountain to the north, and the Maam Turk Mountains to the south. Their slopes are steep and mainly covered by peat with associated vegetation. Three main rivers feed into the harbour, the Erriff and Bundorragha on the Mayo side, and the Bunowen on the Galway side. Each is an important salmon fishing river, and each is regularly monitored by the EPA.

- **Kilkieran Bay**

The designated area of Kilkieran or Cill Chiaráin is a south westerly facing bay, almost 13km long and covering approx. 5,800 hectares in the County. It is made up of three smaller bays: Camus Bay to the North East; Casheen Bay to the South East; and Kilkieran Bay to the West. The catchment is dominated by blanket bog, mountainous terrain and nutrient poor water

bodies and extends to approx 300km². The principal rivers flowing into the bay are the Invermore, and the Inverbeag, which flow into the north of the bay and the Screeb (identified as being slightly polluted in the 2006 action programme) which flows into the North East part. Eight discharges are licensed in the area, principally for effluent from smolt production, fish processing, and light industry. There are no IPPC licensed activities in the area. Marine activities in the area include sailing, diving, windsurfing and angling.

- **Clarinbridge/Kinvara Bay**

The designated area of Clarinbridge/Kinvara Bay covers an area of 2,700ha in the south-eastern corner of Galway Bay on the West Coast of Ireland. The general characteristics of the area are that for the most part, it is low lying and composed of good arable land with cattle rearing and milk production as well as some tillage. The water bodies of the catchment reflect the geological make up of the area in that they naturally have a high nutrient content and generally lie within a mesotrophic-eutrophic range. Another characteristic of the area is the presence of a number of turloughs and underground river systems one of which enters the sea at Kinvara. The principal freshwater inputs into the designated area are the Clarin, identified as being moderately polluted in the 2006 action programme, Kilcolgan, identified as being slightly polluted in the 2006 action programme, Ballynagamanagh River, an unnamed stream and an unnamed underground river none of which are classified by the EPA. Marine activities in the area include sailing, diving, windsurfing and angling. There are 15 section 4 licences within the catchment, and of these, 6 are deemed to be significant. There are three IPPCs in the area. These have good monitoring programmes and are unlikely to be a threat to water quality.

- **Aughinish Harbour**

The primary development pressure in the area is from tourism. The environs of Aughinish and the Burren, of which it is a part, are popular destinations for holidaymakers. Most development to date has taken place on the Co. Clare side of the bay.

3.2.4.9 Designated Salmonid Waters

The main channel of the River Corrib and the connecting Lough Corrib is designated and

protected as a Salmonid Water under the European Communities (Quality of Salmonid Waters) Regulations 1988 (SI No. 293 of 1988). Designated Salmonid Waters are capable of supporting salmon (*Salmo salar*), trout (*Salmo trutta*), char (*Salvelinus*) and whitefish (*Coregonus*).

3.2.4.10 Register of Protected Areas

In response to the requirements of the Water Framework Directive a number of water bodies or parts of water bodies which must have extra controls on their quality by virtue of how their waters are used by people and by wildlife have been listed on Registers of Protected Areas.

There River Corrib is listed on the RPA for *Habitats Rivers*. The Shellfish Waters identified under Section 3.2.4.8 are listed on the RPA for *Shellfish Areas*. All the SPAs identified under Section 3.2.4.3 are listed on the RPA for *Species SPA*.

Site Code	Site Name	Site Code	Site Name
000212	INISHMAAN ISLAND	001285	KILTIERNAN TURLOUGH
000213	INISHMORE ISLAND	001309	OMEY ISLAND MACHAIR
000216	RIVER SHANNON CALLOWS	001311	RUSHEENDUFF LOUGH
000218	COOLCAM TURLOUGH	001312	ROSS LAKE AND WOODS
000231	BARROUGHTER BOG	001313	ROSTURRA WOOD
000238	CAHERGLASSAUN TURLOUGH	001321	TERMON LOUGH
000242	CASTLETAYLOR COMPLEX	001774	LOUGH CARRA/MASK COMPLEX
000248	CLOONMOYLAN BOG	001913	SONNAGH BOG
000252	COOLE-GARRYLAND COMPLEX	001926	EAST BURREN COMPLEX
000255	CROAGHILL TURLOUGH	002008	MAUMTURK MOUNTAINS
000261	DERRYCRAG WOOD NATURE RESERVE	002031	THE TWELVE BENS/GARRAUN COMPLEX
000268	GALWAY BAY COMPLEX	002034	CONNEMARA BOG COMPLEX
000278	INISHBOFIN AND INISHSHARK	002074	SLYNE HEAD PENINSULA
000285	KILLSALLAGH BOG	002110	CORLISKEA/TRIEN/CLOONFELLIV BOG
000286	KILTARTAN CAVE (COOLE)	002111	KILKIERAN BAY AND ISLANDS
000295	LEVALLY LOUGH	002117	LOUGH COY
000296	LISNAGEERAGH BOG AND BALLINASTACK TURLOUGH	002118	BARNAHALLIA LOUGH
000297	LOUGH CORRIB	002119	LOUGH NAGEERON
000299	LOUGH CUTRA	002126	POLLAGOONA BOG
000301	LOUGH LURGEEN BOG/GLENAMADDY TURLOUGH	002129	MURVEY MACHAIR
000304	LOUGH REA	002130	TULLY LOUGH
000308	LOUGHATORICK SOUTH BOG	002180	GORTACARNAUN WOOD
000318	PETERSWELL TURLOUGH	002181	DRUMMIN WOOD
000319	POLLNAKNOCKAUN WOOD NATURE RESERVE	002213	GLENLOUGHHAUN ESKER
000322	RAHASANE TURLOUGH	002241	LOUGH DERG, NORTH-EAST SHORE
000324	ROSROE BOG	002244	ARDRAHAN GRASSLAND
000326	SHANKILL WEST BOG	002265	KINGSTOWN BAY
000328	SLYNE HEAD ISLANDS	002293	CARROWBAUN, NEWHALL AND BALLYLEE TURLOUGHS
000330	TULLY MOUNTAIN	002294	CAHERMORE TURLOUGH
000474	BALLYMAGLANCY CAVE, CONG	002295	BALLINDUFF TURLOUGH
000606	LOUGH FINGALL COMPLEX	002296	WILLIAMSTOWN TURLOUGHS
001228	AUGHRUSBEG MACHAIR AND LAKE	002317	CREGG HOUSE STABLES, CRUSHEEN
001242	CARROWNAGAPPUL BOG	002347	CAMDERRY BOG
001251	CREGDUFF LOUGH	002350	CURRAGHLEHANAGH BOG
001257	DOG'S BAY	002352	MONIVEA BOG
001271	GORTNANDARRAGH LIMESTONE PAVEMENT	002356	ARDGRAIGUE BOG
001275	INISHEER ISLAND		

Table 3.1 Candidate Special Areas of Conservation

Site Code	Site Name	Site Code	Site Name
004031	INNER GALWAY BAY	004096	MIDDLE SHANNON CALLOWS
004042	LOUGH CORRIB	004097	RIVER SUCK CALLOWS
004056	LOUGH CUTRA	004107	COOLE-GARRYLAND WOOD
004058	LOUGH DERG (SHANNON)	004123	SLYNE HEAD ISLANDS
004062	LOUGH MASK	004134	LOUGH REA
004067	HIGH ISLAND (GALWAY)	004142	CREGGANNA MARSH
004088	LOUGH SCANNIVE	004168	SLIEVE AUGHTY MOUNTAINS
004089	RAHASANE TURLOUGH	004170	CRUAGH ISLAND

Table 3.2 Special Protection Areas

Site Code	Site Name	Site Code	Site Name
000220	LOUGH NAMUCKA BOG	001227	AUGHRIM BOG
000221	MOORFIELD BOG/FARM COTTAGE	001229	SLIEVE AUGHTY BOG
000222	SUCK RIVER CALLOWS	001240	CAPIRA/DERREW BOG
000229	BALLYGAR BOG	001241	CARNA HEATH AND BOG
000235	BRACKLAGH BOG	001244	CASTLE FFRENCH EAST BOG
000245	CLOONCULLAUN BOG	001254	DERRINLOUGH BOG
000247	SLIEVE BOG	001255	DERRYNAGRAN BOG AND ESKER
000249	CLOONOLISH BOG	001264	ESKERBOY BOG
000253	CREGGANNA MARSH	001280	KILLACLOGHER BOG
000254	CRIT ISLAND WEST	001283	KILLURE BOG
000267	FUNSHIN BOG	001303	MOORFIELD BOG
000280	CASTLE FFRENCH WEST BOG	002344	ANNAGHBEG BOG
000281	KEELOGES BOG	002364	MOYCULLEN BOGS
000283	KILMORE BOG	002374	CLOON AND LAGHTANABBA BOG
000284	KILNABORRIS BOG	002377	LOUGH ATORICK DISTRICT BOGS
000292	LEAHA BOG	002379	DERRYOBER BOG
000307	LOUGH TEE BOG	002431	OUGHTERARD DISTRICT BOG
000310	MEENEEN BOG	002436	TOOREEN BOG
000321	RAFORD RIVER BOG		

Table 3.3 Natural Heritage Areas

Site Code	Site Name	Site Code	Site Name
000011	LOUGH DERG	001228*	AUGHRUSBEG MACHAIR AND LAKE
000212*	INISHMAAN ISLAND	001231	BALLYCONNEELY BAY
000213*	INISHMORE ISLAND	001234	BERTRAGHBOY BAY
000215	RATHBAUN TURLOUGH	001237	BOYOUNAGH TURLOUGH
000216*	RIVER SHANNON CALLOWS	001239	CALLOW LOUGH
000218*	COOLCAM TURLOUGH	001242*	CARROWNAGAPPUL BOG
000224	ALTORE LAKE	001247	CLOONASCRAUGH FEN AND BLACK WOOD
000228	BALLYCUIRKE LOUGH	001251*	CREGDUFF LOUGH
000231*	BARROUGHTER BOG	001253	DERNASLIGGAUN WOOD
000234	BELCLARE TURLOUGH	001257*	DOG'S BAY
000238*	CAHERGLASSAUN TURLOUGH	001260	DRIMCONG WOOD
000240	CAMDERRY BOG NHA	001266	FINISH ISLAND MACHAIR
000242*	CASTLETAYLOR COMPLEX	001267	FURBOGH WOOD
000244	CLONFERT CATHEDRAL	001271*	GORTNANDARRAGH LIMESTONE PAVEMENT
000248*	CLOONMOYLAN BOG	001275*	INISHEER ISLAND
000252*	COOLE-GARRYLAND COMPLEX	001279	KILKERRIN TURLOUGH
000255*	CROAGHILL TURLOUGH	001282	KILTULLAGH LOUGH
000256	CURRAGHLEHANAGH BOG NHA	001285*	KILTIERNAN TURLOUGH
000261*	DERRYCRAG WOOD NATURE RESERVE	001288	KNOCKMAA HILL
000263	DRUMBULCAUN BOG	001289	LEAGAUN MACHAIR
000265	EESHAL ISLAND	001294	LOUGH HACKET
000268*	GALWAY BAY COMPLEX	001300	MACE HEAD ISLANDS
000275	HIGH ISLAND	001302	MASON ISLAND MACHAIR

Table 3.4 Proposed Natural Heritage Areas Table A

*=Also a candidate SAC

Site Code	Site Name	Site Code	Site Name
000278*	INISHBOFIN AND INISHSHARK	001306	MWEENISH ISLAND MACHAIR
000282	KILLOWER TURLOUGH	001309*	OMEY ISLAND MACHAIR
000285*	KILLSALLAGH BOG	001311*	RUSHEENDUFF LOUGH
000286*	KILTARTAN CAVE (COOLE)	001312*	ROSS LAKE AND WOODS
000287	KILTULLAGH TURLOUGH	001313*	ROSTURRA WOOD
000289	KNOCKAVANNY TURLOUGH	001318	ST. MACDARA'S ISLAND
000295*	LEVALLY LOUGH	001319	SUMMERVILLE LOUGH
000296*	LISNAGEERAGH BOG AND BALLINASTACK TURLOUGH	001321*	TERMON LOUGH
000297*	LOUGH CORRIB	001322	TURLOUGH MONAGHAN
000299*	LOUGH CUTRA	001709	TIAQUIN BOG
000301*	LOUGH LURGEEN BOG/GLENAMADDY TURLOUGH	001774*	LOUGH CARRA/MASK COMPLEX
000304*	LOUGH REA	001779	BALLINASLOE ESKER
000308*	LOUGHATORICK SOUTH BOG	001788	TURLOUGHCOR
000311	MONIVEA BOG NHA	001913*	SONNAGH BOG
000318*	PETERSWELL TURLOUGH	001917	CRUMP ISLAND COMPLEX
000319*	POLLNAKNOCKAUN WOOD NATURE RESERVE	001926*	EAST BURREN COMPLEX
000320	POLLDUAGH CAVE, GORT	001972	FRIAR ISLAND
000322*	RAHASANE TURLOUGH	001973	CRUAGH ISLAND
000323	RICHMOND ESKER NATURE RESERVE	001974	INISHMUSKERRY
000324*	ROSROE BOG	002008*	MAUMTURK MOUNTAINS
000326*	SHANKILL WEST BOG	002031*	THE TWELVE BENS/GARRAUN COMPLEX
000328*	SLYNE HEAD ISLANDS	002034*	CONNEMARA BOG COMPLEX
000330*	TULLY MOUNTAIN	002038	CASTLE HACKETT SOUTERRAIN
000331	TURLOUGH O'GALL	002062	OLD DOMESTIC BUILDING, HEATH ISLAND, TULLY LOUGH
000385	ROSTAFF TURLOUGH	002074*	SLYNE HEAD PENINSULA
000474*	BALLYMAGLANCY CAVE, CONG	002075	KINVARRA SALTMARSH
000606*	LOUGH FINGALL COMPLEX	002080	LETTERFRACK HOSTEL
000735	MAUMTRASNA MOUNTAIN COMPLEX	002082	OUGHTERARD NATIONAL SCHOOL
001126	ARDMORE POINT GRASSLAND	002083	KILLARAINY LODGE, MOYCULLEN
001224	ARDGRAIGUE BOG NHA	002110*	CORLISKEA/TRIEN/CLOONFELLIV BOG

Table 3.5 Proposed Natural Heritage Areas Table B

*=Also a candidate SAC

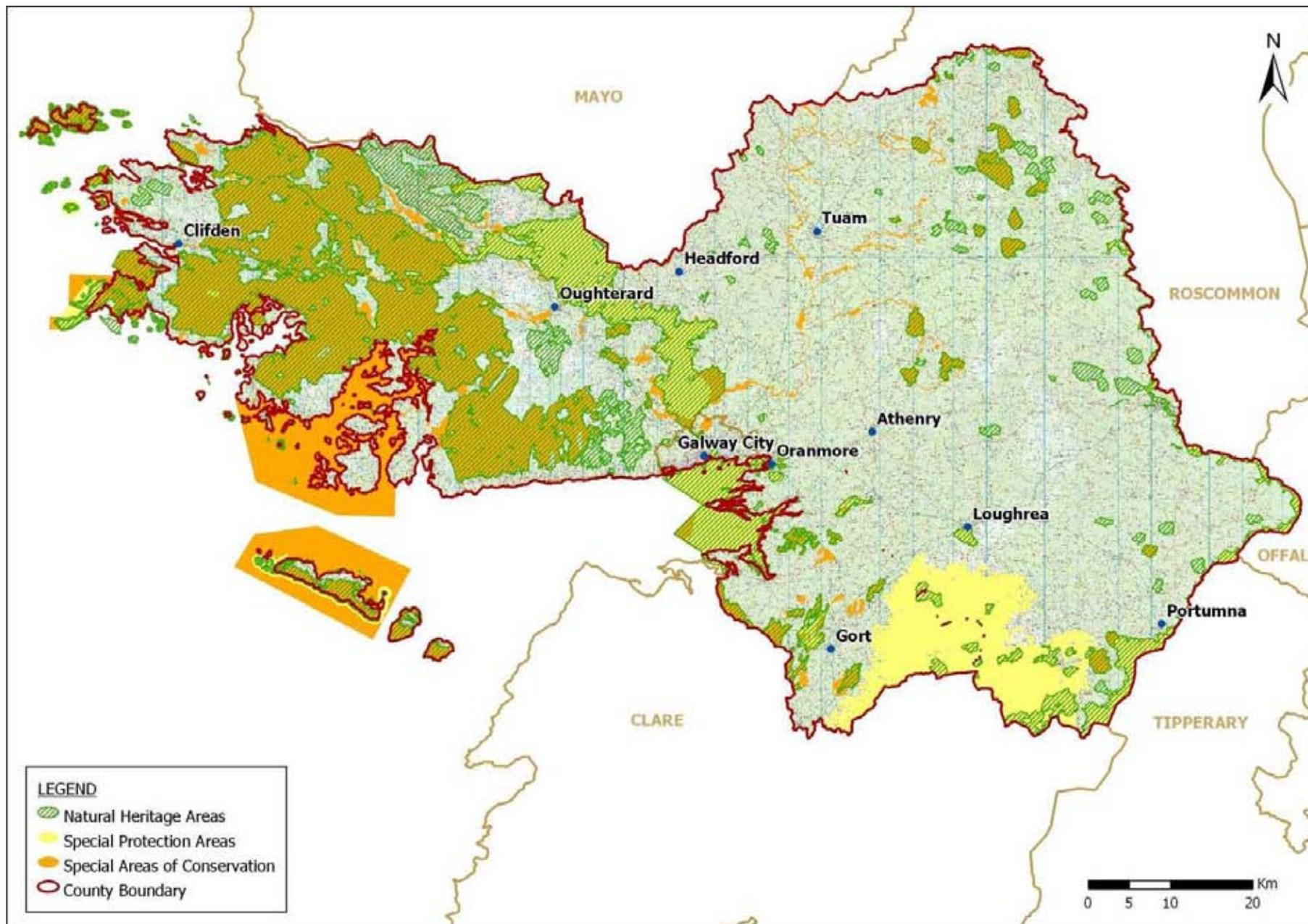


Figure 3.4 County Galway SPAs, candidate SACs and NHAs

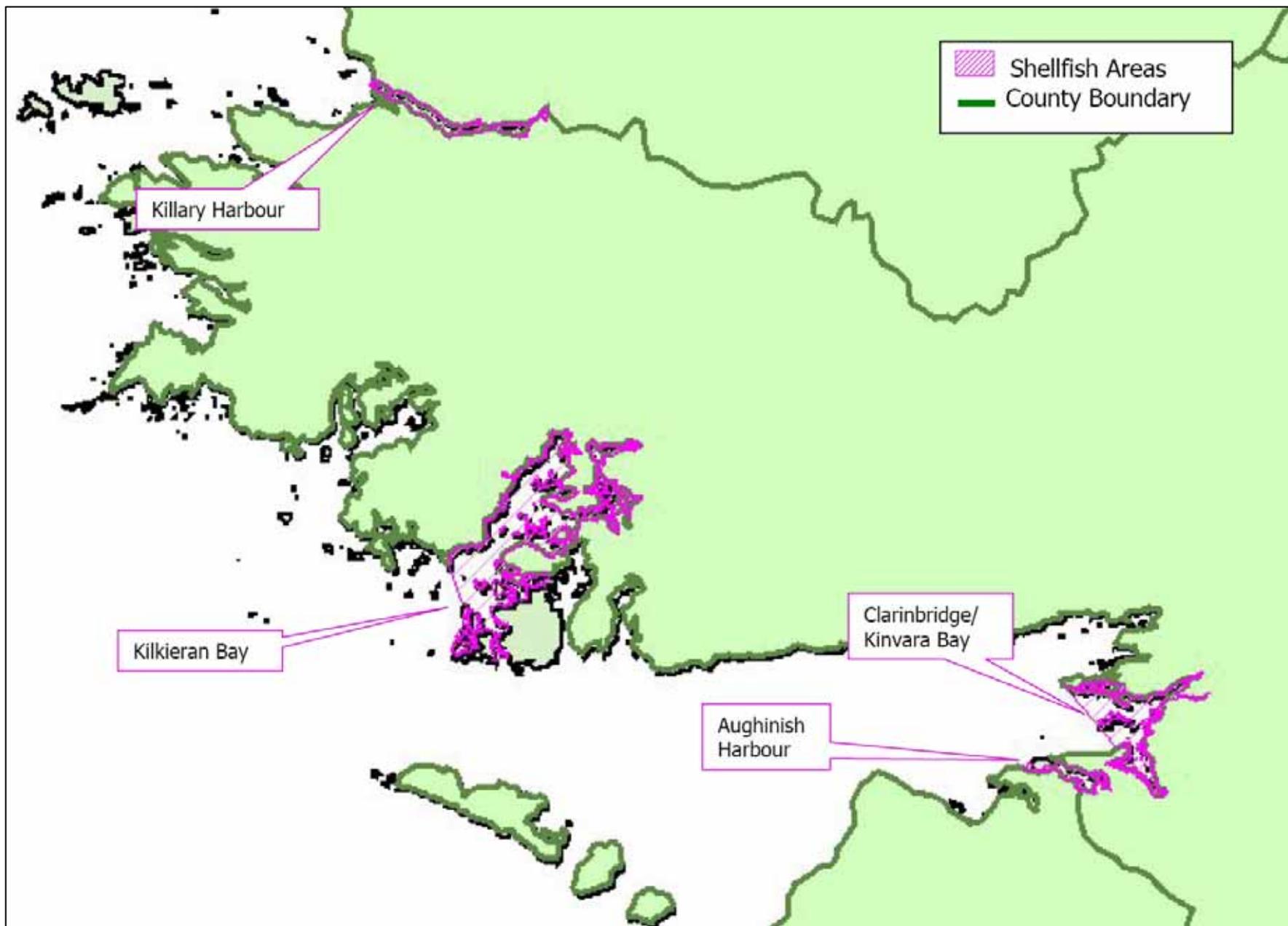


Figure 3.5 Shellfish Waters under the European Communities (Quality of Shellfish Waters) Regulations 2006

3.2.5 Existing Problems

With regard to terrestrial flora and fauna, all greenfield development causes an impact - the replacement of natural and semi natural habitats with artificial surfaces results in loss of flora and fauna and therefore adversely impacts upon this environmental component. The significance of the impact of greenfield development depends on whether individual greenfield developments result in the loss of habitats or species of importance together with the cumulative amount of habitats and species lost and fragmented as a result of all greenfield developments. Development of brownfield sites and re-development can also have impacts on terrestrial flora and fauna.

Changes in land cover from natural/semi natural land cover categories - such as *pastures* - to the category of *discontinuous urban fabric* were identified from the CORINE land cover data primarily emanating from Galway City but also at Athenry, Ballinasloe, Clifden, Gort, Headford, Loughrea, Oranmore, Oughterard, Tuam, Kilconnell, Bunowen Bay and Craughwell. These changes between 1990 and 2000 land cover indicate a cumulative loss of natural/ agricultural vegetation and associated habitats - and their flora and fauna - at the fringes of the County's largest settlements. Expansion of towns and villages in the urban fringe and rural areas can cause significant habitat destruction, fragmentation and degradation as natural habitats including wetlands, woods and grasslands may be required to be built upon or fragmented to accommodate new development.

Ecological networks have been adversely impacted upon by the development of infrastructure such as roads which result in the habitat fragmentation as well as by the development of housing which results in the removal of hedgerows or stone walls, or housing which occurs along the edges of inland surface waters.

Galway County Council must help to ensure compliance with the objectives of the Habitats Directive which aims to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of Member States. Most of the pressure upon designated habitats in County Galway as a result of development is likely to occur in coastal areas and on the banks

of water bodies such as Lough Corrib where infringement could occur if unmitigated. It is noted that in addition to other designated habitats found along the coast, machair (flat sandy grassland) - a priority habitat found only along parts of the coast Scotland and the north-west coast of Ireland - stretches in County Galway from Galway Bay to the Galway-Mayo border.

The protection of rare and important habitats and plant and animal species may pose a potential constraint to new development in certain parts of the County. Such species include: the rare flora and fauna which are found throughout some the County's peatlands; the endangered bird species which are sustained by the flower rich wet meadows of the Shannon Callows; Arctic Char which is believed to be extinct in three lakes in Galway with the population status of a further thirteen lakes unknown; the Fresh Water Pearl Mussel which is a critically endangered species due to pollution, habitat destruction and over-fishing and is now only found in few soft-water sites in the west of the County; and, the White Clawed Crayfish which is protected in Ireland and under EU legislation and is found in Lough Corrib, Lough Derg and other rivers of the Shannon catchment.

Ireland, and in particular, Galway, contains some of the best examples of intact blanket bog in Europe. Loss of quality rare bog habitats - especially in the east of the County - has resulted in the decline in numbers of vulnerable birds which live and breed on the bogs.

Land cover differences between the CORINE 1990 data and the data for the year 2000¹³ (see Figure 3.3) reflect the land cover changes as a result of the planting, maturing and felling of *coniferous forests*. These changes are most identifiable in peatland areas in the west of the County and in peatlands in the east of the County over a wide area between Gort and Portumna, in the vicinity of the Slieve Aughty Mountains.

Orchid-rich calcareous grasslands have in the recent past experienced pressure due to changes in agricultural practice and housing development. These grasslands are often

¹³ European Environment Agency Coordination of Information on the Environment (various) *Ireland's Corine Land Cover 2000 (CLC2000) and Ireland's Corine Land Cover 1990 (CLC1990)* Copenhagen: EEA

associated with limestone pavement and are found south of Kinvarra with a number of small, isolated patches occurring along a corridor from Kilcolgan to Tuam and near Moycullen.

The problem of invasive alien species has become very prominent in recent years as a number of introduced plant and animal species have become ecological pests. In September 2007, the Western Regional Fisheries Board confirmed an infestation of zebra mussels in Lough Corrib. The zebra mussel is an invasive alien species which can impact on the lake in terms of water supplies, ecology, fisheries and amenity. The infestations in Lough Corrib are not confined to one particular area as the presence of the mussel has been confirmed at a number of sites in the upper north west section of the lake and at one site in the lower lake. Other examples of invasive alien species include the African Pond Weed, 'Chilean Rhubarb', Japanese Knotweed, Rhododendron and the American Mink.

Aquatic flora and fauna is vulnerable to all forms of pollution such as that which can occur as a result of agricultural run-off and industrial and municipal effluents. As identified under the Water Section, several water bodies within and surrounding the County area are 'at risk' with regard to meeting legislative water quality objectives under the Water Framework Directive.

The indented nature of County Galway's coastline protects certain bays from the full force of Atlantic waves and storms and allows for the mixture of fresh and salt water which is vital for producing high quality shellfish such as oysters which are significantly important to tourism and certain local economies along the County's coastline. At present, there are 14 areas in Ireland designated and afforded protection as Shellfish Waters under the Quality of Shellfish Waters Regulations 2006 four of which are located along the coastline of County Galway. The shellfish which live in the waters are extremely sensitive to pollution and it is important that the effluents from existing and new development - both farming and housing - are treated and disposed of so as not to adversely impact upon the water quality of the waters. In May 2005 the Department of Marine and Natural Resources downgraded the classification of Clarin Estuary and Dunbulcan Bay oysters from 'Grade A' to 'Grade B' however in September 2006, the Department reinstated

the oysters with 'Grade A' (DCMNR, 2005)¹⁴. Follow-up actions set out since then include septic tank surveys, farm surveys and a review of all of private wastewater treatment systems.

The channelling and piping of a number of surface waters within the County Galway area has in the past impacted upon aquatic biodiversity, flora and fauna as well as ecological connectivity.

3.2.6 Evolution of Biodiversity and Flora and Fauna in the absence of a CDP

In the absence of a County Development Plan (CDP), development would have no guidance as to where to be directed and planning applications would be assessed on an individual basis with flora and fauna, habitats and ecological connectivity protected under a number of strategic actions relating to biodiversity and flora and fauna protection.

In the absence of a CDP there would not be an integration of the ecological protection measures required by the Habitats Directive with the planning or development management of vulnerable areas. Therefore it is likely that there would be less effective protection of ecological resources in the absence of a CDP.

The evolution of biodiversity and flora and fauna would be dependent on the rate and extent of developments which would take place.

Any future development along the edges of designated ecological sites would be likely to result in a reduction in habitats and could therefore reduce ecological connectivity on the edges of these sites.

Weakly controlled development along or adjacent to the banks of rivers could result in a reduction in ecological connectivity within and between these and other habitats.

Pollution of water bodies as a result of any poorly planned future development would be likely to adversely impact upon aquatic biodiversity and flora and fauna including salmonid species and other species protected

¹⁴ Department of Communications, Marine and Natural Resources (2005) *Irish Quality Oysters Scheme Report 2005* Dublin: Department of Communications, Marine and Natural Resources

under Annex II of the Habitats Directive and, in certain areas, designated Shellfish Waters.

Climate change has the potential to result in the loss of habitats - including those designated as SACs and SPAs - through rising sea levels and increased levels of surface run-off. Some of the County's coastal habitats which are important to bird populations could eventually be inundated. Increased precipitation may disrupt the salinity

3.2.7 Criteria for the Protection of European Sites (Strategic Environmental Objectives)

Strategic Environmental Objectives (SEOs) are methodological measures, developed for use in the SEA, against which the environmental effects of the CDP can be tested. If complied with in full, SEOs would result in an environmentally neutral impact from implementation of the plan. The SEOs are set out under a range of topics and are used as standards against which the provisions of the CDP can be evaluated in order to help identify areas in which significant adverse impacts are likely to occur, if unmitigated.

SEOs are distinct from the objectives of the CDP - although they will often overlap - and are developed from international, national and regional policies which generally govern environmental protection objectives. Such policies include those of various European Directives which have been transposed into Irish law, all of which are intended to be implemented at county level in Galway and integrated into any plan for the County.

A number of SEOs are linked to indicators which can facilitate monitoring the implementation of the CDP when adopted, as well as to targets which the CDP can help work towards.

The primary source used in formulating the SEOs was Table 4B of the SEA Guidelines (DEHLG, 2004)¹⁵. This list has been amended to give affect to objectives that are considered relevant to this CDP. The use of SEOs, although not a statutory requirement, does fulfil obligations set out in Schedule 2B of the

¹⁵ DEHLG (2004) *Implementation of SEA Directive (2001/42/EC): Guidelines for Regional Authorities and Planning Authorities* Dublin: Government of Ireland.

gradients within estuarine systems and, coupled with likely increased sedimentation, disrupt spawning and nursery grounds as well as shellfish production and quality in such areas.

Breeding seabird colonies at risk include the Connemara islands, Inner Galway Bay and part of the Aran Islands while important bird areas for wintering waterfowl include the Inner Galway Bay.

Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI No. 436 of 2004).

3.2.8 Objectives derived from International, European and National Strategic Actions

3.2.8.1 UN Convention on Biological Diversity 1992

The United Nations Convention on Biological Diversity 1992 requires the promotion of the conservation and sustainable use of biodiversity.

3.2.8.2 National Biodiversity Plan 2002

The preparation and implementation of Ireland's National Biodiversity Plan 2002¹⁶ complies with an obligation under the UN Convention on Biological Diversity. The overall goal of the Plan is to secure the conservation, including where possible the enhancement and sustainable use of biological diversity in Ireland and to contribute to conservation and sustainable use of biodiversity globally. Objectives following on from this goal are to:

- Conserve habitat diversity, including all sites of special biodiversity importance;
- Conserve species diversity;
- Conserve genetic diversity, both wild and domesticated; and
- Contribute to the conservation and sustainable use of biodiversity and to advancing other obligations of the CBD in the EU, regionally and internationally.

¹⁶ Department of Arts, Heritage, Gaeltacht and the Islands (2002) *National Biodiversity Plan* Dublin: Government of Ireland

3.2.8.3 Habitats Directive 1992

The European Council Directive on the Conservation of natural habitats and of wild fauna and flora (92/43/EEC), referred to as the Habitats Directive, aims to ensure the conservation of certain natural habitats and species which are at favourable conservation status. Article 10 of the Habitats Directive recognises the importance of ecological networks as corridors and stepping stones for wildlife, including for migration, dispersal and genetic exchange of species of flora and fauna. The Directive requires that ecological connectivity and areas of ecological value outside the network of designated ecological sites are maintained and it recognises the need for the management of these areas through land use planning and development policies.

Special Areas of Conservation (SACs) are designated and protected under the under the Habitats Directive 1992 (92/43/EEC) due to their conservation value for habitats and species of importance in the European Union. In Ireland, the habitats and species occurring in SACs are protected from effects of development occurring outside their boundaries under Section 18 "Prohibition of works on lands outside a European site" of the European Communities (Natural Habitats) Regulations 1997. The Regulations require that where a development is proposed to be carried out, on any land that is not within a protected site and is liable to have an adverse impacts on the protected site in question, including direct, cumulative and indirect impacts, an appropriate assessment, which conforms to an environmental impact assessment, of the likely effects of the proposed development on the site is undertaken. Depending on the conclusions of this assessment such development may be refused planning permission.

The Habitats Directive seeks to establish Natura 2000, a network of protected areas throughout the EU. It is the responsibility of each member state to designate SACs to protect habitats and species, which, together with the SPAs designated under the 1979 Birds Directive, form Natura 2000.

3.2.8.4 Birds Directive 1979

The 1979 European Council Directive on the Conservation of Wild Birds (79/409/EEC),

referred to as the Birds Directive, - as well as its amending acts - seek to: protect, manage and regulate all bird species naturally living in the wild within the European territory of the Member States, including the eggs of these birds, their nests and their habitats; and regulate the exploitation of these species.

Special Protection Areas (SPAs) are provided protection under the Directive and have been designated by the DEHLG due to their conservation value for birds of importance in the European Union.

3.2.8.5 Wildlife Act 1976 and Wildlife (Amendment) Act 2000

Natural Heritage Areas are designated and protected due to their national conservation value for ecological and/or geological/geomorphological heritage under the Wildlife (Amendment) Act 2000.

3.2.8.6 Convention on Wetlands of International Importance

The Convention of Wetlands of International Importance, especially as Water Fowl Habitat, was established at Ramsar in 1971 and ratified by Ireland in 1984. The main aim of the Convention is to secure the designation by each contracting state of wetlands in its territory for inclusion in a list of wetlands of international importance for waterfowl. This entails the commitment of each contracting state to a policy of protection and management of the designated wetlands, and of formulating and implementing planning so as to promote the conservation of designated wetlands and, as far as possible, the wise use of wetlands in its territory.

3.2.8.7 European Freshwater Directive 1978

Salmonid Waters are designated and protected under the European Communities (Quality of Salmonid Waters) Regulations 1998 (SI No. 293 of 1988) which implements the European Council Directive on the quality of fresh waters needing protection or improvement in order to support fish life (78/659/EEC), referred to as the European Freshwater Directive as amended and codified. Salmonid Water designation imposes an obligation to maintain specific water quality standards and control pollution.

3.2.9 SEOs, Indicators and Targets

The following SEOs, Indicators and Targets have been developed for the protection of European Sites in the assessment of alternatives and in the development of criteria for the protection of key Indicators to protect the integrity of such sites.

SEO B1:	To avoid loss of relevant habitats, geological features, species or their sustaining resources in designated ecological sites
Indicator B1:	Percentage of relevant habitats and designated ecological sites lost as a result of implementation of the CDP
Target B1:	No losses of relevant habitats, species or their sustaining resources in designated ecological sites as a result of implementation of the CDP

SEO B2:	To avoid significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites
Indicator B2:	Number of significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites as a result of implementation of the CDP
Target B2:	No significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites as a result of implementation of the CDP

SEO B3:	To sustain, enhance or - where relevant - prevent the loss of ecological networks or parts thereof which provide significant connectivity between areas of local biodiversity
Indicator B3:	Percentage loss of connectivity between areas of local biodiversity as a result of implementation of the CDP – as evidenced from a resurvey of CORINE mapping
Target B3:	No ecological networks or parts thereof which provide significant connectivity between areas of local biodiversity to be lost without remediation as a result of implementation of the CDP

Note: the impact of implementing the CDP on aquatic biodiversity and flora and fauna is influenced by impacts upon the quality of water bodies.

3.3 The County Development Plan

3.3.1 Introduction

Under Section 9 of the Planning and Development Act 2000, every planning authority must make a development plan, setting the framework for all future development in the planning authority's area for the stated period, for the whole functional area of the authority every six years. The plan is required to set out an overall strategy for the proper planning and sustainable development of the area in question. It is in this context in which Galway County Council - the planning authority for the administrative area within the Galway County boundary - has prepared the County Development Plan (CDP).

The CDP is intended to provide for the proper planning and sustainable development for County Galway for a duration of six years from the date on which it is adopted, unless amended.

The CDP does not include the administrative areas of Galway City Council or Ballinasloe Urban District Council, as they are separate Planning Authorities, but has regard to the role and influence of Galway City and Ballinasloe town on their hinterlands in the County Council's administrative areas.

3.3.2 Structure and Content

The CDP consists of:

- the main plan document;
- the Galway County Spatial Strategy;
- the Galway Housing Strategy; and,
- the Record of Protected Structures.

The main Plan document is divided into eleven chapters and sets out the aims and objectives for the County under the headings of: Spatial Strategy; Settlement Strategy; Economic Development and Tourism; Housing Provision; Roads and Transportation; Infrastructure and Services; Social Community and Cultural Heritage; and, Agriculture, Mariculture and

Silviculture. The main Plan document also contains development management guidelines.

3.3.3 Overall Strategic Aims

The overall strategic aims of the Plan are to:

- Implement an overall development strategy for the County aimed at achieving the balanced development of County Galway in a strategic and plan led manner;
- Improve the quality of life for the people of Galway and maintain the County as a uniquely attractive place in which to live, work and visit;
- Create a receptive development environment in response to national and regional policy, such as the National Spatial Strategy, the National Development Plan 2007 - 2013 and the Western Regional Planning Guidelines and secure the development of the identified major infrastructural projects which will underpin sustainable development throughout the County and Region during the Plan period;
- Conserve the natural, built and cultural uniqueness of the County whilst accepting that this uniqueness has the potential to generate economic well being, enhanced quality of life and create vibrant communities;
- Drive forward the balanced economic and social development of Galway by facilitating new strategic developments at appropriate locations and enhancing the quality of life for the citizens of Galway within an environment of outstanding quality;
- Consolidate the Gaeltacht and support its importance to the Irish language locally and nationally, whilst protecting its importance as a cultural reservoir;
- Recognise the Galway Metropolitan Region as a location with the potential to attract investment both to the City and to the County, with mutually beneficial consequences, if managed

and planned properly between the joint Authorities; and,

- Facilitate and encourage greater public involvement in the planning process.

3.3.4 Interactions with other Plans & Policies

The Plan is nested in a hierarchy of land use forward planning strategic actions with which it must comply and be consistent.

3.3.4.1 National Development Plan 2007-2013

The National Development Plan 2007-2013 (NDP) envisages a total investment of €184 billion over 7 years to 'secure the further transformation of our country socially and economically within an environmentally sustainable framework'.

The need for a National Spatial Strategy was formally recognised by the Government with the publication of the 2000-2006 NDP.

The 2007-2013 NDP aims to promote the development of all regions in Ireland within a co-ordinated, coherent and mutually beneficial framework. Balanced regional development is, accordingly, central to the investment strategy of the Plan. The NDP aims to implement the promotion of regional development through:

- A major programme of investment under the Plan in infrastructure with a particular focus on addressing deficits in the various National Spatial Strategy Gateway areas;
- Implementation of integrated spatial planning frameworks at Gateway/Regional Authority level which will address appropriate land use at regional and Gateway levels; and facilitate and complement the Plan investment in infrastructure;
- Investment in Enterprise and Human Capital development of the Regions, including rural areas - Chapter 4 sets out the strategy for the rural economy in more detail; and,
- The establishment, initially for the period 2008-2010, of a Gateway

Innovation Fund on a competitive basis and as a mechanism to bring about better co-ordination in Gateway development supporting distinctive and innovative projects in Gateway areas which are contributing to the development of the Gateways and their wider regions.

The NDP summarises the objectives of these interventions as:

- Ensuring that each Gateway region maximises its potential for economic and social development;
- Achieving a better balance between the regions in terms of economic and social development; and,
- Fostering enhanced co-ordination in the development of the Gateways and their regions and between planning and investment at local, regional and national levels.

3.3.4.2 National Spatial Strategy 2000-2020

The National Spatial Strategy 2000-2020 (NSS) is a twenty year plan for the country which aims to promote a better balance of population, jobs and development between the regions.

It has identified Galway City as a Gateway which is to be the focus for population and economic growth in its region -the West Region. Gateways have a strategic location, nationally and relative to their surrounding areas, and provide national scale social, economic infrastructure and support services. Further development of the five existing gateways at Dublin, Cork, Limerick/Shannon, Galway and Waterford is a key component of the NSS.

Building on the dynamic role of Galway as a gateway and expanding its influence in promoting economic activity will be at the heart of extending balanced regional development to the West Region (Counties Galway, Mayo and Roscommon).

Galway, with its population catchment, quality of life attractions, transport connections and capacity to innovate with the support of its third level institutions, will continue to play the critical role which has been essential in activating the potential of the region.

The NSS identifies that support of the additional potential of Tuam in County Galway as well as Castlebar and Ballina in County Mayo and as hubs will also be crucial. Tuam will both assist in building links and interactions between the existing gateway of Galway City and the new gateway at Sligo and energise its own substantial catchment in County Galway. Tuam will perform this role through its position in the area's urban structure in terms of population, strategic location on the N17 and regional road networks as well as energy and communication links, its substantial capacity for development and local employment and service functions.

Also identified by the NSS is the need to strengthen and protect the linguistic and cultural heritage of the Galway Gaeltacht in seeking to enhance the role of Galway.

In order to promote sustainable development and allow for the public transport system to function more effectively - as promoted by the NSS - it is essential to consolidate the physical growth of County Galway. Within the County this can be achieved through the development of greenfield lands and vacant, derelict and underutilised lands, in particular where they are in close proximity to public transport routes.

3.3.4.3 Regional Planning Guidelines for the West Region 2004-2016

Ireland is divided into eight regional forward planning regions, Dublin, Midlands, Mid East, Mid West, South East, South West, West and Border, each with its own regional planning authority composed of Elected Members selected by the constituent local government councils. Regional planning authorities are required, under the Planning and Development (Regional Planning Guidelines) Regulations 2003 (SI No. 175 of 2003), to draw up regional planning guidelines (RPGs), long term strategic planning frameworks, for their relevant region. RPGs must have regard to the National Spatial Strategy.

County Galway is located within the West Regional Planning Authority area for which the Regional Planning Guidelines for the West Region 2004-2016 have been prepared.

The RPGs provide a long term planning framework for the development of the West Region in the twelve year period up to 2016 within the vision of the NSS. The principal

objective of the RPGs is to put in place a broad planning framework for the region and to provide an overall long term strategy for the making of Development and Local Area Plans for each local authority in the region.

Specific goals in the plan setting out to achieve the strategic development of the region are:

- To formulate and implement a settlement strategy for the region that builds up 'critical mass' in the nominated gateway, Galway, the hub of Tuam and the linked hub of Castlebar/Ballina whilst creating a network of smaller settlements which will develop into vibrant communities finding support to/from the gateway and hub/linked hub;
- To support development in the towns and villages in the region that is in sympathy with the existing built environment and ensures that any approved developments are in keeping with the town/village ethos which may be unique to each town/village;
- To ensure that all routes identified for construction and up grading in the Regional Planning Guidelines be progress as soon as possible to facilitate the implementation of the NSS and promote balanced regional development;
- To encourage the promotion of the region as a location for major industrial development by ensuring a coordinated approach to implementing policies and infrastructural priorities set out for the region;
- To recognise the need for increased employment opportunities in order to sustain viable rural communities; and,
- To place particular emphasis on the inter regional linkages when formulating policies and adopt a coordinated approach in relevant decision making processes

New population targets have recently been set for the regions by the DEHLG and these have now been translated by the West Regional Authority to new targets for County Galway. The

new targets aim to shift some of the expected national growth in population to 2020 to regions outside Dublin and the mid-east, in line with NSS objectives. The County Development Plan addresses ways of enabling the revised targets to be achieved.

3.3.4.4 Sustainable Development: A Strategy for Ireland 1997

Sustainable Development: A Strategy for Ireland 1997 provides a framework for the achievement of sustainable development at local level. It identifies 4 key ways Development Plans can contribute to the achievement of sustainability:

- Encourage efficient use of energy, transport and natural resources through careful selection of development locations;
- Promote the most effective use of already developed areas;
- Secure protection and enhancement of the natural environment; and,
- Accommodate new development needs in an environmentally sustainable way.

3.3.4.5 Environmental Protection Objectives

The Plan is subject to a number of high level national, international and regional environmental protection policies and objectives, including those which have already been identified as Strategic Environmental Objectives 4.

Examples of Environmental Protection Objectives include the aim of the EU Habitats Directive - which is to contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in the European territory of Member States - and the purpose of the Water Framework Directive - which is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater.

The Development Plan must be consistent with these objectives and implement them at County and local level in Galway.

3.3.4.6 Other Plans within County Galway

The County Development Plan provides the context for a number of parallel and subsidiary plans within the County – each of which have requirements to undertake Appropriate Assessment at the appropriate subsidiary scale of specificity.

1. Galway City Development Plan
2. Ballinasloe Town and Environs Development Plan
3. Clifden Development Plan
4. Athenry Local Area Plan
5. Bearna Local Area Plan
6. Claregalway Local Area Plan
7. Clarinbridge Local Area Plan
8. Gaeltacht Local Area Plan
9. Gort Local Area Plan
10. Headford Local Area Plan
11. Kinvara Local Area Plan
12. Loughrea Local Area Plan
13. Moycullen Local Area Plan
14. Oranmore Local Area Plan
15. Oughterard Local Area Plan
16. Portumna Local Area Plan
17. Tuam Local Area Plan

3.4 Description of Alternative Plan Scenarios

This section identifies and describes different plan scenarios, taking into account higher level strategic actions as well as the geographical scope of the County.

The alternative scenarios are evaluated resulting in the identification of potential impacts and informing the selection of a preferred alternative for the County Development Plan.

3.4.1 Introduction

The following summarises a series of 'Scenarios' which provide alternative visions of how the future development of County Galway might occur. These are neither predictions nor preferences - instead they offer a range of plausible and internally consistent narratives of the outcome of different planning and development strategies. These provide the basis for the comparative evaluation of the likely environmental effects of each plan, which in turn serves the purpose of identifying which features of plans and policies are likely to be sensitive or robust over the widest range of circumstances.

3.4.2 Description of Alternative Scenario 1: *Dispersed Development Strategy*

Alternative Scenario 1: *Dispersed Development Strategy* (Rural Dispersal with Limited Urban Growth) follows a *laissez-faire* approach to development.

The location and nature of development is completely dependent upon market demand and applications are evaluated on a case-by-case basis by the Council - with little consideration of planning or environmental protection - and favourable consideration is given to new development wherever it is applied for across the County.

Development under this scenario is not required to adhere to the strategies that have been developed through current Local Area Plans which are amended to reflect the new County Development Plan.

The creation of critical mass in certain locations is not a consideration in this development strategy and no specific targets for or limitations on growth are set in the settlement strategy.

The influence of Galway City and Tuam on growth within their commuter zones is strong and significant levels of suburbanisation develop along the roads in the vicinity of these settlements.

Low density greenfield ribbon development emanates from existing settlements along the road corridors thereby expanding the footprints

of settlements. Extensive areas of weakly controlled rural housing occur:

- throughout the eastern half of the County around the towns of Tuam, Ballinasloe, Claregalway, Athenry, Portumna and Gort;
- in coastal areas stretching from the outer reaches of Galway City westwards to Connemara and on to, and beyond, Clifden;
- in certain areas of inland Connemara;
- between Galway City and Oughterard, Oughterard and Maam and Maam and the environs of Cong adjacent to County Mayo.

Due to the highly dispersed nature of new settlement and the disproportionate occurrence of rural housing; villages and towns weaken. Limited brownfield development occurs in built up areas which are in need of regeneration. Instances of inappropriately scaled and designed development do occur however at certain locations within a number of the County's larger settlements.

In areas outside of the County's towns and villages, natural resource enterprises such as forestry, wind energy and mineral extraction are interspersed with large areas of rural housing.

Wind energy development occurs in the western half of the County and in the Slieve Aughty Mountains. There is no strategy as to how to accommodate this development within these areas.

3.4.3 Description of Alternative Scenario 2: *Structured Development Strategy*

Alternative Scenario 2: *Structured Development Strategy* (Well Developed Urban Structure supporting Diverse Rural Areas) follows a strong yet flexible approach to development, placing emphasis on building critical mass in the Hub town (Tuam) and at key towns and villages along the strategic development corridors emerging along the new transportation infrastructure (road and rail).

Existing settlement strategy to be rationalised based on existing and proposed service infrastructure whilst providing a focus for the continued support of the rural areas.

Rural populations to be supported through this settlement strategy and through a sustainable, flexible approach to maintaining rural economy and population, balanced against responsible environmental protection.

Some areas of weakly controlled development in rural areas - especially along coasts with reasonable containment of development outside major towns.

Large areas of natural habitat remain in the West of the County interspersed with recreation and tourism enterprises adjoining extensive areas of natural resource enterprises such as forestry, wind energy and mineral extraction.

The east-west central corridor of the County contains the majority of the settlement, infrastructure and enterprise.

Settlement is highly dispersed; villages and towns remain weak - except in tourism areas where they have poor social cohesion.

Growth is distributed across the County, generally in line with the adopted Settlement Hierarchy, also having regard to the National Spatial Strategy (NSS).

Growth is distributed across the County in line with the adopted Settlement Hierarchy, also having regard to the National Spatial Strategy (NSS) and the Regional Planning Guidelines. This scenario advocates and implements strong and robust environmental protection policies which are applied to various environmental zones within the County.

The majority of the Coast and the Connemara Highlands are managed and planned as natural amenities subject to strict interpretation of EU Directives - with the exception of areas designated for natural resource enterprises such as forestry, wind energy and mineral extraction. The east of the County supports rural enterprises - based on agri-business, and service functions set in a matrix of strengthening villages and towns as well as some rural settlement in planned areas.

Rural areas of the County sustain recreation and tourism enterprises as well as environmental services. Quality of life is the priority in strong towns and villages. A separate and distinctive coastal complex sustains a mixture of marine enterprises, tourism, settlement, and culture and service facilities in an overwhelmingly natural context.

Rural Settlements would be planned in order to evolve into small mixed use urban centres, providing a range of services and employment to their local population.

3.4.4 Description of Alternative Scenario 3: *Centred Development Strategy*

Alternative Scenario 3: *Centred Development Strategy* (Strong Urban Centres and Rural Protection) focuses on building strong urban centres and generating critical mass in the Galway Gateway, the Tuam Hub and a restricted number of towns to support enhanced infrastructure and services. These settlements would act as focal points for their rural catchments.

Development outside of these centres would be strictly controlled to retain the character of existing rural areas and a strong environmental protection policy would be implemented.

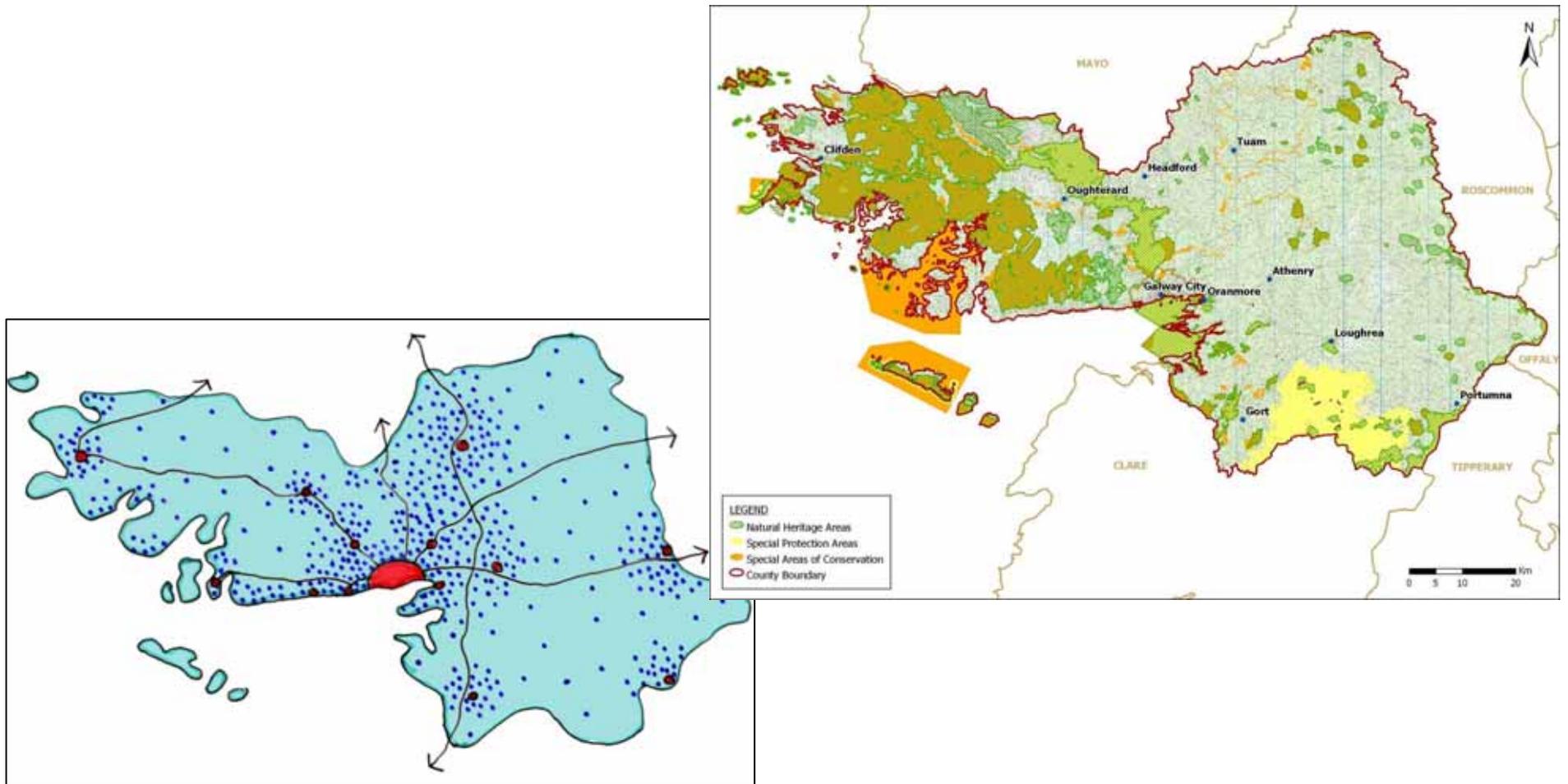


Figure 3.6 Alternative Scenario 1 - Dispersed Development Strategy (Rural Dispersal with Limited Urban Growth) Note how this scenario entails significant dispersed development in ecologically sensitive areas that contain concentrations of European Sites.

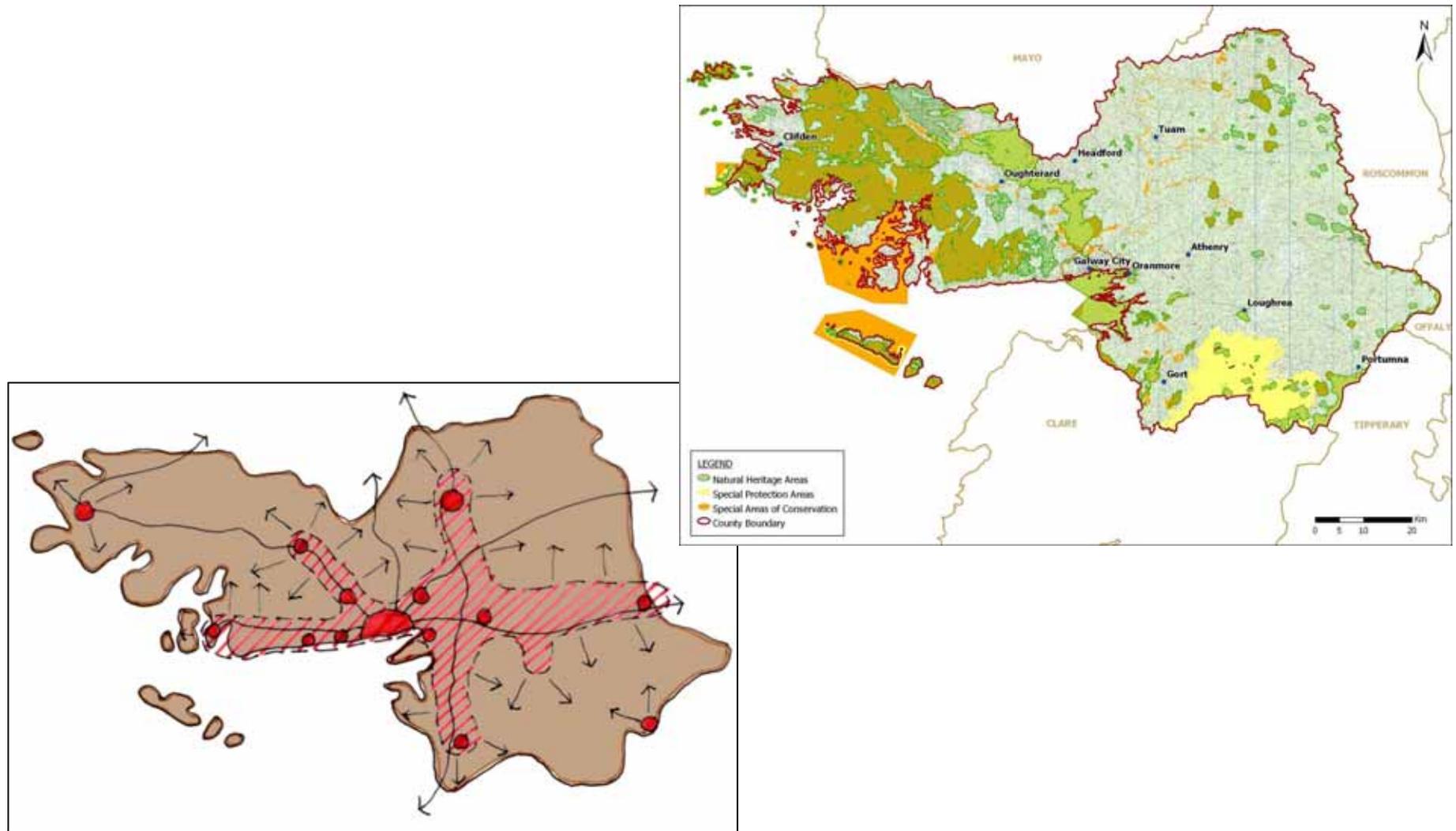


Figure 3.7 Alternative Scenario 2 - Structured Development Strategy (Well Developed Urban Structure Supporting Diverse Rural Areas) Note how this scenario provides significant containment of dispersal into areas with concentrations of European Sites. The corridors to the west of Galway City follow environmentally robust corridors with long established patterns of habitation and development that have the potential to use upgrades of existing infrastructure to accommodate development

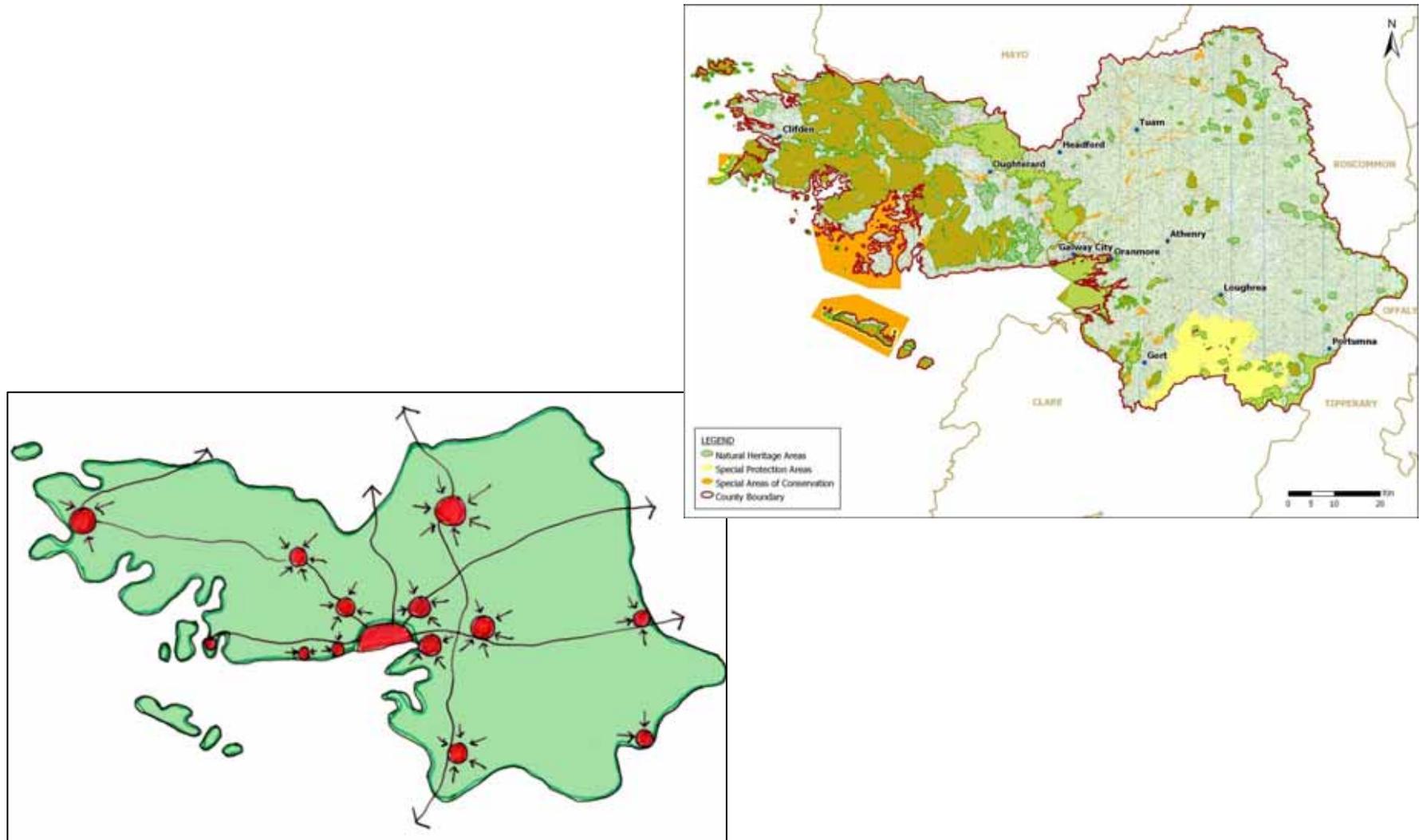


Figure 3.8 Alternative Scenario 3 - Centered Development Strategy (Strong Urban Centres and Rural Protection) Note how this version has little footprint in areas with concentrations of European Sites.

Section 4 Evaluation of Alternative Plan Scenarios

4.1 Introduction

The objective of this section is to determine the relative merits of a range of 3 alternative scenarios for the future development of County Galway. This determination sought to understand whether each alternative was likely to improve, conflict with or have a neutral interaction with the County's environment.

Scenarios are evaluated in a succinct and focused way for both planning and environmental impacts against both the existing environment and the Strategic Environmental Objectives (SEOs).

In order to comply with the SEA Directive Strategic Environmental Objectives have been grouped under relevant parent components such as *water* and *landscape*.

4.2 Methodology

4.2.1 Existing Environment

In order to identify the extent to which environmental sensitivities are likely to be impacted upon by implementation of the Plan, use has been made of the description of the environmental baseline, including the maps which spatially represent components of the environmental baseline.

4.2.2 Strategic Environmental Objectives (SEOs)

Based on an understanding of the existing and emerging environmental conditions in the County a series of SEOs were developed in order to assess the likely environmental effects which would be caused by implementation of each of the four alternative scenarios described in Section 6. The alternatives are evaluated using compatibility criteria (see Table 4.1) in order to determine how they are likely to affect the status of these SEOs.

Table 4.2 brings together all the SEOs which have been developed from international, national and regional policies which generally govern environmental protection objectives.

The SEOs and the alternative scenarios are arrayed against each other to identify which interactions - if any - would cause impacts on specific components of the environment.

Where the appraisal identifies a likely conflict with the status of an SEO the relevant SEO code is entered into the conflict column - e.g. B1 which stands for SEO likely to be affected - in this instance 'to avoid loss of relevant habitats, geological features, species or their sustaining resources in designated ecological sites'.

Likely to Improve status of SEOs	Probable Conflict with status of SEOs- unlikely to be mitigated	Potential Conflict with status of SEOs- likely to be mitigated	Uncertain interaction with status of SEOs	Neutral Interaction with status of SEOs	No Likely interaction with status of SEOs
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Table 4.1 Criteria for appraising the effect of Plan provisions on Strategic Environmental Objectives for European Sites

SEO Code	SEO
B1	To avoid loss of relevant habitats, geological features, species or their sustaining resources in designated ecological sites
B2	To avoid significant adverse impacts, including direct, cumulative and indirect impacts, to relevant habitats, geological features, species or their sustaining resources in designated ecological sites by development within or adjacent to these sites
B3	To sustain, enhance or - where relevant - prevent the loss of ecological networks or parts thereof which provide significant connectivity between areas of local biodiversity
W1	To maintain and improve, where possible, the quality of rivers and lakes
W2	To maintain and improve, where possible, the quality of transitional waters
W3	To prevent pollution and contamination of ground water
M1	To serve new development with appropriate waste water treatment

Table 4.2 Strategic Environmental Objectives (SEOs)¹⁷ for European Sites

¹⁷ Strategic Environmental Objectives (SEOs) are methodological measures which are developed from international and national policies which generally govern environmental protection objectives and against which the environmental effects of the Plan can be tested. The SEOs are used as standards against which the development strategies, policies and objectives of the Plan can be evaluated in order to help identify areas in which significant adverse impacts are likely to occur, if unmitigated against.

4.3 Evaluation ¹⁸

4.3.1 Evaluation of Alternative Scenario 1: *Dispersed Development Strategy*

4.3.1.1 Environmental Effects

Introduction

This Scenario will have different effects in different areas, which are considered on an area-by-area basis below. A number of general impacts will affect all areas under the following headings:

A. Water

Having regard to the shallow soils, vulnerable aquifers and poor patterns on adequate installation or operation of effluent treatment systems, it is likely that this scenario will lead to significant further declines in the status of surface and groundwaters¹⁹ because of the inadequacy of the infrastructure²⁰ to collect, treat and dispose of effluents arising. This will have direct, indirect and cumulative effects on human health²¹, economic development and on the resources necessary to sustain designated sites and species²².

B. Ecology

Having regard to the significance, sensitivity, extent and integrity of existing designated habitats and species throughout the County - and in particular in the concentrations in the areas mentioned in Section 4.3.1.2 - it is likely that this scenario will give rise to many instances of direct, indirect and cumulative effects on designated sites, protected species and the resources necessary to sustain them²³.

However, it is extremely important to understand, and accept, that these habitats and their associated species are manifestations of a landscape that has been altered and managed

by human beings for the majority²⁴ of their existence since the last Ice Age. Thus the continuation of human occupancy and use - facilitated by these developments - is a potentially significant positive factor in sustaining the management regime that gives rise to and sustains these designated sites.

4.3.1.2 Area Effects

A. The Lough Corrib Catchment

Having regard to the high concentrations of designations for scenery, ecology and the extreme vulnerability of surface and ground waters together with the absence of adequate infrastructure and the existing high levels of existing settlements, this area will experience significant additional levels of adverse environmental effects in addition to the existing environmental issues that already occur in this area²⁵.

B. The Connemara Highlands

Having regard to the high concentrations of designations for scenery, ecology together with the absence of adequate infrastructure, this area will experience additional levels of adverse environmental effects²⁶.

C. The Coast

Having regard to the high concentrations of designations for scenery, ecology and the vulnerability of waters together with the absence of adequate infrastructure and the existing high levels of existing settlements, this area will experience significant additional levels of adverse environmental effects in addition to the existing environmental issues that already occur in this area²⁷.

D. East Galway

Having regard to the deeper soils, less vulnerable aquifers, lower concentrations of ecological designations, lower scenic significance, lower concentration of dwelling and greater frequency of existing settlements with associated infrastructure - this area will experience relatively few additional adverse effects on environmental resources - other than those that already exist - with the possible

¹⁸ Footnotes like this are used in this section in order to identify instances where interactions between the relevant Scenario and the relevant SEOs occur. The nature of these interactions are identified on Table 4.3.

¹⁹ SEOs W1 & W3

²⁰ SEO M1

²¹ SEO HH1

²² SEOs B1 & B2

²³ SEOs B1 & B2

²⁴ Agriculture in Ireland is estimated to have been a significant environmental modifier for about six thousand years. Unmodified post-Glacial habitats existed for about four thousand years prior to that time.

²⁵ SEOs B1, B2, B3, HH1, W1, W3 & M1

²⁶ SEOs B1, B2, B3, HH1, W1, W3 & M1

²⁷ SEOs B1, B2, B3, HH1, W1, W2, W3, W4 & M1

exception of increased vulnerability to flooding²⁸ in the extreme south-east of the County.

4.3.2 Evaluation of Alternative Scenario 2: *Structured Development Strategy*

4.3.2.1 Environmental Effects

Introduction

This Scenario will have different effects in different areas, which are considered on an area-by area basis below. A number of general impacts will affect all areas under the headings listed below.

4.3.2.2 General Effects

A. Water

Having regard to the shallow soils, vulnerable aquifers and poor patterns on adequate installation or operation of effluent treatment systems, it is likely that this scenario will help to reduce significant further declines in the status of surface and groundwaters²⁹. This is likely to occur because of the provision of additional infrastructure to collect, treat and dispose of effluents arising³⁰. This, in turn, will have localised direct, indirect and cumulative positive effects on human health³¹, economic development and on the resources necessary to sustain designated sites and species³². While this will help to reduce the effects of new developments, the environmental issues associated with existing developments are likely to persist beyond the current plan period.

B. Ecology

Having regard to the significance, sensitivity, extent and integrity of existing designated habitats and species throughout the County - and in particular in the concentrations in the areas mentioned above - it is likely that this scenario will help to reduce direct, indirect and cumulative effects caused by new developments on designated sites, protected species and the resources necessary to sustain them³³. However the environmental issues associated with existing developments are likely to persist beyond the current plan period.

²⁸ SEO W5

²⁹ SEOs W1 & W3

³⁰ SEO M1

³¹ SEO HH1

³² SEOs B1 & B2

³³ SEOs B1 & B2

However, it is extremely important to understand, and accept, that these habitats and their associated species are manifestations of a landscape that has been altered and managed by human beings for the majority³⁴ of their existence since the last Ice Age. Thus the reduction of human occupancy and use - due to restrictive rural planning policies in some parts of the County - is a potentially negative factor in contributing to the reduction of the management regime that gives rise to and sustains these designated sites^{35 36}.

4.3.3 Evaluation of Alternative Scenario 3: *Centred Development Strategy*

4.3.3.1 Environmental Effects

Introduction

This Scenario will have different effects in different areas, which are considered on an area-by area basis below. A number of general impacts will affect all areas under the following headings:

4.3.3.2 General Effects

A. Water

Having regard to the shallow soils, vulnerable aquifers and poor patterns on adequate installation or operation of effluent treatment systems, it is likely that this scenario will help to reduce or prevent significant further declines in the status of surface and groundwaters³⁷. This is likely to occur because of the provision of adequate of the infrastructure to collect, treat and dispose of effluents arising³⁸. This, in turn, will have direct, indirect and cumulative positive effects on human health³⁹, economic development and on the resources necessary to sustain designated sites and species⁴⁰.

³⁴ Agriculture in Ireland is estimated to have been a significant environmental modifier for about six thousand years. Unmodified post-Glacial habitats existed for about four thousand years prior to that time.

³⁵ SEOs B1 & B2

³⁶ The catchments of the Cappagh, Kilcrow, Killadullisk and Killoran Rivers

³⁷ SEOs W1 & W3

³⁸ SEO M1

³⁹ SEO HH1

⁴⁰ SEOs B1 & B2

B. Ecology

Having regard to the significance, sensitivity, extent and integrity of existing designated habitats and species throughout the County - and in particular in the concentrations in the areas mentioned in Section 4.3.3.3 - it is likely that this scenario will help to avoid or reduce direct, indirect and cumulative effects on designated sites, protected species and the resources necessary to sustain them⁴¹.

However, it is extremely important to understand, and accept, that these habitats and their associated species are manifestations of a landscape that has been altered and managed by human beings for the majority⁴² of their existence since the last Ice Age. Thus the discontinuation of human occupancy and use - due to restrictive rural planning policies - is a potentially significant negative factor in contributing to the cessation of the management regime that gives rise to and sustains these designated sites⁴³.

4.3.3.3 Area Effects

A. The Lough Corrib Catchment

Having regard to the high concentrations of designations for scenery, ecology and the extreme vulnerability of surface and ground waters, localised potential for flooding together with the absence of adequate infrastructure and the existing high levels of existing settlements, this area will experience an avoidance or reduction of adverse environmental effects as well as an improvement of existing environmental issues in this area⁴⁴.

B. The Connemara Highlands

Having regard to the high concentrations of designations for scenery and ecology together with the absence of adequate infrastructure, this area will experience no additional levels of adverse environmental effects⁴⁵.

C. The Coast

Having regard to the high concentrations of designations for scenery, ecology and the vulnerability of waters together with the absence

of adequate infrastructure and the existing high levels of existing settlements, this area will experience significant improvements in environmental conditions because of improved environmental infrastructure that will be economically feasible for concentrated patterns of development⁴⁶.

D. East Galway

Having regard to the deeper soils, less vulnerable aquifers, lower concentrations of ecological designations, lower scenic significance, lower concentration of dwelling and greater frequency of existing settlements with associated infrastructure - this area will experience relatively few additional adverse effects on environmental resources - other than those that already exist and an increase vulnerability to flooding⁴⁷ in the south-east of the County⁴⁸.

⁴¹ SEOs B1 & B2

⁴² Agriculture in Ireland is estimated to have been a significant environmental modifier for about six thousand years. Unmodified post-Glacial habitats existed for about four thousand years prior to that time.

⁴³ SEOs B1 & B2

⁴⁴ SEOs B1, B2, B3, HH1, W1, W3 & M1

⁴⁵ SEOs B1, B2, B3, HH1, W1, W3 & M1

⁴⁶ SEOs B1, B2, B3, HH1, W1, W2, W3, W4 & M1

⁴⁷ SEO W5

⁴⁸ The catchments of the Cappagh, Kilcrow, Killadullisk and Killoran Rivers

4.4 Evaluation against SEOs

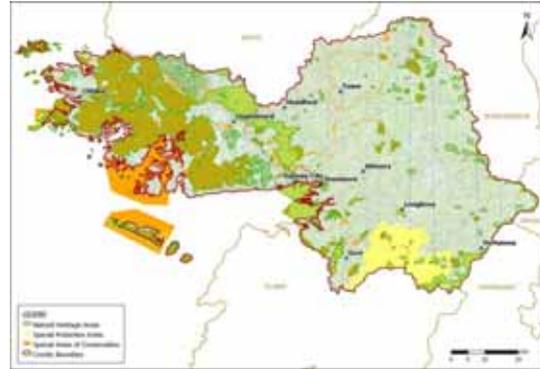
	Likely to Improve status of SEOs	Probable Conflict with status of SEOs - unlikely to be mitigated	Potential Conflict with status of SEOs - would be mitigated	Uncertain interaction with status of SEOs	Neutral Interaction with status of SEOs	No Likely interaction with status of SEOs
Alternative Scenario 1 <i>Dispersed Development Strategy</i>		B1 B2 B3 W1 W2 W3 W4 M1	W5			
Alternative Scenario 2 <i>Structured Development Strategy</i>	B1 B2 HH1 S1 W1 W2 W3 W4 M1		B3 W5			
Alternative Scenario 3 <i>Centered Development Strategy</i>	B1 B2 B3 W1 W2 W3 W4 A1 M1		W5			

Table 4.3 Evaluation of Alternative Scenarios against SEOs relating to the protection of European Sites

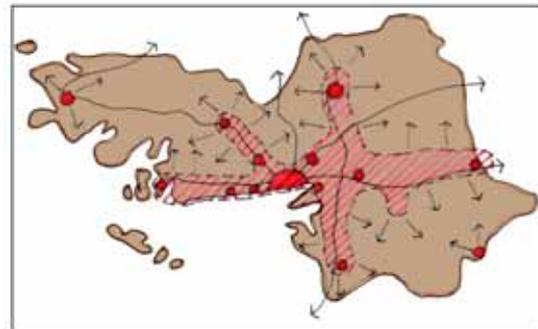
4.5 The Preferred Alternative

The Alternatives that were examined were produced and evaluated at an earlier - more embryonic - stage to facilitate evaluation and selection of a plan - having regard, *inter alia* to environmental consequences. The figures below illustrate the comparison between the evaluated Plan - [top] - and the emerging Preferred Alternative - [below].

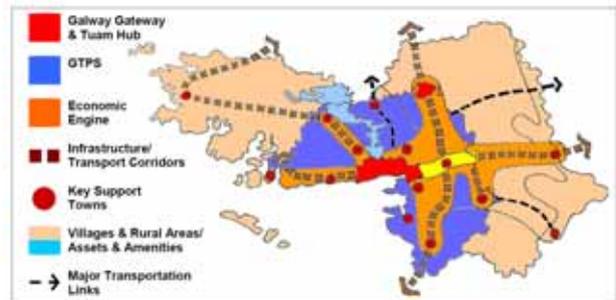
In summary the preferred Plan represents a pragmatic recognition and continuation of established patterns and trends of development in County Galway. These have been modified to take account of the significant environmental sensitivities that exist over very large portions of the County with a view to stabilizing both environmental conditions and the populations of those communities who continue to sustain these environments.



Ecological Sensitivities of County Galway



**Alternative Scenario 2 -
Structured Development Strategy
(Well Developed Urban Structure Supporting Diverse Rural Areas)**



Illustrative depiction of the spatial planning and settlement strategy for the County from Draft County Development Plan

Section 5 The Assessment

5.1 Introduction

5.1.1 Two Types of Assessment

Assessment is carried out having regard to two sets of criteria.

Where conservation objectives are known then the specific objectives and strategies of Management Plan for the site are used as criteria.

Where conservation objectives are not known then the Critical Environmental Conditions required to sustain Favourable Status of Qualifying Interest are generally identified for each type of habitat.

These are set out below [See Table 5.1]. They indicate in general the conditions required to sustain the function and structure of each type of site by having regard to criteria for:

- Sustaining Environmental Range
- Sustaining Environmental Conditions & Resources
- Environmental Relationships

These in turn identify the pathways through which effects could arise with a potential to adversely affect the integrity of European Sites through direct or indirect means. These potential threats are identified below [See Table 5.2]. These are identified as:

- Habitat Loss (Reductions in the area or density)
- Habitat Fragmentation (Reduction in the connectivity or functionality)
- Habitat Disturbance (Deterioration in the function)

Each of these types is, in turn, described in terms of its potential to give rise to direct, indirect or cumulative effects.

Critical Environmental Conditions required to sustain Favorable Status of Qualifying Interest	
Code	Sustaining Environmental Range
EX	Extent – the area, quantity or density of the Qualifying Interest
CN	Condition – The quality of conditions and resources required to sustain the structure and function the Qualifying Interest
Sustaining Environmental Conditions & Resources	
WF	Water Flow – The duration, volumes and frequency of groundwater and surface water availability required to sustain the Qualifying Interest
WL	Water Level – The duration, volumes and frequency of low and high levels of waters required to sustain the Qualifying Interest
WC	Water Chemistry – The chemical characteristics and associated physical conditions [Temperature etc] required to sustain the Qualifying Interest
WQ	Water Quality - the holistic, biological, chemical, physical and management conditions of waters required to sustain the Qualifying Interest
SQ	Soil Quality - the holistic, biological, chemical, physical and management conditions of soils required to sustain the Qualifying Interest
AQ	Air Quality the holistic, biological, chemical, physical and management conditions of air required to sustain the Qualifying Interest
UD	Undisturbed – the holistic set of environmental conditions, combining noise, movement, required to sustain the Qualifying Interest
HM	Human Management – the holistic set of human management activities and associated behavior, required to sustain the Qualifying Interest
Environmental Relationships	
IN	Integrity – the relationships between the site’s biotic and abiotic elements required to sustain the Qualifying Interest
CT	Connectivity – the relationships between the site and biotic and abiotic elements off site that are required to sustain the Qualifying Interest
CO	Conservation Objectives – Management Objectives that are required to sustain the Qualifying Interest

Table 5.1 Critical Environmental Conditions required to sustain Favorable Status of Qualifying Interest

Potential Threat Types to European Sites & Species	
Code	Habitat Loss (Reductions in the area or density)
HL1	Direct Loss – through excavation, burning or removal
HL2	Indirect Loss – through disruption of Critical Environmental Conditions
HL3	Cumulative Loss – through gradual accumulation of minor losses and disruptions
	Habitat Fragmentation (Reduction in the connectivity or functionality)
HF1	Direct Fragmentation - through loss of links or relationships within and between areas.
HF2	Indirect Fragmentation – through disruption of links or relationships due to disturbance, pollution or loss of access.
HF3	Cumulative Fragmentation - through a gradual accumulation of minor losses and disruptions to links or relationships
	Habitat Disturbance (Deterioration in the function)
HD1	Direct Disturbance – through events causing immediate changes through cutting, burning, grazing that suppress or retard functions and processes.
HD2	Indirect Disturbance – activities and effects (such as pollution) that suppress or retard functions and processes
HD3	Cumulative Disturbance - through gradual accumulation of activities and effects (such as pollution) that suppress or retard functions and processes

Table 5.2 Potential Threat Types to European Sites & Species

5.2 Assessment of Effects

The potential Critical Environmental Conditions for each Qualifying Interest [From Table 5.1] are then arrayed along with the Potential Threats [From Table 5.2] and arrayed against the relevant Potential Effects of the Decision-making Framework [The Policies of The Plan]. This indicates which other legal instruments provide protection [Mitigation Measures] for the ecological resources and indicate the relevant aspects of the plan are used to augment this protection. This is carried out in a series of Sheets and tables contained in the appendices to this assessment, as follows:-

Appendix 1 Appropriate Assessment: Sheets 1 – 4

SHEET 1	European Sites in County Galway
SHEET 2	Constituent Qualifying Interests of European Sites in County Galway
SHEET 3	Assessment of Critical Resource Required to sustain Qualifying Interest Components of European Sites in County Galway and identification of Resource Requirement Types Groups for use in Assessment
SHEET 4	Assessment of Likely Effects of Galway County Development Plan

Appendix 2 Appropriate Assessment: Sheet 5

SHEET 5	Assessment of Likely Effects of Galway County Development Plan on the Qualifying Interests for European Sites.
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Appendix 3 Site Synopses

Plan Assessment Tables

Appendix IV	Policy-by-policy generalised assessment of the effects on Critical Environmental Conditions required to sustain Favourable Status of Qualifying Interest
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Section 5.4.1	Assessment of Policies that will require adherence to existing relevant legislation, standards and mitigation measures proposed to have no adverse effects on Critical Environmental Conditions required to sustain Favourable Status of Qualifying Interest
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Section 5.4.2	Assessment of Policies that will require detailed assessment of subsidiary plans or proposals to ensure no adverse effects on Critical Environmental Conditions required to sustain Favourable Status of Qualifying Interest
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5.3 Mitigation Measures

Notwithstanding the general measures set out by reference codes in Sheet 5, Appendix II the Appropriate Assessment provides comprehensive mitigation measures (in Section 5.7) to indicate the measures necessary to provide a sufficient level of protection to ensure that if implemented in conjunction with other existing national regulations and standards that no adverse impacts would arise on *Natura 2000* sites – directly, indirectly or from cumulative effects.

5.4 Findings

The Assessment finds that the majority of the Plan – operating in conjunction with other relevant agencies, legislation, standards and practices, will give rise to neutral or beneficial effects on European Sites. A small number of

Objectives and Policies have been identified that will require mitigating measures to ensure that no adverse effects will arise on European Sites, in two ways, namely;

1. Policies that will require adherence to existing relevant legislation, standards and mitigation measures proposed to have no adverse effects on Critical Environmental Conditions required to sustain Favourable Status of Qualifying Interest
2. Policies that will require detailed assessment of subsidiary plans or proposals to ensure no adverse effects on Critical Environmental Conditions required to sustain Favourable Status of Qualifying Interest.

These Objectives and Policies are identified below.

5.4.1 Policies that will require adherence to existing relevant legislation, standards and mitigation measures proposed to have no adverse effects on Critical Environmental Conditions required to sustain Favourable Status of Qualifying Interest

Aim 5: To drive forward the balanced economic and social development of Galway by facilitating new strategic developments at appropriate locations and enhancing the quality of life for the citizens of Galway within an environment of outstanding quality.

Aim 7: Recognise the Galway Metropolitan Region as a location with the potential to attract investment both to the City and to the County, with mutually beneficial consequences, if managed and planned properly between the joint Authorities.

Policy SP1: The promotion and development of the Galway Metropolitan Area as a Gateway and Tuam as a Hub Town – a nationally significant urban centre, whose location and scale support the desired critical mass necessary to sustain strong levels of economic growth and prosperity in the West and a strong, independent hub to support the spatial strategy at national and local level, together with improved connectivity between the gateway and hub to enhance their complementary status and development.

Policy SP2: The careful management of growth in the Galway Transportation and Land Use Study Area, in particular, the commuter zone of the greater Galway City area needs strong policies to shape and direct growth. This area corresponds with what the NSS describes as 'rural areas under strong'.

Policy SP3: The co-ordination of new growth within the emerging new transportation and economic corridors through the County and Region in order to create more sustainable development patterns and to optimise public and private investment. The development of the Western Rail Corridor and new commuter services, together with significant road network improvement during the plan period will have a major impact on development and settlement patterns. urban influences'.

Policy SP4: The development of Key Support Towns to serve rural areas. Throughout much of County Galway, there is a need to address the imbalance at County level and build on the strengths and scale of existing settlements and to assist in promoting, sustaining and diversifying the rural economy.

Objective SP4: The Council will investigate the potential for development of integrated transportation hubs at Tuam, Garraun and at Athenry to maximise the strategic integration of transport and rational land uses.

Objective SP7: Consider the preparation of sub-county local area plans for geographically cohesive areas such as the coastal belt, the City/County interface areas, south-eastern uplands, etc to bring about greater social, economic and environmental connectivity between settlements and their rural hinterlands.

Objective SP8: The Council shall seek to review the Galway Transportation and Land Use Study within the lifetime of the County Development Plan 2009-2015 subject to funding and in cooperation with Galway City Council.

Policy SS5: It will be the policy of Galway County Council to support the development of rural areas in a balanced, sustainable manner, having regard to the social, economic and environmental characteristics of the area and its residents and in accordance with the relevant policies and objectives set out elsewhere in the Plan.

Policy SS6: In the case of smaller settlements for which no specific plans are available, development shall be considered on the basis of its connectivity, capacity (social, cultural and economic) and compliance with the settlement strategy, good design, community gain (this requirement shall not apply to single houses) and proper planning and sustainable development.

Policy SS7: In order to control the scale of development, a deviation in the allocated population of up to 20% will generally be acceptable, between 20% and 30% will be assessed in the context of the group of settlements and the growth experienced by each, over 53% generally will not be accepted. Regard will also be had to the rate of growth in each settlement.

Policy ED1: Small scale enterprises, which applicants seek to establish in rural areas in which the applicant is resident which can be accommodated in existing farm buildings or can be established on brownfield sites and which are not suitable or would not be appropriate on industrial or commercially zoned lands in towns and villages will be considered on individual merit. Criteria that will be considered will include:

1. Scale of development (number of employees, scale of buildings required)
2. Nature of the development
3. Compatibility of the development with the rural economic profile (supportive of part time farming families)
4. "Good Neighbour" principles (compatibility with agricultural land uses and impact on existing residences)
5. Impact on road network, road capacity and traffic levels.
6. General suitability in the unserved rural area.
7. Substantiate need to locate in rural area.
8. Consideration of social, economic and environmental impacts.
9. Re-use of existing buildings.
10. Compliance with the policies of the NRA and Galway County Council with regard to access onto National Roads.

Policy ED3: Where existing enterprise nodes have developed, the Planning Authority will take a positive view of proposals which consolidate the node as a place where new, similar development may be accommodated, subject to normal planning considerations. Where, due to changing economic or physical circumstances, an alternative or expanded enterprise is proposed at an established commercial location, the Planning Authority will be favourably disposed towards same, provided that the traffic, environmental or visual impacts of such a new development are acceptable and in accordance with other policies and objectives of the Development Plan.

Policy ED4: Identify Commercial Rural Enterprise Centres consistent with emerging identified demand.

Policy ED6: Provide a flexible approach to start-up businesses and small-scale industrial/enterprise activities. Where a proposed development needs to locate near an existing natural resource, it will be necessary to demonstrate that it can be accommodated without damage to the visual, natural or heritage environment, or adverse impact on the character of the area.

Policy ED8: In general, existing commercial or industrial activities in towns and villages will not be permitted to re-locate to unserviced rural areas. However, certain resource industries and other industries more suitable to rural locations will be considered. These industries, along with their associated service industries should be considered in rural areas.

Policy ED9: Where established, authorised rural based enterprises seek to expand beyond their existing capacity, they will be accommodated by the Local Authority. In principle, existing unauthorised rural enterprises which are in existence for in excess of 7 years prior to the adoption of the plan, and which seek to regularise their unauthorised status, will be considered, subject to the normal planning considerations.

Policy ED10: Enterprises and businesses, which applicants seek to establish in rural areas will be considered on individual merit taking into account the dynamic and positive rural development policies of the EU and the Irish Government.

Objective ED1: Consider the preparation of Area Action Plan for Carrowbrowne.

Policy ED16: Facilitate the extraction of stone and mineral material from authorised sites having regard to its location in the landscape sensitivity rating.

Policy ED17: Restrict development in the neighbourhood of existing extractive sites or sites which have obvious resource potential, and so avoid conflict in development activities.

Policy ED20: Positively support and promote sustainable Tourism Infrastructure development related to the enhancement of the County's tourism profile, with facilities such as those related to sailing, boating, angling, walking and pony trekking routes, pier or marina development, golf courses, adventure centres, theme parks, interpretative centres and Gaelic Games and other sporting facilities; and ensure that all such developments are built to a high environmental standard to protect the County's most significant tourism asset – its natural environment and landscape.

Policy ED22: Support the provision of tourism related developments that promote the redevelopment of existing derelict sites and contribute to the economic wellbeing of the community. However, such development, as with all tourism proposals must be capable of being satisfactorily screened and assimilated into the landscape. It shall not be located in areas, or close to areas, where an unsatisfactory level of visually unsympathetic development has already taken place or has otherwise been permitted.

Policy ED23: Key rural assets must be protected and the local potential of rural areas developed. This will be achieved through identifying, conserving and developing on a sustainable basis the various types and combinations of economic strengths of rural areas, with the support of appropriate levels of infrastructure provision. Their potential for economic activity, such as natural resource, local enterprise and tourism related development, and qualities that underpin such activity such as a clean and attractive environment will be central to this process.

Policy ED30: The clustering of appropriately scaled holiday home development will generally be limited to in or adjoining small towns and villages. The Council also recognises that certain other tourism infrastructure facilities listed in elsewhere in this section may be provided as stand alone developments and that ancillary facilities (e.g. club houses, hotel, residential accommodation/development) may be required to ensure long term viability. Where the provision of such facilities meet the other requirements of the County Development Plan as set out and the requirements of proper planning and sustainable development it is the policy of the Council to support the provision of same subject to the submission of the following: Comprehensive justification of need of the facility; Overall master plan of the facility; Documentary evidence of compliance with the other requirements of the development Plan here set out.

Policy ED34: Give sympathetic consideration to the improvement of, and modest extension to, existing facilities.

Policy ED36: Facilitate infrastructure for the leisure craft and marine tourist sector. Policy ED40: Facilitate the development of integrated tourism proposals at appropriate locations throughout the County inter alia, golfing and sporting complexes and including the development of associated accommodation and/or leisure facilities.

Policy ED45: Facilitate the improvement and development of the National Programme of Way- Marked Ways including the Beara Breifne-Hyman Way, The Western Way, The Suck Valley Way and traditional walking ways in Ballinasloe to Clontuskert Abbey and Poolboy within the County. Continue to support the Architectural Walking and Ecclesiastical Driving Tours within Galway County.

Policy HP7: The Planning Authority shall encourage the provision of appropriately designed and located residential units to meet the needs of the elderly or those in need of sheltered accommodation, either as stand alone developments or integrated into new residential development projects, in the exercise of Part 5 of the Planning and Development Act or in the discharge of the Development Management functions.

Objective ED8: Encourage and promote a high quality of industrial/enterprise development in accordance with the Development Management Standards set out in Section 11.4.

Objective ED9: Encourage and promote industrial and enterprise development on the lands zoned for this purpose within the various Local Area Plans in the County, subject to an adequate consideration of the policies and objectives of these plans and the need to protect the vitality and amenities of the town or settlement.

Objective ED10: Seek to ensure that sufficient serviced and suitably-located lands are identified and zoned for different types of industry and enterprise, in accordance with the hierarchical approach to location as set out in the Regional Planning Guidelines. As part of this objective, the Council will endeavour to ensure that an adequate level of start-up/incubation units is provided within industrial/enterprise parks.

Policy IS8: Identify, prioritise and progress the implementation of the water investment programme.

Policy IS1: Pursue the augmentation of the Tuam Regional Water Supply Scheme and extend the public water supply network served by this scheme.

Objective RT46: To facilitate the dualing of the N17 from Parkmore junction to the City Boundary to provide interchanges and appropriate junctions and QualityBus Corridor.

Objective RT47: To provide a Parkway Railway Station in Garraun in consultation with Iarnrod Eireann.

Objective RT48: To work towards the provision of a coastal walkway/cycleway from Bearna to Oranmore in conjunction with Galway City Council.

Objective RT43: Facilitate the development of appropriate settlement patterns and densities that support the existing and proposed rail corridors, including intensification of development around rail stations where appropriate in accordance with the DoEHLG Sustainable Residential Guidelines for Urban Areas, subject to the necessary services and facilities being provided and potential impacts fully assessed.

Objective RT42: Investigate suitable locations for new park and ride facilities at the "gateways" to Galway City.

Policy HP25: Building conversions in Gaeltacht areas will be considered for the purposes of advancing Gaeltacht Tourism and Gaeltacht Colleges provided they reach Environmental Protection Agency requirements for effluent.

Policy HP26: Where an applicant possesses a house which was built pre-1963 or where planning was granted under different requirements, of site area of less than 0.5 acres they shall be facilitated in planning, for renovation or extension subject to standard Environmental Protection Agency and road requirements.

Policy HP22: The Council, subject to compliance with other policies, objectives and development management standards of this plan, shall require applicants seeking to locate in Landscape Class 3, 4 and 5 to provide a substantiated housing need to reside in such areas and may require to provide a visual impact assessment of their development, particularly where the proposal is located in an area identified as "Focal Points/Views" in the Landscape Character Assessment of the County or in Class 5 areas.

Policy HP23: None fide applicants who are not considered eligible under the preceding categories may be considered as qualifying to build a permanent home in the rural areas, which are not subject to strong urban influence, subject to being able to satisfy the planning authority of their commitment to operate a full-time business from their proposed home in a rural area, as part of their planning application, in order, for example, to discourage commuting to towns or cities. Applicants must be able to submit evidence that

- their business will contribute to and enhance the rural community in which they seek to live

and

that they can satisfy the planning authority that the nature of their employment or business is compatible with those specified in the local needs criteria for rural areas i.e. that they are serving a predominantly local rural business need.

Policy HP18: The weaker agricultural base and weak urban structure outside the GTPS area in other parts of the County have led to a population and economic decline. These areas are generally distant from major urban areas and the associated pressure for residential development. In general, any demand for permanent residential housing in these areas should be accommodated as it arises, subject to good practise in matters such as design, location and the protection of landscape and environmentally sensitive areas. Housing need and its associated enurement clause will not apply outside the GTPS. However, language enurement, restrictive road enurement and Classes 3, 4 and 5 landscape sensitivity enurement will apply as appropriate in this area.

- 1.(c) Where applicants can supply land registry or folio details that demonstrate that lands on which they are seeking to build their first home in the area have been in family ownership for a period of 20 years, their eligibility will be considered. Where this has been established to the satisfaction of the Planning Authority, additional intrinsic links will not have to be demonstrated.

or

1. Those applicants who are functionally dependant on a part time or full time basis on the immediate rural area in which they are seeking to develop (employment in neighbouring towns or villages will not in itself qualify an applicant as having a rural generated housing need).

or

2. Those applicants who lived for substantial periods of their lives in the rural area, then moved abroad and who now wish to return and build their first house, in this local area, to reside near other family members. Special consideration will be given to the immediate family of emigrants returning to this local area to live near their family.

or

Special consideration shall be given to cases of exceptional health circumstances – supported by relevant documentation from a registered medical practitioner and a disability organisation proving that a person requires to live close to family support, or requires a family member to live in close proximity to that person. In that instance a family member shall be defined as the brother, sister, son, daughter, niece, nephew or grandchild of the person with such exceptional health circumstances.

Policy HP16: In determining whether an application within the Galway Transportation and Planning Study (GTPS) area is intended to meet a genuine rural generated housing need, the provisions of the “Sustainable Rural Housing Guidelines for Planning Authorities” (Appendix 6) shall be considered.

Any area designated as a CLÁR Region 5 area within the GTPS area shall not be subject to the need to demonstrate compliance with policy HP14 unless that area coincides with Landscape designation 3, 4 or 5 as determined by the Landscape Sensitivity and Character Areas Map included in the Plan.

The following factors will also be considered on the documentary evidence presented on a case by case basis.

1. (a) Those applicants with links to the area through long standing existing close family ties seeking to develop their first home on existing family farm holdings.

or

1. (b) Those applicants who have no family lands but who wish to build their first home within the community in which they have long standing links and where they have spent a substantial, continuous part of their lives (i.e. have grown up in the area, schooled in the area and have existing close family connections in the area e.g. son or daughter of longstanding residents of the area). Having established a substantiated rural housing need, such persons making an application on a site within an 8km radius of their original family home will be considered favourably, subject to normal development control criteria and provided the site is not closer to Galway city than the original family home or encroaches within the urban fringe of the towns of Gort, Loughrea, Athenry or Tuam.

Policy HP15: While it is necessary to control inappropriate residential development in the countryside (the rural areas of County Galway outside the development boundaries of towns and villages), the Planning Authority will consider “one-off” development for those who are:

- functionally dependent on the land, or
- who have an essential rural housing need, or

are involved in rural economic activities Policy ED50: It is the policy of the Council to work with the County Development Board, IDA, Enterprise Ireland, Udarás na Gaeltachta and other relevant agencies to promote industry and enterprise at appropriate locations in accordance with the County Spatial Strategy, Settlement Strategy and Local Area Plans for the County, and to support and facilitate the provision of the necessary infrastructure supports and linkages.

Objective IS10: Encourage the private sector to provide appropriately sited and designed facilities for the transfer, sorting and recovery of waste streams.

Objective IS17: Support and encourage the private sector in the provision of appropriately sited and designed facilities for end of life car recycling facilities to comply with the European Parliament and Council Directive 2000/53/EC, within each electoral division.

Policy IS32: Support the infrastructural renewal and development of electricity networks in the County, including the overhead infrastructure required to provide the networks.

Policy IS34: Support the infrastructure development of energy networks in the County so as to provide for the energy needs of the Community while avoiding environmental damage and the location of other developments along strategic routes.

Objective IS18: Facilitate wind farm developments in suitable locations, having regard to any designations of areas of the county for this purpose, government guidelines and the need to protect, inter alia, designated heritage sites, designated sensitive rural landscapes, visually vulnerable areas, scenic routes and scenic views. The Planning Authority will have regard to DoEHLG Guidelines for Planning Authorities on Wind Energy Development, 2006 in the assessment of any proposals for wind energy production.

Objective IS19: Undertake a review of the areas of Wind Farm potential in the County, having regard to the designation of lands as Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas or as habitats capable of supporting Annex I species.

Objective IS23: Give favourable consideration to small scale commercial renewable energy schemes, such as wind, hydro and biomass, of less than 5MW where grid connection is possible without large scale infrastructural investment in line with national guidelines for sustainable development.

Objective IS24: The Planning Authority shall seek to reserve a strategic corridor free from conflicting or inappropriate development as shown on Map IS2 for the purposes of providing necessary overhead electrical supply and distribution infrastructure between Galway and Screeb and other strategic infrastructure elements of the Grid Development Strategy.

Policy CS4: Implement the landuse zoning objectives of the Local Area Plan for Gaeltacht na Gaillimhe.

Policy CS9: Continue the Planning Authority's programme of infrastructure improvements in line with available funding.

Policy AM1: Provide for farm enterprises such as processing, co-ops farm supply stores and agri-business in accordance with the development control policies of the Plan.

Policy AM3: Provide infrastructural services to facilitate the production and sale of organic and specialty foods to meet the increase in demand for such products.

Policy AM4: Facilitate agricultural development whilst ensuring that development does not have a negative impact on the scenic amenity of the countryside, in particular to ensure that it does not infringe on any views an objective of which it is to preserve in the County Development Plan.

Objective AM1: Encourage sustainable forestry development and related management activities, including the promotion of mixed species forestry and selective rather than clear felling.

Policy AM10: Facilitate the provision of infrastructure, which is necessary for the development of the fishing, seaweed and Mari-culture industry. The provision of infrastructure, which is necessary for the development of the fishing and Mari-culture industry, should be located in proximity to established landing facilities.

Policy AM14: Support the sustainable development of the marine aquaculture industry, consistent with other policies of this plan, so as to maximise its contribution to jobs and growth in the coastal communities of the County and to the growth of the National economy.

Policy AM19: Seek enhancement of existing electricity network at Ros An Mhil and at other appropriate coastal areas for the promotion of tidal and wave energy and their research and development into the National Grid.

Policy AM 20: Improvement to piers and harbours should be carried out in such a way as to avoid or minimise disturbance to wildlife, damage to habitats or other adverse effects on the land and seascapes.

5.4.2 Policies that will require detailed assessment of subsidiary plans or proposals to ensure no adverse effects on Critical Environmental Conditions required to sustain Favourable Status of Qualifying Interest.

Policy SP7: While it is accepted that gateway boundaries have not been formally defined for any of the gateways, it is considered by Galway County Council, based on emerging patterns of development, settlement and economic and social ties that the gateway as defined by the Western Regional Authority (Map SP5, Page 19) is an acceptable definition. This conceptual gateway is supported by the investment in critical infrastructure, e.g. road, rail, water, waste water, electricity and gas investment which has and is taking place which has provided the economic infrastructure to support the gateway as defined herein. A key element in the development of the gateway will be the preparation of an overarching framework plan which should be integrated into the County and City settlement strategies and should incorporate plans for emerging development such as Ardaun, Briarhill and Garraun and the implementation of an integrated land use and transportation strategy (based on the Galway Transportation and Planning Study) and to incorporate balanced County development.

Objective SS1: Masterplans and/or Local Area Plans for Briarhill, Ardaun and Garraun will be developed as a priority and brought forward for adoption by the Council within the lifetime of the Plan.

Objective SS2: Local Area Plans or Development Boundaries will be prepared for all Settlements designated as Local Service Centres.

Objective SS3: A Local Area Plan for the North Connemara area will be prepared.

Objective SS4: Settlement guidelines or Action Area Plans/Local Area Plans for other key settlements in the Gateway area and along strategic public transportation corridors will be prepared as needed during the lifetime of the Plan.

Objective SS5: An Action Area Plan for the off-shore Islands will be prepared.

Objective SS6: A Local Area Plan for Kilcolgan will be prepared based on the Bearna Local Area Plan template.

Objective SS7: To prepare a Local Area Plan as a guidance document for the Carnmore/Galway Airport area to guide future development

Policy ED19: The Planning Authority shall be favourably disposed towards planning applications for the use of temporary borrow pits for aggregates or materials that are located adjacent to or adjoining major public roads or infrastructure projects serving the county where the need to haul along public roads is eliminated. All normal planning considerations shall apply

Policy ED37: Facilitate the development of the an integrated tourism and recreational complex at Bearna Golf and Country Club, including the development of a hotel, leisure centre, conference centre, golf apartments, aparthotel and associated residential units.

Policy ED48: The Planning Authority shall be generally positively disposed towards the provision of additional berthing and ancillary facilities on Lough Derg, where they are being provided in association with an integrated, sustainable recreational or tourist facility and compatible with the provisions of the Department of Finance's proposed Tax Relief Scheme for the area

Objectives RT1-RT38

Secure the timely completion of the N6 / M6 Galway to Athlone scheme. This includes the construction of the dual carriageway/motorway for the Galway City Outer Bypass along a new alignment, the construction of dual carriageway/motorways under the Galway to Ballinasloe scheme with a new single carriageway link to the Loughrea By pass and the Ballinasloe to Athlone scheme.

Secure the timely completion of the N18 / M18 as part of the Atlantic Corridor. This involves the construction of a dual carriageway / motorway under the Oranmore to Gort scheme along a new alignment and the construction of a dual carriageway / motorway under the Gort to Crusheen Co. Clare scheme along a new alignment.

Facilitate the development of the N17/M17 Scheme from Galway to Claremorris.

Facilitate the development of a new strategic route along the Cois Fharráige corridor from Galway to Scriob via Ros an Mhíl.

Secure the timely completion of the Tuam bypass.

Retain the existing National Routes N6, N18 and N17 as Class II Controlled roads upon commissioning and opening of the new National Routes through the county.

Retain the National Secondary status of the N63 National Secondary Route.

Secure the timely completion of inner relief roads for the towns of Tuam, Loughrea, Gort, Athenry, Bearna, Baile an Chláir, Clarinbridge, Craughwell, Headford, Maigh Cuilinn, An Spideal Portumna, and Oughterard all subject to funding. Design and construct new Oughterard and Kinvara inner relief roads.

Construct the new Station Road link road in Athenry.

Improve the Regional Routes R355 and R358 and include these routes as Class II controlled roads in recognition of their function as strategic links between the peripheral areas of the county and the new National Route Network.

Continue with the strengthening and improvements of the Local Road network and to improve strategic sections on those roads servicing aquaculture/forestry/agriculture/ industry and tourism. Provide additional maintenance as necessary to those local roads that are under pressure due to high traffic volumes.

Continue with the strengthening and improvements of the Regional Road network.

Develop strategic service and link roads within towns and village areas to open up lands within settlements and reduce the pressure for ribbon development.

Continue to develop and implement Parking Byelaws for the County.

Provide car parks for the control of on street and off-street car parking, adequate to meet short-term shopping and business requirements and for the needs of local residents.

Carry out Traffic Management Plans in Ballinasloe, Craughwell, Headford, Portumna, Kinvara, Gort, Athenry & Bearna. Review existing Plans every 5 years prior to review of Local Area Plan.

Construct a Bypass at Baile Chláir on the existing N17.

Continue with the strengthening and improvements of the N59, N63, N65, N66, N67, N83, and N84.

Construct an N59 bypass for Maigh Cuillinn as well as the Inner Relief Road.

Evaluate controlled pelican pedestrian facilities and traffic lights to ensure that an audible signal is installed to assist the visually impaired in crossing the street.

Provide designated car parking spaces for the disabled driver in all public car parks in every town as well as at specific priority locations on street.

Improve bridges, culverts and all roadside drainage as necessary in accordance with best engineering practices and having regard to the protected status, if applicable of any such structures that may be include in the Record of Protected Structures.

Investigate the potential for the development of integrated transportation hubs at Tuam and at Garraun to maximise the strategic integration of transport and rational landuses.

The local authority recognises the importance of protecting lands which will be needed for the construction of national routes from development is needed. Proposed development in areas identified as study corridors for the route selection of national primary routes generally will not be permitted until such time as a particular route had been identified and approved.

Require all new proposed commercial, industrial and retail developments and all significant proposed residential developments, or where significant changes are proposed to existing commercial, industrial or retail developments, to submit Road Safety Audits and Traffic Impact Assessments as part of their planning application documentation. For large scale developments, a Transport Assessment will also be required. These assessments shall comply with the requirements as set out under DM Standard 22.

Develop a pilot scheme to improve the N59 from

Galway to the Mayo Boundary via Leenane and the N67 from Ballinderreen to the Clare Boundary.

To complete the Oranhill link roads and Bealnabradan roundabout.

Facilitate the NRA, OPW & Shannon Navigation to improve the N65 Shannon River crossing in Portumna.

Reserve the lands required for improvements on the Tubber Road in Gort and a link between a possible future Tubber Road M18 Interchange and the N18 south of Gort.

Provide a pedestrian gateway overbridge on the N6 at Carrowmoneash to link Oranmore Town to the Industrial area on the N18.

To facilitate a link road from the proposed N18 Deerpark roundabout to Garraun with extensions to the Airport and Ardaun.

To complete the N6 Loughrea Bypass to the N66.

To complete the N6 Aughrim-Cappataggle Realignment.

To complete the N17 Castletown Realignment.

To ensure that the Ballyglunin Railway Overbridge on the N63 is raised with associated road realignment to ensure adequacy of access to the M17 Interchange at Annagh Hill.

All new proposed developments within 300 metres of roadways with traffic volumes greater than 8220 AADT, major railways which have more than 60 000 train passages per year and major airports shall include a noise assessment and mitigation measures, if necessary with the planning application documentation."Objective RT40: Support the proposals for the laying of dual track between Galway and Athenry and the development of new commuter stations along the new Western Rail Corridor as appropriate.

Objective RT49: The Council will investigate the potential for development of integrated transportation hubs at Tuam, Garraun and Athenry to maximize the strategic integration of transport and rational land uses. Support the development of an Integrated Public Transport Facility in the Tuam Hub Town.

Policy RT31: The Local Authority will support the expansion of Galway Regional Airport and associated facilities and ancillary and complementary activities, subject to normal planning requirements. The Planning Authority, together with Galway City Council shall consider the preparation and implementation of Public Safety Zones in the vicinity of the Galway Regional Airport in the event of same being recommended by the Department of Transport and/or the Department of Environment, Heritage and Local Government.

Policy RT33: The Council will support the expansion of Galway Sea Port and Ros a Mhíl and potential benefits that can be delivered to the County through the development of rail distribution facilities at appropriate locations in the County.

Policy IS2: Consider additional abstraction from the Lough Corrib to service an extended water supply network.

Policy IS3: Adopt the provisions of the strategic rural water plan and Implement Stage 2 of the Rural Water Strategic Plan.

Policy IS38: Facilitate the extension of a natural gas distribution network to serve both the County and the Western Region.

Policy AM7: Facilitate afforestation in appropriate locations, in co-operation with Coillte and the Forest Service and in line with national policy, while ensuring that no pollution or injury is caused to natural waters, wildlife habitats or conservation areas.

Policy AM13: Support the further development of the N.U.I.G. marine research station at Mweenish having regard to its long established land use on the site and its importance to the aquaculture industry to the local community and to the development of scientific knowledge.

Policy AM15: Facilitate the development of Rosamhil Harbour as the main harbour for County Galway.

Policy AM16: Promote the development of those strategic piers and piers serving islands, identified in the report "Assessment of Piers, Harbours and Landing Places in County Galway".

Policy AM17: Continue improvement works to other piers, including Kinvara, harbours and landing places under the Fisheries Harbours Programme in conjunction with the relevant government Departments.

5.5 Mitigation Measures

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the County Development Plan (CDP).

Mitigation involves ameliorating significant negative effects. Where there are significant negative effects, consideration is given in the first instance to preventing such effects or, where this is not possible for stated reasons, to lessening or offsetting those effects. Mitigation measures can be roughly divided into those that: *avoid* effects; *reduce* the magnitude or extent, probability and/or severity of effects; *repair* effects after they have occurred, and; *compensate* for effects, balancing out negative impacts with other positive ones.

The mitigation measures may be incorporated into the briefing of design teams as well as the subsequent design, specification and development management of the landuses to be accommodated within the County.

For developments with a potential to give rise to adverse effects on any European site additional, more detailed mitigation measures to those detailed below and those integrated into the CDP, will be likely to be required by the development management and EIA processes of individual projects.

5.6 Recommendations arising from Appropriate Assessment

It is recommended that the mitigation measures detailed under above be integrated into and adopted as part of the County Development Plan.

Note: The wordings of measures contained hereafter constitute an undertaking - as per the most relevant equivalent Irish Guidelines on the best practice⁴⁹. Accordingly Mitigation measures contained hereafter should be incorporated in their entirety - or should be omitted. The degree of undertaking should remain as that the measure 'shall' or 'will' be implemented. The substitution of these words with the words 'should', 'ought' or 'may' is not in accordance with best practice and should be avoided.

⁴⁹ The most commonly encountered and significant problem in Environmental Impact Statements is the complete or partial omission of any clear, legally enforceable commitment to undertake the mitigation measures proposed in response to a predicted impact.

EPA (2003) *Advice notes on Current Practice (In the Preparation in of Environmental Impact Statements)* Wexford: EPA

5.7 Mitigation Measures to prevent effects on European Sites

5.7.1 Ecology

- 5.7.1.1 The plan shall support achieving the objectives and actions contained in the County Galway Draft Biodiversity Action Plan 2008 - 2013 (Galway County Council, 2008).
- 5.7.1.2 No projects giving rise to significant adverse direct, indirect or secondary impacts on Natura 2000 sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects shall be permitted on the basis of this Plan (either individually or in combination with other plans or projects)⁵⁰.
- 5.7.1.3 All subsequent plan-making and adoption of plans under the control of Galway County Council arising from this plan will be screened for the need to undertake Appropriate Assessment under Article 6 of the Habitats Directive.
- 5.7.1.4 Galway County Council will set up procedures to ensure that any plan, project, etc would take cognisance of the existing impacts on Natura 2000 sites and assess the cumulative and "in combination" effects that said plans and projects may have on any Natura 2000 site and to ensure compliance with the requirements of Article 6 of the Habitats Directive.
- 5.7.1.5 No ecological networks or parts thereof which provide significant connectivity between areas of local biodiversity are to be lost without remediation as a result of implementation of the CDP.
- 5.7.1.6 Galway County Council shall protect wetlands, and associated surface and groundwater systems within the Plan area.
- 5.7.1.7 Galway County Council shall ensure that, in the supply of services and in zoning of lands and authorisation of development, the threatened habitats and species* which occur within and adjoining the Plan area are not placed under further risk of deterioration (habitats) or reduction in population size (species). *As identified in the National Parks and Wildlife "The Status of EU Protected Habitats and Species in Ireland", (NPWS, Department of the Environment, Heritage and Local Government, 2008). Galway County Council shall ensure that plan formulation and development control shall take into account the relevant "Major Pressures reported in the assessment of Habitats and Species" and the "Main Objectives Over The Coming Five Years and Beyond" contained in the above publication.

5.7.2 Water Protection

- 5.7.2.1 Galway County Council shall address the significant water management issues identified in the Water Matters Consultation publications for the relevant RBDs.
- 5.7.2.2 When published, the relevant policies and objectives of the Western and Shannon River Basin Management Plans and associated Programmes of Measures shall be integrated into the Plan through amendment or otherwise.
- 5.7.2.3 Galway County Council shall ensure that the ongoing development of Towns and their Environs are undertaken in such a way so as not to compromise the quality of surface water (and associated habitats and species) and groundwater within the zone of influence of the Development Plan area.

⁵⁰ Except as provided for in Section 6(4) of the Habitats Directive, viz. There must be:
(a) no alternative solution available,
(b) imperative reasons of overriding public interest for the plan to proceed; and
(c) adequate compensatory measures in place.

- 5.7.2.4 Landuses shall not give rise to the pollution of ground or surface waters during the construction or operation of developments. This shall be achieved through the adherence to best practice in the design, installation and management of systems for the interception, collection and appropriate disposal or treatment of all surface waters and effluents.

5.7.3 Waste Water

- 5.7.3.1 Development under the Plan shall be preceded by sufficient capacity in the public waste water treatment plants and appropriate extensions in the existing public waste water treatment catchments.
- 5.7.3.2 Galway County Council shall implement the relevant recommendations set out in *Urban Waste Water Discharges in Ireland for Population Equivalents Greater than 500 Persons – A Report for the Years 2004 and 2005* Office of Environment Enforcement- EPA, 2007.
- 5.7.3.3 Galway County Council shall provide a waste water treatment plant to meet current water quality standards, with adequate capacity to treat foul drainage arising from the drainage network associated with the WWTP Clifden area. Temporary waste water treatment facilities will be considered in the interim and provided in the event of any new development that would add to the waste loading being permitted. No new development that would add to the existing waste water treatment facility will be permitted.
- 5.7.3.4 Galway County Council shall examine the feasibility of connecting of unsewered, areas including individual properties/ premises, serviced by septic tanks to existing and planned sewer networks.

5.8 Conclusions

If the Plan – operating in conjunction with other relevant agencies, legislation, standards and practices, is adopted including and having regard to the mitigation measures recommended in this assessment then it will not give rise to adverse effects on the European Sites in County Galway or adjoining areas.

Appendix 1

Appropriate Assessment – Sheets 1 – 4

- | | |
|---------|---|
| Sheet 1 | European Sites in County Galway |
| Sheet 2 | Constituent Qualifying Interests of European Sites in County Galway |
| Sheet 3 | Assessment of Critical Resource Required to sustain Qualifying Interest Components of European Sites in County Galway and identification of Resource Requirement Types Groups for use in Assessment |
| Sheet 4 | Assessment of Likely Effects of Galway County Development Plan |

SHEET 1 European Sites in County Galway

Site No.	Site Name
212	Inishmaan Island SAC
213	Inishmore Island SAC
216	000216 - River Shannon Callows SAC
218	000218 - Coolcam Turlough SAC
231	000231 - Barroughter Bog SAC
238	000238 - Caherglassaun Turlough SAC
242	000242 - Castletaylor Complex SAC
248	000248 - Cloonmoylan Bog SAC
252	000252 - Coole-Garryland Complex SAC
255	000255 - Croaghill Turlough SAC
261	000261 - Derrycrag Wood Nature Reserve SAC
268	000268 - Galway Bay Complex SAC
278	000278 - Inishbofin and Inishshark SAC
285	000285 - Kilsallagh Bog SAC
286	000286 - Kiltartan Cave (Coole) SAC
295	000295 - Levally Lough SAC
296	000296 - Lisnageeragh Bog and Ballinastack Turlough SAC
297	000297 - Lough Corrib SAC
299	000299 - Lough Cutra SAC
301	000301 - Lough Lurgeen Bog/Glenamaddy Turlough SAC
304	000304 - Lough Rea SAC
308	000308 - Loughatorick South Bog SAC
318	000318 - Peterswell Turlough SAC
319	000319 - Pollnaknockaun Wood Nature Reserve SAC
322	000322 - Rahasane Turlough SAC
324	000324 - Rosroe Bog SAC
326	000326 - Shankill West Bog SAC

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328	000328 - Slyne Head Islands SAC
330	000330 - Tully Mountain SAC
474	000474 - Ballymaglancy Cave, Cong SAC
606	000606 - Lough Fingall Complex SAC
1228	001228 - Aughrusbeg Machair and Lake SAC
1242	001242 - Carrownagappul Bog SAC
1251	001251 - Cregduff Lough SAC
1257	001257 - Dog's Bay SAC
1271	001271 - Gortnandarragh Limestone Pavement SAC
1275	001275 - Inisheer Island SAC
1285	001285 - Kiltiernan Turlough SAC
1309	001309 - Omey Island Machair SAC
1311	001311 - Rusheenduff Lough SAC
1312	001312 - Ross Lake and Woods SAC
1313	001313 - Rosturra Wood SAC
1321	001321 - Termon Lough SAC
1774	001774 - Lough Carra/Mask Complex SAC
1913	001913 - Sonnagh Bog SAC
1926	001926 - East Burren Complex SAC
2008	002008 - Maumturk Mountains SAC
2031	002031 - The Twelve Bens/Garraun Complex SAC
2034	002034 - Connemara Bog Complex SAC
2074	002074 - Slyne Head Peninsula SAC
2110	002110 - Corliskea/Trien/Cloonfelliv Bog SAC
2111	002111 - Kilkieran Bay and Islands SAC
2117	002117 - Lough Coy SAC
2118	002118 - Barnahallia Lough SAC
2118	002119 - Lough Nageeron SAC
2129	002129 - Murvey Machair SAC
2130	002130 - Tully Lough SAC
2180	002180 - Gortacarnaun Wood SAC

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2181	002181 - Drummin Wood SAC
2213	002213 - Glenloughaun Esker SAC
2241	002241 - Lough Derg, North-East Shore SAC
2244	002244 - Ardrahan Grassland SAC
2265	002265 - Kingstown Bay SAC
2293	002293 - Carrowbaun, Newhall and Ballylee Turloughs SAC
2294	002294 - Cahermore Turlough SAC
2295	002295 - Ballinduff Turlough SAC
2296	002296 - Williamstown Turloughs SAC
2317	002317 - Cregg House Stables, Crusheen SAC
2347	002347 - Camderry Bog SAC
2350	002350 - Curraglehanagh Bog SAC
2352	002352 - Monivea Bog SAC
2356	002356 - Ardgraique Bog SAC
4031	004031 - Inner Galway Bay SPA
4042	004042 - Lough Corrib SPA
4056	004056 - Lough Cutra SPA
4058	004058 - Lough Derg (Shannon) SPA
4062	004062 - Lough Mask SPA
4067	004067 - High Island (Galway) SPA
4088	004088 - Lough Scannive SPA
4089	004089 - Rahasane Turlough SPA
4096	004096 - Middle Shannon Callows SPA
4097	004097 - River Suck Callows SPA
4107	004107 - Coole-Garryland SPA
4123	004123 - Slyne Head Islands SPA
4134	004134 - Lough Rea SPA
4142	004142 - Cregganna Marsh SPA
4168	004168 - Slieve Aughty Mountains SPA
4170	004170 - Cruagh Island SPA

SHEET 2 Constituent Qualifying Interests of European Sites in County Galway

Appropriate Assessment of the Galway County Development Plan (Appendix 5)

Site No.	Site Name	Habitat code	Habitat name	% Cover (approx.)	Representivity
212	Inishmaan Island SAC	8240	Limestone pavements	63	A
		6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia)(*important orchid sites)	10	A
		4030	European dry heaths	6	A
		6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	5	A
		21A0	Machairs (* in Ireland)	5	A
		1220	Perennial vegetation of stony banks	1	A
		1170	Reefs	2	B
		1230	Vegetated sea cliffs of the Atlantic and Baltic coasts	1	A
		2110	Embryonic shifting dunes	2	A
		2120	Shifting dunes along the shoreline with Ammophila arenaria (white dunes)	2	A
213	Inishmore Island SAC	8240	Limestone pavements	8	A
		4030	European dry heaths	1	A
		6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia)(*important orchid sites)	1	A
		6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	1	A
		2130	Fixed coastal dunes with herbaceous vegetation (grey dunes)	1	A
		2110	Embryonic shifting dunes	1	A
		2120	Shifting dunes along the shoreline with Ammophila arenaria (white dunes)	1	B
		2170	Dunes with Salix repens ssp.argentea (Salix arenariae)	1	A
		2190	Humid dune slacks	1	A
		21a0	Machairs (* in Ireland)	1	A
		1220	Perennial vegetation of stony banks	1	A
		1170	Reefs	78	A

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		1230	Vegetated sea cliffs of the Atlantic and Baltic coasts	1	A
		4060	Alpine and Boreal heaths	1	A
		8330	Submerged or partly submerged sea caves	1	A
		1150	Coastal lagoons	1	B
216	River Shannon Callows SAC	6510	Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)	2	A
		6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caeruleae</i>)	2	A
		91E0	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)	1	B
		8240	Limestone pavements	1	B
218	Coolcam Turlough SAC	3180	Turloughs	92	A
231	Barroughter Bog SAC	7110	Active raised bogs	16	A
		7120	Degraded raised bogs still capable of natural regeneration	37	B
		7150	Depressions on peat substrates of the Rhynchosporion	1	B
238	Caherglassaun Turlough SAC	3180	Turloughs	92	B
242	Castletaylor Complex SAC	3180	Turloughs	20	A
		4060	Alpine and Boreal heaths	6	B
		5130	<i>Juniperus communis</i> formations on heaths or calcareous grasslands	6	B
		6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco Brometalia</i>)(*important orchid sites)	8	B
		8240	Limestone pavements	8	B
248	Cloonmoylan Bog SAC	7110	Active raised bogs	31	A
		7120	Degraded raised bogs still capable of natural regeneration	40	B
		7150	Depressions on peat substrates of the Rhynchosporion	1	B
		91D0	Bog woodland	2	B
252	Coole-Garryland Complex SAC	8240	Limestone pavements	5	A
		3180	Turloughs	38	A
		6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco Brometalia</i>)(*important orchid sites)	1	B
		5130	<i>Juniperus communis</i> formations on heaths or calcareous grasslands	1	A
		3150	Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation	5	B

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		3270	Rivers with muddy banks with <i>Chenopodium rubri</i> p.p. and <i>Bidens</i> p.p. vegetation	2	A
255	Croaghill Turlough SAC	3180	Turloughs	94	B
261	Derrycrag Wood Nature Reserve SAC	91A0	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in British Isles	18	C
268	Galway Bay Complex SAC	1150	Coastal lagoons	1	A
		1160	Large shallow inlets and bays	81	A
		1170	Reefs	2	A
		1220	Perennial vegetation of stony banks	1	B
		1330	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)	1	A
		1410	Mediterranean salt meadows (<i>Juncetalia maritimi</i>)	1	A
		1310	Salicornia and other annuals colonizing mud and sand	1	C
		7210	Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davalliana</i>	1	B
		3180	Turloughs	1	B
		1140	Mudflats and sandflats not covered by seawater at low tide	7	A
		6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco Brometalia</i>)(*important orchid sites)	1	B
		7230	Alkaline fens	1	B
		5130	<i>Juniperus communis</i> formations on heaths or calcareous grasslands	1	B
278	Inishbofin and Inishshark SAC	1150	Coastal lagoons	1	A
		4010	Northern Atlantic wet heaths with <i>Erica tetralix</i>	10	C
		4030	European dry heaths	15	C
		3110	Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)	1	C
285	Kilsallagh Bog SAC	7110	Active raised bogs	7	A
		7120	Degraded raised bogs still capable of natural regeneration	61	B
		7150	Depressions on peat substrates of the <i>Rhynchosporion</i>	1	C
286	Kiltartan Cave (Coole) SAC	8310	Caves not open to the public	100	A
295	Levally Lough SAC	3180	Turloughs	70	A
296	Lisnageragh Bog and Ballinastack Turlough SAC	3180	Turloughs	6	B
		7110	Active raised bogs	3	B

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		7120	Degraded raised bogs still capable of natural regeneration	59	B
		7150	Depressions on peat substrates of the Rhynchosporion	1	B
297	Lough Corrib SAC	3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	85	A
		3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	3	A
		7110	Active raised bogs	1	B
		91A0	Old sessile oak woods with Ilex and Blechnum in British Isles	1	A
		6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	1	B
		7230	Alkaline fens	1	A
		7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	1	A
		8240	Limestone pavements	1	A
		6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia)(*important orchid sites)	1	B
		91D0	Bog woodland	1	A
		3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation	1	C
		7220	Petrifying springs with tufa formation (Cratoneurion)	1	C
		7120	Degraded raised bogs still capable of natural regeneration	1	B
		7150	Depressions on peat substrates of the Rhynchosporion	1	A
299	Lough Cutra SAC	No Qualifying interests listed			
301	Lough Lurleen Bog/Glenamaddy Turlough SAC	7110	Active raised bogs	2	A
		3180	Turloughs	16	A
		7120	Degraded raised bogs still capable of natural regeneration	49	B
		7150	Depressions on peat substrates of the Rhynchosporion	1	B
304	Lough Rea SAC	3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	84	B
308	Loughatorick South Bog SAC	7130	Blanket bog (*active only)	73	A
318	Peterswell Turlough SAC	3180	Turloughs	58	A
319	Pollnacknockaun Wood Nature Reserve SAC	91A0	Old sessile oak woods with Ilex and Blechnum in British Isles	24	C

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322	Rahasane Turlough SAC	3180	Turloughs	93	A
324	Rosroe Bog SAC	7130	Blanket bog (*active only)	58	B
		7150	Depressions on peat substrates of the Rhynchosporion	1	B
326	Shankill West Bog SAC	7110	Active raised bogs	11	A
		7120	Degraded raised bogs still capable of natural regeneration	41	B
		7150	Depressions on peat substrates of the Rhynchosporion	1	B
328	Slyne Head Islands SAC	1170	Reefs	60	A
330	Tully Mountain SAC	4030	European dry heaths	38	C
		4060	Alpine and Boreal heaths	5	B
		3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	1	D
		7130	Blanket bog (*active only)	1	D
474	Ballymaglancy Cave, Cong SAC	8310	Caves not open to the public	100	A
606	Lough Fingall Complex SAC	3180	Turloughs	23	B
		8240	Limestone pavements	35	A
		6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia)(*important orchid sites)	5	B
		4060	Alpine and Boreal heaths	5	A
		5130	Juniperus communis formations on heaths or calcareous grasslands	5	B
		7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	5	A
1228	Aughrusbeg Machair and Lake SAC	3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	10	A
		4010	Northern Atlantic wet heaths with Erica tetralix	20	C
1242	Carrownagappul Bog SAC	7110	Active raised bogs	18	A
		7120	Degraded raised bogs still capable of natural regeneration	47	B
		7150	Depressions on peat substrates of the Rhynchosporion	1	B
1251	Cregduff Lough SAC	7140	Transition mires and quaking bogs	7	A
1257	Dog's Bay SAC	1210	Annual vegetation of drift lines	1	C
		2110	Embryonic shifting dunes	4	C
		2130	Fixed coastal dunes with herbaceous vegetation (grey dunes)	29	B
		4030	European dry heaths	20	B

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		2120	Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)	5	C
1271	Gortnandarragh Limestone Pavement SAC	8240	Limestone pavements	90	A
1275	Inisheer Island SAC	8240	Limestone pavements	68	A
		6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco Brometalia</i>)(*important orchid sites)	12	A
		4030	European dry heaths	8	B
		6510	Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)	6	A
		1170	Reefs	4	B
		1150	Coastal lagoons	1	C
1285	Kiltiernan Turlough SAC	3180	Turloughs	44	B
1309	Omey Island Machair SAC	21a0	Machairs (* in Ireland)	11	B
		3140	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.	7	A
1311	Rusheenduff Lough SAC	3110	Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)	43	A
1312	Ross Lake and Woods SAC	3140	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.	40	B
		7230	Alkaline fens	10	D
		6410	<i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)	2	D
		91E0	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)	1	D
1313	Rosturra Wood SAC	91A0	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in British Isles	26	C
1321	Termon Lough SAC	3180	Turloughs	92	B
1774	Lough Carra/Mask Complex SAC	3140	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.	12	A
		3110	Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)	66	A
		8240	Limestone pavements	3	A
		4030	European dry heaths	1	B
		7210	Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>	1	B
		7230	Alkaline fens	1	A
		91E0	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)	1	B

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		6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco Brometalia</i>)(*important orchid sites)	1	A
1913	Sonnagh Bog SAC	7130	Blanket bog (*active only)	73	B
1926	East Burren Complex SAC	3140	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.	5	A
		3180	Turloughs	1	A
		3260	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation	1	B
		4060	Alpine and Boreal heaths	8	A
		5130	<i>Juniperus communis</i> formations on heaths or calcareous grasslands	4	A
		6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco Brometalia</i>)(*important orchid sites)	3	A
		6510	Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)	1	B
		7210	Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>	1	A
		7220	Petrifying springs with tufa formation (<i>Cratoneurion</i>)	1	B
		7230	Alkaline fens	1	A
		8240	Limestone pavements	61	A
		8310	Caves not open to the public	1	A
		91E0	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)	1	C
2008	Maumturk Mountains SAC	4060	Alpine and Boreal heaths	11	C
		8220	Siliceous rocky slopes with chasmophytic vegetation	1	C
		7130	Blanket bog (*active only)	10	B
		3110	Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)	2	A
		4010	Northern Atlantic wet heaths with <i>Erica tetralix</i>	5	B
		7150	Depressions on peat substrates of the <i>Rhynchosporion</i>	1	B
2031	The Twelve Bens/Garraun Complex SAC	7130	Blanket bog (*active only)	44	B
		8220	Siliceous rocky slopes with chasmophytic vegetation	2	A
		8210	Calcareous rocky slopes with chasmophytic vegetation	1	A
		8110	Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>)	1	A
		4060	Alpine and Boreal heaths	1	B

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	3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	6	A	
	91A0	Old sessile oak woods with Ilex and Blechnum in British Isles	1	A	
	7150	Depressions on peat substrates of the Rhynchosporion	1	A	
2034	Connemara Bog Complex SAC	3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	13	A
		3160	Natural dystrophic lakes and ponds	2	A
		3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation	1	C
		4010	Northern Atlantic wet heaths with Erica tetralix	2	B
		4030	European dry heaths	2	B
		6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	1	C
		7130	Blanket bog (*active only)	66	A
		91A0	Old sessile oak woods with Ilex and Blechnum in British Isles	1	B
		7230	Alkaline fens	1	B
		1150	Coastal lagoons	1	A
		7140	Transition mires and quaking bogs	1	A
		7150	Depressions on peat substrates of the Rhynchosporion	1	A
		1170	Reefs	1	C
		2074	Slyne Head Peninsula SAC	1150	Coastal lagoons
1210	Annual vegetation of drift lines			1	B
1220	Perennial vegetation of stony banks			1	B
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritima)			1	B
1410	Mediterranean salt meadows (Juncetalia maritimi)			1	B
2110	Embryonic shifting dunes			1	B
2120	Shifting dunes along the shoreline with Ammophila arenaria (white dunes)			1	C
21A0	Machairs (* in Ireland)			8	A
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)			6	B
5130	Juniperus communis formations on heaths or calcareous grasslands			10	A
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia)(*important orchid sites)			2	B

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		1160	Large shallow inlets and bays	26	A
		1170	Reefs	10	A
		3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	1	B
		4030	European dry heaths	10	A
		6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinia caeruleae)	1	B
		6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	1	B
		7230	Alkaline fens	1	B
2110	Corliskea/Trien/Cloonfelliv Bog SAC	91D0	Bog woodland	2	A
		7110	Active raised bogs	9	A
		7120	Degraded raised bogs still capable of natural regeneration	52	B
		7150	Depressions on peat substrates of the Rhynchosporion	1	B
2111	Kilkieran Bay and Islands SAC	1140	Mudflats and sandflats not covered by seawater at low tide	3	B
		1160	Large shallow inlets and bays	50	A
		1150	Coastal lagoons	1	A
		1170	Reefs	30	A
		1330	Atlantic salt meadows (Glauco-Puccinellietalia maritima)	1	A
		1410	Mediterranean salt meadows (Juncetalia maritimi)	1	A
		21A0	Machairs (* in Ireland)	1	C
		6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	1	B
2117	Lough Coy SAC	3180	Turloughs	75	A
2118	Barnahallia Lough SAC	3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	15	B
		7130	Blanket bog (*active only)	12	D
2119	Lough Nageeron SAC	3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	50	B
2129	Murvey Machair SAC	21A0	Machairs (* in Ireland)	41	C
2130	Tully Lough SAC	3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	28	B
2180	Gortacarnaun Wood SAC	91a0	Old sessile oak woods with Ilex and Blechnum in British Isles	72	B
2181	Drummin Wood SAC	91a0	Old sessile oak woods with Ilex and Blechnum in British Isles	52	B

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2213	Glenloughaun Esker SAC	6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco Brometalia</i>)(*important orchid sites)	85	A
2241	Lough Derg, North-East Shore SAC	91J0	<i>Taxus baccata</i> woods of the British Isles	1	A
		5130	<i>Juniperus communis</i> formations on heaths or calcareous grasslands	1	A
		7230	Alkaline fens	2	B
		7210	Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>	1	B
		91E0	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)	1	C
		8240	Limestone pavements	1	C
2244	Ardrahan Grassland SAC	4060	Alpine and Boreal heaths	24	A
		8240	Limestone pavements	16	B
		5130	<i>Juniperus communis</i> formations on heaths or calcareous grasslands	27	A
2265	Kingstown Bay SAC	1160	Large shallow inlets and bays	95	A
2293	Carrowbaun, Newhall and Ballylee Turloughs SAC	3180	Turloughs	55	B
2294	Cahermore Turlough SAC	3180	Turloughs	70	B
2295	Ballinduff Turlough SAC	3180	Turloughs	48	A
2296	Williamstown Turloughs SAC	3180	Turloughs	44	A
2317	Cregg House Stables, Crusheen SAC	No Qualification Interests Listed			
2347	Camderry Bog SAC	7110	Active raised bogs	5	B
		7120	Degraded raised bogs still capable of natural regeneration	65	B
		7150	Depressions on peat substrates of the <i>Rhynchosporion</i>	1	C
2350	Curraglehanagh Bog SAC	7120	Degraded raised bogs still capable of natural regeneration	47	B
		7110	Active raised bogs	8	B
		7150	Depressions on peat substrates of the <i>Rhynchosporion</i>	1	B
2352	Monivea Bog SAC	7120	Degraded raised bogs still capable of natural regeneration	48	B
		7110	Active raised bogs	3	C
		7150	Depressions on peat substrates of the <i>Rhynchosporion</i>	1	B
2356	Ardgraique Bog SAC	7120	Degraded raised bogs still capable of natural regeneration	38	B

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		7110	Active raised bogs	5	B
		7150	Depressions on peat substrates of the Rhynchosporion	1	C
4031	Inner Galway Bay SPA	No SPA datasheet available			
4042	Lough Corrib SPA	No SPA datasheet available			
4056	Lough Cutra SPA	No SPA datasheet available			
4058	Lough Derg (Shannon) SPA	No SPA datasheet available			
4062	Lough Mask SPA	No SPA datasheet available			
4067	High Island (Galway) SPA	No SPA datasheet available			
4088	Lough Scannive SPA	No SPA datasheet available			
4089	Rahasane Turlough SPA	No SPA datasheet available			
4096	Middle Shannon Callows SPA	No SPA datasheet available			
4097	River Suck Callows SPA	No SPA datasheet available			
4107	Coole-Garryland SPA	No SPA datasheet available			
4123	Slyne Head Islands SPA	No SPA datasheet available			
4134	Lough Rea SPA	No SPA datasheet available			
4142	Cregganna Marsh SPA	No SPA datasheet available			
4168	Slieve Aughty Mountains SPA	No SPA datasheet available			
4170	Cruagh Island SPA	No SPA datasheet available			

SHEET 3 Assessment of Critical Resource Required to sustain Qualifying Interest Components of European Sites in County Galway and identification of Resource Requirement Types Groups for use in Assessment																	
			Critical Resource Requirement to sustain favourable Status of Qualifying Interests	Extent – the area, quantity or density of the Qualifying Interest	Condition – The quality of conditions and resources required to sustain the structure and function the Qualifying Interest	Water Flow – The duration, volumes and frequency of groundwater and surface water availability required to sustain the Qualifying Interest	Water Level – The duration, volumes and frequency of low and high levels of waters required to sustain the Qualifying Interest	Water Chemistry – The chemical characteristics and associated physical conditions [Temperature etc] required to sustain the Qualifying Interest	Water Quality - the holistic, biological, chemical, physical and management conditions of waters required to sustain the Qualifying Interest	Soil Quality - the holistic, biological, chemical, physical and management conditions of soils required to sustain the Qualifying Interest	Air Quality the holistic, biological, chemical, physical and management conditions of air required to sustain the Qualifying Interest	Undisturbed – the holistic set of environmental conditions, combining noise, movement, required to sustain the Qualifying Interest	Human Management – the holistic set of human management activities and associated behavior, required to sustain the Qualifying Interest	Integrity – the relationships between the site's biotic and abiotic elements required to sustain the Qualifying Interest	Connectivity – the relationships between the site and biotic and abiotic elements off site that are required to sustain the Qualifying Interest	Conservation Objectives – Management Objectives that are required to sustain the Qualifying Interest	
CODE	TYPE	DESCRIPTION															
1140	1	Mudflats and sandflats not covered by seawater at low tide		C	C	C	C	C	C	C		C		C	C	NA	
1150		Coastal lagoons		C	C	C	C	C	C	C		C		C	C	NA	
1160		Large shallow inlets and bays		C	C	C	C	C	C	C		C		C	C	NA	
1170		Reefs		C	C			C	C			C			C	NA	
1210		Annual vegetation of drift lines		C								C	C				NA
1230		Vegetated sea cliffs of the Atlantic and Baltic coasts		C	C							C	C		C	C	NA
21A0		Machairs (* in Ireland)		C	C		C					C	C		C	C	NA

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2110		Embryonic shifting dunes		C	C		C			C		C	C	C	C	NA	
2120		Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)		C	C		C			C		C	C	C	C	NA	
2130		Fixed coastal dunes with herbaceous vegetation (grey dunes)		C	C		C			C		C	C	C	C	NA	
2170		Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salix arenariae</i>)		C	C		C			C		C	C	C	C	NA	
2190		Humid dune slacks		C	C		C			C		C	C	C	C	NA	
3110	2	Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>)			C			C		C				C	C	NA	
3160		Natural dystrophic lakes and ponds		C	C	C	C	C	C				C	C	C	NA	
3150		Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation		C	C	C	C	C	C				C	C	C	NA	
3180		Turloughs		C	C	C	C	C	C				C	C	C	NA	
3140		Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.		C	C	C	C	C	C				C	C	C	NA	
3260		Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation		C	C	C	C	C	C				C	C	C	NA	
3270		Rivers with muddy banks with <i>Chenopodium rubri</i> p.p. and <i>Bidenton</i> p.p. vegetation		C	C	C	C	C	C				C	C	C	NA	

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4010	3	Northern Atlantic wet heaths with <i>Erica tetralix</i>	C	C		C	C	C	C		C	C	C	C		NA	
4030		European dry heaths	C	C		C	C	C	C		C	C	C	C		NA	
4060		Alpine and Boreal heaths	C	C		C	C	C	C		C	C	C	C		NA	
5130		<i>Juniperus communis</i> formations on heaths or calcareous grasslands	C	C		C	C	C	C		C	C	C	C		NA	
6210	4	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco Brometalia</i>)(*important orchid sites)	C	C							C		C	C	C	C	NA
6410		<i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)	C	C							C		C	C	C	C	NA
6510		Lowland hay meadows (<i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i>)	C	C							C		C	C	C	C	NA
7140	5	Transition mires and quaking bogs	C	C	C	C	C	C	C		C	C	C	C		NA	
7110		Active raised bogs	C	C	C	C	C	C	C		C	C	C	C		NA	
7130		Blanket bog (*active only)	C	C	C	C	C	C	C		C	C	C	C		NA	
7150		Depressions on peat substrates of the <i>Rhynchosporion</i>	C	C	C	C	C	C	C		C	C	C	C		NA	
7210		Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>	C	C	C	C	C	C	C		C	C	C	C		NA	
7120		Degraded raised bogs still capable of natural regeneration	C	C	C	C	C	C	C		C	C	C	C		NA	
7230		Alkaline fens	C	C	C	C	C	C	C		C	C	C	C		NA	

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91D0	6	Bog woodland		C	C		C	C		C	C	C	C	C	C	NA	
91E0		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)		C	C		C	C		C	C	C	C	C	C	NA	
91J0		<i>Taxus baccata</i> woods of the British Isles		C	C				C	C	C	C	C	C	C	NA	
8210	7	Calcareous rocky slopes with chasmophytic vegetation		C	C					C		C		C	C	NA	
8240		Limestone pavements		C	C		C			C	C	C		C	C	NA	
8330	8	Submerged or partly submerged sea caves		C	C	C		C		C		C	C	C	C	NA	
8310		Caves not open to the public		C	C	C		C		C		C	C	C	C	NA	

SHEET 3b Summary of Assessment of Critical Resource Required to sustain Qualifying Interest Components of European Sites in County Galway and identification of Resource Requirement Types Groups for use in Assessment

			Critical Resource Resource Requirement to sustain favourable Status of Qualifying Interests	Extent – the area, quantity or density of the Qualifying Interest	Condition – The quality of conditions and resources required to sustain the structure and function the Qualifying Interest	Water Flow – The duration, volumes and frequency of groundwater and surface water availability required to sustain the Qualifying Interest	Water Level– The duration, volumes and frequency of low and high levels of waters required to sustain the Qualifying Interest	Water Chemistry – The chemical characteristics and associated physical conditions [Temperature etc] required to sustain the Qualifying Interest	Water Quality- the holistic, biological, chemical, physical and management conditions of waters required to sustain the Qualifying Interest	Soil Quality - the holistic, biological, chemical physical and management conditions of soils required to sustain the Qualifying Interest	Air Quality the holistic, biological, chemical, physical and management conditions of air required to sustain the Qualifying Interest	Undisturbed – the holistic set of environmental conditions; combining noise, movement, required to sustain the Qualifying Interest	Human Management – the holistic set of human management activities and associated behavior, required to sustain the Qualifying Interest	Integrity – the relationships between the site's biotic and abiotic elements required to sustain the Qualifying Interest	Connectivity– the relationships between the site and biotic and abiotic elements off site that are required to sustain the Qualifying Interest	Conservation Objectives – Management Objectives that are required to sustain the Qualifying Interest
CODE	TYPE	DESCRIPTION														
	1	Marine & Coastal	X	X	x	X	x	x	X	X	-	X	X	X	X	
	2	Freshwater, wetlands & Turlough	X	X	x	X	x	x	x	x	-	x	X	X	X	
	3	Heaths	X	X	-	X	X	X	X	X	-	X	X	X	X	
	4	Grasslands	X	X	-	-	-	-	X	-	X	X	X	X	X	
	5	Mires, fens and bogs	X	X	X	X	X	X	X	X	-	X	X	X	X	
	6	Woodlands	X	X	-	X	X	-	X	X	X	X	X	X	X	
	7	Scree & Pavement	X	X	-	-	-	-	X	-	X	-	X	X	X	
	8	Caves	X	X	X	--	X		X	-	X	X	X	X	X	
			1,2,3,4, 5,6,7,8	1,2,3,4, 5,6,7,8						1,2,3,4, 5,6,7,8		1,2,3,4, 5,6,7,8	1,2,3,4, 5,6,7,8			

SHEET 4 Assessment of Likely Effects of Galway County Development Plan on Conservation Objectives of European Sites

Appropriate Assessment
Table 2a [Sites Conservation Objectives]

Evaluation of likely threats and effects to key indicators of relevant species and conditions of the Qualifying Interests

002117 - Lough Coy

2117 SAC

Qualifying Interests		Conservation Objectives		Key Indicators			Decision-making Framework			Threats			Mitigation		Impacts of Plan Implementation		
Habitat	Species	General Conservation Objectives	Specific Conservation Objectives	Amount	Range	Status	Policies	Objectives	Area	Direct	Indirect	Cumulative	Other Instruments	This Plan	Direct	Indirect	Cumulative
Turloughs	Mudwort (<i>Limosella aquatica</i>), Needle Spike-rush, (<i>Eleocharis acicularis</i>), Northern			to maintain the Annex I habitat(s) for which the cSAC is selected	To maintain and where possible, enhance the ecological value of the priority habitat,	Turlough (42% of the site)	na	na	na	na	na	Habitat Reduction by Agricultural, Grazing Pressure, Nutrient Enrichment				No Plan jurisdiction	none

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	Yellow-cress (Rorippa islandica) and the liverwort Riccia cavernosa		To maintain and where possible enhance the ecological value of all other habitats,	Lowland dry grassland (2%), Scrub and woodland (10%), Improved/semi-improved grassland (45%), Hedges and stonewalls (<1%).	na	na		na	na	Habitat Reduction by Agricultural, Grazing Pressure, Nutrient Enrichment				No Plan jurisdiction	none	none	none
										Gravel and sand extraction			Objective 4.2 Management Plan	DM Standard 36, 38, 39	none	none	none
			To maintain, and where possible, increase the population of Annexed bird species Whooper Swan and other notable bird species using the site.	78 whooper swans	na	na					South Galway Flood relief scheme		Water Framework Directive, 1.2.3, etc.		none	none	none
		to liaise with the landowners, relevant authorities and interested parties	To initiate and maintain effective liaison with landowners, Local Authority and other interested parties.	na	na	na	na	na	na	na	na	na	Management Plan Objective 4	na	na	na	na

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		to increase the scientific knowledge of the site through further scientific research and development of monitoring programmes	na	Management Plan Strategy 1.3	na	na	na	na									
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Appendix 2

Sheet 5 Assessment of Likely Effects of Galway County Development Plan on the Qualifying Interests for European Sites.

Potential Threat Types to European Sites & Species	
Code	Habitat Loss (Reductions in the area or density)
HL1	Direct Loss – through excavation, burning or removal
HL2	Indirect Loss – through disruption of Critical Environmental Conditions
HL3	Cumulative Loss – through gradual accumulation of minor losses and disruptions
Habitat Fragmentation (Reduction in the connectivity or functionality)	
HF1	Direct Fragmentation - through loss of links or relationships within and between areas.
HF2	Indirect Fragmentation – through disruption of links or relationships due to disturbance, pollution or loss of access.
HF3	Cumulative Fragmentation - through a gradual accumulation of minor losses and disruptions to links or relationships
Habitat Disturbance (Deterioration in the function)	
HD1	Direct Disturbance – through events causing immediate changes through cutting, burning, grazing that suppress or retard functions and processes.
HD2	Indirect Disturbance – activities and effects (such as pollution) that suppress or retard functions and processes
HD3	Cumulative Disturbance - through gradual accumulation of activities and effects (such as pollution) that suppress or retard functions and processes

Table 1 Potential Threat Types to European Sites and Species

Critical Environmental Conditions required to sustain Favorable Status of Qualifying Interest	
Code	Sustaining Environmental Range
EX	Extent – the area, quantity or density of the Qualifying Interest
CN	Condition – The quality of conditions and resources required to sustain the structure and function the Qualifying Interest
Sustaining Environmental Conditions & Resources	
WF	Water Flow – The duration, volumes and frequency of groundwater and surface water availability required to sustain the Qualifying Interest
WL	Water Level – The duration, volumes and frequency of low and high levels of waters required to sustain the Qualifying Interest
WC	Water Chemistry – The chemical characteristics and associated physical conditions [Temperature etc] required to sustain the Qualifying Interest
WQ	Water Quality - the holistic, biological, chemical, physical and management conditions of waters required to sustain the Qualifying Interest
SQ	Soil Quality - the holistic, biological, chemical, physical and management conditions of soils required to sustain the Qualifying Interest
AQ	Air Quality the holistic, biological, chemical, physical and management conditions of air required to sustain the Qualifying Interest
UD	Undisturbed – the holistic set of environmental conditions, combining noise, movement, required to sustain the Qualifying Interest
HM	Human Management – the holistic set of human management activities and associated behavior, required to sustain the Qualifying Interest
Environmental Relationships	
IN	Integrity – the relationships between the site’s biotic and abiotic elements required to sustain the Qualifying Interest
CT	Connectivity – the relationships between the site and biotic and abiotic elements off site that are required to sustain the Qualifying Interest
CO	Conservation Objectives – Management Objectives that are required to sustain the Qualifying Interest

Table.2 Critical Environmental Conditions required to sustain Favourable Status of Qualifying Interest

SHEET 5 Assessment of Likely Effects of Galway County Development Plan on the Qualifying Interests for European Sites.

Qualifying Interests	Critical Environmental Conditions			Threats			Mitigation		Impacts			
	Range	Condition	Relations	Direct	Indirect	Cumulative	Other Instruments	This Plan	Direct	Indirect	Cumulative	
7110	Active raised bogs	EX, CN,	WL, WC,SQ, HM.	IN	HL1, HD1	HL2, HD2	HL3, HF3,	European Union (Natural Habitats) Regulations, SI 94/1997 Water Framework Directive, Water Pollution Acts	Sections, 1.3, 4.6.7	none	none	none
7230	Alkaline fens	EX, CN,	WL, WC,SQ, HM.	IN	HL1, HD1	HL2, HD2	HL3, HF3,	European Union (Natural Habitats) Regulations, SI 94/1997 Water Framework Directive, Water Pollution Acts	Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9 Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6 Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41	none	none	none

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91E0	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)	EX, CN,	WL, SQ, HM.	CT	HL1, HF1, HD1	HD2	HL3, HF3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997 Irish National Forestry Standard 2000	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41</p>	none	none	none
4060	Alpine and Boreal heaths	EX, CN,	WL, WC, SQ, HM.	IN	HL1, HD1	HL2, HD2	HL3, HF3,	European Union (Natural Habitats) Regulations, SI 94/1997 European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6 CS22 CS23 CS24 CS25 CS26 CS27 CS28 CS29 CS30 CS31 HL52 HL53 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 AM7 AM8 AM9</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HL25 AM1 CS1 CS2 CS3 CS4 CS5 CS6 CS7 CS8 CS9 CS10 CS11 CS12 CS13</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 37, 38, 39, 40, 41</p>	none	none	none

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1210	Annual vegetation of drift lines	EX,	WL, SQ, UD, HM,	IN	HD1	HL2, HD2	HD3	European Union (Natural Habitats) Regulations, SI 94/1997 Foreshore Acts	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41</p>	none	none	none
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	EX, CN,	WL, WQ, SQ,	IN, CT	HL1, HD1	HL2, HF2, HD2	HL3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim3 Aim5 Aim9</p> <p>Policy AM16 AM17 AM18 AM19 AM20 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 ED45 ED46 ED47 ED48 HL56</p> <p>Objectives SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24</p> <p>DM Standards 4, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31 & 32</p>	none	none	none

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7130	Blanket bog (*active only)	EX, CN,	WL, WC,SQ, HM.	IN	HL1, HD1	HL2, HD2	HL3, HF3,	European Union (Natural Habitats) Regulations, SI 94/1997	Aim3 Aim5 Aim9 Policy AM16 AM17 AM18 AM19 AM20 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 ED45 ED46 ED47 ED48 HL56 Objectives SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 DM Standards 4, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31 & 32	none	none	none
91D0	Bog woodland	EX, CN,	WL, SQ, HM.	CT	HL1, HF1, HD1	HD2	HL3, HF3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997 Water Framework Directive	Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9 Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6 Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41	none	none	none

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7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	EX, CN,	WL, WC,SQ, HM.	IN	HL1, HD1	HL2, HD2	HL3, HF3,	European Union (Natural Habitats) Regulations, SI 94/1997 Water Framework Directive, Water Pollution Acts	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6 CS22 CS23 CS24 CS25 CS26 CS27 CS28 CS29 CS30 CS31 HL52 HL53 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 AM7 AM8 AM9</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HL25 AM1 CS1 CS2 CS3 CS4 CS5 CS6 CS7 CS8 CS9 CS10 CS11 CS12 CS13</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 37, 38, 39, 40, 41</p>	none	none	none
8210	Calcareous rocky slopes with chasmophytic vegetation	EX, CN,	SQ, UD	IN	HD1	HL2, HF2, HD2	HF3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41</p>	none	none	none

8310	Caves not open to the public							European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31</p> <p>AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31</p> <p>Objectives HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39</p>	none	none	none
1150	Coastal lagoons	EX, CN,	WL, WQ, SQ,	IN, CT	HL1, HD1	HL2, HF2, HD2	HL3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997 Foreshore Acts, Water Framework Directive, Water Pollution Acts	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31</p> <p>AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31</p> <p>Objectives HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39</p>	none	none	none

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7120	Degraded raised bogs still capable of natural regeneration	EX, CN,	WL, WC,SQ, HM.	IN	HL1, HD1	HL2, HD2	HL3, HF3,	European Union (Natural Habitats) Regulations, SI 94/1997 Water Framework Directive	<p>Aim3 Aim5 Aim9</p> <p>Policy AM16 AM17 AM18 AM19 AM20 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 ED45 ED46 ED47 ED48 HL56</p> <p>Objectives SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24</p> <p>DM Standards 4, 13, 23, 24, 25, 26, 27 & 31</p>	none	none	none
7150	Depressions on peat substrates of the Rhynchosporion	EX, CN,	WL, WC,SQ, HM.	IN	HL1, HD1	HL2, HD2	HL3, HF3,	European Union (Natural Habitats) Regulations, SI 94/1997 Water Framework Directive	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41</p>	none	none	none

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2170	Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salix arenariae</i>)	EX,	WL, SQ, UD, HM,	IN	HD1	HL2, HD2	HD3	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41</p>	none	none	none
2110	Embryonic shifting dunes	EX,	WL, SQ, UD, HM,	IN	HD1	HL2, HD2	HD3	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim3 Aim5 Aim9</p> <p>Policy AM16 AM17 AM18 AM19 AM20 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 ED45 ED46 ED47 ED48 HL56</p> <p>Objectives SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24</p> <p>DM Standards 4, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31 & 32</p>	none	none	none

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4030	European dry heaths	EX, CN,	WL, WC,SQ, HM.	IN	HL1, HD1	HL2, HD2	HL3, HF3,	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim3 Aim5 Aim9</p> <p>Policy AM16 AM17 AM18 AM19 AM20 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 ED45 ED46 ED47 ED48 HL56</p> <p>Objectives SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24</p> <p>DM Standards 4, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31 & 32</p>	none	none	none
2130	Fixed coastal dunes with herbaceous vegetation (grey dunes)	EX,	WL, SQ, UD, HM,	IN	HD1	HL2, HD2	HD3	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41</p>	none	none	none

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3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	EX, CN,	WL, WQ, SQ,	IN, CT	HL1, HD1	HL2, HF2, HD2	HL3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997 Water Framework Directive, Water Pollution Acts	Aim3 Aim5 Aim9 Policy AM16 AM17 AM18 AM19 AM20 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 ED45 ED46 ED47 ED48 HL56 Objectives SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 DM Standards 4, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31 & 32	none	none	none
2190	Humid dune slacks	EX,	WL, SQ, UD, HM,	IN	HD1	HL2, HD2	HD3	European Union (Natural Habitats) Regulations, SI 94/1997 Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED45 ED46 ED47 ED48 HL56 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 AM7 AM8 AM9 Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 HL25 AM1 DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 37, 38, 39, 40 & 41	none	none	none	

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5130	Juniperus communis formations on heaths or calcareous grasslands	EX	SQ, HM	IN	HF1, HD1	HL2, HF2, HD2	HL3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997	Aim3 Aim5 Aim9 Policy AM16 AM17 AM18 AM19 AM20 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 ED45 ED46 ED47 ED48 HL56 Objectives SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 DM Standards 4, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31 & 32	none	none	none
1160	Large shallow inlets and bays	EX, CN,	WL, WQ, SQ,	IN, CT	HL1, HD1	HL2, HF2, HD2	HL3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997 Water Framework Directive, Water Pollution Acts	Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9 Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6 Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41	none	none	none

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8240	Limestone pavements	EX, CN,	SQ, UD	IN	HD1	HL2, HF2, HD2	HF3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim3 Aim5 Aim9</p> <p>Policy</p> <p>AM16 AM17 AM18 AM19 AM20 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 ED45 ED46 ED47 ED48 HL56</p> <p>Objectives</p> <p>SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24</p> <p>DM Standards 4, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31 & 32</p>	none	none	none
6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	EX	SQ, HM	IN	HF1, HD1	HL2, HF2, HD2	HL3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy</p> <p>SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31</p> <p>AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31</p> <p>Objectives</p> <p>HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39</p>	none	none	none

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21A0	Machairs (* in Ireland)	EX	SQ, HM	IN	HF1, HD1	HL2, HF2, HD2	HL3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim3 Aim 4 Aim5 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24</p> <p>DM Standards 4, 13, 23, 24, 25, 26, 27 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41 & 23</p>	none	none	none
1410	Mediterranean salt meadows (Juncetalia maritimi)	EX	SQ, HM	IN	HF1, HD1	HL2, HF2, HD2	HL3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim3 Aim 4 Aim5 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24</p> <p>DM Standards 4, 13, 23, 24, 25, 26, 27 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41 & 23</p>	none	none	none

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6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	EX	SQ, HM	IN	HF1, HD1	HL2, HF2, HD2	HL3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997	Aim3 Aim 4 Aim5 Aim9 Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 DM Standards 4, 13, 23, 24, 25, 26, 27 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41 & 23	none	none	none
1140	Mudflats and sandflats not covered by seawater at low tide	EX, CN,	WL, WQ, SQ,	IN, CT	HL1, HD1	HL2, HF2, HD2	HL3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997 Water Framework Directive	Aim3 Aim 4 Aim5 Aim9 Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 DM Standards 4, 13, 23, 24, 25, 26, 27 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41 & 23	none	none	none

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3160	Natural dystrophic lakes and ponds	EX, CN,	WF, WL,	IN, CN,	HF1	HL2, HF2, HD2	HF3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim3 Aim5 Aim9</p> <p>Policy AM16 AM17 AM18 AM19 AM20 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 ED45 ED46 ED47 ED48 HL56</p> <p>Objectives SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24</p> <p>DM Standards 4, 13, 23, 24, 25, 26, 27 & 31</p>	none	none	none
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation	EX, CN,	WF, WL,	IN, CN,	HF1	HL2, HF2, HD2	HF3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED45 ED46 ED47 ED48 HL56 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 AM7 AM8 AM9</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 HL25 AM1</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 37, 38, 39, 40 & 41</p>	none	none	none

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4010	Northern Atlantic wet heaths with Erica tetralix	EX, CN,	WL, WC,SQ, HM.	IN	HL1, HD1	HL2, HD2	HL3, HF3,	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED45 ED46 ED47 ED48 HL56 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 AM7 AM8 AM9</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 HL25 AM1</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 37, 38, 39, 40 & 41</p>	none	none	none
91A0	Old sessile oak woods with Ilex and Blechnum in British Isles	EX, CN,	WL, SQ, HM.	CT	HL1, HF1, HD1	HD2	HL3, HF3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997 Irish National Forestry Standard 2000	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41</p>	none	none	none

3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	EX, CN,	WF, WL,	IN, CN,	HF1	HL2, HF2, HD2	HF3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997 Water Framework Directive, Water Pollution Acts	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6 CS22 CS23 CS24 CS25 CS26 CS27 CS28 CS29 CS30 CS31 HL52 HL53 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 AM7 AM8 AM9</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HL25 AM1 CS1 CS2 CS3 CS4 CS5 CS6 CS7 CS8 CS9 CS10 CS11 CS12 CS13</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 37, 38, 39, 40, 41</p>	none	none	none
1220	Perennial vegetation of stony banks	EX,	WL, SQ, UD, HM,	IN	HD1	HL2, HD2	HD3	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED45 ED46 ED47 ED48 HL56 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 AM7 AM8 AM9</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 HL25 AM1</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 37, 38, 39, 40 & 41</p>	none	none	none

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7220	Petrifying springs with tufa formation (Cratoneurion)	EX, CN,	SQ, UD	IN	HD1	HL2, HF2, HD2	HF3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997, Water Pollution Acts	<p>Aim3 Aim5 Aim9</p> <p>Policy AM16 AM17 AM18 AM19 AM20 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 ED45 ED46 ED47 ED48 HL56</p> <p>Objectives SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24</p> <p>DM Standards 4, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31 & 32</p>	none	none	none
1170	Reefs	na	na	na	na	na	na	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41</p>	none	none	none

3270	Rivers with muddy banks with <i>Chenopodium rubri</i> p.p. and <i>Bidenton</i> p.p. vegetation	EX, CN,	WF, WL,	IN, CN,	HF1	HL2, HF2, HD2	HF3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997 Water Framework Directive, Water Pollution Acts	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41</p>	none	none	none
1310	Salicornia and other annuals colonizing mud and sand	EX, CN,	WF, WL,	IN, CN,	HF1	HL2, HF2, HD2	HF3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997 Water Framework Directive, Water Pollution Acts	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED45 ED46 ED47 ED48 HL56 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 AM7 AM8 AM9</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 HL25 AM1</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 37, 38, 39, 40 & 41</p>	none	none	none

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6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia)(*important orchid sites)	EX, CN,	WL, WC, SQ, HM	IN	HF1, HD1	HL2, HF2, HD2	HL3, HF3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED45 ED46 ED47 ED48 HL56 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 AM7 AM8 AM9</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 HL25 AM1</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 37, 38, 39, 40 & 41</p>	none	none	none
2120	Shifting dunes along the shoreline with Ammophila arenaria (white dunes)	EX,	WL, SQ, UD, HM,	IN	HD1	HL2, HD2	HD3	European Union (Natural Habitats) Regulations, SI 94/1997Foreshore Acts	<p>Aim3 Aim 4 Aim5 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24</p> <p>DM Standards 4, 13, 23, 24, 25, 26, 27 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41 & 23</p>	none	none	none

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8220	Siliceous rocky slopes with chasmophytic vegetation	EX, CN,	SQ, UD	IN	HD1	HL2, HF2, HD2	HF3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim3 Aim5 Aim9</p> <p>Policy AM16 AM17 AM18 AM19 AM20 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 ED45 ED46 ED47 ED48 HL56</p> <p>Objectives SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24</p> <p>DM Standards 4, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31 & 32</p>	none	none	none
8110	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)	EX, CN,	SQ, UD	IN	HD1	HL2, HF2, HD2	HF3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31</p> <p>Objectives HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39</p>	none	none	none

8330	Submerged or partly submerged sea caves	CN	WL, UD	IN	na	na	HD3	European Union (Natural Habitats) Regulations, SI 94/1997 Foreshore Acts	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31</p> <p>Objectives HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39</p>	none	none	none
91J0	Taxus baccata woods of the British Isles	EX, CN,	WL, SQ, HM.	CT	HL1, HF1, HD1	HD2	HL3, HF3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997 Irish National Forestry Standard 2000	<p>Aim3 Aim5 Aim9</p> <p>Policy AM16 AM17 AM18 AM19 AM20 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 ED45 ED46 ED47 ED48 HL56</p> <p>Objectives SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24</p> <p>DM Standards 4, 13, 23, 24, 25, 26, 27 & 31</p>	none	none	none

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7140	Transition mires and quaking bogs	EX, CN,	WL, WC,SQ, HM.	IN	HL1, HD1	HL2, HD2	HL3, HF3,	European Union (Natural Habitats) Regulations, SI 94/1997 Water Framework Directive, Water Pollution Acts	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6 CS22 CS23 CS24 CS25 CS26 CS27 CS28 CS29 CS30 CS31 HL52 HL53 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 AM7 AM8 AM9</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HL25 AM1 CS1 CS2 CS3 CS4 CS5 CS6 CS7 CS8 CS9 CS10 CS11 CS12 CS13</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 37, 38, 39, 40, 41</p>	none	none	none
3180	Turloughs	EX, CN,	WL, WC,SQ, HM.	IN	HL1, HD1	HL2, HD2	HL3, HF3,	European Union (Natural Habitats) Regulations, SI 94/1997 Water Framework Directive, Water Pollution Acts	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 AM1 AM2 AM3 AM4 AM5 AM6</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39, 40, 41</p>	none	none	none

1230	Vegetated sea cliffs of the Atlantic and Baltic coasts	EX, CN,	SQ, UD	IN	HD1	HL2, HF2, HD2	HF3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997Foreshore Acts	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76 HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED45 ED46 ED47 ED48 HL56 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 AM7 AM8 AM9</p> <p>Objectives SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 HL25 AM1</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 37, 38, 39, 40 & 41</p>	none	none	none
3260	Water courses of plain to montane levels with the Ranunculon fluitantis and Callitricho-Batrachion vegetation	EX, CN,	WF, WL,	IN, CN,	HF1	HL2, HF2, HD2	HF3, HD3	European Union (Natural Habitats) Regulations, SI 94/1997Water Framework Directive, Water Pollution Acts	<p>Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9</p> <p>Policy SP6 HL1 HL2 HL3 HL4 HL5 HL7 HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45 HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED16 ED17 ED18 ED19 SP1 SP2 SP3 SP4 SP5 SP7 ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39 CS9 AM16 SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10 HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23 HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31</p> <p>AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31</p> <p>Objectives HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 ED6 ED7 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38 RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4 IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23 IS24 SP1 SP2 SP3 SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24 ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37 ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31</p> <p>DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 35, 37, 38, 39</p>	none	none	none

Aim1 Aim2 Aim3 Aim4 Aim5 Aim7 Aim9

Policy

SP6 HL65 HL66 HL67 HL68 HL69 HL70 HL71 HL72 HL73 HL74 HL75 HL76
HL77 HL78 HL79 HL80 HL81 AM7 HL48 IS14 SP6 HL1 HL2 HL3 HL4 HL5 HL7
HL31 HL32 HL33 HL36 HL37 HL38 HL39 HL40 HL41 HL42 HL43 HL44 HL45
HL46 HL48 HL49 HL53 HL56 HL82 HL83 AM7 ED45 ED46 ED47 ED48 HL56
SP1 SP2 SP3 SP4 SP5 SP7 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 HP9 HP10
HP11 HP12 HP13 HP14 HP15 HP16 HP17 HP18 HP19 HP20 HP21 HP22 HP23
HP24 HP25 HP26 HP27 HP28 HP29 HP30 HP31 SP1 SP2 SP3 SP4 SP5 SP7
ED20 ED23 ED36 ED39 ED49 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10
RT11 RT12 RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23
RT24 RT25 RT26 RT27 RT28 RT29 RT30 RT31 RT32 IS1 IS2 IS3 IS4 IS5 IS6 IS7
IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21 IS22 IS23
IS24 IS25 IS26 IS27 IS28 IS29 IS30 IS31 IS32 IS33 IS34 IS35 IS36 IS37 IS38 IS39
CS9 AM16 AM1 AM2 AM3 AM4 AM5 AM6 ED20 ED21 ED22 ED23 ED24
ED25 ED26 ED27 ED28 ED29 ED30 ED31 ED32 ED33 ED34 ED35 ED36 ED37
ED38 ED39 ED40 ED41 ED42 ED43 ED44 CS 31 AM7 AM8 AM9

Objectives

SP6 HL23 HL24 HL28 HL29 HL30 HL31 HL32 HL33 HL36 HL41 SP1 SP2 SP3
SP4 SP5 SP6 SP7 SP8 HP1 HP2 HP3 HP4 HP5 HP6 HP7 HP8 SP1 SP2 SP3 SP4
SP5 SP6 SP7 SP8 RT1 RT2 RT3 RT4 RT5 RT6 RT7 RT8 RT9 RT10 RT11 RT12
RT13 RT14 RT15 RT16 RT17 RT18 RT19 RT20 RT21 RT22 RT23 RT24 RT25
RT26 RT27 RT28 RT29 RT30 RT31 RT32 RT33 RT34 RT35 RT36 RT37 RT38
RT39 RT40 RT41 RT42 RT43 RT44 RT45 RT46 RT47 RT48 RT49 IS1 IS2 IS3 IS4
IS5 IS6 IS7 IS8 IS9 IS10 IS11 IS12 IS13 IS14 IS15 IS16 IS17 IS18 IS19 IS20 IS21
IS22 IS23 IS24 HL25 AM1

DM Standards 1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32,
33, 35, 37, 38, 39, 40 & 41

Appendix III

Sites Synopses for European Sites in County Galway

Appropriate Assessment of the Galway County Development Plan Appendix III

Site Code	Site Name	Site Code	Site Name
000212	INISHMAAN ISLAND	001285	KILTIERNAN TURLOUGH
000213	INISHMORE ISLAND	001309	OMEY ISLAND MACHAIR
000216	RIVER SHANNON CALLOWS	001311	RUSHEENDUFF LOUGH
000218	COOLCAM TURLOUGH	001312	ROSS LAKE AND WOODS
000231	BARROUGHTER BOG	001313	ROSTURRA WOOD
000238	CAHERGLASSAUN TURLOUGH	001321	TERMON LOUGH
000242	CASTLETAYLOR COMPLEX	001774	LOUGH CARRA/MASK COMPLEX
000248	CLOONMOYLAN BOG	001913	SONNAGH BOG
000252	COOLE-GARRYLAND COMPLEX	001926	EAST BURREN COMPLEX
000255	CROAGHILL TURLOUGH	002008	MAUMTURK MOUNTAINS
000261	DERRYCRAG WOOD NATURE RESERVE	002031	THE TWELVE BENS/GARRAUN COMPLEX
000268	GALWAY BAY COMPLEX	002034	CONNEMARA BOG COMPLEX
000278	INISHBOFIN AND INISHSHARK	002074	SLYNE HEAD PENINSULA
000285	KILLSALLAGH BOG	002110	CORLISKEA/TRIEN/CLOONFELLIV BOG
000286	KILTARTAN CAVE (COOLE)	002111	KILKIERAN BAY AND ISLANDS
000295	LEVALLY LOUGH	002117	LOUGH COY
000296	LISNAGEERAGH BOG AND BALLINASTACK TURLOUGH	002118	BARNAHALLIA LOUGH
000297	LOUGH CORRIB	002119	LOUGH NAGEERON
000299	LOUGH CUTRA	002126	POLLAGOONA BOG
000301	LOUGH LURGEEN BOG/GLENAMADDY TURLOUGH	002129	MURVEY MACHAIR
000304	LOUGH REA	002130	TULLY LOUGH
000308	LOUGHATORICK SOUTH BOG	002180	GORTACARNAUN WOOD
000318	PETERSWELL TURLOUGH	002181	DRUMMIN WOOD
000319	POLLNAKNOCKAUN WOOD NATURE RESERVE	002213	GLENLOUGHAUN ESKER
000322	RAHASANE TURLOUGH	002241	LOUGH DERG, NORTH-EAST SHORE
000324	ROSROE BOG	002244	ARDRAHAN GRASSLAND
000326	SHANKILL WEST BOG	002265	KINGSTOWN BAY
000328	SLYNE HEAD ISLANDS	002293	CARROWBAUN, NEWHALL AND BALLYLEE TURLOUGHS
000330	TULLY MOUNTAIN	002294	CAHERMORE TURLOUGH

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000474	BALLYMAGLANCY CAVE, CONG	002295	BALLINDUFF TURLOUGH
000606	LOUGH FINGALL COMPLEX	002296	WILLIAMSTOWN TURLOUGH
001228	AUGHRUSBEG MACHAIR AND LAKE	002317	CREGG HOUSE STABLES, CRUSHEEN
001242	CARROWNAGAPPUL BOG	002347	CAMDERRY BOG
001251	CREGDUFF LOUGH	002350	CURRAGHLEHANAGH BOG
001257	DOG'S BAY	002352	MONIVEA BOG
001271	GORTNANDARRAGH LIMESTONE PAVEMENT	002356	ARDGRAIGUE BOG
001275	INISHEER ISLAND		

Table 1 Candidate Special Areas of Conservation

Site Code	Site Name	Site Code	Site Name
004031	INNER GALWAY BAY	004096	MIDDLE SHANNON CALLOWS
004042	LOUGH CORRIB	004097	RIVER SUCK CALLOWS
004056	LOUGH CUTRA	004107	COOLE-GARRYLAND WOOD
004058	LOUGH DERG (SHANNON)	004123	SLYNE HEAD ISLANDS
004062	LOUGH MASK	004134	LOUGH REA
004067	HIGH ISLAND (GALWAY)	004142	CREGGANNA MARSH
004088	LOUGH SCANNIVE	004168	SLIEVE AUGHTY MOUNTAINS
004089	RAHASANE TURLOUGH	004170	CRUAGH ISLAND

Table 2 Special Protection Areas

Site Code	Site Name	Site Code	Site Name
000220	LOUGH NAMUCKA BOG	001227	AUGHRIM BOG
000221	MOORFIELD BOG/FARM COTTAGE	001229	SLIEVE AUGHTY BOG
000222	SUCK RIVER CALLOWS	001240	CAPIRA/DERREW BOG
000229	BALLYGAR BOG	001241	CARNA HEATH AND BOG
000235	BRACKLAGH BOG	001244	CASTLE FFRENCH EAST BOG
000245	CLOONCULLAUN BOG	001254	DERRINLOUGH BOG
000247	SLIEVE BOG	001255	DERRYNAGRAN BOG AND ESKER
000249	CLOONOLISH BOG	001264	ESKERBOY BOG
000253	CREGGANNA MARSH	001280	KILLACLOGHER BOG
000254	CRIT ISLAND WEST	001283	KILLURE BOG
000267	FUNSHIN BOG	001303	MOORFIELD BOG
000280	CASTLE FFRENCH WEST BOG	002344	ANNAGHBEG BOG
000281	KEELOGES BOG	002364	MOYCULLEN BOGS

000283	KILMORE BOG	002374	CLOON AND LAGHTANABBA BOG
000284	KILNABORRIS BOG	002377	LOUGH ATORICK DISTRICT BOGS
000292	LEAHA BOG	002379	DERRYOOBER BOG
000307	LOUGH TEE BOG	002431	OUGHTERARD DISTRICT BOG
000310	MEENEEN BOG	002436	TOOREEN BOG
000321	RAFORD RIVER BOG		

Table 3 Natural Heritage Areas

Site Code	Site Name	Site Code	Site Name
000011	LOUGH DERG	001228*	AUGHRUSBEG MACHAIR AND LAKE
000212*	INISHMAAN ISLAND	001231	BALLYCONNELLY BAY
000213*	INISHMORE ISLAND	001234	BERTRAGHBOY BAY
000215	RATHBAUN TURLOUGH	001237	BOYOUNAGH TURLOUGH
000216*	RIVER SHANNON CALLOWS	001239	CALLOW LOUGH
000218*	COOLCAM TURLOUGH	001242*	CARROWNAGAPPUL BOG
000224	ALTORE LAKE	001247	CLOONASCRAUGH FEN AND BLACK WOOD
000228	BALLYCUIRKE LOUGH	001251*	CREGDUFF LOUGH
000231*	BARROUGHTER BOG	001253	DERNASLIGGAUN WOOD
000234	BELCLARE TURLOUGH	001257*	DOG'S BAY
000238*	CAHERGLASSAUN TURLOUGH	001260	DRIMCONG WOOD
000240	CAMDERRY BOG NHA	001266	FINISH ISLAND MACHAIR
000242*	CASTLETAYLOR COMPLEX	001267	FURBOGH WOOD
000244	CLONFERT CATHEDRAL	001271*	GORTNANDARRAGH LIMESTONE PAVEMENT
000248*	CLOONMOYLAN BOG	001275*	INISHEER ISLAND
000252*	COOLE-GARRYLAND COMPLEX	001279	KILKERRIN TURLOUGH
000255*	CROAGHILL TURLOUGH	001282	KILTULLAGH LOUGH
000256	CURRAGHLEHANAGH BOG NHA	001285*	KILTIERNAN TURLOUGH
000261*	DERRYCRAG WOOD NATURE RESERVE	001288	KNOCKMAA HILL
000263	DRUMBULCAUN BOG	001289	LEAGAUN MACHAIR
000265	EESHAL ISLAND	001294	LOUGH HACKET
000268*	GALWAY BAY COMPLEX	001300	MACE HEAD ISLANDS
000275	HIGH ISLAND	001302	MASON ISLAND MACHAIR

Table 4 Proposed Natural Heritage Areas * = Also a candidate SAC

Sites Synopses

Candidate SACs

Site Name: Inishmaan Island

Site Code: 000212

Inishmaan is the middle of the three Aran Islands, situated approximately 15km off the west coast of County Clare. Geologically, the Island is an extension of the Burren. The shallow soil is a man-made combination of sand and seaweed built up over the centuries. Pockets of *rendzina* are found throughout the limestone pavement.

This site is of major scientific importance owing to the range of outstanding Karstic Carboniferous Limestone and coastal habitats, many of which are listed as priority and Annex I habitats under the European Habitats Directive. The site is dominated by limestone pavement and its associated calcareous grasslands. Other Annex I habitats which occur include dry heath, lowland hay meadows and orchid-rich calcareous grassland.

A network of small, stone-walled fields dissect the Island. Each field encloses an area of limestone pavement interspersed with fine examples of species-rich, dry calcareous grasslands. In places, the rocky grasslands support Rare plant species: Hairy Violet (*Viola hirta*) and Wood Small-reed (*Calamagrostis epigejos*). Both species are legally protected under the Flora Protection Order (1987). Common species include Blue Moor-grass (*Sesleria albicans*) and Eyebright (*Euphrasia* spp.), along with Knapweeds (*Centaurea nigra* and *C. scabiosa*), Orchids (Orchidaceae), Bloody Cranesbill (*Geranium sanguineum*) and Spring Gentian (*Gentiana verna*). The southern part of the Island supports the highest proportion of these calcareous meadows.

Dry limestone heath has developed in places, with Ling Heather (*Calluna vulgaris*), Bell Heather (*Erica cinerea*), Purple Moor-grass and Black Bog Rush (*Schoenus nigricans*) recorded from this habitat. Hoary Rockrose (*Helianthemum canum*), a species listed in the Irish Red Data Book, occurs regularly throughout the dry heath and alpine heath habitats on the Island. Elsewhere on rocky crevices are found two other Red Data Book species: Pyramidal Bugle (*Ajuga pyramidalis*) and Musk Thistle (*Carduus nutans*).

The range of Annex I coastal habitats present includes sea cliffs, embryonic dunes, Marram dunes, shingle and stony beaches, and machair. The latter is a priority habitat under the Habitats Directive. This coastal grassland, or machair habitat, is characterised by a species-rich, dry calcareous grassland, with a short turf and a low abundance of sand-binding species such as Marram Grass (*Ammophila arenaria*). Machair is also an important invertebrate and breeding bird habitat.

The coastal habitats play host to a number of Rare plant species, including Purple Milk-vetch (*Astragalus danicus*) and Hairy Violet, both of which are legally protected under

the Flora Protection Order (1987). Purple Milk-vetch is confined to Inishmaan and Inishmore, where it occurs on machair and sandy places close to the sea. Another rarity found on the coastal sands and shingle is the Red Data Book species Sea Kale (*Crambe maritima*).

Traditional farming practices, in the form of rye cultivation for thatching, has maintained suitable habitat for a number of Rare and threatened arable weeds. Darnel (*Lolium temulentum*), Smooth Brome (*Bromus racemosus*), Cornflower (*Centaurea cyanus*) and Bristle Oat (*Avena strigosa*) all occur on Inishmaan. All four species are listed in The Irish Red Data Book and, prior to their discovery on the Aran Islands, some of these species were thought to have been extinct in Ireland.

Six pairs of flocking Chough were sighted off the cliffs to the west of the Island. Two breeding pairs of this species are known to be present on the Island. The Island is also important for breeding terns, with seven pairs of Arctic Tern and three pairs of Little Tern known to occur. All three species mentioned are listed under Annex I of the European Birds Directive.

Seabirds which can be regularly seen around the Island include Cormorant, Shag, Fulmar and a range of Gull species. Inland habitats support Sparrowhawk, Kestrel, Raven, Dunnock, Wren, Pied Wagtail, Stonechat and Wheatear. In all, 39 species of bird were recorded during the NHA survey in 1993.

Agricultural intensity is lowest on Inishmaan, compared with the other two Islands. The majority of the land is used as winterage for cattle, sheep and, in some places, goats. The fields located close to the houses are used for summer grazing. This low-impact farming, combined with the absence of fertiliser, has maintained the species-richness and high diversity of the Island flora. A move towards agricultural intensification would see the deterioration of this unique environment. The survival of the complement of Rare arable weeds which occur here depends on continuation of the current traditional practice of rye cultivation for thatching. Plans to develop the Island for tourism and amenity require close monitoring, in order to safeguard the wildlife and scientific value of Inishmaan.

Inishmaan is of considerable scientific interest primarily for the wide range of good quality habitats which occur, and the floristic richness of many of these habitats. The Island supports an impressive array of critically rare and threatened plant species. The cultural heritage of Inishmaan (and in particular the continuation of traditional, low-intensity farming practices) is intrinsically linked with its scientific interest. The Island is also of high scenic and amenity value.

16.1.1997

Site Name: Inishmore Island

Site Code: 000213

Inishmore Island is the largest of the three Aran Islands, situated approximately 8km off the south coast of County Galway. Geologically an extension of the Burren, Co.

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Clare, the Island is formed of Upper Carboniferous limestone strata, interleaved with layers of shale and clay. In places along the coast, splendid cliffs rise to 90m. A thin cover of rendzina occurs in pockets between blocks of bare limestone. This soil is combined with a mixture of sand and seaweed to form a unique man-made soil cover, built up over the centuries. The site includes a large area of marine waters surrounding the island.

The site is a candidate SAC selected for lagoon, fixed dune, machair, orchid-rich grassland and limestone pavement, all priority habitats on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for other habitats listed on Annex I of the directive – lowland hay meadows, perennial vegetation of stony banks, reefs, sea cliffs, shifting dunes, Marram dunes, dune slack, dunes with Creeping Willow, marine caves, alpine heath and dry heath. In addition, the site is also selected as a candidate SAC for *Vertigo angustior*, an animal listed on Annex II of the E.U. Habitats Directive.

Inishmore has many good examples of submerged reef communities that are extremely exposed to wave action. On the infralittoral reef are two exceptional communities. Ireland's only recorded example of a population of sublittoral purple sea urchins (*Paracentrotus lividus*) is on the west of the island, while at the reef in Blind Sound, is Ireland's best example of an extremely exposed, shallow, infralittoral community that is dominated by a forest of the brown seaweed, *Alaria esculenta*, with a red seaweed and anemone turf. Rare species are present in the infralittoral reef community, including soft corals, sea fans and anemones. In deeper water, there are many unusual and fragile circalittoral reef communities. Communities that are characterized by the rare sea fan, *Eunicella verrucosa*, are widespread and species rich despite their fragility. A number of other notable circalittoral species are found, including sponges, hydroids, nudibranchs, soft corals and ascidians. Large submerged marine caves on the south east coast are unusually species rich (76 species recorded) and are characterized by a diverse fauna of sponges, hydroids, bryozoans, soft corals, anemones, nudibranchs, echinoderms and ascidians. Some of the caves extend back as far as 20 to 30 metres. They are probably the best known sea caves in Ireland.

Limestone pavement and its associated plant communities dominate the upland area to the south of the Island. The limestone pavement includes smooth-blocky and shattered types. The bare pavement is interspersed with fine examples of species-rich, dry calcareous grasslands. Dry heath, alpine heath and lowland hay meadows are additional habitats which occur on Inishmore.

A network of small, stone-walled fields dissect the Island. Each field encloses an area of limestone pavement interspersed with fine examples of species-rich, dry calcareous grasslands. Common species here include Blue Moor-grass (*Sesleria albicans*), Eyebright (*Euphrasia* spp.), Wood Sage (*Teucrium scorodonia*), Carline Thistle (*Carlina vulgaris*) and Burnet Rose (*Rosa pimpinellifolia*), along with Knapweeds (*Centaurea nigra* and *C. scabiosa*), Orchids (Orchidaceae), Bloody Cranesbill (*Geranium sanguineum*) and Spring Gentian (*Gentiana verna*). The southern part of the Island supports the highest proportion of these calcareous meadows. Elsewhere, on rocky crevices, are found two Red Data Book plant

species: Pyramidal Bugle (*Ajuga pyramidalis*) and Wood Small-reed (*Calamagrostis epigejos*). The latter species is legally protected under the Flora Protection Order (1987).

Dry limestone heath has developed in places, with Ling Heather (*Calluna vulgaris*), Bell Heather (*Erica cinerea*), Purple Moor-grass and Black Bog Rush (*Schoenus nigricans*) recorded from this habitat. Hoary Rockrose (*Helianthemum canum*), a species listed in the Irish Red Data Book, occurs regularly throughout the dry heath and alpine heath habitats on the Island.

A range of coastal habitats, listed on Annex I of the Habitats Directive, occur around the Island, including embryonic dunes, Marram dunes, dunes slack, dunes with Creeping Willow (*Salix repens*), sea cliffs, perennial vegetation of stony banks, reefs and the priority habitats lagoon, fixed dunes and machair. Sea cliffs occur along much of the southern coast of Inishmore and reach in excess of 80 m at the south-west end. The cliffs are mostly sheer and very exposed to the force of the Atlantic. They support a typical cliff flora, including the scarce Roseroot (*Rhodiola rosea*). Inishmore supports a variety of karstic lagoons, a type which is believed to be rare in Europe. All are in a natural state and of good quality. Loch Phort Chorrúch and L. Dearg are good examples of karstic lagoons with cobble barriers. L. an Chara, in particular, is a good example of a karstic saline lake lagoon with underground connections to the sea. It behaves almost like a 'tidal turlough'. The flora is typically lagoonal with three lagoonal specialists. The fauna is not rich but comprises a high number of lagoonal specialists, including the rare corixid species *Sigara selecta*.

Machair is a form of coastal grassland which is characterised by a species-rich, dry calcareous grassland, with a short turf and a low abundance of sand-binding species such as Marram Grass (*Ammophila arenaria*). The coastal habitats of Inishmore support a range of Rare plant species. Purple Milk-vetch (*Astragalus danicus*) grows on machair and sandy places close to the sea. It is confined to Inishmore and Inishmaan and is legally protected under the Flora Protection Act (1999). Sea Kale (*Crambe maritima*) occurs on coastal sands and shingle around the island; Hairy Violet (*Viola hirta*) and Bee Orchid (*Ophrys apifera*) can be found among the coastal grasslands. All three species are listed in the Irish Red Data Book, and Hairy Violet is legally protected under the Flora Protection Order (1999).

Traditional farming practices, in the form of rye cultivation for thatching, has maintained suitable habitat for a number of rare and threatened arable weeds. Darnel (*Lolium temulentum*), Smooth Brome (*Bromus racemosus*), Cornflower (*Centaurea cyanus*) and Bristle Oat (*Avena strigosa*) all occur on Inishmore. All four species are listed in The Irish Red Data Book and, prior to their discovery on the Aran Islands, some of these species were thought to have been extinct in Ireland.

The birdlife of Inishmore is considered to be of international significance, due to the presence of significant numbers of bird species listed under Annex I of the European Birds Directive. Chough, Little Tern, Arctic Tern and Peregrine Falcon all breed here. Additional bird species on Inishmore include Merlin, Kestrel, Sparrowhawk, Linnets and Goldfinch. Along the western

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coastline, cliffs provide excellent nesting sites for Guillemot, Fulmar, Razorbill, Shag, Herring Gull, Great Black-backed Gull and Kittiwake.

A colony of Common Seals is occasionally seen, resting on the island's shores. This species is listed under Annex II of the European Habitats Directive, as it is threatened in Europe.

The mollusc, *Vertigo angustior*, a species that is listed on Annex II of the E.U. Habitats Directive, occurs at three different locations within the site, two on dune and one on maritime grass, the latter an unusual habitat for the species. This is the only known island population of this rare snail.

Most of the island is grazed by cattle and sheep and, in places, goats. Agricultural intensity is relatively higher here than on the other two Aran Islands. Parts of the site have been damaged by overgrazing and agricultural improvement. Elsewhere, the abandonment of farming, in favour of tourism and related enterprises, has resulted in the increase in scrub and particularly Bramble (*Rubus fruticosus* agg.) thickets. This is at the expense of species-rich grasslands. An increase in leisure activities, in particular scrambling and walking, on the Marram dunes at the east of the Island, has resulted in damage to this habitat. Maintenance of traditional farming practices, which include winter grazing, absence of fertilisers and the cultivation of rye for thatching, is vital, to preserve the species richness and high diversity of the Island flora. Development plans for tourism and amenity require close monitoring, to safeguard the wildlife and scientific value of this unique environment.

Inishmore is of considerable scientific interest primarily for the wide range of good quality habitats which occur, and the floristic richness of many of these habitats. The Island supports an impressive array of critically rare and threatened plant species, and it also provides excellent habitat for several bird species which are becoming increasingly rare in Ireland and Europe. The cultural heritage of Inishmore (and in particular the continuation of traditional, low-intensity farming practices) is intrinsically linked with its scientific interest. The Island is also of high scenic and amenity value.
29.05.2003

Site Name: River Shannon Callows

Site Code: 000216

The River Shannon Callows is a long and diverse site which consists of seasonally flooded, semi-natural, lowland wet grassland, along and beside the river between the towns of Athlone and Portumna. It is approximately 50 km long and averages about 0.75 km wide (reaching 1.5 km wide in places). Along most of its length the site is bordered by raised bogs - many, but not all, in the process of large-scale harvesting - esker ridges and limestone-bedrock hills. The soils grade from silty-alluvial to peat. This site has a common boundary, and is closely associated, with two other sites of similar habitats, River Suck Callows and Little Brosna Callows.

The River Shannon Callows is mainly composed of lowland wet grassland. Different plant communities occur, depending on elevation, and therefore their flooding patterns. Two habitats listed on Annex I of the EU Habitats Directive are well represented within the site - *Molinia* meadows and lowland hay meadows. The former is characterised by the presence of the Meadow Thistle (*Cirsium dissectum*) and Purple Moor-grass (*Molinia caerulea*), while typical species in the latter include Meadow Fescue (*Festuca pratensis*), Rough Meadow-grass (*Poa trivialis*), Downy Oat-grass (*Avena pubescens*), Common Knapweed (*Centaurea nigra*), Ribwort Plantain (*Plantago lanceolata*) and Common Sorrel (*Rumex acetosa*). In places these two habitats grade into one another.

Low-lying areas of the callows with more prolonged flooding are characterised by Floating Sweet-grass (*Glyceria fluitans*), Marsh Foxtail (*Alopecurus geniculatus*) and wetland herbs such as Yellow Cress (*Rorippa* spp.), Water Forget-me-not (*Myosotis scorpioides*) and Common Spike-rush (*Eleocharis palustris*). Most of the callows consist of a plant community characterised by Creeping Bent (*Agrostis stolonifera*), Brown Sedge (*Carex disticha*), Common Sedge (*Carex nigra*), and herbs such as Marsh Marigold (*Caltha palustris*) and Marsh Bedstraw (*Galium palustre*). While the more elevated and peaty areas are characterised by low-growing sedges, particularly Yellow Sedge (*Carex flava* agg.) and Star Sedge (*Carex echinata*). All these communities are very diverse in their total number of plant species, and include the scarce species Meadow-rue (*Thalictrum flavum*), Summer Snowflake (*Leucocorydalis aestivum*), and Marsh Stitchwort (*Stellaria palustris*).

Two further Annex I habitats, both listed with priority status, have a minor though important presence within the site. Alluvial forest occurs on a series of alluvial islands just below the ESB weir near Meelick. Several of the islands are dominated by well grown woodland of mainly Ash (*Fraxinus excelsior*) and Willows (*Salix* spp.). The islands are prone to regular flooding from the river.

At Clorhane, an area of limestone pavement represents the only known example in Co Offaly. It is predominantly colonised by mature hazel woodland, with areas of open limestone and calcareous grassland interspersed. The open limestone pavement comprises bare or moss covered rock or rock with a very thin calcareous soil cover supporting a short grassy turf. The most notable plant in the grassy area is a substantial population of Green-winged Orchid (*Orchis morio*), which occurs with such species as Sweet Vernal-grass (*Anthoxanthum odoratum*), Quaking Grass (*Briza media*), sedges (*Carex caryophyllea*, *C. flacca*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Common Knapweed (*Centaurea nigra*), and Narrow-leaved Plantain (*Plantago lanceolata*). Ferns associated with the cracks in the paving include *Asplenium trichomanes*, *A. ruta-muraria*, *A. adiantum-nigrum*, *Polypodium australe*. Bryophytes include *Grimmia apocarpa* and *Orthotrichum cf. anomalum*. Anthills are common within the open grassland. The Hazel wood is well-developed and has herbaceous species such as Primrose (*Primula vulgaris*), Common Dog-violet (*Viola riviniana*), Wood Sorrel (*Oxalis acetosella*) and Herb Robert (*Geranium robertianum*). The wood is noted for its luxuriant growth of epiphytic mosses and liverworts, with such species as *Neckera*

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crispa and *Hylocomium brevirostre*. Yew (*Taxus baccata*) occurs at one area.

Other habitats of smaller area but equal importance within the site are lowland dry grassland, drainage ditches, freshwater marshes and reedbeds. The dry grassland areas, especially where they exist within hay meadows, are species-rich, and of two main types: calcareous grassland on glacial material, and dry grassland on levees of river alluvium. The former can contain many Orchid species, Cowslip (*Primula veris*), abundant Adder's-tongue Fern (*Ophioglossum vulgatum*) and Spring-sedge (*Carex caryophyllaea*), and both contain an unusually wide variety of grasses, including False Oatgrass (*Arrhenatherum elatius*), Yellow Oatgrass (*Trisetum flavescens*), Meadow Foxtail (*Alopecurus pratense*), and Meadow Brome (*Bromus commutatus*). In places Summer Snowflake also occurs.

Good quality habitats on the edge of the callows included in the site are wet broad-leaved semi-natural woodland dominated by both Birch (*Betula pubescens*) and Alder (*Alnus glutinosa*) and dry broad-leaved woodland dominated by Hazel (*Corylus avellana*). There are also areas of raised bog, fen on old cut-away bog with Black Bog-rush (*Schoenus nigricans*), and a 'petrifying stream' with associated species-rich calcareous flush which supports Yellow Sedge (*Carex lepidocarpa*), Blunt-flowered Rush (*Juncus subnodulosus*) and Stoneworts (*Chara* spp.).

Two legally-protected plant species (Flora (Protection) Order 1999) occur in the site: Opposite-leaved Pondweed (*Groenlandia densa*) in drainage ditches, and Meadow Barley (*Hordeum secalinum*) on dry alluvial grassland. This is one of only two known inland sites for the Meadow Barley in Ireland. The Red Data Book plant Green-winged Orchid (*Orchis morio*) is known from dry calcareous grasslands within the site, while the site also supports a healthy population of Marsh Pea (*Lathyrus palustris*).

The site is of International Importance for wintering waterfowl as numbers regularly exceed the 20,000 threshold (mean of 34985 for 5 winters 1994/94-1998/99). Of particular note is an Internationally Important population of Whooper Swans (287). A further five species have populations of national importance (all figures are means for 5 winters 1995/96-1999/00): Mute Swan (349), Wigeon (2972), Golden Plover (4254), Lapwing (11578) and Black-tailed Godwit (388). Species which occur in numbers of regional or local importance include Bewick's Swan, Tufted Duck, Dunlin, Curlew and Redshank. The population of Dunlin is notable as it is one of the few regular inland flocks in Ireland. Small flocks of Greenland White-fronted Goose use the Shannon Callows; these are generally associated with larger flocks which occur on the adjacent Little Brosna Callows and River Suck Callows.

Shoveler (an estimated 12 pairs in 1987) and Black-tailed Godwit (Icelandic race) (one or two pairs in 1987) breed within this site. These species are listed in the Red Data Book as being threatened in Ireland. The scarce bird Quail is also known to breed within the area. The Callows continues to hold over 40% of the Irish population of the globally endangered Corncrake, although numbers have declined in recent years. A total of 66 calling birds were

recorded in 1999. The total population of breeding waders (Lapwing, Redshank, Snipe and Curlew) in 1987 was one of three major concentrations in Ireland and Britain. The breeding Redshank, numbers was estimated at 10% of the Irish population, making it Nationally significant. Also, the Annex I species Merlin and Hen Harrier are regularly reported hunting over the callows during the breeding season and in autumn and winter.

This site holds a population of Otter, a species listed on Annex II of the EU Habitats Directive, while the Irish Hare, which is listed in the Irish Red Data Book, is a common sight on the callows.

The Shannon Callows are used for summer dry-stock grazing (mostly cattle, with some sheep and a few horses), and permanent hay meadow. About 30 ha is a nature reserve owned by voluntary conservation bodies. The River Shannon is used increasingly for recreational purposes with coarse angling and boating accounting for much of the visitor numbers. Intermittent and scattered damage to the habitats has occurred due to over-deepening of drains and peat silt deposition, water-skiing, ploughing and neglect of hay meadow (or reversion to pasture). However, none of these can as of yet be said to be serious. Threats to the quality of the site may come from the siting of boating marinas in areas away from centres of population, fertilising of botanically-rich fields, the use of herbicides, reversion of hay meadow to pasture, neglect of pasture and hay meadow, disturbance of birds by boaters, anglers, birdwatchers and the general tourist. The maintenance of generally high water levels in winter and spring benefits all aspects of the flora and fauna, but in this regard, summer flooding is a threat to breeding birds, and may cause neglect of farming.

The Shannon Callows has by far the largest area of lowland semi-natural grassland and associated aquatic habitats in Ireland and one in which there is least disturbance of natural wetland processes. Botanically, it is extremely diverse with two legally protected species of plants and many scarce species. Excellent examples of two habitats listed on Annex I of the EU Habitats Directive occur within the site – *Molinia* meadows and lowland hay meadows with good examples of a further two Annex habitats (both with priority status). In winter the site is internationally important for numbers and species of waterfowl. In spring it feeds large numbers of birds on migration. And in summer it holds very large numbers of breeding waders, rare breeding birds and the endangered Corncrake, as well as a very wide variety of more common grassland and wetland birds. The presence of Otter, an Annex II species, adds further importance to the site.
22.10.2003

Site Name: COOLCAM TURLOUGH

Site Code: 000218

Coolcam Turlough lies in a complex area of eskers on the borders of Galway and Roscommon, south of Ballinlough. It is a typical, wet, western turlough, with a semi-permanent lake with marl deposits, as well as several separate, more muddy basins which dry out in summer. The nearby eskers are sinuous, with a general north-south

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orientation - the turlough basin has this orientation also. The turlough has no permanent inflow but the main basin takes water from a boggy area to the north, and a smaller quantity from the south-west corner.

The open water at the site has a central stand of Common Club-rush (*Schoenoplectus lacustris*) and Great Fen-sedge (*Cladium mariscus*), but outside this, the marl community is well-developed, with Shoreweed (*Littorella uniflora*), Lesser Water-plantain (*Baldellia ranunculoides*) and Various-leaved Pondweed (*Potamogeton gramineus*) - the species most often found in lime-rich turloughs. Aquatic Stoneworts (*Chara* spp. including *C. hispida*) also occur. Another plant community which occurs in the wetter parts of the site includes Fine-leaved Water-dropwort (*Oenanthe aquatica*), Unbranched Bur-reed (*Sparganium emersum*) and Amphibious Bistort (*Polygonum amphibium*).

Peat deposits occur around the shore and on rises within the basin, which are colonised by Creeping Willow (*Salix repens*), with associated herbs Yellow Loosestrife (*Lysimachia vulgaris*) and Marsh Speedwell (*Veronica scutellata*). These species are widely found on similar sites in the Galway/Roscommon area. Other common species present include Creeping Bent (*Agrostis stolonifera*), Water Horsetail (*Equisetum fluviatile*), Floating Sweet-grass (*Glyceria fluitans*), Common Spike-rush (*Eleocharis palustris*) and Water Forget-me-not (*Myosotis scorpioides*). There is also some Purple Moor-grass (*Molinia caerulea*), Tufted Vetch (*Vicia cracca*) and a range of sedges (*Carex* spp., including abundant *Carex nigra*). The main basin terminates at the northern end in a cutover peaty area.

In the south-eastern corner, where the ground rises towards an esker, woodland occurs, with Hazel (*Corylus avellana*), Hawthorn (*Crataegus monogyna*) and Pedunculate Oak (*Quercus robur*). Sweet-briar (*Rosa rubiginosa*) and Eared Willow (*Salix aurita*) are found along the edges, in the flood debris.

Bird counts carried out in summer, 1990, indicate that Mallard, Lapwing, Whimbrel and Dunlin possibly breed at the site. Heron and Curlew have also been recorded.

Gravel pits exist on all sides of the turlough but they have not yet affected any of the eskers in the immediate vicinity. There is a large quarry to the south-east: activities here would influence the hydrology of the site should they extend below the watertable. The turlough is grazed by cattle and sheep. There is little intensive farming in the region.

Coolcam is an exceptional site in a fine landscape setting which involves two of the most distinctive habitats in Ireland - turlough and esker. It is one of the very few sites where these two features are juxtaposed. The site is little-damaged: the margins are fully intact, and the vegetation is diverse and natural in appearance. The close approach of other habitats to the turlough, especially bogland and partly wooded eskers adds to the value of the site, as it produces interesting transitional zones in the vegetation. Because of its wetness, Coolcam is an important site for birdlife. A survey of turloughs in Ireland rated Coolcam as the most valuable in the north

Midlands, and rated it as being of international importance.

13.1.1997

Site Name: Barroughter Bog

Site Code: 000231

Barroughter Bog is a relatively small raised bog, situated on the shores of Lough Derg, a few kilometres east of Woodford, and bounded in the north by the Cappagh River. The bog has a good dome, which is slightly hollowed towards the eastern side. The north-eastern corner (cut off by an old drain and track), and a narrow area in the south-east, are fairly dry due to drainage and burning.

The site is a candidate Special Area of Conservation selected for active raised bog, degraded raised bog and Rhynchosporion, habitats that are listed on Annex I of the E.U. Habitats Directive. Active raised bog comprises areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses (*Sphagnum* spp.) is high, and where some or all of the following features occur: hummocks, pools, wet flats, *Sphagnum* lawns, flushes and soaks. Degraded raised bog corresponds to those areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration. The Rhynchosporion habitat occurs in wet depressions, pool edges and erosion channels where the vegetation includes White Beak-sedge (*Rhynchospora alba*) and/or Brown Beak-sedge (*R. fusca*), and at least some of the following associated species, Bog Asphodel (*Narthecium ossifragum*), Sundews (*Drosera* spp.), Deergrass (*Scirpus cespitosus*), Carnation Sedge (*Carex panicea*).

Part of the central area of the peat dome contains active raised bog, with such species as Ling Heather (*Calluna vulgaris*), Hare's-tail Cottongrass (*Eriophorum vaginatum*), Deergrass, Bog Asphodel and Carnation Sedge. Within wet, quaking areas of the active bog, Rhynchosporion is represented. This habitat tends to be dominated by White Beak-sedge, Common Cottongrass (*Eriophorum angustifolium*), Bogbean (*Menyanthes trifoliata*), sundews (*Drosera* spp.) and a good cover of bog mosses, including *Sphagnum cuspidatum* and the relatively rare *Sphagnum pulchrum*. A small flushed area occurs in the centre and towards the edge of the quaking area. This flush adds diversity to the bog, with a few small Downy Birch (*Betula pubescens*) trees, Bilberry (*Vaccinium myrtillus*), Crowberry (*Empetrum nigrum*) and Cranberry (*Vaccinium oxycoccos*) occurring in abundance, and a range of moss species.

Degraded raised bog is the dominant habitat on the uncut high bog surface at this site. It is generally associated with the more marginal areas of the high bog where drainage effects, due to peripheral peat-cutting, are most pronounced. These degraded areas are usually dominated by more robust plant species such as Ling Heather, Common Cottongrass, Cross-leaved Heath (*Erica tetralix*), Bog Asphodel, Carnation Sedge and Deergrass. Bog-rosemary (*Andromeda polifolia*) and *Sphagnum magellanicum*, both of which are good indicators of

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midland raised bogs, are frequent. The cover of *Sphagnum* moss is generally low and there are no well-developed hummocks present. It is thought that recent fire damage may be responsible for this very low cover of *Sphagnum*.

The site also includes some wet grassland along the Cappagh River and an area of rocky grassland in the north.

A threat to the extent and quality of the central and most interesting habitat is present in the form of active "hopper" turf extraction around 90% of the bog's perimeter. This is especially serious along the south-west facing edge, where the quaking area lies quite close to the perimeter. Burning has caused some drying out of the bog surface. The area of outstanding habitat (i.e. the very wet, quaking area) in the centre of the bog could be extended if burning was prevented, especially towards the south-west.

Barroughter Bog is a raised bog of considerable conservation value. Given its relatively small size, the area of outstanding quaking habitat is remarkably large. Its proximity to the shores of Lough Derg, with its succession from open water through extensive reed beds and marginal scrub, to raised bog, adds to its importance. It is also the only raised bog on the shores of Lough Derg.
29.1.2008

Site Name: Caherglassaun Turlough

Site Code: 000238

Caherglassaun is a large lake located 6 km north-west of Gort and 5 km southeast of Kinvarra in the low-lying farmland of east County Galway. Situated in a natural depression just to the north-west of Coole Nature Reserve, this site comprises a permanent lake at its core, while the rest of the basin functions as a turlough. At times of high water, the entire site floods up to a height of 15m or more, i.e. to give at least 11m water depth. A series of collapse features act as swallowholes in such floods.

Caherglassaun shows some features which are not typical of turloughs. Firstly, it has a permanent lake at its base which is relatively deep and has an aquatic flora of Pondweeds (*Potamogeton* spp.) and Rigid Hornwort (*Ceratophyllum demersum*). Secondly, because of its proximity to sea-level, the lake fluctuates 30cm or so, which is delayed significantly behind tidal height at Kinvarra. As a result of the fluctuation, an unusual plant community exists, dominated by Needle Spike-rush (*Eleocharis acicularis*) and Common Spike-rush (*E. palustris*). This resembles a saltmarsh in appearance although the water is not brackish. Other plant species which occur in the turlough at Caherglassaun include Creeping Yellow-cress (*R. sylvestris*) and Water-purslane (*Lythrum portula*).

A mixed deciduous woodland occurs on rocky ground on the western side of the site. The canopy is dominated by Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*) and Buckthorn (*Rhamnus catharticus*). This is a

young woodland which may develop further into an Ash (*Fraxinus excelsior*)-dominated stand in the absence of high grazing pressure.

Areas of exposed limestone occur within the site and include pavement, low cliffs and caves. This brings unusual plant species, such as Hairy Rock-cress (*Arabis hirsuta*), Biting Stonecrop (*Sedum acre*) and Polypody ferns (*Polypodium* spp.) into the edge of a turlough and adds diversity to the site. The rocky habitats also provide roosting sites for bats.

Three Rare plant species, which are listed in the Irish Red Data Book, occur on the site. Mudwort (*Limosella aquatica*) occurs here - it tends to occur in sites which retain water into the summer months. The south Galway area is the species headquarters in Ireland. Both Fen Violet (*Viola persicifolia*) and Northern Yellow-cress (*Rorippa islandica*) occur at Caherglassaun. These are characteristic turlough species which occur to a very limited extent in other habitats.

A bat roost exists within the site. Lesser Horseshoe Bat (*Rhinolophus hipposideros*) and Natterer's Bat (*Myotis nattereri*), which is listed in the Irish Red Data Book, roost here. Lesser Horseshoe Bat is listed on Annex II of the European Habitats Directive, and Ireland has the largest national population in Europe. Loss of suitable summer habitat and disturbance during hibernation are the major threats to this species.

Caherglassaun shares in the populations of waterfowl that are based on Coole Lough. Whooper Swans, Wigeon and Lapwing are all regular visitors, though their numbers are low, while Lapwing may also nest here in some summers. Whooper Swan is listed on Annex I of the European Birds Directive.

Any development which would involve drainage or alteration of the watertable would threaten this site. Presence of grazers will also influence the site - low grazing levels would facilitate the further development of woodland at the site.

Caherglassaun is of considerable conservation value, and was rated as the sixth most important large turlough by a recent national survey, based on vegetation. It has the most pronounced "tidal" fluctuation of any large site, and is remarkable for its complement of rare plants and animals.
03.09.2001

Site Name: Castletaylor Complex

Site Code: 000242

This site is situated approximately 4 km south-east of Kilcolgan and lies in a gently undulating limestone topography. Although relatively small in area, the site contains a diverse range of habitats, including five EU Habitats Directive Annex I habitats - turloughs, limestone pavement, orchid-rich calcareous grassland, alpine heath and juniper scrub. The first three of these are listed as priority habitats under the Directive.

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Caranavoodaun turlough dominates the north-western half of the site. It occupies a shallow basin set among ridges of limestone outcrop and thin glacial drift and is an excellent example of a calcareous and extremely oligotrophic (nutrient-poor) turlough. It has a limited throughput of water, with a considerable precipitation of marl and some accumulation of peat. Some stands of Black Bog-rush (*Schoenus nigricans*), with sparse Variegated Horsetail (*Equisetum variegatum*), occur at the upper levels, surrounded by patches of Buckthorn (*Rhamnus catharticus*) and Hawthorn (*Crataegus monogyna*) scrub. To the south-east the scrub includes Ash (*Fraxinus excelsior*), Yew (*Taxus baccata*), Whitebeam (*Sorbus aria*) and Irish Whitebeam (*Sorbus hibernica*). Below this there is an extensive area of sedge fen vegetation with species such as Tawny Sedge (*Carex hostiana*), Carnation Sedge (*C. panicea*), Purple Moor-grass (*Molinia caerulea*), Meadow Thistle (*Cirsium dissectum*) and Devil's-bit Scabious (*Succisa pratensis*). Along the western and south-western sides the low-lying ground supports a community of Shoreweed (*Littorella uniflora*), Spike-rushes (*Eleocharis palustris*, *E. multiflora*) and Bulbous Rush (*Juncus bulbosus*) growing in shallow water that persists into June. The deeper pools are colonised by Pondweeds (*Potamogeton gramineus*, *P. polygonifolius*, *P. coloratus*).

North of the turlough and to the south of the site there is a mosaic of other habitats. The limestone pavement occurs mainly as scattered boulders with no extensive areas of flat pavement. It has a rich flora with species such as Bloody Crane's-bill (*Geranium sanguinum*), Herb Robert (*G. robertianum*), Burnet Rose (*Rosa pimpinellifolia*), Wood Sage (*Teucrium scordonia*), Quaking-grass (*Briza media*) and the rarer Spring Gentian (*Gentiana verna*) and Mountain Avens (*Dryas octopetala*). Limestone pavement breaks through the turlough floor in places, and supports scrub vegetation with Dewberry (*Rubus caesius*), Dog Rose (*Rosa canina*), stunted Ash (*Fraxinus excelsior*) and Blackthorn (*Prunus spinosa*). The Red Data book species Alder Buckthorn (*Frangula alnus*) occurs amongst this community. Limestone outcrops also occur within the wooded area of the site.

The dry calcareous grassland that occurs amongst the limestone pavement and heath is species-rich, particularly with orchids, including Autumn Lady's tresses (*Spiranthes spiralis*), Early Marsh-orchid (*Dactylorhiza incarnata*), Lesser Butterfly-orchid (*Platanthera bifolia*), Fragrant Orchid (*Gymnadenia conopsea*), Broad-leaved Helleborine (*Epipactis helleborine*) and the scarce Dense-flowered Orchid (*Neotinea maculata*).

The heath at this site is characterised by the presence of Juniper (*Juniperus communis*) and Mountain Avens (*Dryas octopetala*). The presence of Bearberry (*Arctostaphylos uva-ursi*) indicates that some of the heath is similar to the Arctostaphylos-Dryas vegetation of the Burren limestone area, a rare lowland alpine type heath.

The eastern and much of the southern parts of the site are dominated by dry broad-leaved woodland. Species present include Downy Birch (*Betula pubescens*), Ash (*Fraxinus excelsior*), Yew (*Taxus baccata*), Hazel (*Corylus avellana*), Holly (*Ilex aquifolium*) and Spindle (*Euonymus europaeus*). Some mature planted conifers are found to the south of the road.

The turlough does not hold any significant wintering populations of birds, owing to the extreme oligotrophic conditions. Three pairs of Lapwing bred at the site in 1996.

The main landuse within the open areas of the site is light grazing by cattle. Some clearance of scrub within parts of the woodland has caused some damage and is a further threat. This site is conservation interest for its diversity of habitats within a relatively small area. The transition from the wetland to the surrounding habitats is particularly well shown.

30.11.2004

Site Name: Cloonmoylan Bog

Site Code: 000248

Cloonmoylan Bog is a very large expanse of level raised bog, situated close to the western shore of Lough Derg, near Woodford in County Galway. It lies at an altitude of approx. 50m above sea-level.

This site contains a large area (90ha) of good quality, intact raised bog habitat. A further 100ha also qualifies as raised bog habitat, *sensu* Annex I of the European Habitats Directive, but has been damaged to some extent due to burning and drainage. The surface of the bog displays a typical, undulating pattern of pools, wet channels and low hummocks. A wide variety of Bog Mosses (*Sphagnum* spp.) occur over the surface of the bog, forming hummocks and wet lawns and colonising the pools. Lawns of *Sphagnum pulchrum* occur - this species is rare in Ireland. Brown Beak-sedge (*Rhynchospora fusca*) is found in the channels - this species is uncommon and on the edge of its range in Ireland. The low hummocks are typically colonised by scattered large bushes of Ling Heather (*Calluna vulgaris*), with abundant Cranberry (*Vaccinium oxycoccus*) and Bog Rosemary (*Andromeda polifolia*). Some larger hummocks support Crowberry (*Empetrum nigrum*) and a range of mosses. The pool system has escaped burning due to its extreme wetness.

A number of flushes occur on the bog. These are dominated, for the most part, by Purple Moor-grass (*Molinia caerulea*) and Bog Myrtle (*Myrica gale*), with Downy Birch (*Betula pubescens*) and Rowan (*Sorbus aucuparia*) forming a woodland canopy in places.

Raised bogs are vulnerable to turf-cutting and any drain excavation, since these practices affect the hydrology of the bog. Burning is also damaging, causing drying-out of the surface and removal of vegetation.

Cloonmoylan Bog is of high conservation value, due to the large area of good quality raised bog habitat present. Raised bogs have largely disappeared from Europe, and in Ireland, are threatened by peat extraction. Habitat diversity on this raised bog is good and the presence of scarce plant species adds to the sites importance.

14.1.1997

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Site Name: Coole-Garryland Complex

Site Code: 000252

The Coole-Garryland Complex is situated in a low-lying karstic limestone area west of Gort, County Galway. It contains a series of seasonal lakes (turloughs), which are fed by springs and a partly submerged river, surrounded by woodland, pasture and limestone heath. The more well-known turloughs present in the site include Lydacan, Crannagh North, Raheen, Crannagh South, Coole, Garryland, Newtown and Hawkhill.

Turloughs are listed as priority habitat on Annex I of the EU Habitats Directive, and the turloughs at Coole-Garryland are particularly good examples of this habitat type. Vegetation of the turloughs includes Shoreweed (*Littorella uniflora*), Spike-rush (*Eleocharis palustris*), Water-purslane (*Lythrum portulaca*) and Fen Violet (*Viola persicifolia*). A species of Water-starwort, *Callitriche palustris*, has recently been recorded from the site, its only known station in Ireland. The Coole river itself is of particular interest for the occurrence of a rare riverine habitat characterised by Trifid Bur-marigold (*Bidens tripartita*), Red Goosefoot (*Chenopodium rubrum*) and species of Knotgrass (*Polygonum* spp.).

The turloughs are fringed by a range of habitats on limestone pavement, including scrub communities containing Buckthorn (*Rhamnus catharticus*) and Hawthorn (*Crataegus monogyna*). In places, heath communities have developed over the limestone pavement, consisting of Ling Heather (*Calluna vulgaris*), Juniper (*Juniperus communis*), Blue Moor-grass (*Sesleria albicans*) and occasional Yew (*Taxus baccata*). In addition, the site contains good examples of smooth pavement and associated species-rich grasslands. Small areas of orchid-rich grassland occur at Coole-Garryland. The colourful array of orchids which can be found here include Pyramidal Orchid (*Anacamptis pyramidalis*), Spotted Orchids (*Dactylorhiza* spp.), Fragrant Orchid (*Gymnadenia conopsea*), Fly Orchid (*Ophrys insectifera*) and Greater Butterfly Orchid (*Platanthera chlorantha*).

A remarkable feature of the turloughs at Coole-Garryland is that they are closely associated with areas of woodland. Although substantial parts of the original deciduous forest have been converted to coniferous woodland composed of non-native species, stands of semi-natural deciduous woodland survive. Pedunculate Oak (*Quercus robur*) and Ash (*Fraxinus excelsior*) are the dominant species on deeper, more fertile soils, where there is also some Hazel (*Corylus avellana*), occasional Yew (*Taxus baccata*) and Elm (*Ulmus* spp.). There are also some unusual areas of dwarf Pedunculate Oak woodland growing on limestone pavement. This species of oak does not typically colonise this type of substrate.

Some of the deciduous woodlands have a mixture of native and non-native species. These mixed woodlands have a diverse shrub layer comprised of Spindle (*Euonymus europaeus*), Privet (*Ligustrum vulgare*), Burnet Rose (*Rosa pimpinellifolia*), Guelder Rose (*Viburnum opulus*), Blackthorn (*Prunus spinosa*), Pear (*Pyrus pyrausta*) and Honeysuckle (*Lonicera periclymenum*). The ground flora is rich and includes Wood Anemone

(*Anemone nemorosa*), Dog Violet (*Viola riviniana*), Shining Crane's-bill (*Geranium lucidum*), Maidenhair Spleenwort (*Asplenium trichomanes*), Northern Bedstraw (*Galium boreale*), Biting Stonecrop (*Sedum acre*), Harebell (*Campanula rotundifolia*) and Bitter Vetch (*Lathyrus montanus*). The woodlands are notable for the presence of rare species of Myxomycete fungi, namely, *Licea idris*, *Licea marginata* and *Macbrideola decapillata*, the first-named in one of only three known sites for the species.

The nationally rare Mudwort (*Limosella aquatica*) and Dropwort (*Filipendula vulgaris*) also occur at this site. These two plant species are listed in the Irish Red Data Book.

The complex of habitats at Coole-Garryland provides habitat for a variety of mammal species, including Otter and Pine Marten. The otter is listed on Annex II of the EU Habitats Directive, while Pine Marten is considered to be threatened in Europe. The Coole-Garryland complex is also home to one of the most important and unique assemblages of insects in the country, including several notable species of beetles and flies.

The area is of importance for wintering waterfowl, especially Whooper Swan (mean peak of 324 in 1995/96 - 98/99), Bewick Swan (79 in winter 96/97), Wigeon (mean peak of 1044 in 1995/96 - 98/99), Mallard (mean peak of 330 in 1995/96 - 98/99), Pochard (mean peak of 176 in winter 1995/96 - 98/99), along with smaller numbers of Teal, Tufted Duck, Lapwing, Curlew and Dunlin. In 1996 seven pairs of Lapwing bred at Newtown Turlough and two pairs of Common Sandpiper bred at Coole Lough.

A substantial portion of this site is in the ownership of the National Parks and Wildlife Service. It is a popular amenity area, and uncontrolled visitor access would pose a threat to sensitive animals. Other threats to the site may result from the intensification of agriculture (e.g. fertiliser application or pollution of water courses) outside the Nature Reserve.

The turlough system at Coole-Garryland is considered to be the most diverse in the country, for both its physiography and vegetation. It is unique in that it is so closely associated with woodland. The juxtaposition of these two distinct habitats, in addition to the presence of a variety of turloughs, has led to the development of uncommon communities, and rare species of insect and plant occur which are associated with both the turlough and the turlough/woodland transition. Overall, the range of good quality habitats at Coole-Garryland supports a high diversity of plant and animal species, rendering this site of prime importance for conservation.
30.11.2004

Site Name: Croaghill Turlough

Site Code: 000255

Croaghill Turlough is situated just to the east of Coolcam in County Galway, close to the Dunmore/Ballymoe road. It is a wet turlough, parts of which stay flooded into July. The topography is dominated by glacial deposits, in that eskers and drift slopes surround the turlough, and

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morainic deposits occur within the basin, giving it an undulating floor. This means that the vegetation of the basin floor has a complex pattern. The wetness of the turlough has led to the accumulation of deep peat, and a 3m depth is recorded.

The turlough is eutrophic, with much Fine-leaved Water-dropwort (*Oenanthe aquatica*), Amphibious Bistort (*Polygonum amphibium*) and Common Spike-rush (*Eleocharis palustris*). Towards the edges of open water, Lesser Marshwort (*Apium inundatum*) and Broad-leaved Pondweed (*Potamogeton natans*) are common. In places, this grades into a community with Jointed Rush (*Juncus articulatus*) and Marsh Speedwell (*Veronica scutellata*). The central area of raised ground within the basin supports Reed Canary-grass (*Phalaris arundinacea*), Hairy Sedge (*Carex hirta*) and Yellow Iris (*Iris pseudacorus*). The latter species is relatively unusual in turloughs. Elsewhere, raised ground is colonised by Reed Canary-grass, Creeping Willow (*Salix repens*) and Yellow Loosestrife (*Lysimachia vulgaris*). The edges of the basin are mainly grassland.

Northern Yellow-cress (*Rorippa islandica*), a species listed in The Irish Red Data Book, has been recorded at Croaghill.

Fifteen pairs of breeding Black-headed gulls have been recorded on the site, as well as possible breeding Snipe, Redshank and Lapwing. Flocks of 150 Lapwing and 50 Mallard have been recorded (in July).

The main basin is subject to very little grazing because of its wetness and soft terrain. Surrounding land is used for hay, pasture and oats. In general, the site is relatively undisturbed. Threats to the site would include drainage of surrounding lands or the release of polluting substances, e.g. silage effluent, into the system - at present, the site seems naturally eutrophic.

Croaghill is of conservation significance as an interesting and varied turlough with good development of vegetation including characteristic but relatively uncommon species. Turloughs are important habitats that are listed with priority status on Annex I of the EU Habitats Directive. 14.7.1999

Site Name: Derrycrag Wood Nature Reserve

Site Code: 000261

Derrycrag Wood is an old Oak (*Quercus* sp.) woodland, a habitat listed on Annex I of the EU Habitats Directive. It is situated 1.5 km south-east of Woodford, Co. Galway, and is traversed by the Woodford River. The underlying rock is Old Red Sandstone, which is overlain in places by drift. The soils vary from thin, acidic podzols to deeper, gleyed brown earths.

The site is dominated by planted conifers, but fragments of old oak woodland still occur. Elements of the original ground flora persist beneath the conifers, especially where mature Scot's Pine (*Pinus sylvestris*) is present. The woodland also contains Rowan (*Sorbus aucuparia*) and Downy Birch (*Betula pubescens*), and Holly (*Ilex*

aquifolium) and Yew (*Taxus baccata*) are locally abundant. Hazel (*Corylus avellana*) and Ash (*Fraxinus excelsior*) occur on the slightly richer soil.

The ground flora consists mainly of Hard Fern (*Blechnum spicant*), Great Wood-rush (*Luzula sylvatica*), Wood-sedge (*Carex sylvatica*) and Bilberry (*Vaccinium myrtillus*), with an abundance and diversity of mosses in the more open areas. At one small location on the Woodford River bank there is a remarkably rich flora, including the Red Data Book species Alder Buckthorn (*Frangula alnus*) and three plant species which are otherwise scarce in Ireland: Blue-eyed-grass (*Sisyrinchium bermudiana*), Lesser Meadow-rue (*Thalictrum minus*) and Wild Columbine (*Aquilegia vulgaris*).

Most of the site is also designated as a Nature Reserve, but an adjacent area of thinned out Scot's Pine with a very diverse ground flora and an area of wet grassland are also included.

Pine Marten and Badger, both Red Data Book species, Red Squirrel, Fox and Fallow Deer are all found in the wood. Bat species also forage in the area. Kestrel, Sparrowhawk and Jay are a few of the more notable bird species present in the site.

Management of the wood includes the gradual removal of all conifers except for a few areas with mature Scot's Pine. The cleared areas, however, are vulnerable to invasion by non-native species, e.g. Beech (*Fagus sylvaticus*) and to grazing by deer.

Derrycrag Wood is of considerable conservation significance as an old Oak woodland, a habitat listed on Annex I of the EU Habitats Directive. Furthermore it supports a diverse flora and fauna including the Red Data Book species Alder Buckthorn, Pine Marten and Badger. 25.2.1998

Site Name: Galway Bay Complex

Site Code: 000268

Situated on the west coast of Ireland, this site comprises the inner, shallow part of a large bay which is partially sheltered by the Aran Islands. The Burren karstic limestone fringes the southern sides and extends into the sublittoral. West of Galway city the bedrock geology is granite. There are numerous shallow and intertidal inlets on the eastern and southern sides, notably Muckinish, Aughinish and Kinvarra Bays. A number of small islands composed of glacial deposits are located along the eastern side. These include Eddy Island, Deer Island and Tawin Island. A diverse range of marine, coastal and terrestrial habitats, including several listed on Annex I of the EU Habitats Directive, occur within the site, making the area of high scientific importance.

Galway Bay South holds a very high number of littoral communities (12). They range from rocky terraces, to sandy beaches with rock or sand dunes behind. The intertidal sediments of Galway Bay support good examples of communities that are moderately exposed to wave action. A well-defined talitrid zone in the upper shore

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gives way to an intertidal, mid-shore zone with sparse epifauna or infauna. On the lower, flat part of the shore, the tubes of the deposit-feeding terebellid worm, *Lanice conchilega*, are common on the surface. Nereid and cirratulid polychaete worms (*Hediste diversicolor*, *Arenicola marina*), small crustaceans and bivalves (*Angulus tenuis*, *Cerastoderma edule* and *Macoma balthica*) are present. The area has the country's only recorded example of the littoral community characterized by *Fucus serratus* with sponges, ascidians and red seaweeds on tide-swept lower eulittoral mixed substrata. This community has very high species richness (85 species), as do the sublittoral fringe communities on the Finavarra reef (88 species). The rare sea urchin *Paracentrotus lividus* and the foliose red alga *Phyllophora sicula* are present at Finavarra, whereas the red alga *Rhodomyenia delicatula* and the rare brown alga, *Ascophyllum nodosum* var. *mackii*, occur in Kinvara and Muckinish Bays. Sublittorally, the area has a number of distinctive and important communities. Of particular note is that Ireland's only reported piddock bed thrives in the shallows of Aughinish Bay. The rare sponge, *Mycale contarenii*, is also found here. There is further interest in an extensive maerl bed of *Phymatolithon calcareum* which occurs in the strong tidal currents of Muckinish Bay. There is also maerl off Finavarra Point and in Kinvara Bay (*Lithothamnion corallioides*, *Lithophyllum dentatum* and *Lithophyllum fasciculatum*). An oyster bed in Kinvara Bay and seagrass (*Zostera* spp.) beds off Finavarra Point are also important features. Other significant habitats which occur include secondary maerl beds and communities strongly influenced by tidal streams.

Salt marshes are frequent within this extensive coastal site, with both Atlantic and Mediterranean marshes well represented. Most of the salt marshes are classified as the bay type, with the substrate being mud or mud/sand. There is one lagoon type and one estuary type. Lagoon salt marshes are the rarest type found in Ireland. The best examples of salt marsh are located in inner Galway bay, east of a line running between Galway city and Kinvara. In this area the coastline is highly indented, thus providing the sheltered conditions necessary for extensive salt marsh development. Common salt marsh species include Thrift (*Armeria maritima*), Red Fescue (*Festuca rubra*), Common Scurvygrass (*Cochlearia officinalis*), Sea Lavender (*Limonium humile*), Common Saltmarsh-grass (*Puccinellia maritima*), Saltmarsh Rush (*Juncus gerardii*) and Sea Rush (*Juncus maritimus*). On the lower levels of the salt marshes and within pans there occurs Glasswort (*Salicornia europaea* agg.). A noteworthy feature of the salt-marsh habitat within this site is the presence of dwarfed brown seaweeds in the vegetation. These are also known as "turf fucoids" and typical species include *Fucus* spp., *Ascophyllum nodosum* and *Pelvetia canaliculata*. A number of locally rare vascular plant species also grow in salt-marsh areas within the site. These include *Puccinellia distans* and Sea Purslane (*Halimione portulacoides*), which are both relatively rare in the western half of the country.

Shingle and stony beaches can be found throughout the site, with the best examples along the more exposed shores to the south and west of Galway city and to the north and east of Finavarra, Co. Clare. In general, these shingle shorelines are sparsely vegetated and frequently occur interspersed with areas of sandy beach and/or

bedrock shore. The associated flora is dominated by plant species of frequently disturbed maritime habitats. To the south and west of Galway city, typical plants include Curled Dock (*Rumex crispus*), Common Couch (*Elymus repens*), Sea Sandwort (*Honkenya peploides*), Sea Beet (*Beta vulgaris*), Scentless Mayweed (*Matricaria maritima*), Silverweed (*Potentilla anserina*) and *Atriplex* spp.. Two rare plant species are associated with the habitat: Henbane (*Hyoscyamus niger*), a threatened species listed in the Irish Red Data Book, grows on shingle beach to the south of Lough Atalia; there are also old records for the threatened plant species Sea Kale (*Crambe maritima*).

An excellent range of lagoons of different types, sizes and salinities occurs within the site. This habitat is given priority status on Annex I of the Habitat Directive. One unusual type of lagoon, karstic rock lagoon, is particularly well represented. This type of lagoon is common on the Aran Islands, but on mainland Ireland, all but one are confined to this one site including the best example of all karstic lagoons in the country (Lough Murree). The flora of the habitat is rich and diverse, reflecting the range of salinities in the different lagoons, and typically brackish with two species of Tasselweed (*Ruppia* spp.), two Red Data charophytes *Chara canescens* and *Lamprothamnion papulosum*, and *Chaetomorpha linum* (all lagoonal specialists). The fauna of the lagoon is also rich, diverse and lagoonal. At least 10 lagoonal specialist species were recorded in 1996 and 1998 from the combined habitat of all the lagoons which is one of the highest number for any lagoonal habitat in the country. Many of the species appear to be rare. The lagoons within this site are an excellent representative of the habitat type and of high conservation importance.

Other terrestrial habitats within this site which are of conservation importance include Saw Sedge (*Cladium mariscus*)-dominated fen and Black Bog-rush (*Schoenus nigricans*)-dominated alkaline fen at Oranmore, a turlough of moderate size at Ballinacourty, limestone pavement mainly along the southern shore, dry calcareous grassland with orchids (best examples occurring east of Salthill), Juniper scrub formations at Oranmore, wet grassland and an area of deciduous woodland at Barna.

Inner Galway Bay provides extensive good quality habitat for Common Seals, a species listed on Annex II of the EU Habitats Directive. In 1984, this seal colony was one of the top three sites in the country, with over 140 animals recorded. The seals use a range of haul-out sites distributed through the bay - these include inner Oranmore Bay, Rabbit Island, St. Brendan's Island, Tawin Island, Kinvarra Bay, Aughinish Bay and Ballyvaughan. The site provides optimum habitat for Otter.

Galway Bay is a very important ornithological site. The shallow waters provide excellent habitat for Great Northern Divers (35), Black-throated Divers (28), Scaup (39), Long-tailed Duck (27) and Red-breasted Merganser (232). (Figures given are peak average maxima over the 3 winters 1994/95 to 1996/97). All of these populations are of national importance. The intertidal areas and shoreline provides feeding and roosting habitat for wintering waterfowl, with Brent Goose (517) having a population of international importance and a further 11 species having populations of national importance. Four of the regular wintering species are listed on Annex I of

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the EU Birds Directive - Golden Plover, Bar-tailed Godwit and the two diver species. Breeding birds are also of importance, with significant populations of Sandwich Terns (81 pairs in 1995) and Common Terns (99 pairs in 1995), both also being listed on Annex I of the EU Directive. A large Cormorant colony (c.300 pairs in 1989) occurs on Deer Island.

Fishing and aquaculture are the main commercial activities within the site. A concern is that sewage effluent and detritus of the aquaculture industry could be deleterious to benthic communities. Reef and sediment communities are vulnerable to disturbance or compaction from tractors accessing oyster trestles. The *Paracentrotus lividus* populations have been shown to be vulnerable to over-fishing. Extraction of maerl in Galway Bay is a threat. Owing to the proximity of Galway city, shoreline and terrestrial habitats are under pressure from urban expansion and recreational activities. Eutrophication is probably affecting some of the lagoons and is a continued threat. Drainage is a general threat to the turlough and fen habitats. Bird populations may be disturbed by aquaculture activities.

This large coastal site is of immense conservation importance, with many habitats listed on Annex I of the EU Habitats Directive, four of which have priority status (lagoon, *Cladium* fen, turlough and orchid-rich calcareous grassland). The examples of shallow bays, reefs, lagoons and salt marshes are amongst the best in the country. The site supports an important Common Seal colony and a breeding Otter population, both species that are listed on Annex II of the EU Habitats Directive, and six regular Annex I EU Birds Directive species. The site also has four Red Data Book plant species, plus a host of rare or scarce marine and lagoonal animal and plant species.
19.10.2007

Site Name: Inishbofin and Inishshark

Site Code: 000278

This site is situated off the Co. Galway coast about 5.5 km from the mainland. It comprises two main islands, Inishbofin and Inishshark, with several islets and stacks. Part of the surrounding marine waters are also included. The islands are composed almost entirely of Silurian slates and shales and rise to heights of 89 m (Inishbofin) and 69 m (Inishshark).

Inishbofin is the only inhabited island, with a population of about 300 people. Two-thirds of the island is commonage where the main habitat type is heath, represented by both dry and wet heath communities. There are many areas of relatively intact dry heath present on Inishbofin, particularly around the middle and eastern quarter of the island. In most places this heath is associated with higher ground and exposed rock outcrops. Some areas of bog and marsh occur, and plantain (*Plantago* spp.) swards exist on the clifftops. Several small oligotrophic lakes are present. The largest waterbody, Lough Bofin has a brackish character and is classified as a lagoon. A small area of sand dune occurs at the eastern side of the island. The remainder of the island is under cultivation, with most of the area under grass for pasture and to a lesser degree

hay, a small proportion remains where potatoes, and grain-crops are planted.

Areas with dry heath support such species as semi-prostrate Ling Heather (*Calluna vulgaris*), Mat-grass (*Nardus stricta*), Bell Heather (*Erica cinerea*), Carnation Sedge (*Carex panicea*) Viviparous Fescue (*Festuca vivipara*), Tormentil (*Potentilla erecta*), Sweet vernal-grass (*Anthoxanthum odoratum*), Common Bent (*Agrostis capillaris*), Heath-grass (*Danthonia decumbens*), Wild Thyme (*Thymus praecox*) and Sheep's-bit (*Jasione montana*). The rare Spotted Rockrose (*Tuberaria guttata*) also occurs. The dry heath habitat generally merges seawards to *Plantago* sward and landwards to patches of bog vegetation, *Nardus* grassland or wet heath with *Erica tetralix*.

Inishbofin has some good examples of lowland hay meadows. The habitat supports a typically diverse flora with such species as Yellow-rattle (*Rhinanthus minor*), Red Clover (*Trifolium pratense*), Creeping Buttercup (*Ranunculus repens*), Sheep's Sorrel (*Rumex acetosella*), Ribwort Plantain (*Plantago lanceolata*), Hogweed (*Heracleum sphondylium*), Silverweed (*Potentilla anserina*), Cocks-foot (*Dactylis glomerata*), Curled Dock (*Rumex crispus*), Hedge Woundwort (*Stachys sylvatica*), Selfheal (*Prunella vulgaris*), Meadow Vetchling (*Lathyrus pratensis*), Wild Carrot (*Daucus carota*), Autumn Hawkbit (*Leontodon autumnalis*), Purple Loosestrife (*Lythrum salicaria*) and Bracken (*Pteridium aquilinum*).

Sea cliffs are found on the western and north-eastern parts of Inishbofin, as well as on Inishshark. In places these support a species-rich vegetation with such species as Wild Angelica (*Angelica sylvestris*), Thrift (*Armeria maritima*), Stag's-horn Plantain (*Plantago coronopus*), Roseroot (*Rhodiola rosea*), Bell Heather (*Erica cinerea*), Bird's-foot Trefoil (*Lotus corniculatus*), Yorkshire Fog (*Holcus lanatus*), Dandelion (*Taraxacum* spp.), Bracken, Primrose (*Primula vulgaris*), Honeysuckle (*Lonicera periclymenum*), Common Sorrel (*Rumex acetosa*), English Stonecrop (*Sedum anglicum*) and Royal Fern (*Osmunda regalis*). Cliff-top vegetation frequently comprises a short turf usually dominated by Stag's-horn Plantain, Sea Plantain (*Plantago maritima*) and Thrift, i.e. *Plantago* sward. This often grades inland to *Nardus* grassland, heath or marsh communities where such species as Wild Thyme, Allseed (*Radiola linoides*), Sheep's-bit, Common Centaury (*Centaureum erythraea*), Bog Pimpernel (*Anagallis tenella*), Dandelion, Heath-grass, Kidney Vetch (*Anthyllis vulneraria*), Marsh Pennywort (*Hydrocotyle vulgaris*) and a variety of lichens are found.

Lough Gowlanagower is one of a number of small oligotrophic lakes present on Inishbofin. The north-eastern side of the lake supports good communities of Pipewort (*Eriocaulon aquaticum*) and Water Lobelia (*Lobelia dortmanna*).

Lough Bofin is an excellent example of an isolated sedimentary lagoon with a cobble barrier. This type of lagoon is relatively rare in Ireland. The lagoon is shallow (c. 2 m) and salinity varies considerably (oligo-euhaline). Seawater enters by percolation and by overtopping the cobble barrier and large volumes of fresh water enter at times of high rainfall. The lagoon is in an almost completely natural condition, of which there are very few

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examples in Europe. Floristically, the lagoon is very interesting; it supports the rare charophyte Foxtail Stonewort (*Lamprothamnion papulosum*), a lagoonal specialist which is listed in the Red Data Book and protected under the Flora (Protection) Order, 1999, as well as two species of Tassleweed (*Ruppia maritima* and *R. cirrhosa*) and *Chaetomorpha linum*, all of which are lagoonal specialists. The vegetation is an excellent example of a *Ruppia/Lamprothamnion* community and the plankton appears to contain unusual brackish species of the genus *Prorocentrum*. The fauna of the lagoon is species-poor, with only one lagoonal specialist, *Jaera nordmanni*, recorded. The absence of other lagoonal specialists may be due to the relative isolation of the site.

Inishshark is located to the south-west of Inishbofin and was inhabited up until the 1960s. The main habitats here are heath and rough pasture. The island is bleak and without trees. There is a well-developed *Plantago* sward on the western side, where there are also some high cliffs. The other sizeable islands in the group are Inishgort, to the south-east of Inishshark, and Davillaun, to the east of Inishbofin.

In addition to Foxtail Stonewort there are records from Inishbofin for several other nationally rare Red Data Book species - Spotted Rockrose, for which there are recent records, Wood Small-reed (*Calamagrostis epigejos*), last seen in 1967, and Marsh Clubmoss (*Lycopodiella inundata*), last recorded in 1911. The last two-named species are also protected under the Flora (Protection) Order, 1999. Darnel (*Lolium temulentum*), also a Red Data Book species, was recorded from Inishshark in 1875. Three lichen species known in Ireland only from west Galway occur on Inishbofin - *Catapyrenium cinerum*, *Opegrapha paraxanthoides* and *Lecidella umboella* var. *alumula*.

The site supports a breeding colony of Grey Seal, a species that is listed on Annex II of the E.U. Habitats Directive. In 1980, the colony which breeds on Inishgort was estimated at between 140-180 animals strong.

The site is an important ornithological site. It supports breeding Manx Shearwater (200-300 pairs) and wintering Barnacle Goose (up to 640 individuals), the latter a species that is listed on Annex I of the E.U. Birds Directive. Nationally important numbers of Fulmar (824 pairs) and small numbers of the Annex I species Storm Petrel (> 30 pairs) also breed. A pair of Peregrine has nested for many years, while small numbers of Chough breed and forage on the main islands. Corncrake was once abundant on the islands but declined in the 1960s until the early 1990s when none was recorded. More recently, however, the species has been recorded from the site - 1996, 1997 (two singing males) and 2003. In 1995 27 pairs of Arctic Tern, an Annex I species, were recorded. Other breeding birds recorded from the site include Shag and Black Guillemot.

In recent times, overgrazing by sheep, and to a lesser extent rabbits, has caused damage to the vegetation cover of the islands. Cutting of the shallow peat is also considered a problem.

The site is of considerable conservation significance for the presence of an excellent example of a lagoon, a

habitat listed with priority status on Annex I of the E.U. Habitats Directive, and for the good examples of heath, sea cliff, hay meadow and other vegetation communities typical of exposed western islands that it supports. The presence of a breeding colony of Grey Seal, a species that is listed on Annex II of the E.U. Habitats Directive, as well as populations of rare Red Data Book plant species and of important bird populations adds significantly to the importance of the site.

10.12.2003

Site Name: Kilsallagh Bog

Site Code: 000285

Kilsallagh Bog is a large raised bog with a largely intact dome set in a peat basin almost completely surrounded by mineral soil. It is situated about 7 km north of Glenamaddy.

The central 15% of the bog contains raised bog habitat of outstanding quality, with a vigorous hummock and pool system grading into an extensive area of Bog Moss lawns (notably *Sphagnum papillosum* and *S. magellanicum*), which are actively growing. This central part is extremely quaking. This grades down on the north-east slope into an unusual wet community which is flushed, and consists of a mixture of tall Carnation Sedge (*Carex panicea*), Bog Cottons (*Eriophorum* spp), with frequent large tufts of Deergrass (*Scirpus cespitosus*). This vegetation has a 100% understorey of Bog Mosses (*Sphagnum* spp.). A large part of the intact dome is of medium quality, capable of good recovery were it not for damage from intermittent fire. A part in the south-east has escaped fire damage for a long time.

Most of the boundary, except in the far north, is on, or close to, the mineral soil, and so the site encloses most of the peat basin of Kilsallagh Bog. Damage has occurred in the form of a 12 ha conifer plantation on the dome, and more recently by 20 ha of regular drains which encroach onto the good quality central parts. Burning threatens the bog, causing drying of the surface.

Red Grouse, a scarce and declining species in Ireland, breeds on the bog.

Raised Bogs are an extremely threatened type in Ireland and Europe, due to peat extraction. Kilsallagh Bog is a good quality raised bog and therefore is of considerable conservation value.

15.1.1997

Site Name: Kiltartan Cave (Coole)

Site Code: 000286

Kiltartan cave is a natural limestone cave situated north of Coole Park in County Galway, just off the main Galway-Ennis road. It is used as a hibernating site for the Lesser Horseshoe Bat (*Rhinolophus hipposideros*), a species listed on Annex II of the EU Habitats Directive.

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This cave, which has been well documented since 1863, is a segment of an abandoned streamcourse of the Gort River. A 3 m descent into the cave divides into two main passages. A muddy slope south from the entrance leads to the Entrance Hall. The Entrance Hall is the only real chamber in the cave, the ceiling height measures approximately 6 m. A number of passages lead from this, most are silty and muddy. To the east of the Entrance Hall there are a series of well decorated passages etched into joints, which contain stalactites and curtains with serrated edges hanging from the roof and walls. The cave contains the following representative cave features: elliptical phreatic tube with local modification by roof collapse, roof tube still preserved in places, gour pools, straw stalactites and botryoidal calcite deposits. Water levels within the cave are known to fluctuate in winter with some passages filling completely with water; during severe flooding in 1994/95, all sections of the cave were filled with water except for small pockets in the roof.

The Lesser Horseshoe Bat (*Rhinolophus hipposideros*), an Annex II species, uses the cave as a hibernation site. Numbers of Lesser Horseshoe Bats counted prior to the serious flooding in 1994-95 varied between 44 and 70. During the floods the cave was filled to the entrance. Following the floods, bat numbers remained in the mid to low teens until January 2001, when 41 individuals were counted. Most hibernating bats are found on the right hand side of the cave entrance, in a passage historically known as the 'Bat Passage', which runs north for 40 m and is floored by boulders.

The entrance of the cave is sheltered with hawthorn (*Crataegus monogyna*) trees and the surrounding vegetation is of scrub and hedgerows, which provides suitable foraging habitat and shelter for the bats. Coole Wood is within 500 m of the cave.

Although well known and regularly visited by caving groups, disturbance to the cave and the wintering bats is thought to be minimal.

This is a particularly fine example of a fossil streamway cave, which contains many features of geological interest. Caves are listed on Annex I of the EU Habitats Directive. The presence of a significant population of Lesser Horseshoe Bat makes the site of International Importance. 4.9.2001

Site Name: Levally Lough

Site Code: 000295

Levally Lough is a fluctuating lake, or turlough, situated 9 km east of Tuam and to the north of the Grange River. It is overlooked by a low rise on the north side with some esker or drift mound to the south. The land is flat at the eastern and western ends. A stream enters the turlough from the north-east corner.

The southern shore is peaty, with peaty grassland as well as Black Bog-rush (*Schoenus nigricans*) where calcareous influences are stronger. Creeping Willow (*Salix repens*) and Purple Moor-grass (*Molinia caerulea*) are widespread amongst typical wetland species. An unusual Speedwell

(*Veronica* sp.) hybrid is found near to seepage of groundwater, where Fool's Water-cress (*Apium nodiflorum*) also occurs.

At each end of the turlough, there is less moisture and the ground is mainly covered by species-poor grassland with some Willows (*Salix* sp.), Amphibious Bistort (*Polygonum amphibium*) and Tufted Vetch (*Vicia cracca*). In the vicinity of swallow-holes, Amphibious Bistort becomes more abundant, occurring either as pure stands or mixed with grasses and Silverweed (*Potentilla anserina*). The northern edge carries small areas of sedges mixed with Creeping Cinquefoil (*Potentilla reptans*) and Trailing Tormentil (*Potentilla anglica*).

The main body of the lake appears to overlie a sheet of marl, and here, oligotrophic plants occur, such as Shoreweed (*Littorella uniflora*) and Stoneworts (*Chara* spp. including *Chara curta*). The centre of the lake has been invaded by Common Reed (*Phragmites australis*), Common Club-rush (*Scirpus lacustris*) and Bogbean (*Menyanthes trifoliata*), with Grey Willow (*Salix cinerea*) scattered throughout.

The site is well-known for its wildfowl because of the permanence of the water. Wintering wildfowl numbers from 10 counts during the season 1984/85 - 1986/87 were as follows: Wigeon 47, Teal 58, Mallard 28, Pochard 61, Tufted Duck 25, Golden Plover 75, Lapwing 91, Curlew 102 - the summer birds include Mallard, Coot, Moorhen, Lapwing and Black-headed Gull.

There is some grazing on the margins of the turlough, most significantly around the north-east corner. Pollution of the system with organic effluent from around the site would threaten the quality of this site. Drainage would also pose a threat to the hydrology of the site.

Levally Lough is of considerable ecological interest because it retains water most of the time, and therefore lies at one of the extremes of turlough variation, i.e. wetness. In this class, it is second only to Lough Funshinagh, County Roscommon. It is likely to support much more lake-like fauna than most turloughs, and its birdlife is richer than most. In addition, its structure is in a natural condition, and water quality seems good. The vegetation at this site is varied and unusual, and the areas of marl and reedbed here are the largest found in any turlough in a recent national survey. 15.1.1997

Site Name: Lisnageragh Bog and Ballinastack Turlough

Site Code: 000296

This site comprises a large raised bog and a small turlough, situated about 3 km north-east of Glenamaddy in County Galway.

The bog has a largely intact dome, approximately 50% of which is high quality raised-bog habitat. This includes a small but active hummock/pool system in an isolated portion of the bog, in the south-west. Although fire has damaged this area a little, some large hummocks which

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occur as islands in the bogpools have escaped any damage. Three separate areas of long, winding pools occur, the best being in the centre of the bog. In these pool complexes, Bog Mosses (*Sphagnum* spp.) are colonising the open water and are forming lawns between the pools. Brown Beak-sedge (*Rhynchospora fusca*), a plant which is scarce in Ireland, is abundant in the pool complexes. An unusual plant community, comprising Carnation Sedge (*Carex panicea*) and Bog Mosses, occurs also. The presence of a number of flushes, some of which are dominated by Purple Moor-grass (*Molinia caerulea*), adds habitat diversity.

In the north of the site is Ballinastack Turlough, whose floodwaters abut the raised bog. Peat deposits are associated with the turlough - an unusual feature for a turlough which is supplied with mineral-rich ground water. Vegetation dominated by Common Sedge (*Carex nigra*) occurs on the peaty substrate.

Associated with the bog, and to the north-east, is an area of wet grassland on heavy clay soil which grades into abandoned and regenerating cut-away, which is wet and rich in Bog Mosses. There is also an extensive area of cut-away bog in the south-west, comprising a mixture of dry banks dominated by Ling Heather (*Calluna vulgaris*), and wet pools.

The turlough attracts wintering waterfowl, which move between this site and other turloughs in the Glenamaddy area according to water levels and disturbance. Three species which are listed on Annex I of the EU Birds Directive occur - Greenland White-fronted Goose (60-80 average), Whooper Swan (up to 70 in recent winters) and Golden Plover (500-1000+). Wigeon is also regular in winter (up to 500), along with smaller numbers of other waterfowl species (above figures are based on counts carried out in the mid-1990s). Lisnageeragh Bog provides habitat for Red Grouse.

Raised Bogs are a rare habitat in Europe, and in Ireland they continue to be threatened by peat harvesting, drainage, afforestation and burning.

The occurrence of a high proportion of good quality raised bog, a habitat listed on Annex I of the EU Habitats Directive, with actively-growing Bog Moss communities makes this site of considerable ecological interest. The close association of a turlough, also listed on Annex I of the EU Habitats Directive, which is in itself a valuable natural habitat and is important for waterfowl, enhances the diversity of the site.

17.1.1997

Site Name: Lough Corrib

Site Code: 000297

Lough Corrib is situated to the north of Galway city and is the second largest lake in Ireland with an area of approximately 18,240 ha (the entire site is 20,556 ha). The lake can be divided into two parts: a relatively shallow basin, underlain by Carboniferous limestone, in the south and a larger, deeper basin, underlain by more acidic granite, schists, shales and sandstones, to the north. The

surrounding lands are mostly pastoral farmland, to the south and east, and bog and heath, to the west and north. Rivers, mainly to the east of the site are included within the cSAC as they are important for Atlantic Salmon. These rivers include the Clare, Grange, Abbert, Sinking, Dalgan and Black to the east, as well as the Cong, Bealanabrack, Failmore, Cornamona, Drimneen and Owenriff to the west. In addition to the rivers and lake basin, adjoining areas of conservation interest, including raised bog, woodland, grassland and limestone pavement, have been incorporated into the site.

This site is of major conservation importance and includes 14 habitats listed on Annex I of the E.U. Habitats Directive. Six of these are priority habitats - petrifying springs, *Cladium* fen, active raised bog, limestone pavement, bog woodland and orchid-rich calcareous grassland. The other annexed habitats present include hard water lakes, lowland oligotrophic lakes, floating river vegetation, alkaline fens, degraded raised bogs, Rhynchosporion vegetation, *Molinia* meadows and old Oak woodlands. Species present on the site that are listed on Annex II of this directive are Sea Lamprey, Brook Lamprey, Atlantic Salmon, White-clawed Crayfish, Freshwater Pearl Mussel, Otter, Lesser Horseshoe Bat, Slender Naiad and the moss *Drepanocladus vernicosus*.

The shallow, lime-rich waters of the southern basin the of lake support one of the most extensive beds of Stoneworts (Charophytes) in Ireland, with species such as *Chara aspera*, *C. hispida*, *C. delicatula*, *C. contraria* and *C. desmacantha* mixed with submerged Pondweeds (*Potamogeton perfoliatus*, *P. gramineus* and *P. lucens*), Shoreweed (*Littorella uniflora*) and Water Lobelia (*Lobelia dortmanna*). These *Chara* beds are an important source of food for waterfowl. In contrast, the northern basin contains more oligotrophic and acidic waters, without *Chara* species, but with Shoreweed, Water Lobelia, Pipewort (*Eriocaulon septangulare*), Quillwort (*Isoetes lacustris*), Alternate Water-milfoil (*Myriophyllum alternifolium*) and Slender Naiad (*Najas flexilis*). The last-named is listed under the Flora (Protection) Order, 1999 and is an Annex II species under the EU Habitats Directive.

Large areas of reedswamp vegetation, dominated by varying mixtures of Common Reed (*Phragmites australis*) and Common Club-rush (*Scirpus lacustris*), occur around the margins of the lake. Reedswamp usually grades into species-rich marsh vegetation characterised by Slender Sedge (*Carex lasiocarpa*), Water Mint (*Mentha aquatica*), Water Horsetail (*Equisetum fluviatile*) and Bog Bean (*Menyanthes trifoliata*). Of particular note are the extensive beds of Great Fen-sedge (*Cladium mariscus*) that have developed over the marly peat deposits in sheltered bays, particularly in the south-east corner of the lake. Alkaline fen vegetation is more widespread around the lake margins and includes, amongst the typically diverse range of plants, the Slender Cottongrass (*Eriophorum gracile*), a species protected under the Flora (Protection) Order, 1999. Wet meadows dominated by Purple Moor-grass (*Molinia caerulea*) occur in seasonally flooded areas close to the lake shore. These support species such as Sharp-flowered Rush (*Juncus acutiflorus*), Jointed Rush (*J. articulatus*), Carnation Sedge (*Carex panicea*), Devil's-bit Scabious (*Succisa pratensis*),

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Creeping Bent (*Agrostis stolonifera*) and Tormentil (*Potentilla erecta*), amongst others.

This large site contains four discrete raised bog areas and is selected for active raised bog, degraded raised bog, Rhynchosporion and bog woodland. Active raised bog comprises areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses (*Sphagnum* spp.) is high, and where some or all of the following features occur: hummocks, pools, wet flats, *Sphagnum* lawns, flushes and soaks. Degraded raised bog corresponds to those areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration. The Rhynchosporion habitat occurs in wet depressions, pool edges and erosion channels where the vegetation includes White Beak-sedge (*Rhynchospora alba*) and/or Brown Beak-sedge (*R. fusca*), and at least some of the following associated species, Bog Asphodel (*Narthecium ossifragum*), Sundews (*Drosera* spp.), Deerglass (*Scirpus cespitosus*) and Carnation Sedge (*Carex panicea*).

At Addergoole, on the eastern shores of Lough Corrib, there is an important area of western raised bog. This bog area is one of the most westerly, relatively intact raised bogs in the country. There are also other substantial areas of raised bog along various tributaries of the Corrib in east Co. Galway, namely Slieve Bog, Lough Tee Bog and Killaclogher bog. The active parts of these bogs mostly correspond to the wettest areas, where there are well developed surface features with hummocks, lawns and pools. It is in such areas that Rhynchosporion vegetation is best represented. The dominant species is the aquatic bog moss *Sphagnum cuspidatum*, which is usually accompanied by Bogbean (*Menyanthes trifoliata*), White Beak-sedge, Bog Asphodel, Bog Cotton (*Eriophorum angustifolium*), Bog Sedge (*Carex limosa*) and Great Sundew (*Drosera anglica*). Brown Beak-sedge, a locally rare plant of wet bog pools, has been recorded from a number of the bog areas within the site. At Addergoole a substantial bog lake or soak occurs and this is infilling with large rafts of Rhynchosporion vegetation at present. This area is associated with an important area of wet bog woodland dominated by Downy Birch (*Betula pubescens*).

The largest part of the uncut high bog comprises degraded raised bog. Degraded bog is dominated by a raised bog flora which tends to be rather species-poor because of disturbance and/or drying-out. The most conspicuous vascular plant species are usually Carnation Sedge (*Carex panicea*), Heather (*Calluna vulgaris*), Bog Cotton, Cross-leaved Heath (*Erica tetralix*), Bog Asphodel and Deerglass. Bog Rosemary (*Andromeda polifolia*) and Cranberry (*Vaccinium oxycoccos*), two species indicative of raised bog habitat, are frequent on both degraded and active areas of raised bog. *Sphagnum* cover is generally low within degraded areas due to a combination of drying-out and frequent burning.

Limestone pavement occurs along much of the shoreline in the lower Corrib basin and supports a rich and diverse flora, including Herb-robert (*Geranium robertianum*), Bloody Crane's-bill (*G. sanguineum*), Carline Thistle (*Carlina vulgaris*), Spring Gentian (*Gentiana verna*), Wild Thyme (*Thymus praecox*), Rustyback (*Ceterach officinarum*), Wood Sage (*Teucrium scorodonia*), Slender

St. John's-wort (*Hypericum pulchrum*), Quaking-grass (*Briza media*) and Blue Moor-grass (*Sesleria albicans*). Areas of Hazel (*Corylus avellana*) scrub occur in association with exposed limestone pavement and these include species such as Hawthorn (*Crataegus monogyna*), Buckthorn (*Rhamnus catharticus*), Spindle (*Euonymus europaeus*) with occasional Juniper (*Juniperus communis*). Three Red Data Book species are also found in association with limestone scrub - Alder Buckthorn (*Frangula alnus*), Shrubby Cinquefoil (*Potentilla fruticosa*) and Wood Bitter-vetch (*Vicia orobus*), the latter is also protected under the Flora (Protection) Order, 1999.

Open areas of orchid-rich calcareous grassland are also found in association with the limestone exposures. These can support a typically rich vegetation, including many orchids such as Pyramidal Orchid (*Anacamptis pyramidalis*), Common Spotted-orchid (*Dactylorhiza fuchsii*), Early-purple Orchid (*Orchis mascula*), Frog Orchid (*Coeloglossum viride*), Fragrant Orchid (*Gymnadenia conopsea*), Marsh Helleborine (*Epipactis palustris*), Greater Butterfly-orchid (*Platanthera chlorantha*) and Irish Lady's-tresses (*Spiranthes romanzoffiana*). The latter is protected under the Flora (Protection) Order, 1999.

The Hill of Doon, located in the north-western corner of the lake, is a fine example of a Sessile Oak (*Quercus petraea*) woodland. The understorey is dominated by Sessile Oak, Holly (*Ilex aquifolium*) and occasional Juniper. There are occasional Yew (*Taxus baccata*) and Ash (*Fraxinus excelsior*) and a well developed ground layer dominated by Bilberry (*Vaccinium myrtillus*), Hard Fern (*Blechnum spicant*) and Wood Rush (*Luzula sylvatica*). Woodland also occurs on some of the islands in the lake.

The lake is rated as an internationally important site for waterfowl. Counts from 1984 to 1987 revealed a mean annual peak total of 19,994 birds. In the past a maximum peak of 38,281 birds was recorded. The lake supports internationally important numbers of Pochard (average peak 8,600) and nationally important numbers of the following species: Coot (average peak 6,756), Mute Swan (average peak 176), Tufted Duck (average peak 1,317), Cormorant (average peak 110) and Greenland White-fronted Goose (average peak 83). The latter species is listed on Annex I of Birds Directive. The Coot population is the largest in the country and populations of Tufted Duck and Pochard are second only to Lough Neagh. 30-41 breeding pairs of Common Scoter occur on the lake (1995 data) as well as breeding populations of Arctic Tern and Common Tern. Other bird species of note recorded from or close to the lake recently include Hen Harrier, Whooper Swan, Golden Plover and Kingfisher. All of these species are listed on Annex I of the E.U. Birds Directive.

Otter and Irish Hare have been recorded regularly within this site. Both of these species are listed in the Red Data Book and are legally protected by the Wildlife Act 1976. Otter is also listed on Annex II of the E.U. Habitats Directive. Lough Corrib is considered one of the best sites in the country for otter, due to the sheer size of the lake and associated rivers and streams and also the generally high quality of the habitats. Atlantic Salmon (*Salmo salar*) use the lake and rivers as spawning grounds. Although this species is still fished commercially in Ireland, it is considered to be endangered or locally

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threatened elsewhere in Europe and is listed on Annex II of the E.U. Habitats Directive. Lough Corrib is also a well known fishing lake with a very good Trout (*Salmo trutta*) fishery. The lake has a population of Sea Lamprey (*Petromyzon marinus*), a scarce, though probably under-recorded species listed on Annex II of the E.U. Habitats Directive.

A population of Freshwater Pearl-mussel (*Margaritifera margaritifera*), a species listed on Annex II of the E.U. Habitats Directive, occurs within the site. White-clawed Crayfish (*Austropotamobius pallipes*), also listed on Annex II, is well distributed throughout Lough Corrib and its inflowing rivers over limestone. A summer roost of Lesser Horseshoe Bat (*Rhinolophus hipposideros*), another Annex II species, occurs within the site - approximately 100 animals were recorded here in 1999.

The main threats to the quality of this site are from water polluting activities resulting from intensification of agricultural activities on the eastern side of the lake, uncontrolled discharge of sewage which is causing localised eutrophication of the lake, and housing and boating development, which is causing the loss of native lakeshore vegetation. The raised bog habitats are susceptible to further degradation and drying out due to drainage and peat cutting and, on occasions, burning. Peat cutting threatens Addergoole Bog and already a substantial area of it has been cut away. Fishing and shooting occur in and around the lake. Introduction of exotic crayfish species or the crayfish fungal plague (*Aphanomyces astaci*) could have a serious impact on the native crayfish population. The bat roost is susceptible to disturbance or development.

Despite this ongoing interference however, Lough Corrib is one of the best examples of a large lacustrine catchment system in Ireland, with a range of habitats and species still well represented. The lake itself is internationally important for birds and is designated as a Special Protection Area.
6.10.2006

Site Name: Lough Cutra

Site Code: 000299

Lough Cutra is a large oligo/mesotrophic freshwater lake lying on limestone but with much sediment washed down from the sandstone hills above. This lake is situated about 4 km south-east of Gort, Co. Galway.

This site is a candidate SAC selected for alkaline fen, a habitat listed on Annex I of the EU Habitats Directive, and for Lesser Horseshoe Bat, a species listed on Annex II of the EU Habitats Directive. A series of connected woodlands on the western side of the lake has been included as foraging habitat for these bats.

The vegetation around the lake is diverse, with reedbeds confined to sheltered bays, marshes and fens on sandy and peaty ground and natural and planted woodlands. Shallow water communities include species such as Jointed Rush (*Juncus articulatus*), Bulbous Rush (*J. bulbosus*), Alternate Water-milfoil (*Myriophyllum*

alternifolium), Water-plantain (*Alisma plantago-aquatica*), Floating Club-rush (*Scirpus fluitans*), Lesser Water-plantain (*Baldellia ranunculoides*), Water Lobelia (*Lobelia dortmanna*) and Shoreweed (*Littorella uniflora*). Winter flooded areas support marsh vegetation with Common Spike-rush (*Eleocharis palustris*), Common Marsh-bedstraw (*Galium palustre*), Purple-loosestrife (*Lythrum salicaria*), amongst others, and with notable species such as Lesser Meadow-rue (*Thalictrum minus*), Northern Bedstraw (*Galium boreale*) and Blue-eyed-grass (*Sisyrinchium bermudiana*). On wet peaty areas fen vegetation includes Black Bog-rush (*Schoenus nigricans*), Saw Sedge (*Cladium mariscus*) and a range of associated sedges (*Carex* spp.) and fen mosses.

Included in the site is a small (c. 3 ha.) turlough, very small areas of alkaline fen and occasional fields with affinities to *Molinia* meadow. A relatively large poor fen is present in the north of the site, adjoining the lake. The mouth of the Owendalulleegh River has formed an unusual delta where a good quality old willow (*Salix cinerea*)-dominated wet woodland has developed behind vegetated sand bars.

Woodland occurs around much of the lakeshore, as well as on a number of islands in the lake. Wet woodland on peat is dominated by Willow (*Salix cinerea*) and Alder (*Alnus glutinosa*). An old record of Irish Spurge (*Euphorbia hybernica*) probably comes from drier woodland which occurs in the Lough Cutra Demesne.

These woodlands provide feeding grounds for Lesser Horseshoe Bats. Between 1999 and 2001 up to 93 bats have been recorded in hibernation at Lough Cutra Castle and it is thought likely that a summer nursery roost also occurs here.

The lake is a regionally/locally important site for waterfowl. Monthly counts between November 1995 and March 1996, as part of an intensive study on flooding in the catchment, gave the following numbers: Whooper Swan (18), Mallard (101), Teal (69), Tufted Duck (83) and Goldeneye (58). The latter also use the nearby Ballynakill Lough. The lake has a long-established breeding colony of cormorants, with 34 nests in 1996. Higher numbers (166 pairs, 1985) have been recorded in the past. Small numbers also winter on the lake. In recent years there have been no records of Greenland White-fronted Geese from the lake, although in the past flocks of 60-80 birds were regular and were considered to be birds from the Rahasane or Creganna population.

The lake is used for fishing and tourism. Precautions should be taken to ensure the lake and its surrounding area is protected from damaging operations such as application of artificial fertilisers, development close to the lakeshore, drainage and felling of woodland areas.

Lough Cutra is of conservation interest for the range of wetland habitat types it contains, particularly alkaline fen, a habitat listed on Annex I of the E.U. Habitats Directive. The presence of an internationally important colony of Lesser Horseshoe Bats, a species listed on Annex II of the Habitats Directive, and a regionally important population of Cormorants add further interest to the site.
19.2.2004

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Site Name: Lough Lurgeen Bog/Glenamaddy Turlough

Site Code: 000301

Lough Lurgeen Bog/Glenamaddy Turlough covers almost 1,200 ha and is situated east of the town of Glenamaddy. It consists of a very large turlough, over 170 ha in area, and a vast expanse of over 1,000 ha of typical intact western raised bog. A small lake occurs on top of the bog.

The Lake, Bog and Turlough are in close association. Water from the bog feeds the lake which in turn is linked to the turlough. This leads to quite a unique ecosystem which is of high conservation value.

On the bog, there are a number of interesting features, pool-hummock systems, a lake, a large fen and a number of flushes, dominated by Purple Moor-grass (*Molinia caerulea*). The lake is a traditional goose site and the turlough is now used by Greenland White-fronted Goose (74). Other birds reported for the site during 2 seasons between 1984 and 1987 (3 counts were made) are Bewick's Swan 14, Whooper Swan 8, Wigeon 472, Teal 73, Mallard 229, Shoveler 15, Pochard 20, Golden Plover 23, Lapwing 62, Snipe 20, Curlew 39, Redshank 15.

A very large turlough of high conservation value in such close proximity to a vast expanse of raised bog is quite unique. The whole ecosystem is therefore of high conservation value.
24.5.2005

Site Name: Lough Rea

Site Code: 000304

Lough Rea is a hard water lake, a habitat listed on Annex I of the EU Habitats Directive. It is situated directly south of the town of Loughrea, Co. Galway. The lake is 2.5 km at its longest axis. The underlying geology of the area is of Carboniferous limestone and water transparency is very high. The lake, which is fed by springs and by a stream, reaches a maximum depth of 15 m.

Some species of stonewort (a type of alga) characteristic of calcareous waters have been recorded in Lough Rea, including *Chara curta* and *C. contraria*. The Red Data Book species *C. tomentosa* has also been found here. Other aquatic plants present include Slender-leaved Pondweed (*Potamogeton filiformis*), Lesser Pondweed (*P. pusillus*), Fennel Pondweed (*P. pectinatus*), Spiked Water-milfoil (*Myriophyllum spicatum*), Least Bur-reed (*Sparganium minimum*), Amphibious Bistort (*Polygonum amphibium*) and the alga *Chaetomorpha incrassata*. On the sheltered western and south-eastern shores of the lake some areas of reedswamp, wet grassland and wet woodland are included in the site.

Lough Rea is of considerable ornithological interest. Internationally important numbers of Shoveler overwinter at the site (max. 467, 1995/96) and nationally important

numbers of Tufted Duck (max. 406, 1995/96) and Coot (max. 1256, 1996/97) have also been reported. A further 10 species of waterfowl reach regionally or locally important numbers. Brown Trout (*Salmo trutta*) are present in the lake.

The site is largely surrounded by intensively farmed pasture and consequently the main threat to the lake comes from agricultural run-off. The lake is also vulnerable to nutrient input from the town of Loughrea. Boating activities may have some impact on the site and may need to be monitored. An area has been planted with conifers to the east of the lake, but this does not appear to be adversely affecting the ecology of the lake.

Lough Rea is a hard water lake, a habitat listed on Annex I of the E.U. Habitats Directive. Lough Rea is also important for birds and holds internationally important numbers of Shoveler and nationally important numbers of Tufted Duck and Coot. Ten further bird species are present at levels of regional/local importance. It supports a population of Brown Trout.
16.2.1999

Site Name: Loughatorick South Bog

Site Code: 000308

About 8 km north-west of Mountshannon, straddling the Clare/Galway border, Loughatorick South Bog, named after one of the main townlands in the site, occupies the summit of Scalp Mountain, and extends down the gentle slopes to the south and to the east. Scalp is one of the southernmost, and lower of the Slieve Aughty Mountains, reaching a height of 325 m. It is predominantly of Old Red Sandstone with some Silurian beds to the east. At this elevation, the bog is an intermediate between lowland and mountain blanket bog, and can be described as a highland blanket bog.

The main vegetation is one dominated by Purple Moor-grass (*Molinia caerulea*), with a limited number of associates, chiefly Cross-leaved Heath (*Erica tetralix*), Carnation Sedge (*Carex panicea*), Deergrass (*Scirpus caespitosus*), Hare's-tail Cottongrass (*Eriophorum vaginatum*), Bog Asphodel (*Narthecium ossifragum*), Tormentil (*Potentilla erecta*), Thyme-leaved Milkwort (*Polygala serpyllifolia*), Bog Rosemary (*Andromeda polifolia*) and occasional Ling Heather (*Calluna vulgaris*). The bog mosses, *Sphagnum capillifolium* and *S. subnitens*, occur with occasional *S. tenellum*, *S. cuspidatum*, and another moss *Leucobryum glaucum*.

Purple Moor-grass is typical of the gently sloping areas. Flatter areas support a vegetation dominated by Ling Heather, Deergrass and Bog Asphodel. The summit and knolls support a heathy vegetation with more Ling Heather and other species such as Bell Heather (*Erica cinerea*), Bog Myrtle (*Myrica gale*) and Heath Rush (*Juncus squarrosus*). A variety of other communities have been documented elsewhere and develop in different hydrological conditions affecting water and mineral supply. One of the more interesting communities occurs over quaking groundwater seepage areas, and is a mosaic of Black Bog-rush (*Schoenus nigricans*) with Purple Moor-

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grass or Sharp-flowered Rush (*Juncus acutiflorus*), a variety of sedges (*Carex nigra*, *C. lepidocarpa*, *C. limosa* and *C. echinata*) and two insectivorous species, Sundew (*Drosera anglica*) and Bladderwort (*Utricularia intermedia*).

The occurrence of Bog-rosemary (*Andromeda polifolia*) is noteworthy, as its occurrence here is one of its most westerly known locations. This is a species characteristic of raised bogs in the midlands, and its presence here reflects the intermediate character of the bog.

The bog supports a population of Red Grouse. Snipe are regular in winter and may breed.

Intact, active blanket bogs, which were once characteristic of uplands in Ireland, are now rare and vulnerable, and are recognised as a habitat of international importance. Ireland has a special responsibility to conserve the best of its remaining bogs. Loughatorick South Bog is a good example of the habitat. The scarcity of suitable terrain for the development of this type of intermediate bog in Ireland means that Loughatorick South is a rare habitat. Most of the rest of the Slieve Aughty range is heavily afforested but this bog is remarkably intact.
23.3.1999

Site Name: Peterswell Turlough

Site Code: 000318

This elongated turlough, running from north to south, lies north-west of Peterswell village and a little below the Loughrea/Gort road. The surrounding land is gently rolling and drift-covered. There is a steep, wooded slope on the south-eastern edge which projects into the turlough from the south. Scattered rocks and boulders occur on the sides of the turlough, with some also on the basin floor. The Owenshee river enters from the north and sinks within the turlough, while a more permanent stream flows west and north.

The turlough is basically a dry one, without peat or marl accumulation, and so the vegetation is quite uniform: Grassland with abundant Common Sedge (*Carex nigra*), Creeping Cinquefoil (*Potentilla reptans*) and Perennial Ryegrass (*Lolium perenne*), and a range of herb species. Moisture-loving species are restricted to a pond in the south and to an area where the stream flows out onto the basin floor. Vegetation here includes Water Horsetail (*Equisetum fluviatile*) and Bottle Sedge (*Carex rostrata*).

In close association with the turlough, on the south-eastern slope, is a fine Buckthorn (*Rhamnus catharticus*) wood, with Hawthorn (*Crataegus monogyna*), Ash (*Fraxinus excelsior*) and Blackthorn (*Prunus spinosa*). On the branches of trees, there is an abundance of *Hypnum cupressiforme*, *Rhynchostegium murale* and *Leskea polycarpa*, while *Cinclidotus fontinaloides* covers those branches which receive more light. *Thamnobryum alopecurum* is abundant on the ground.

Two rare plant species, listed in the Irish Red Data Book, occur at the site. Mudwort (*Limosella aquatica*) colonises

muddy areas around the turlough, and Fen Violet (*Viola persicifolia*) is also found.

When flooded, Peterswell provides important habitat for birds. Whooper Swan, a species listed under Annex I of the European Birds Directive, visit in autumn/winter, also Wigeon, Teal and Lapwing. The undisturbed nature of the site probably renders it attractive to birds.

Threats to sites of this type include overgrazing, pollution and drainage. At present, Peterswell is used for grazing cattle but little damage is evident. The site is naturally fairly eutrophic because of the river input, but would be susceptible to pollution due to extra nutrient input.

Peterswell is of considerable ecological interest in that it is an untouched turlough high up in a catchment which has never been effectively drained (i.e. the Coole catchment). Its physical attributes make it unique: it differs from other sites in being fed mainly by a river and also by being exceedingly deep (up to 18m) when flooded. The turlough is important for waterfowl and contains two Red Data Book plant species, while the presence of woodland enhances the habitat diversity of the site.
27.1.1997

Site Name: Pollnacknockaun Wood Nature Reserve

Site Code: 000319

Pollnacknockaun Wood is situated approximately 2 km north-east of Woodford, Co. Galway. It is a large area of former oakwood with significant remnants of the original stands of Sessile Oak (*Quercus petraea*) and even larger areas of intact ground flora. The area is underlain by Old Red Sandstone, which is covered in places by drift. The soils vary from thin acidic podzols to deeper gleyed brown earths.

In the 1930s and 1940s the area was cleared of hardwoods and planted with commercial conifers - Sitka Spruce (*Picea sitchensis*) and Scot's Pine (*Pinus sylvestris*). Most of these conifers have now been removed and woodland regeneration is occurring. Invasion by Beech (*Fagus sylvaticus*) and *Rhododendron* is now a threat.

Because of the relatively fertile nature of the soil, the size and quality of the hardwood and the diversity of the ground flora is greater than in other Irish oakwoods. The dominant ground flora consists of Hard Fern (*Blechnum spicant*), Great Wood-rush (*Luzula sylvatica*), Wood-sedge (*Carex sylvatica*) and Bilberry (*Vaccinium myrtillus*). Yew (*Taxus baccata*) and Holly (*Ilex aquifolium*) are present and sometimes locally abundant in the understorey. The canopy consists of tall Sessile Oak with occasional Ash (*Fraxinus excelsior*), Downy Birch (*Betula pubescens*) and Hazel (*Corylus avellana*). Two less common shrubs, Spindle (*Euonymus europaeus*) and Guelder-rose (*Viburnum opulus*), also occur.

The site boundary has been taken to include all of the Nature Reserve plus an adjacent, similar sized area owned by Coillte. Here Scot's Pine planting in the past has allowed the ground flora to survive. Management of this

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section should follow that of the state-owned section. Also included is a tongue of woodland to the east which consists of a good stand of Oak with an understorey of Yew and Holly. A stream which passes through the Nature Reserve, is also included in the site. Rough Horsetail (*Equisetum hyemale*), a species which is rare in the west of Ireland, is found on the stream-bank. The stream feeds an area of wet Alder/Birch woodland, which supports a very diverse ground flora dominated by Remote Sedge (*Carex remota*), Royal Fern (*Osmunda regalis*) and a Buckler Fern (*Dryopteris* sp.). An adjacent area of wet grassland has Sharp-flowered Rush (*Juncus acutiflorus*), Purple Moor-grass (*Molinia caerulea*) and locally abundant Mosses (*Sphagnum* spp.).

A varied bird community, including the Jay, is present in the wood and Fallow Deer (*Dama dama*) graze part of the site.

Old Oak Woodlands are listed on Annex I of the E.U. Habitats Directive. Oakwoods are rare in Ireland and oakwoods on rich soils which are not the result of planting are even rarer. The remnants of original oakwood in Pollnaknockaun are part of what was, until 1940, one of the largest areas of natural oakwood in Ireland. Pollnaknockaun Wood represents an opportunity to recreate an oakwood with its associated fauna and a diverse ground flora. The wet woodland, stream and wet grassland add further interest to this site.

7.1.2000

Site Name: Rahasane Turlough

Site Code: 000322

Rahasane Turlough lies in gently undulating land, approximately 2km west of Craughwell, County Galway. It consists of two basins which are connected at times of flood but separated as the waters decline. The larger of these, the northern basin, takes the Dunkellin River westwards. Rahasane was formerly the natural sink of the Dunkellin River, but now an artificial channel takes some of the water further downstream. Water escapes the artificial channel to sweep around the northern basin, and again in the west, where it flows into an active swallowhole system. The main swallowholes here are constantly changing, but reach 5m in diameter and 2-3m deep. Some minor collapses are found elsewhere in the turlough, as well as a small number of more permanent pools. Mostly, the edges of the turlough rise gradually into the surrounding land, but in places, rocks mark a more sudden transition. The southern basin is an impressive feature, with high rocky sides above an undulating base, strewn with boulders. There is a low hill on the south side of the main basin, and another on the north-east, near Shanbally Castle, where smooth limestone pavement is evident. The major part of the turlough is open, flat and grassy, with occasional depressions and dry channels. The substrate consists largely of silty clay with shell fragments, reaching over 3m in thickness. Locally in the main basin, there are signs of marl, but peat is absent everywhere. Like the southern basin, the eastern end of the main (northern) basin is distinguished by the presence of large rocks scattered over the floor.

The vegetation of Rahasane is divided between dry and wet communities. Because of its large catchment, the turlough is naturally eutrophic and this, together with a lack of peat, limits the Sedges (*Carex* spp.) which are usually abundant in turlough vegetation. In places with outcropping limestone, the vegetation is predominantly dry grassland with Red Fescue (*Festuca rubra*) and Crested Dog's-tail (*Cynosurus cristatus*) among a generally calcicole community. Large areas in the drier parts of the turlough are covered by a community characterised by an abundance of Creeping Cinquefoil (*Potentilla reptans*), with Common Sedge (*Carex nigra*), Silverweed (*Potentilla anserina*) and Creeping Bent (*Agrostis stolonifera*). Where the soil is less well drained, Creeping Cinquefoil disappears from this community and the rare species, Fen Violet (*Viola persicifolia*), which is listed in The Irish Red Data Book, occurs. In these areas, the presence of Common Spike-rush (*Eleocharis palustris*) suggests that water is close to the surface.

The wet communities are all associated with the river channels and pools. Fully aquatic communities include such species as Fan-leaved Water Crowfoot (*Ranunculus circinatus*), Fennel Pondweed (*Potamogeton pectinatus*), Lesser Pondweed (*P. pusillus*), Fat Duckweed (*Lemna gibba*), Whorled Water-milfoil (*Myriophyllum verticillatum*) and Needle Spike-rush (*Eleocharis acicularis*). Semi-aquatic communities fringe the main channel of the river and colonise muddy pools in the basin. Species such as Lesser Water-parsnip (*Berula erecta*), Fool's Water-cress (*Apium nodiflorum*), River Water-dropwort (*Oenanthe fluviatilis*) and Amphibious Bistort (*Polygonum amphibium*) occur, also the rare species, Northern Yellow-cress (*Rorippa islandica*), which is listed in The Irish Red Data Book. There are also some narrow fields with Yellow Iris (*Iris pseudacorus*).

There are small areas of scrub on the southern and north-western sides of the turlough, but the area of flooded woodland is small. The scrub is made up of Buckthorn (*Rhamnus cathartica*), Ash (*Fraxinus excelsior*) and Hazel (*Corylus avellana*). The trees support a range of epiphytic mosses such as *Leskea polycarpa*, *Amblystegium riparium*, *Isopterygium elegans*, *Isotheicum myosuroides* and *Thuidium tamariscinum*.

Rahasane Turlough is renowned for its wintering wildfowl populations, but it also supports nesting waders in summer, which include Lapwing, Redshank, Snipe and Dunlin. Figures stated in the following account represent mean (and peak) counts obtained during the three seasons, 1984/85 to 1986/87. Internationally important numbers of Whooper Swan 179, Golden Plover 17680, Wigeon 7760 and Shoveler 498. The first two species, together with Bewick's Swan, below, are listed on Annex I of the European Birds Directive. Species recorded in nationally important numbers are Bewick's Swan 132, Mute Swan 125, Teal 3005, Mallard 777, Pintail 102, Pochard 356, Tufted Duck 381, Coot 1289, Lapwing 3995, Dunlin 3569 (5653), Black-tailed Godwit 170 and Curlew 1205. Small numbers of the internationally important Greenland White-fronted Goose regularly overwinter at Rahasane (average count, as above, 59), but numbers have been declining over the years.

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There is a small run of Atlantic Salmon (*Salmo salar*) through the Dunkellin River when it is flowing overground. The fish pass through the turlough but do not use it for spawning. This species is listed on Annex II of the European Habitats Directive.

The Fairy Shrimp (*Tanyastix stagnalis*, Class Crustacea) was first recorded in Ireland from the southern basin at Rahasane, though it has occurred elsewhere. It requires isolation from predators to grow to reproductive age and so cannot occur in permanent waterbodies.

The Turlough is closely grazed by cattle, sheep and horses. Grazing is a critical factor in maintaining a balance between open swards and woodland development at the edges of the turlough. Drainage is a major threat to turloughs, but the Dunkellin River has not been arterially drained. The River was straightened many years ago, where it crosses the turlough, and the artificial channel was dredged again in 1992, but this does not appear to have affected winter flooding. Some degree of artificial enrichment of the basin is occurring from the farming areas upstream, and local enrichment is associated with grazing practices. Eutrophication is among the major threats to turlough systems in general.

Rahasane Turlough is of major ecological significance as one of only two large turloughs which still function naturally. It is the most important turlough for birdlife in the country. In a relatively recent national survey, it was also rated very highly for its vegetation, and supports two rare species listed in The Irish Red Data Book. Turloughs are a rare habitat type and are given priority status under Annex I of the European Habitats Directive.
20.2.1997

Site Code: Rosroe Bog

Site Code: 000324

Rosroe Bog is situated in the north-western corner of the largest peninsula in Bertraghboy Bay, Connemara. The site overlies a bedrock of granite. It is bounded on both the northern and western sides by the waters of the bay and on the southern and eastern sides by granitic ridges rising to about 50 m above sea level. The site is characterised by gently undulating areas of blanket bog interrupted by scattered rocky ridges, often with heath, and contains two small lakes, Rosroe Lough and White Lough.

The wettest and least disturbed areas of the bog have well-developed Bog-moss (*Sphagnum*) lawns, though no natural pool systems occur. Plant species typical of blanket bogs occur in these areas, including Purple Moor-grass (*Molinia caerulea*), Black Bog-rush (*Schoenus nigricans*), White-beaked Sedge (*Rhynchospora alba*) and the mosses *Sphagnum magellanicum* and *Campylopus atrovirens*. Hummocks of the Bog-mosses *Sphagnum imbricatum* and *S. fuscum* occur occasionally. There is a fringe of cutaway bog along the seaward margin of the site.

The bog vegetation grades into dry heath, which is found mostly in the southern and western parts of the site.

Heath species present include Ling Heather (*Calluna vulgaris*), Gorse (*Ulex europaeus*), Bell Heather (*Erica cinerea*) and St. Dabeoc's Heath (*Daboecia cantabrica*). In some areas heath vegetation occurs on old cutaway bog.

A dense swamp of Common Reed (*Phragmites australis*) occurs in a wet channel near White Lough. Here is also found an assemblage of poor fen species, including Lesser Spearwort (*Ranunculus flammula*), Marsh Violet (*Viola palustris*), Bog Pimpernel (*Anagallis tenella*) and Bogbean (*Menyanthes trifoliata*).

White Lough supports several aquatic plant species, including Bog Pondweed (*Potamogeton polygonifolius*) and Pipewort (*Eriocaulon aquaticum*). Common Reed and Royal Fern (*Osmunda regalis*) occur on a small island in the lake. Rosroe Lough also has Pipewort, as well as some Water Lobelia (*Lobelia dortmanna*).

The main threats to the site are turf-cutting and over-grazing - these can cause significant damage to blanket bog and heath. Fire also poses a threat, in that it causes damage to vegetation and dessication of the peat surface.

Rosroe Bog is of considerable conservation significance, particularly for the example of lowland western blanket bog that it supports. Blanket bog is listed with priority status on Annex I of the E.U. Habitats Directive. The presence of areas of dry heath with species characteristic of the region adds further to the significance of the site.
19.10.2001

Site Name: Shankill West Bog

Site Code: 000326

Shankill West Bog is a small raised bog with unusual topography and a largely intact dome, situated about 7 km north-west of Mount Bellew Bridge, in County Galway. A large proportion of the central dome of this bog comprises good quality raised bog habitat, i.e. a wet area with a good pool-and-hummock system.

About 20 ha, or 25% of the bog surface, spanning the centre and south-of-centre, consists of large, often interconnecting, pools with a rich and healthy community of Bog Mosses (*Sphagnum* spp.), separated by low rises with Ling Heather (*Calluna vulgaris*) and abundant Bog Moss carpets. This very wet area approaches close to the southern boundary of the bog especially in its west and eastern extremities. A small flushed area, with mineral enriched water, occurs within the pool/hummock system, indicated by the presence of the moss *Aulacomnium palustre*, amongst others. An old, largely in-filled drain carries surplus water from this area.

The bog surface generally slopes to the south-east, and in the north, the peat lies over a ridge of heavy clay soil. For a bog site, this feature is unusual in terms of its topography and is probably hydrologically linked to the intact peat dome. At one point in the north, the peat overtops the ridge and grades down to a small lake. An interesting plant community, with abundant Heath Rush (*Juncus squarrosus*), Ling Heather (*Calluna vulgaris*) and

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Bog Moss (*Sphagnum* sp.), occurs in extensive cut-away bog in the north-east.

Excavation of drains and turf-cutting pose significant threats to raised bogs.

Good quality raised bog habitat with a healthy growing Bog Moss community is a rare habitat in Europe, and Ireland. Shankill West Bog retains high quality habitat, and is of particular interest because of the presence of unusual topographical features.

27.1.1997

Site Name: Slyne Head Islands

Site Code: 000328

This site comprises a long archipelago of islands, islets, rocks and reefs located off the western shores and south-western tip of the Slyne Head Peninsula in County Galway. The surrounding shallow marine areas are included as part of the site.

The islands are mostly low-lying and have a covering of a grassy maritime turf. A few sandy coves occur on the larger islands along with shingle. The island are uninhabited apart from an automated lighthouse on Illaunamid.

Slyne Head Islands contain excellent examples of reefs, a habitat listed on Annex I of the EU Habitats Directive. The reefs range from those extremely exposed to wave action to more sheltered ones and the complexity of the islands gives a good range of the different habitats present with typical communities present. The rocky shores moderately exposed to wave action have an excellent example of community zonation down the shore with an extensive zone of grey lichens followed by a zone of black lichens. Below this there is a narrow band of channel wrack *Pelvetia canaliculata* and then an extensive area of limpets and barnacles. The midshore has an extensive zone of *Fucus serratus* and in the lowshore *Fucus serratus* and *Himantalia elongata* are common. The sublittoral fringe has a mixture of *Laminaria saccharina* and *Laminaria digitata*.

Subtidally the reefs range from being very rugged to gently sloping. In shallow water kelp forests of *Laminaria hyperborea* are present but at 25 m the kelp is sparse and the brown alga *Dictyota dichotoma* is abundant. Some areas are heavily grazed by the sea urchin *Echinus esculentus*. The red alga *Drachiella spectabilis*, which is a good indicator of clear water, occurs here. Where vertical rock is present it supports a community of bryozoans and sponges, including the rare species *Plakortis simplex*. At depths of 30 m or greater excellent examples of the Axinellid cup sponge community are present, typical of reefs exposed to wave action. In this area, both the cup sponges *Axinella infundibuliformis* and *Phakellia ventralbrum* are found along with the red soft coral *Alcyonium glomeratum*, the sea fan *Eunicella verrucosa*, the rose 'coral' *Pentapora foliacea* and the sea squirt *Diazona violacea*. Rare or uncommon species found in this community include two sponges - *Phakellia vermiculata* and *Lissodendoryx* sp. - the rare sea slug

Aldisa zetlandica, the hydroid *Tamarisca tamarisca* and the brachiopod *Terebratulina retusa*. Areas of stony gravel dunes within the site support a community characterised by the burrowing sea cucumber *Neopentadactyla mixta*.

The site contains an important breeding colony of Grey Seal, a species listed on Annex II of the EU Habitats Directive. In 1983, the colony on Chapel Island was estimated at between 32 and 41 animals of all ages. This colony is part of a larger population, some of which breed on Wherune Island off the south-eastern side of the Slyne Head Peninsula.

The islands also support important colonies of breeding seabirds. In 1995, 329 pairs of Arctic Tern were recorded on Illaunamid - this was one of the largest colonies in Ireland and comprised 11.3% of the national total. Terns have also bred on Chapel Island in the past. Also of national importance is the colony of Black Guillemots, with 60 individuals counted in 1980. Other seabirds which breed include Storm Petrel (50 pairs in 1980), Manx Shearwater (70-90 pairs in 1980), Shag (6-8 pairs in 1980), Herring Gull (50 pairs in 1980) and Great Black-backed Gull (30 pairs in 1980). Of the above seabird species, Arctic Tern and Storm Petrel are listed on Annex I of the EU Birds Directive.

This site is an important example of exposed low-lying western islands with good examples of reefs, a significant grey seal population and important colonies of breeding birds.

02.09.2001

Site Name: Tully Mountain

Site Code: 000330

Tully Mountain is located on the northern side of Ballynakill Harbour, approximately 5 km north-west of Letterfrack, Co. Galway. The mountain is composed of Dalradian schists and gneisses and rises to an altitude of 355 m.

The site is important for the presence of heath habitats which are listed on Annex I of the EU Habitats Directive. The principal type is dry heath which occurs mostly in mosaic with bare vegetation, rocks and upland grassland. A form of dry heath dominated by low Ling Heather (*Calluna vulgaris*) is found on steep ground at the south-east of the site. Juniper (*Juniperus communis*) occurs sparsely throughout this area and the heath is supported by a carpet of mosses. At the north and west of the site the heath is found in mosaic with abundant Bracken (*Pteridium aquilinum*) and isolated rocks.

Alpine heath, characterised by Juniper and Bearberry (*Arctostaphylos uva-ursi*), is extensive above the 300 m contour. It occurs in mosaic with rocks and, in places, vegetation associated with wetter conditions. Other species present include Bell Heather (*Erica cinerea*), St. Dabeoc's Heath (*Dabeocia cantabrica*), Cross-leaved Heath (*Erica tetralix*) and Ling Heather. Lichens (*Cladonia* spp.) and mosses also occur.

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At the north of the site and below the mountain is wet grassland dominated by Soft Rush (*Juncus effusus*). Interspersed throughout this are patches of bog, with species such as Bladderwort (*Utricularia* spp.) and bog mosses (*Sphagnum* spp.). Above this is a small area of upland grassland dominated by Mat-grass (*Nardus stricta*).

Several wet flushes, with Sedges (*Carex* spp.), bog mosses, Bog Pimpernel (*Anagallis tenella*) and Sundew (*Drosera* spp.), occur on the site. There are also a number of upland lakes, notably Loughaun Lake which is at an altitude of approximately 290 m and supports abundant aquatic vegetation including Floating Bur-reed (*Sparganium angustifolium*). Several streams flow off the mountain side, the banks of which support Soft Rush and liverworts. Low cliffs occur at the south-west of the site.

On the slopes below 200 m over-grazing by sheep has resulted in erosion of the heath vegetation; burning of the lower slopes adds further to degradation of the site. Other activities which are impacting on the site include quarrying, peat cutting and water abstraction.

The main scientific interest of the site lies in the presence of alpine heath of the *Arctostaphylos-Juniperus* type, a habitat now rare in the west of Ireland. Despite some damage, this habitat is still generally of good quality. Both alpine and dry heath habitats are listed on Annex I of the EU Habitats Directive.
25.3.1998

Site Name: Ballymaglancy Cave, Cong

Site Code: 000474

This is a linear stream cave situated approximately 3 km west of Cong in County Mayo. It is used as a hibernating site by the Lesser Horseshoe Bat (*Rhinolophus hipposideros*), a species listed on Annex II of the EU Habitats Directive.

The cave entrance is approximately 2 m high and 3 m wide, but inside the cave widens and the first 50 m offer several possible routes that eventually converge to form one passage. Near the entrance there is a good example of Carboniferous colonial coral in the floor next to a roof collapse covered in gour pools. The stream then descends in steps and the passageway is well decorated. There are excellent curtains and other forms. This is an excellent and fairly extensive (> 500 m) example of a natural limestone cave. Caves are listed on Annex I of the EU Habitats Directive.

Lesser Horseshoe bats have been using the cave for many years - 50 bats were recorded in winter 1993/94. The numbers, however, vary with external temperature; during periods of sustained low temperatures, numbers in the cave may exceed 50 bats; when air temperature rises, numbers may drop to approximately 35 bats. As 50 bats have been recorded hibernating here, this is a site of international importance. Most of the bats hibernate within 20 m of the cave entrance. Ballymaglancy is the most suitable hibernation site for bats in the Cong district, as it offers a number of low, dry passageways near the cave entrance.

The cave is well known and regularly visited, both by locals and caving groups. This may cause some disturbance to the hibernating bats and the site would benefit from grilling. Visitors may also cause degradation of delicate cave formations.
03.09.2001

Site Name: Lough Finglal Complex

Site Code: 000606

This site is situated immediately south-east of Ballindeereen and within 2-3 km of Galway Bay. It is within the stretch of flat low-lying bare limestones known as the Ardrahan limestones, which extend from the foot of the Burren hills northwards towards Craughwell.

The site comprises a complex of habitats, the dominant being turloughs and limestone pavement, both of which are priority Annex I habitats on the EU Habitats Directive. The turloughs are oligotrophic (nutrient-poor) and calcareous in character. Their catchments areas are relatively small and water tends to remain in them for considerable periods of time. The surface waters usually occupy distinct separate basins in most years but during extreme floods these can be linked together as one large expanse of open water. Taken together these turloughs represent one of the largest expanses of oligotrophic turlough vegetation in the country.

Ballinderreen turlough occupies a flat limestone pavement basin and supports extensive areas of Black Bog-rush (*Schoenus nigricans*) and Sedge (*Carex* spp.) fen vegetation. Marl ponds occur in the lower lying parts, with Shoreweed (*Littorella uniflora*), Bulbous Rush (*Juncus bulbosus*), Many-stalked Spike-rush (*Eleocharis multicaulis*), Alternate Water-milfoil (*Myriophyllum alternifolium*) and a little Horned Pondweed (*Zannichellia palustris*) and Stonewort (*Chara hispida* var. *major*). Rare plants found at this turlough include Fen Violet (*Viola persicifolia*), a Red Data Book species, Water Germander (*Teucrium scordium*) and Marsh Fern (*Thelypteris palustris*). A smaller area to the south-east of Ballinderreen, Frenchpark turlough, contains a Black Bog-rush/Purple Moor-grass (*Molinia caerulea*) stand with patches of Saw Sedge (*Cladium mariscus*) within it. Cuidooish turlough is of linear shape with a high central section. It has level limestone pavement forming its eastern side and is aligned and lies parallel with Lough Fingall, which is effectively also a turlough. There is much Buckthorn (*Rhamnus catharticus*) scrub here and at the northern end of the main lake. Carraghadoo turlough has a shallow basin without standing water in summer and with less peat. Creeping Willow (*Salix repens*) and Common Sedge (*Carex nigra*) are the main species here. The shores of Tullaghnafrankagh Lough flood during winter and have a similar if slightly more eutrophic (nutrient-rich) vegetation. Alder Buckthorn (*Frangula alnus*), a Red Data Book species, grows on sloping limestone pavement close to the limit of winter flooding in several places.

Limestone pavement occurs throughout the site. It varies from the classic bare open pavement, with little

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vegetation, to pavement and shattered limestone blocks interspersed with calcareous grassland, heath, turlough and scrub. A rich and diverse flora occurs, with many of the typical Burren species represented - Bloody Crane's-bill (*Geranium sanguineum*), Herb-Robert (*G. robertianum*), Rustyback (*Ceterach officinarum*), Burnet Rose (*Rosa pimpinellifolia*), Wood Sage (*Teucrium scorodonia*) and the rarer species Spring Gentian (*Gentiana verna*) and Mountain Avens (*Dryas octopetala*).

Four further habitats listed on Annex I of the EU Habitats Directive occur on the site - orchid-rich calcareous grassland, *Cladium* fen, two priority habitats, juniper scrub and lowland alpine heath. Orchid species present include Fly Orchid (*Ophrys insectifera*), Lesser Butterfly-orchid (*Platanthera bifolia*), Early-purple Orchid (*Orchis mascula*) and several *Dactylorhiza* species. In the past, the scarce Dense-flowered Orchid (*Neotinea maculata*) has been recorded from the site. Lough Fingall, Cloghballymore Lough and Cahernalinsky Lough are shallow infilling lakes with stands of Saw Sedge (*Cladium mariscus*) and other fen and wetland vegetation such as Common Reed (*Phragmites australis*) and Tufted-sedge (*Carex elata*).

Juniper scrub and lowland alpine heath occur in close association with one another. The juniper scrub is dominated by Juniper (*Juniperus communis*) with Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*) and *Rosa* species. Lowland alpine heath is characterised by Bearberry (*Arctostaphylos uva-ursi*) and Mountain Avens (*Dryas octopetala*), a rare vegetation type known from a few areas in the Burren, the Lough Fingall area and the Moycullen area near Lough Corrib.

Cloghballymore House provides a summer breeding site for the Lesser Horseshoe Bat (*Rhinolophus hipposideros*), a species listed on Annex II of the EU Habitats Directive. The bats use the large roof space, although a smaller number roost in a boiler house, gaining access by means of gaps around the pipes. The surrounding mixed woods provide suitable foraging habitat within a short radius of the day roost site. In 1993 more than 200 bats were counted at this site, which makes it of international importance.

The site is of local importance for wintering waterfowl, particularly Lapwing (max. count 381 in 1995/96), and has breeding Lapwing (6 pairs 1996). Some scarce invertebrate species have been recorded from the Lough Fingall area.

The main landuse in the site is cattle grazing which is mostly of light to moderate intensity. Clearance of limestone pavement and scrub has taken place in the past and burning is a threat to the heath habitats. A drainage scheme to relieve exceptional flooding has been implemented recently. There are no immediate threats facing the bat population.

This site is of great conservation importance for the presence of six EU Habitats Directive habitats, including four priority habitats. The transitions and gradations between habitats, for example between turloughs, lakes and limestone pavement, gives rise to a range of physical conditions that favour many uncommon species. In addition, the site supports an internationally important population of Lesser Horseshoe bats.

31.8.1999

Site Name: Aughrusbeg Machair and Lake

Site Code: 001228

Aughrusbeg Machair and Lake is located about 2 km west of Cleggan, Co. Galway. It is a large coastal site with a diversity of habitats, including machair and a nutrient-poor lake. Omev granite is the main bedrock in the area.

The site is a candidate Special Area of Conservation selected for lowland oligotrophic lake, a habitat listed on Annex I of the E.U. Habitats Directive. Species recorded from the lake margins include Six-stamened Waterwort (*Elatine hexandra*), Quillwort (*Isoetes lacustris*) and Shoreweed (*Littorella uniflora*). Much of the lake has sloping granite shores, only at the western end is there a well developed sand shelf. At the edge of the sand shelf the lake bed falls steeply to 6 m. Here a community of Spiked Water Milfoil (*Myriophyllum spicatum*) and Fennel Pondweed (*Potamogeton pectinatus*) occurs. The lake bottom has a good covering of stoneworts with large stands of *Nitella translucens*, interspersed by *Nitella batrachosperma*, *Chara delicatula* var. *bulbifera*, *C. muscosa* and Small Pondweed (*Potamogeton berchtoldii*). Algal balls (*Cladophora aegagropilla*) are found in the deeper parts of the lake. The lake contains an introduced population of Roach (*Rutilus rutilus*).

An area of machair separates the lake from the sea. This species-rich grassland is dominated by Daisy (*Bellis perennis*), Red Fescue (*Festuca rubra*), Ribwort Plantain (*Plantago lanceolata*), Buck's-horn Plantain (*Plantago coronopus*) and Common Thyme (*Thymus praecox*). There are also some small flushed areas dominated by Jointed Rush (*Juncus articulatus*) with the mosses *Drepanocladus revolvens* and *Campyllum stellatum*. The machair is heavily grazed by cattle and rabbits and this has led to erosion in places.

Other habitats present within the site include coastal heath dominated by Ling Heather (*Calluna vulgaris*), exposed rock, rocky shoreline, sandy beach, shingle beach, intertidal sand flats and open marine areas.

Aughrusbeg Machair and Lake has a high level of habitat diversity within a relatively small area. The site contains an important example of a lowland oligotrophic lake, a habitat listed on Annex I of the E.U. Habitats Directive.
13.06.2003

Site Name: Carrownagappul Bog

Site Code: 001242

Carrownagappul Bog is a large raised bog situated about 3 km north of Mount Bellew, in east Co. Galway. Numerous bog roads, tracks and drains extend into the centre of the site. Peat extraction occurs frequently along the margins of the site and along the bog roads.

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Much of the bog is of high quality and a good cover of Bog Mosses (*Sphagnum* spp.) is found, in hummock, pool and wet flat areas. Bog Asphodel (*Narthecium ossifragum*) is the dominant vascular plant species over much of the site; Carnation Sedge (*Carex panicea*) and Deergrass (*Scirpus cespitosus*) are also important components of the vegetation. Sections of the bog are very wet and quaking. Pools contain *Sphagnum auriculatum* and *S. cuspidatum*, with *S. magellanicum* occurring on their margins. A large area of good quality, high hummocks and deep bog pools is found close to a track. Nearby, a small area of permanent open water with an abundance of Stoneworts is found. The site contains many different kinds of flushes, including an excellent example of a wooded swallowhole flush system. Some of the bog is quite dry or only moderately wet, in particular near to areas of turbary.

Red Grouse, a scarce and declining species in Ireland, is found on the site. Hen Harrier, a species listed on Annex I of the EU Birds Directive, visits the site on occasion, mostly in winter.

Carrowmagappul Bog contains a relatively large area of good quality active raised bog. This habitat is listed on Annex I of the EU Habitats Directive as being rare in Europe and it is one for which Ireland has a special responsibility.
16.1.1997

Site Name: Cregduff Lake

Site Code: 001251

Cregduff lake is a small coastal lake located 1 km south-west of Roundstone village, Co. Galway. The lake occupies a hollow in rocky, heath-covered, undulating terrain. The bottom of the lake is of unconsolidated muddy material and about 60% of the water surface is covered by a scraw of reedswamp vegetation. Encroachment by vegetation has progressed to such a level that there are virtually no areas of open water remaining in the northern half of the lake.

The site contains a variety of vegetation types including transition mire, a habitat listed on Annex I of the EU Habitats Directive. Close to the open water there is reedswamp vegetation dominated by Common Reed (*Phragmites australis*), Common Club-rush (*Scirpus lacustris*) and Branched Bur-reed (*Sparganium erectum*). In the northern part of the lake there is an extensive scraw system with Slender Sedge (*Carex lasiocarpa*), Bottle Sedge (*Carex rostrata*), Common Reed and Common Club-rush. Areas of open water support a variety of submerged aquatic plants, the most commonly occurring being Alternate Water-milfoil (*Myriophyllum alterniflorum*) and Various-leaved Pondweed (*Potamogeton gramineus*).

The site contains two Red Data Book plant species that are legally protected under the Flora (Protection) Order, 1999, namely Slender Naiad (*Najas flexilis*) and Slender Cottongrass (*Eriophorum gracile*). Slender Naiad, a submerged aquatic species, is a rare plant that is listed on Annex II of the EU Habitats Directive. Slender

Cottongrass occurs commonly on the site, especially in the northern half of the lake; the site holds one of the largest Irish populations of this species.

Surrounding the lake is a large area of species-rich coastal heath that is dominated by Western Gorse (*Ulex gallii*) and with species such as Bell Heather (*Erica cinerea*), Saint Dabeoc's Heath (*Daboecia cantabrica*) and Green-ribbed Sedge (*Carex binervis*) occurring commonly.

Cregduff lake is an excellent example of an infilling lake, and one that supports a great diversity of vegetation types ranging from open water communities to quaking transition mire, to species-rich freshwater marsh vegetation.

The site is of major conservation significance for the presence of habitats and species listed on Annex I and II, respectively, of the EU Habitats Directive. The population of Slender Cottongrass adds considerably to the value of the site. The surrounding area of coastal heath is a fine example of its type.
7.1.2000

Site Name: Dog's Bay

Site Code: 001257

Dog's Bay is located 3.5 km south-west of Roundstone village. The site includes a granite 'island' which is linked to the mainland by a sandy spit, a feature which is known as a tombolo. Dog's Bay curves along the west side of this tombolo, with Gorteen Bay to the east. The sands are formed of Foraminifera shells, the calcareous remains of tiny, single-celled marine animals. These Foraminifera have been swept up from deeper water into the channel between the island and the mainland, where they have accumulated to form the tombolo, which, as a result, is comprised of 90% calcium carbonate.

The site contains several habitats listed on Annex I of the EU Habitats Directive. The main habitats of interest within the site are sand dunes, sandy beaches, and calcareous grassland which show characteristics of both fixed dunes and machair. The calcareous grasslands have a typically herb-rich sward, with species such as Daisy (*Bellis perennis*), White Clover (*Trifolium repens*), Spreading Meadow-grass (*Poa subcaerulea*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Ribwort Plantain (*Plantago lanceolata*), Glaucous Sedge (*Carex flacca*), Lady's Bedstraw (*Galium verum*), Red Fescue (*Festuca rubra*) and the moss, *Brachythecium albicans*.

The other sand dune habitat at the site is more typical of embryonic shifting dunes than marram dunes. These dunes occur along both sides of the Dog's Bay promontory. Although the habitat stretches for some considerable length (up to 300m), the width of the habitat rarely exceeds 25m and there are considerable amounts of bare sand present. Common species present include sand couch (*Elymus farctus*), Marram (*Ammophila arenaria*), Sea Holly (*Eryngium maritimum*), Red Fescue, Biting Stonecrop (*Sedum acre*), Common Bird's-foot-trefoil and Sand Sedge (*Carex arenaria*). Associated with the embryonic dunes is annual drift line vegetation. This

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habitat is best developed on the shore along the south-eastern facing side of the site, although there are also small areas of the habitat along sandy shore on the Gorteen bay side. The vegetation is typically species-poor and common plants present include Prickly Saltwort (*Salsola kalli*), Frosted Orache (*Atriplex laciniata*), Sea Sandwort (*Honkenya peploides*) and Scentless Mayweed (*Matricaria maritima*).

Substantial areas of dry heath vegetation occur on the rocky headland in the south-west of the site, where the habitat forms a mosaic with rock outcrops and grassland. Prominent species in the vegetation include Ling (*Calluna vulgaris*), Autumn Gorse (*Ulex gallii*), Carnation Sedge (*Carex panicea*), Heath-grass (*Danthonia decumbens*), Devil's-bit Scabious (*Succisa pratensis*) and Bell Heather (*Erica cinerea*). Unusually the heath vegetation also contains the maritime plant species Sea Plantain (*Plantago maritima*).

The diversity of this site is added to by the presence of wetland areas, including brackish pools and a freshwater marsh.

The main threats posed to this coastal system are over-grazing by domestic livestock and rabbits and intensive visitor pressure during the summer. These activities are exacerbating the natural dune erosion, which is especially severe on the west side of the tombolo. Careful management is required to maintain the conservation interest and amenity value of the site.

Dog's Bay is an important site as it provides a fine example of a tombolo. The Foraminifera sand is also of great interest, this being one of the few beaches worldwide where Foraminifera sand is found onshore. The coastal habitats are also of conservation importance, particularly the fixed dune which is a priority habitat on Annex I of the EU Habitats Directive.
15.10.2001

Site Name: Gortnandarragh Limestone Pavement

Site Code: 001271

Gortnandarragh Limestone Pavement is located on the southern side of Lough Corrib, about 7 km south-east of Oughterard. The site consists of an exposed limestone plateau flanked with scrub. Parts of the pavement exhibit a well-developed system of clints and grykes, while other parts are shattered, with much loose rock.

The limestone pavement supports a typical flora, including Blue Moor-grass (*Sesleria albicans*), Burnet Rose (*Rosa pimpinellifolia*), Wood Sage (*Teucrium scorodonia*), Wild Thyme (*Thymus praecox*), Spring Gentian (*Gentiana verna*) and ferns (*Asplenium ruta-muraria*, *A. trichomanes* and *Ceterach officinarum*).

Hazel (*Corylus avellana*) is the dominant species of the scrub, although Ash (*Fraxinus excelsior*) and Goat Willow (*Salix caprea*) are also common. The well-developed ground flora includes Enchanter's-nightshade (*Circaea lutetiana*), Wood Sorrel (*Oxalis acetosella*), False Brome

(*Brachypodium sylvaticum*) and Broad-leaved Helleborine (*Epipactis helleborine*).

An area of cutaway bog to the east contrasts with the limestone habitats dominating the rest of the site. This is the only known station for the endemic fungus *Entoloma jennyi*.

The main landuse is extensive grazing by cattle and goats. Threats to the site include overgrazing, land reclamation and quarrying, the latter two already occurring to a small extent within the site.

Gortnandarragh is valuable as an example of limestone pavement, an internationally important habitat which is listed, with priority status, on Annex I of the EU Habitats Directive, and because the bog on the site is the type locality and only known station for *Entoloma jennyi*.
6.2.1997

Site Name: Inisheer Island

Site Code: 001275

Inisheer is the smallest of the three Aran Islands, situated approximately 10km off the west coast of County Clare. The Island is a geological extension of the Karstic Carboniferous region of the Burren. Upper Carboniferous limestone strata, interleaved with layers of shale and clay, form these exposed Islands, which rise to a maximum height of 64m on Inisheer. The land surface is divided up by a network of fissures, varying from fine to deep cliffs. The soil cover is thin with pockets of rendzina between the bare limestone. This naturally-occurring soil is combined with a mixture of sand and seaweed to form a man-made soil unique to these Islands.

The land surface is subdivided into a labyrinth of high stone walls, each one enclosing a small area of limestone pavement and its associated species rich calcareous grassland.

A variety of limestone pavement types are present at this site. These include smooth-blocky and shattered types, interspersed with a diverse range of associated plant communities. In places, the rocky grasslands support the Red Data plant species, Hairy Violet (*Viola hirta*). This species is protected under the Flora (Protection) Order, 1999. The more species-rich meadows support a plant community dominated by grasses (Gramineae), but with many flowering herbs. Species common to this habitat include Black and Greater Knapweeds (*Centaurea nigra* and *C. scabiosa*), Ox-eye Daisy (*Leucanthemum vulgare*), Harebell (*Campanula rotundifolia*), Eyebright (*Euphrasia* spp.) and orchids (Orchidaceae). In other areas, Woodsage (*Teucrium scorodonia*) and Blue Moor-grass (*Sesleria albicans*) feature, while Blackthorn (*Prunus spinosa*) and Burnet Rose (*Rosa pimpinellifolia*) are colonising some grasslands.

Dry limestone heath has developed in places, with Ling Heather (*Calluna vulgaris*), Bell Heather (*Erica cinerea*), Purple Moor-grass (*Molinia caerulea*), Black Bog-rush (*Schoenus nigricans*) and occasional patches of Juniper (*Juniperus communis*) scrub.

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Lough More, situated in the east of the island, is an excellent example of a deep (up to 23 m), oligohaline, karstic rock lagoon, a type of lagoon which is believed to be rare in Europe. The lagoon is connected to the sea through underground rock fissures with limestone cliffs along much of the shoreline. Seawater enters from a karstic tidal pool to the north-east of the lake from which diluted seawater (up to 20 ppt) runs into the lake through limestone pavement. In 1998 the main body of the lake had a uniform salinity of 5 ppt between 1 and 5 m depth with lower salinity water over parts of the surface (0-3 ppt). The benthic vegetation is extremely uniform consisting of green algae (*Enteromorpha* spp.) and dense beds of Fennel-leaved Pondweed (*Potamogeton pectinatus*). This vegetation ceases below 2-3 m. No lagoonal plant specialists were found in recent surveys. Immediately below the pondweed community a zone of hard calcareous algal nodules occurs. These nodules are 2-3 cm in diameter and have a superficial similarity to marine coralline algae. They appear to be the product of several species. Marginal vegetation includes small stands of Common Reed (*Phragmites australis*), Grey Club-rush (*Scirpus lacustris* subsp. *tabernaemontani*) and Sea Club-rush (*Scirpus maritimus*). The presence of Saltmarsh Rush (*Juncus gerardi*) is indicative of salt marsh vegetation. The fauna of the lagoon is poor despite the apparently stable and uniform conditions in the lagoon. This may be due to the "island effect" and the problems of colonisation and survival on a small offshore island. Only three species which are considered lagoonal specialists have been recorded: *Sigara concinna*, *Conopeum seurati* and *Jaera nordmanni*.

A range of coastal habitats occur on the island, including bedrock shores, shingle and sandy beaches and boulder beaches.

Traditional farming practices, in the form of Rye cultivation for thatching, has maintained suitable habitat for a number of rare arable weeds. Darnel (*Lolium temulentum*) and Smooth Brome (*Bromus racemosus*), formerly thought to be extinct in Ireland, have recently been recorded on Inisheer. Both species are listed in The Irish Red Data Book.

Several breeding pairs of Chough are present on the Island. Arctic Tern, Little Tern and Sandwich Tern also breed here in small numbers. All four species are listed on Annex I of the E.U. Birds Directive. Lough More is of value to birdlife in the area, providing habitat for Grey Heron, Mute Swan and Mallard.

Agricultural intensity is low throughout the island. The majority of the land is used as winterage for cattle, sheep and, in some places, goats. The fields located close to the houses are used for summer grazing. This traditional practice, which is coupled with the absence of fertilisers, has maintained the species richness and high diversity of the Island flora. However, increased tourism on the Island is resulting in a gradual move away from farming, in favour of more tourism-related enterprises - a move which may threaten the survival of some species-rich meadows. Many of the Islands habitats and associated wildlife are sensitive to damage resulting from certain forms of agricultural improvement and overgrazing. Removal of sand from dune areas poses a significant

threat to those habitats. Future plans to develop the Island for tourism and amenity purposes require close monitoring in this sensitive environment.

The island is of major ecological importance due to the quality and floristic richness of limestone pavement and coastal habitats present. The presence of two Rare plant species enhances the conservation value of this site, while the Island's coastline provides habitat for a number of rare bird species. Traditional farming methods practised on the Island are intrinsically linked with its high conservation value. The botanical, historical, archaeological and cultural interest of the island make this an extremely valuable site for educational and scientific purposes.
12.3.2003

Site Name: Kiltiernan Turlough

Site Code: 001285

Kiltiernan Turlough is a simple, linear depression running south-westwards from the main Galway-Limerick road. It has a flattish basin which lies approximately 2 m below road level and includes about eight further depressions which are joined in times of high water. The site includes a low ridge on the south-eastern side. Towards the west the topography becomes flatter and the basin breaks into separate hollows.

The site comprises a relatively dry turlough with a limited, though regular, flood in winter. The vegetation is predominantly of species-poor grassland dominated by White Clover (*Trifolium repens*), Silverweed (*Potentilla anserina*) and Creeping Bent (*Agrostis stolonifera*), with some areas of species-rich grassland found in the western half. Beside the road, the rocky outcrops support limestone grassland with narrow fringes of scrub along each side. The scrub is predominantly of Blackthorn (*Prunus spinosa*), but some Buckthorn (*Rhamnus catharticus*) and Alder Buckthorn (*Frangula alnus*), a rare Red Data Book species, also occur.

Grassland modified by trampling and overgrazing occurs in the main depressions. Here the main species found are Northern Bedstraw (*Galium boreale*) and Creeping Cinquefoil (*Potentilla reptans*), which grow in clumps with much Silverweed and Greater Plantain (*Plantago major*). Hollows in this vegetation contain Common Sedge (*Carex nigra*) and Amphibious Bistort (*Polygonum amphibium*). In the less intensified eastern section of the site the Red Data Book species Fen Violet (*Viola persicifolia*) occurs.

Lapwing, Pochard, Teal and Wigeon have been recorded at the site; other bird species may visit from the nearby Tullaghnafrankagh Lough.

Land use on the site comprises grazing, particularly in the eastern half, with some areas of tillage found in the west.

Kiltiernan Turlough is an example of a partly modified, relatively dry turlough, without any accumulation of peat. It includes a variety of typical dry turlough vegetation types and is notable for the presence of the rare plant species, Alder Buckthorn and Fen Violet. Turloughs are important habitats that are listed, with priority status, on

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Annex I of the E.U. Habitats Directive and, as such, are of considerable conservation significance.
30.11.2004

Site Name: Omev Island Machair

Site Code: 001309

Omev Island lies 9 km north-west of Clifden on the Connemara coast. An area of sandflats some 300m wide separates it from the mainland. Most of the northern and western sides of the island support unfenced machair and dry sandy grassland, while the remainder of the island is dominated by small agricultural holdings. The island is of archaeological interest due to the presence of a Fulacht Fia and an early Christian church and burial grounds. The main bedrock in the area is granite.

The main area of machair has an undulating surface which is severely eroded in places. The machair supports a typical flora dominated by Daisy (*Bellis perennis*) and Red Fescue (*Festuca rubra*), with White Clover (*Trifolium repens*), Buck's-horn Plantain (*Plantago coronopus*), Ribwort Plantain (*P. lanceolata*), Common Ragwort (*Senecio jacobaea*), Common Bird's-foot-trefoil (*Lotus corniculatus*) and the moss *Brachythecium albicans* occurring commonly. There are also areas dominated by Yarrow (*Achillea millefolium*), a feature rarely seen in Irish machairs. Machair is an important habitat that is listed, with priority status, on Annex I of the EU Habitats Directive. Omev Island holds one of the largest remaining areas of machair in the county. Between 15 and 20 Chough are regularly seen feeding on the machair and dry grassland.

Fahy Lough, in the central area of the island and adjacent to the machair plain, is a shallow freshwater lake. This is a good example of a hard water lake and supports a very diverse Charophyte flora (including *Chara aspera*, a dwarf form of *C. contraria*, *C. globularis*, *C. rudis* and *C. desmacantha*). In the deeper water a community of Perfoliate Pondweed (*Potamogeton perfoliatus*) and Spiked Water-milfoil (*Myriophyllum spicatum*) is found. An area of granite gravel supports Shoreweed (*Littorella uniflora*) and Alternate Water-milfoil (*Myriophyllum alterniflorum*). The lake has little fringing vegetation apart from Sand Sedge (*Carex arenaria*). Fahy Lough has a high chloride content (c. 90 mg/l) reflecting its proximity to the sea.

Other habitats on the site include sandy beaches, boulder beaches and sand dunes. The site includes some areas of Marram (*Ammophila arenaria*) dune and embryonic dune. Small areas of species-rich freshwater marsh vegetation are found at Lough Namackan, a small lake lying north of Fahy Lough. Species found here include Mare's-tail (*Hippurus vulgaris*), Jointed Rush (*Juncus articulatus*), Common Reed (*Phragmites australis*), Lesser Spearwort (*Ranunculus flammula*), Creeping Buttercup (*R. repens*), Bogbean (*Menyanthes trifoliata*), Water Mint (*Mentha aquatica*), Yellow Iris (*Iris pseudacorus*) and the moss *Calliergon cuspidatum*, amongst others.

Recently, a population of *Petalophyllum ralfsii* has been discovered on Omev Island. This maritime species of

liverwort is of high conservation importance as it is listed on Annex II of the EU Habitats Directive.

The intertidal sand flats between the island and the mainland provide good habitat for waterfowl in autumn and winter. Ringed Plover (198 individuals in 1994/95-96/97) and Sanderling (30-50 individuals) occur in nationally important numbers, while Brent Geese, Grey Plover, Dunlin and Turnstone are some of the species to be found in small numbers. Up to 400 Golden Plover may occur on the island during autumn and winter; this species is listed on Annex I of the EU Birds Directive.

The problem of widespread erosion on the machair is exacerbated by the large numbers of rabbits on the island. Overgrazing, burrowing by rabbits and increasing pressure from visitors make the machair more susceptible to erosion by wind and sea. In common with most of the machair in the county this site would benefit greatly from a reduction in grazing pressure.

The site is of considerable conservation significance, and particularly for the presence of habitats that are listed on Annex I of the EU Habitats Directive, one of which, machair, is accorded priority status, as well as for the population of *Petalophyllum ralfsii* and for the regular presence of two Annex I Birds Directive species.
7.8.2003

Site Name: Rusheenduff Lough

Site Code: 001311

Rusheenduff Lough is a small coastal lake located 3 km north-west of Tully Cross, Co. Galway. The lake is oligotrophic and corresponds to the lowland oligotrophic type listed on Annex I of the EU Habitats Directive. It is separated from the sea by a narrow shingle bar which forms part of the site. It is a shallow lake, not exceeding 3 m in depth and its bed is stony around the edges. The geology of the area is dominated by resistant gneisses.

The lake supports a range of aquatic plant species that includes several rarities. Along the shallow stony lake edge the dominant species are Pipewort (*Eriocaulon aquaticum*) and Shoreweed (*Littorella uniflora*), with some Quillwort (*Isoetes lacustris*) also found. On the north-western shore there are small areas of freshwater marsh with Purple-loosestrife (*Lythrum salicaria*), Jointed Rush (*Juncus articulatus*) and Common Marsh-bedstraw (*Galium palustre*). In the deeper waters towards the centre of the lake there are large beds of stoneworts (*Nitella* spp.) and Small Pondweed (*Potamogeton berchtoldii*). Slender Naiad (*Najas flexilis*), a species listed on Annex II of the EU Habitats Directive, is also found here. The lake is the only site in Ireland for Hydrilla (*Hydrilla verticillata*), a species with a disjunct distribution in Europe, its nearest extant sites being in north-east Germany and Poland.

The shingle beach to the north-west of the lough is included within the site both for its intrinsic habitat interest and for its importance in the maintenance of the existing hydrological conditions within the lough. Breaches of the shingle bar by the sea would lead to an alteration in the salinity of the waters of the lough and

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would threaten the survival of the rare and unusual vegetation communities there. Eutrophication of the lough waters through run-off from surrounding farmland or through the discharge of domestic sewage would also pose a threat.

Rusheenduff Lough is an important site as it comprises a good example of a lowland oligotrophic lake and supports populations of the rare plant species, Slender Naiad and Hydrilla. Both of these species are listed in the Red Data Book and are legally protected under the Flora Protection Order (1999). The presence of Pipewort in the lake is also of note; lakes in the Connemara region hold the largest European populations of this predominantly North American species.

31.5.2001

Site Name: Ross Lake and Woods

Site Code: 001312

Ross Lake and Woods is located approximately 4 km north-west of Moycullen on the west side of Lough Corrib in Co. Galway. The area is underlain by limestone.

The main habitat on the site is a medium-sized lake, Ross Lake, which has a limestone bed covered by deposits of precipitated marl and a shoreline of marl-encrusted limestone boulders. It is a good example of a hard water lake, a habitat listed on Annex I of the EU Habitats Directive, and supports beds of stoneworts, including *Chara globularis* var. *virgata*, *C. pedunculata* and *C. curta*. The last two species in particular are characteristic of marl lakes. The open water also supports Yellow Water-lily (*Nuphar lutea*) and Broad-leaved Pondweed (*Potamogeton natans*).

Most of the shoreline is fringed by wetland vegetation of reedswamp, freshwater marsh, fen, wet woodland and wet grassland. Reedswamp vegetation is dominated by Common Reed (*Phragmites australis*) and Common Club-rush (*Scirpus lacustris*), with Great Fen-sedge (*Cladium mariscus*) also occurring. The rocky limestone shore mostly supports fen-type vegetation characterised by Black Bog-rush (*Schoenus nigricans*). This grades into areas of wet grassland dominated by Purple Moor-grass (*Molinia caerulea*) and species-rich marsh, characterised by species such as Slender Sedge (*Carex lasiocarpa*), Marsh Pennywort (*Hydrocotyle vulgaris*) and Water Mint (*Mentha aquatica*). Also found around the lake edge is well-developed wet woodland, with Alder (*Alnus glutinosa*) and Willows (*Salix* spp.) occurring commonly, accompanied by Spindle (*Euonymus europaeus*), Buckthorn (*Rhamnus catharticus*), Guelder-rose (*Viburnum opulus*) and Bog-myrtle (*Myrica gale*).

A small lake, Lough Parkyflaherty, is separated from the main lake by an overgrown railway embankment.

The site contains a large block of coniferous plantation, consisting largely of Spruce (*Picea*) and Larch (*Larix*) species, on the site of a former mixed-deciduous woodland, Annagh Wood. There are also areas of broadleaved woodland and scrub, dominated variously by

Beech (*Fagus sylvatica*), Ash (*Fraxinus excelsior*) or Hazel (*Corylus avellana*).

A breeding colony (not less than 155 individuals counted in 1994) of Lesser Horseshoe Bat (*Rhinolophus hipposideros*) occurs in an outbuilding beside Ross House. This species is threatened within the EU and consequently listed on Annex II of the EU Habitats Directive; the population at the site is rated as of international importance. The woodlands and lakeside vegetation on the site provide foraging habitat within a small radius of the roost site; the woodlands are very important to this species, which does not fly across open areas, by providing shelter to reach foraging habitats and seasonal roosts.

The presence on the site of Otter, a species also listed on Annex II of the EU Habitats Directive, and of a small colony of Common Gull (10 individuals breeding in 1992) is notable.

The main landuses within the site are angling, commercial forestry, and grazing of the woodlands and wetland areas.

The site is of importance because it contains a good example of a hard water lake, a habitat listed on Annex I of the EU Habitats Directive, and for an internationally important population of Lesser Horseshoe Bat, a species listed on Annex II of this directive. The occurrence of Otter and breeding Common Gull is also of note.
5.2.1999

Site Name: Rosturra Wood

Site Code: 001313

The site comprises part of what was formerly a large stand of Sessile Oak (*Quercus petraea*) woodland. It is situated about 3 km east of Woodford, Co. Galway and consists of two separate areas. In the 1930s and 1940s much of the wood was cleared and planted with coniferous species. However, the wood retains significant remnants of the original stands of Oak and its associated ground flora. The wood is situated on rich loamy soils and consequently the size and quality of the hardwood and the diversity of the ground flora is greater than in most Irish Oak woods.

The rare and legally protected (Flora Protection Order, 1987), Narrow-leaved Helleborine (*Cephalanthera longifolia*) occurs in both sections of the wood. The dominant ground flora consists of Hard Fern (*Blechnum spicant*), Great Wood-rush (*Luzula sylvatica*), Wood Sedge (*Carex sylvatica*) and Bilberry (*Vaccinium myrtillus*). Yew (*Taxus baccata*) and Holly (*Ilex aquifolium*) are present and sometimes locally abundant in the understorey. The canopy consists of large trees of Sessile Oak, with occasional Ash (*Fraxinus excelsior*), Downy Birch (*Betula pubescens*) and Hazel (*Corylus avellana*). Almost half of the site has been designated as a Statutory Nature Reserve.

Oakwoods are rare in Ireland and those found on rich soils which are not the result of planting are even rarer. The remnants of original Oak wood at Rosturra Wood (and at

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the neighbouring Derrycrag Wood and Pollnaknockaun Wood) are part of what was, until 1940, the largest area of natural Oak wood in the country. Oak and Yew woodland such as that found at Rosturra Wood are rare habitats of considerable conservation significance and are listed on Annex I of the EU Habitats Directive.
16.1.1997

Site Name: Termon Lough

Site Code: 001321

Termon Lough 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 reedswamp underlain by marl deposits. Termon Lough is a particularly wet turlough that seldom dries out.

The central part of the turlough supports Great Fen-sedge (*Cladium mariscus*), Common Club-rush (*Scirpus lacustris*), Common Reed (*Phragmites australis*) and Tufted-sedge (*Carex elata*) growing in a dense bed. Around the edges, this swamp vegetation gives way to vegetation where Amphibious Bistort (*Polygonum amphibium*) becomes common. This marginal vegetation contains abundant Various-leaved Pondweed (*Potamogeton gramineus*), with Bulbous Rush (*Juncus bulbosus*) and Many-stalked Spike-rush (*Eleocharis multicaulis*), and grades landwards into tufts of Small-fruited Yellow-sedge (*Carex serotina*) and Purple Moor-grass (*Molinia caerulea*). At the western end there are slightly richer conditions and Lesser Marshwort (*Apium inundatum*), Common Spike-rush (*Eleocharis palustris*) and Unbranched Bur-reed (*Sparganium emersum*) occur. The edges of the basin elsewhere support a narrow band of relatively dry fen.

The birdlife at the site is little known at present, but does include Lapwing, Snipe, Coot and Mallard.

Termon Lough is an unusual turlough by virtue of its extreme wetness. It contains one of the largest stands of reedswamp 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.
16.1.1997

Site Name: Lough Carra/Mask Complex

Site Code: 001774

This site is dominated by two large lakes, Lough Mask and Lough Carra, and includes the smaller Cloon Lough. On the western side, the site is overlooked by the Partry Mountains, while to the east the landscape is largely low-lying agricultural land. The nearest large town is Ballinrobe which is about 4 km east of Lough Mask. The general geological character of the area is Carboniferous

limestones, with some shales and sandstones on the western side of Lough Mask.

The underlying geology results in a great diversity of habitats, which support many scarce and rare plants and animals. The site is selected for seven habitats which are listed on Annex I of the EU Habitats Directive, including four which are priority habitats - limestone pavement, orchid-rich calcareous grassland, alluvial woodland and *Cladium* fen. It is also selected for three species that are listed on Annex II of the EU Habitats Directive, i.e. Lesser Horseshoe Bat, Otter and Shining Sickle-moss.

Lough Mask, at over 8,000 ha, is the sixth largest lake in the country and with a maximum depth of 58 m it is one of the deepest. It is an excellent example of a lowland oligotrophic lake. Aquatic and wetland plant species present which are characteristic of this habitat include several Pondweed (*Potamogeton*) species, Water Lobelia (*Lobelia dortmanna*) and Shoreweed (*Littorella uniflora*). The eastern part of the lake is shallow and is edged by a lowlying shoreline which is subject to winter flooding. An intricate mixture of plant communities has developed on the limestone, with bare pavement, scrub-dominated pavement, dry grassland and heath. A variety of wetland habitats are also present, along with significant amounts of deciduous woodland along the eastern and southern shores. The western shoreline is less diverse and lacks the limestone communities. However, the fast-flowing Owenbrin River has created at its mouth an interesting delta of coarse sandy sediment.

Lough Carra, which is hydrologically linked to Mask, is one of the best examples in Ireland of a hard water marl lake. It is a shallow (mostly less than 2 m) predominantly spring fed lake with only a few streams flowing into it. Its well known pellucid green colour is due to calcareous encrustations. It has well developed stonewort communities in the submerged zones, with *Chara curta*, *C. desmacantha*, *C. rudis* and *C. contraria* recorded. Lough Carra, like the eastern and southern shores of Mask, is fringed by a diverse complex of limestone and wetland habitats.

The limestone pavement within this site represents the northern limit of the limestones of Clare and Galway. The limestone is variable in character, from open bare pavement to areas covered with dense scrub. Associated with the pavement are areas of dry calcareous grassland and dry heath. Characteristic species present include Bloody Crane's-bill (*Geranium sanguineum*), Yellow-wort (*Blackstonia perfoliata*), Carline Thistle (*Carlina vulgaris*), Blue Fleabane (*Erigeron acer*), Wild Madder (*Rubia peregrina*), Rustyback (*Ceterach officinarum*) and Quaking-grass (*Briza media*). Several plant species, notably Spring Gentian (*Gentiana verna*) and Dense-flowered Orchid (*Neotinea maculata*), occur at the northern limit of their distribution. The area is also noted for its diversity of orchid species. Scrub vegetation is variable in character, with extensive areas dominated by Hazel (*Corylus avellana*) and Hawthorn (*Crataegus monogyna*), with Buckthorn (*Rhamnus catharticus*), Alder Buckthorn (*Frangula alnus*), Spindle (*Euonymus europaeus*) and Ash (*Fraxinus excelsior*). The dry heath is well developed in places and is characterised by Gorse (*Ulex europaeus*), Bell Heather (*Erica cinerea*), Heather (*Calluna vulgaris*) and St. Dabeoc's Heath (*Dabeocia*

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cantabrica). The diminutive orchid Lesser Twayblade (*Listera cordata*) occurs within the heath communities.

A wide range of wetland habitats occur around Lough Carra and along parts of the eastern and southern shores of Lough Mask, including *Cladium* fen and alkaline fen, both listed as Annex I habitats on the EU Habitats Directive. The *Cladium* occurs as pure stands in places but also intermixed with Black Bog-rush (*Schoenus nigricans*), Common Club-rush (*Scirpus lacustris*), Common Reed (*Phragmites australis*) and a number of sedge species (*Carex* spp.). The alkaline fens are more extensive than the *Cladium* fens and here Black Bog-rush is a dominant species. A rich diversity of flowering plant occurs in the fen communities. In addition to the fen habitats, there are sparse but widespread reed swamps, wet grassland and some freshwater marsh communities around the lake shores.

Broad-leaved deciduous woodland occurs fairly frequently around much of the shores of the lakes and on some of the islands. This is often scrub-type woodland, which may be either dry and dominated by Hazel, Hawthorn and Ash, or wet and dominated by Birch (*Betula* spp.), Willow (*Salix* spp.) and Alder (*Alnus glutinosa*). The wet areas of woodland flood seasonally and represent alluvial woodland, a habitat that is listed with priority status on Annex I of the EU Habitats Directive. These are particularly well developed in the Ballykine and Clonbur areas of Lough Mask. In places the woodland is more developed and includes Sessile Oak (*Quercus petraea*), Holly (*Ilex aquifolium*) and Rowan (*Sorbus aucuparia*).

A high concentration of rare plants are found at this site. Five species protected under the Flora Protection Order (1987) occur: Irish St. John's-wort (*Hypericum canadense*), Chives (*Allium schoenoprasum*), Pillwort (*Ptilularia globulifera*), Irish Lady's-tresses (*Spiranthes romanzoffiana*), and Small Cudweed (*Logfia minima*). Two other Red Data Book plants, Alder Buckthorn (*Frangula alnus*) and Bird's-nest Orchid (*Neottia nidus-avis*), also occur, along with two Red Data Book Stonewort species - *Chara curta* and *Chara rudis*.

A large loft in the stable block of Curramore House provides a summer breeding site of the Lesser Horseshoe Bat (*Rhinolophus hipposideros*), a species listed on Annex II of the EU Habitats Directive. The bats gain access to the loft through windows that extend from the ground floor to the loft area. The building is surrounded by mixed woods and is close to the shores of Lough Mask; both of these habitats provide ideal foraging habitat for the bats. In 1993 more than 100 bats were counted at this site, which makes it of international importance. A second internationally important summer roost of Lesser Horseshoe Bats occurs within the site at Ballykyne, near Clonbur. Over 150 bats have been counted at this site in recent years.

The site provide excellent habitat for Otter (*Lutra lutra*), also an Annex II species on the Habitats Directive, and the area has Pine Marten (*Martes martes*), a species listed in the Irish Red Data Book.

The site has important bird interests, both in winter and summer. It provides feeding areas for part of the Erriff/Derrycraff population of Greenland White-fronted

Geese. This flock has declined somewhat in recent years but is still of national importance, with an average spring peak from 1989-94 of 124 birds. The following count figures are the averages from surveys in January 1995 and January 1996: Wigeon 167; Mallard 397; Shoveler 57; Pochard 91; Tufted Duck 757; Goldeneye 158; Lapwing 233; Curlew 118. Also, 68 Whooper Swan and 25 Gadwall were recorded in January 1996. The Shoveler, Tufted Duck and Goldeneye populations are of national importance. Both lakes are traditional sites for breeding gulls and terns. In 1995, 44 pairs of Common Tern nested at Lough Mask, while in 1992 a census of gulls at both lakes resulted in the following: Black-headed Gull 1,451 pairs, Common Gull 407 pairs and Lesser Black-backed Gull 361 pairs. The Common Gull colony represents 11.3% of the national total, and the Lesser Black-backed Gull colony is 6.9% of the total.

The deep waters of Lough Mask are home to a population of the glacial relict Arctic Char (*Salvelinus alpinus*), and a rare shrimp (*Niphargus* spp.) is also found in these waters. Lough Mask is a very important Brown Trout fishery. White-clawed Crayfish (*Austropotamobius pallipes*), a species listed on Annex II of the Habitats Directive, has been recorded from Lough Carra.

This site is of considerable conservation importance as it has good examples of seven habitats listed on Annex I of the EU Habitats Directive: lowland oligotrophic lakes, hard water lakes, limestone pavement, orchid-rich calcareous grassland, alluvial woodland, dry heath and *Cladium* fen. Some of these habitats are amongst the best examples of their kind in the country. It is also selected for two Annex II mammal species and an Annex II moss. The site is of ornithological importance for both wintering and breeding birds, with three Annex I Bird Directive species occurring regularly. A relatively large number of other nationally rare or localised plant and animal species occur, including the glacial relict Arctic Char.

25.1.2008

Site Name: Sonnagh Bog

Site Code: 001913

Sonnagh Bog is located at the northern end of the Slieve Aughty Mountains, approximately 8 km south-west of Lough Rea. The site ranges in altitude from 198 m to 317 m. The topography of the site is of a narrow plateau and valleys, one of which is occupied by Lough Belsrah.

The slopes of Sonnagh Bog are dominated by tracts of Purple Moor-grass (*Molinia caerulea*) which cover a carpet of bog mosses (*Sphagnum* spp.). Distinct flat areas occur on the lower slopes, which are devoid of Purple Moor-grass and dominated by Bog Asphodel (*Narthecium ossifragum*). A further area devoid of Purple Moor-grass occurs on a wet plateau above 300 m. This area is slightly quaking and supports bog mosses and is similarly dominated by Bog Asphodel, with Deergass (*Scirpus cespitosus*) and Heather (*Calluna vulgaris*) also occurring. Mats of algae and hummocks composed of *Sphagnum capillifolium* and *S. fuscum* are also found in this area.

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The southern end of Lough Belsrah supports poor fen vegetation, dominated by mosses such as *Sphagnum recurvum*, *S. palustre*, *Aulacomnium palustre*, and vascular plants, including Cranberry (*Vaccinium oxycoccos*), Mud Sedge (*Carex limosa*) and Common Cottongrass (*Eriophorum angustifolium*). At other flushes within the site, Marsh Violet (*Viola palustris*), Black Bog-rush (*Schoenus nigricans*), Lesser Clubmoss (*Selaginella selaginoides*) and Sedges (*Carex lepidocarpa*, *C. echinata*, *C. panicea*) occur.

The aquatic and emergent vegetation of Lough Belsrah includes Alternate Water-milfoil (*Myriophyllum alterniflorum*), White Water-lily (*Nymphaea alba*), Common Club-rush (*Scirpus lacustris*) and Water Horsetail (*Equisetum fluviatile*).

Red Grouse have been reported from the site. Snipe are regular winter visitors and may also breed.

Sonnagh Bog is important as a good example of an intact, lightly grazed, highland blanket bog. Blanket Bog is a rare, increasingly threatened habitat that is listed on Annex I of the EU Habitats Directive.

17.1.1997

Site Name: East Burren Complex

Site Code: 001926

This large 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 limestone pavement includes smooth blocky and shattered types. The bare pavement is interspersed with species-rich calcareous vegetation communities. Typical grassland species found include Blue Moor-Grass (*Sesleria albicans*), Mountain Everlasting (*Antennaria dioica*), Bloody Cranesbill (*Geranium sanguineum*) and Wild Thyme (*Thymus praecox*). Limestone Heath is well developed in part of the uplands where Heather (*Calluna vulgaris*) and Bell Heather (*Erica cinerea*) are common along with St. John's-wort (*Hypericum* spp.) and Tormentil (*Potentilla erecta*). Two rare plant species which are common to this habitat include the Hoary Rock-rose (*Helianthemum canum*) and Pyramidal Bugle (*Ajuga pyramidalis*): both species are listed in the Red Data Book. To the south-east around the western shores of Lough Bunny an interesting heath community with Bearberry (*Arctostaphylos uva-ursi*) occurs at one of its few inland lowland locations in the Burren.

Caves are a feature of this site, with four known natural limestone caves showing a variety of formations and passage types. Vigo Cave has one of the best undisturbed cave entrance facies in Ireland and is considered a valuable karst heritage landform. Glencurrane Cave

shows some fine phreatic solution features and one passageway, known as "Crinoid Tower" shows an abundance of crinoids which have been etched out by splashing water. Gortlecka Cave and a series of small caves above Lough Inchiquin are other fine examples of this habitat.

Ballyeighter Loughs complex to the east is a large network of calcareous lakes and turloughs with associated fen, cut-away bog and calcareous marsh habitats. The complex contains many species of plant and animal that are found in areas of fluctuating water levels. The fen flora is well developed and large areas of Great Fen-sedge (*Cladium mariscus*) and Black Bog-rush (*Schoenus nigricans*), with a diverse complement of associated species occur. Some of the best and most extensive calcareous swamp fen communities in the country occur within this complex and further north-east around the shores of Lough Bunny. Between this lake and the Coole-Garryland turlough complex to the north east of the site, another area of oligotrophic limestone wetlands occurs. This type of ecosystem is now very rare in Europe and many of the habitats found are listed on Annex I of the EU Habitats Directive.

Many fine examples of turloughs occur within the site; Carran Turlough is an oligotrophic turlough *par excellence* with many interesting features in its flora and vegetation. It is rated as of international importance. Lough Atedaun is a good example of Burren wetland habitat. The aquatic plant communities are well developed and the rare, Red Data Book species, Mudwort (*Limosella aquatica*), occurs here.

Scrub cover is relatively good in this area of the Burren with large expanses of Hazel (*Corylus avellana*) intermixed with Spindle (*Euonymus europaeus*), Guelder Rose (*Viburnum opulus*) and Blackthorn (*Prunus spinosa*). An interesting scrub community of Alder Buckthorn (*Frangula alnus*), a Red Data Book species, Buckthorn (*Rhamnus catharticus*) and Shrubby Cinquefoil (*Potentilla fruticosa*), also a Red Data Book species, fringes the shores of some of the lakes and turloughs to the east.

Ballyeighter Wood to the east is an unusual scrub community on limestone with regenerating Oak (*Quercus* sp.) amongst Hazel (*Corylus avellana*), Ash (*Fraxinus excelsior*), Holly (*Ilex aquifolium*) and Hawthorn (*Crataegus monogyna*) and is an example of a woodland type that is rare in the Burren region. The eastern edge of Slieve Carran is dominated by steep cliffs and scree slopes over which Ash and Hazel wood is developed. This represents one of the few remaining woodland habitats in the Burren.

The East Burren Complex includes sites for many rare vascular plants and bryophytes (mosses and liverworts) and for several rare lichens and stoneworts.

In the east Burren wetlands Mute Swan and Whooper Swan occur in internationally important concentrations, while Wigeon, Lapwing, Dunlin, Black-tailed Godwit and Goldeneye are also very numerous. Also found in wetlands on the site (e.g. Lough Atedaun, Carran Turlough, Lough Aleenaun, Lough Inchiquin, Lough Bunny, Lough Cullaun, Muckanagh Lough) are Bewick's Swan, Teal, Mallard, Gadwall, Shoveler, Tufted Duck,

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Curlw, Golden Plover, Coot and Little Grebe. The site also supports a flock of Greenland White-fronted Geese. Several of these species are listed in the Red Data Book and on Annex I of the EU Birds Directive.

A nesting pair of Peregrine Falcon, a species listed on Annex I of the EU Birds Directive, occur on Glasgeivnagh Hill. The east Burren wetlands are frequented by Sparrowhawk, Kestrel and Hen Harrier, a rare species which is also listed on Annex I of the EU Birds Directive. Pine Marten and Otter have been recorded regularly within the site - both are listed in the Red Data Book as they are considered threatened in Europe, the latter also on Annex II of the EU Habitats Directive.

The site supports an internationally important population of Lesser Horseshoe Bats, with an estimated 400 individuals. There are two known nursery roosts, a transition roost and four known winter sites, the latter all in natural limestone caves. Pipistrelle and Long-eared Bats also occur. All of these species are listed in the Red Data Book, the former also on Annex II of the EU Habitats Directive. The Lesser Horseshoe Bat is a small, delicate bat which is confined to six western counties, Mayo, Galway, Clare, Limerick, Kerry and Cork. It forages close to woodland and at the edges of water. The Irish population of this species is estimated to be about 12,000 individuals and may be the largest national population in Europe. The Pipistrelle Bat is the smallest bat to occur in Ireland and is the commonest and most widespread species. Pipistrelle Bats forage where small insects gather, in gardens, along hedgerows and trees, over ponds and along rivers. The Long-eared Bat is the second commonest bat in Ireland and is easily identified by its long ears which are nearly as long as its body. The Long-eared Bat forages in and along woodland where they glean insects off foliage. Since the bats moved into their present location, the roof has been replaced and timbers treated, but this does not seem to have disturbed the nursery colony. The surrounding habitat is ideal for the Lesser Horseshoe Bat's foraging habitat, being a mixture of lake, river, woodland and hedgerows. A number of small caves in the surrounding countryside raises the possibility of a nearby hibernation site. The bat colony is of international importance because of the numbers of Lesser Horseshoe Bats roosting there during the summer months and because of the close proximity of suitable foraging areas and potential hibernation sites.

The site includes a large population of Marsh Fritillary, a species of butterfly listed on Annex II of the EU Habitats Directive. The site also supports the only known populations of Slow Worm (*Anguis fragilis*) in Ireland - this lizard is believed to have been introduced in about 1970. Arctic Char (*Salvelinus alpinus*), a Red Data Book fish species has been recorded from Lough Inchiquin.

Most of the site is grazed by cattle and sheep, and in some areas, particularly the uplands, by goats. Slieve Carran is a Statutory Nature Reserve, while some 750 square km within the region of Mullaghmore makes up the Burren National Park.

Clearance and intensification of agriculture has caused damage to some parts of the site. This threatens the heath and scrub communities and may cause eutrophication (nutrient enrichment) of the lakelands to

the east. Drainage and land reclamation have occurred in places around the edges of wetlands, while some marginal fen areas have been afforested. Areas of agriculturally-improved land have been included within the site in order to protect the hydrology and nutrient status of the wetland system.

The East Burren Complex is of international scientific interest owing to the presence of fine examples of typical Burren habitats together with an oligotrophic wetland complex of lakes, turloughs, fen, cut-over bog and calcareous marsh. The Ballyeigher complex represents an excellent example of a nutrient-poor calcareous lake and fen system, of European significance. The only remaining woodland habitats to be found in the Burren occur within the site. The site contains twelve habitats that are listed on Annex I of the EU Habitats Directive and three 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.

03.09.2001

Site Name: Maumturk Mountains

Site Code: 002008

The Maumturk Mountains are situated east of The Twelve Bens and west of the Maumtrasnas, between the Inagh Valley and the Leenaun/Maam road. The site is bounded to the north by Killary Harbour and to the south by the Galway/ Clifden road. Most of the mountains exceed 600 m in height and about half of the land within the site lies above an altitude of 250 m. In addition many rivers criss-cross the site.

The main bedrock is quartzite in the south, which forms impressive cliffs but little mineral soil, and shales and slates in the northern area, which weather more easily. Bands of metamorphosed limestone (Lakes Marble Formation) occur at Lissoughter, Maumeen Gap at Knocknagur and Maamturkmore.

The site is a candidate SAC selected for blanket bog, a priority habitat on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for lowland oligotrophic lakes, alpine heath, siliceous rocky vegetation and Rhynchosporion, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Slender Naiad and Atlantic Salmon.

Wet heath is widespread within the site on the margins of areas of blanket bog and on the lower slopes of mountains where peat depth is less than about 1 metre. The vegetation is typically dominated by Purple Moor-grass (*Molinia caerulea*), with Cross-leaved Heath (*Erica tetralix*) and Heather (*Calluna vulgaris*) locally subdominant. Other frequent species include Tormentil (*Potentilla erecta*), Heath Milkwort (*Polygala serpyllifolia*), Many-stalked Spike-rush (*Eleocharis multicaulis*), Bog Asphodel (*Narthecium ossifragum*) and the sedges *Carex echinata* and *C. panicea*. On drier, more steep slopes, dry

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heath is present with Bell Heather (*Erica cinerea*) a typical species. Overgrazing by sheep has greatly modified the structure and composition of the heath communities, with a reduction in Heather cover and in places the initiation of soil erosion.

Blanket bog also occurs within this site, some of which is intact and of good quality, with a particularly good example at Caher. Typical bog species are found, including Heather, Purple Moor-grass, Black Bog-rush (*Schoenus nigricans*), Bog Asphodel, Cross-leaved Heath, Bog Cotton (*Eriophorum angustifolium*), Carnation Sedge (*Carex panicea*), the moss *Racomitrium lanuginosum* and locally frequent hummocks of the bog mosses *Sphagnum fuscum* and *S. imbricatum*. In addition, the lichen flora is locally luxuriant and includes the rare *Cladonia rangiferina*. Flushes occur in some areas of the bog, such as on the south slope of Knocknagur. Here, species such as Pondweed (*Potamogeton polygonifolius*), Bulbous Rush (*Juncus bulbosus*), Jointed Rush (*Juncus articulatus*), Spike Rush (*Eleocharis multicaulis*) and various sedges (*Carex panicea*, *C. demissa*, *C. hostiana*) are found. At this location, the scarce Brown Beak-sedge (*Rhynchospora fusca*) is common in the surrounding bog.

Rhynchosporion vegetation is associated with the blanket bog in a few areas of the site. It is characterised by well developed inter-connecting pool systems with quaking carpets of *Sphagnum*. The pool areas are typically dominated by *Sphagnum cuspidatum* and *S. auriculatum*, with Bog Cotton, Bogbean (*Menyanthes trifoliata*), and Sundews (*Drosera anglica* and *D. intermedia*). The quaking flat areas are dominated by White-beaked Sedge (*Rhynchospora alba*), Bog Asphodel and Bog Cotton.

Oligotrophic lakes are well represented in this site, occurring mainly to the south-eastern sector of site near Maam Cross. The principal lakes are Lough Shindilla, Loughanillaun, Lough Nambrackboy, Lough Shannagrena, Maumwee Lough and Lehanagh Lough. Most of these are small to medium sized systems and are of good quality. Typical oligotrophic aquatic species occur, including Quillwort (*Isoetes lacustris*), Pipewort (*Eriocaulon aquaticum*), Water Lobelia (*Lobelia dortmanna*), Shoreweed (*Littorella uniflora*) and Water Milfoil (*Myriophyllum alterniflorum*). Spawning salmon and trout occur in at least Maumwee Lough.

Other habitats present include lowland blanket bog, siliceous quartzite scree, exposed rock, upland grassland on peaty and mineral substrates, river valleys and streams, lakes, and woodland on lake islands.

In areas where base-rich rocks occur at altitude, e.g. Maumeen Gap and Lissoughter, scarce plant species such as Mountain Avens (*Dryas octopetala*) and Alpine Meadow-rue (*Thalictrum alpinum*) and the Red Data Book species, Purple Saxifrage (*Saxifraga oppositifolia*), are found. The site supports a range of other scarce arctic-alpine/mountain plants, including Green Spleenwort (*Asplenium viride*), Brittle Bladder-fern (*Cystopteris fragilis*), Holly Fern (*Polystichum lonchitis*), Beech Fern (*Phegopteris connectilis*), Starry Saxifrage (*Saxifraga stellaris*), Roseroot (*Rhodiola rosea*), Cowberry (*Vaccinium vitis-idaea*), Mountain Sorrel (*Oxyria digyna*), Dwarf Willow (*Salix herbacea*), Lesser Twayblade (*Listera*

cordata), Stiff Sedge (*Carex bigelowii*) and Juniper (*Juniperus communis*).

Several other Red Data Book plant species are also found on the site: Slender Cottongrass (*Eriophorum gracile*) and Slender Naiad (*Najas flexilis*) occur in single locations. There is an old record from near Maam Cross for Wood Bitter-vetch (*Vicia orobus*), but this has not been seen on the site in recent years. All of these species are legally protected (Flora Protection Order, 1999) and Slender Naiad is also listed on Annex II of the EU Habitats Directive. The threatened, Marsh Clubmoss (*Lycopodiella inundata*) also occurs within the site.

The site is very important for salmon, a species listed on Annex II of the EU Habitats Directive. The rivers and lakes, and especially the Bealnabrack system, provide high quality spawning and nursery rivers.

Arctic Charr has been recorded in Derryneen Lough and Lough Shindilla. However, only in Lough Shindilla are there recent records for this species. This fish species is listed in the Irish Red Data Book as being threatened in Ireland. The Irish Hare has been recorded from the site and is probably widespread; this endemic subspecies is also listed in the Red Data Book as being threatened. Common Frog, also a Red Data Book species, breeds on the site. Birdlife on the site includes Dipper, Heron, Kestrel, Meadow Pipit, Raven, Snipe, Stonechat, Wheatear and Woodcock. Peregrine, a species listed on Annex I of the E.U. Birds Directive, occurs within the site.

The main damaging activities and threats to the Maumturk Mountains are overgrazing, peat-cutting and afforestation. Grazing, in particular by sheep, is widespread and quite severe within the site. This has resulted in the erosion of both lowland and mountain blanket bog and in the modification and destruction of heath communities, particularly in the southern half of the site. Peat-cutting, both by hand and by machine, has become more of a problem in recent years but is largely confined to areas of deep, lowland blanket bog. The above activities are the most extensive but other threats and potentially damaging activities include land drainage and reclamation, fertilization, quarrying and dumping.

This site is of interest as it is a good example of an extensive mountain landscape, containing blanket bog, large areas of heath, siliceous rocky vegetation, oligotrophic lakes and upland grassland. The areas of blanket bog at Teernakill and Caher are largely unaffected by overgrazing and are in very good condition. The presence of rare and protected plant species and of the scarce Arctic Charr adds to the interest of the site.

6.10.2006

Site Name: The Twelve Bens/Garraun Complex

Site Code: 002031

This is an extensive site situated in the north-west of Connemara, dominated by mountainous terrain. The site is bounded to the south by the Connemara Bog Complex, to the east by the Maumturk Mountains and to the north by Killary Harbour. Included within the site are the

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Twelve Bens mountain range, the mountains to the north of Kylemore (Doughruagh, Garraun and Benchoona), rivers including the Ballynahinch and Owenglin systems and an area of coastal heath and machair near Glassilau. The site also includes some extensive tracts of lowland blanket bog which are continuous with the mountains. Most of the mountain summits reach a height in excess of 500 m, the highest being Ben Baun in the Twelve Bens which reaches 730 m. The site includes a large portion of the Connemara National Park and a Statutory Nature Reserve at Derryclare Wood.

Geologically, the site can be divided into two distinct parts. The Twelve Bens are composed of resistant quartzite with schists in the valleys while the mountains north of Kylemore are composed of gneiss and various types of sandstones and mudstones. There are also areas of gabbro (Doughruagh and Currywongaun), mica schist (Muckanaght) and marble outcrops (south of Kylemore Lough). The main soil type within the site is peat.

The site is a candidate SAC selected for active blanket bog a priority habitat on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for, alpine heath, calcareous rocky, siliceous rocky and siliceous scree vegetation, lowland oligotrophic lakes, Rhynchosporion and old Oak woodlands all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive - Freshwater Pearl Mussel, Atlantic Salmon, Otter and the plant Slender Naiad.

The predominant vegetation type on the site is upland blanket bog/heath dominated by Heather (*Calluna vulgaris*), Deergrass (*Scirpus cespitosus*), Cross-leaved Heath (*Erica cinerea*) and the mosses *Racomitrium lanuginosum* and *Sphagnum capillifolium*. In places this vegetation can be rich in liverwort species such as *Adelanthus lindenbergianus* and *Bazzania pearsonii*. This unusual type of species-rich dwarf shrub heath is almost confined to the mountains of the west of Ireland and Scotland and is particularly well developed in the Twelve Bens. Close to the mountain summits this blanket bog/heath is often very thin with a high proportion of outcropping bedrock.

Another important and widespread habitat is lowland blanket bog dominated by Purple Moor-grass (*Molinia caerulea*), Black Bog-rush (*Schoenus nigricans*), Cross-leaved Heath and the liverwort *Pleurozia purpurea*. These areas of lowland blanket bog usually occur in the valleys between the mountains, e.g. the Gleninagh Valley. Rhynchosporion vegetation is well represented around pools, in wet hollows and in quaking and flush areas associated with the lowland blanket bog. White Beak-sedge (*Rhynchospora alba*) occurs in association with such species as Bog Cotton (*Eriophorum angustifolium*), Bogbean (*Menyanthes trifoliata*), Black Bog-rush (*Schoenus nigricans*), and a range of bog mosses, including *Sphagnum auriculatum* and *S. cuspidatum*.

The site contains a large range of others habitats, including upland grassland dominated by Sheep's Fescue (*Festuca ovina*) and Mat-grass (*Nardus stricta*), Sessile Oak (*Quercus petraea*) woodland, scree, oligotrophic (nutrient-poor) lakes, rivers, reedbeds, freshwater

marshes, coastal heath, machair, sand dune and salt marsh.

A number of rare, Red Data Book plant species are found within the site: Alpine Saw-wort (*Saussurea alpina*), Holly Fern (*Polystichum lonchitis*), Purple Saxifrage (*Saxifraga oppositifolia*), and the legally protected (Flora Protection Order, 1999) Parsley Fern (*Cryptogramma crispera*). These are generally confined to mountains cliffs above 400 m, where a number of other scarce plant species, for example, Alpine Meadow-rue (*Thalictrum alpinum*), are also found. Other Red Data Book species have also been recorded from the site: Marsh Clubmoss (*Lycopodiella inundata*), Corncockle (*Agrostemma githago*) and the legally protected Heath Cudweed (*Omalotheca sylvatica*). The latter two species have not been recorded from the site in recent years. St. Dabeoc's Heath (*Daboecia cantabrica*), a species which in Ireland is restricted to Connemara and south Mayo, occurs commonly within the site.

The suite of lowland lakes that encircle the mountains represent some of the finest oligotrophic lakes in the country and two rare, Red Data Book plant species, Slender Naiad (*Najas flexilis*) and Pillwort (*Pilularia globullifera*) occur. Slender Naiad is rare in Europe and is listed on Annex II of the EU Habitats Directive.

The site contains several small areas of Sessile Oak woodland, a habitat which is particularly rare in Connemara. The best examples on the site of this habitat are found at Kylemore and on the north shore of Derryclare Lough. Derryclare Wood, a Statutory Nature Reserve, has been particularly well studied. It is composed mostly of Sessile Oak, with some Rowan (*Sorbus aucuparia*), Downy Birch (*Betula pubescens*) and occasional Ash (*Fraxinus excelsior*) forming the canopy layer. There is a well-developed lichen and fungus flora present. The fungal parasite, *Hemigrapha astericus*, a native of Australia and South America, was first recorded in the northern hemisphere from this wood. The Kylemore woods, though heavily infested by Rhododendron (*Rhododendron ponticum*), still retain a diverse flora and support interesting communities of mosses and liverworts, including such species as *Radula voluta*, *Lejeunea holtii*, *L. hibernica*, *L. flava* subsp. *moorei*, *Cephalozia hibernica*, *Teleranea nematodes*, *Campylopus setifolius*, *Oxystegus hibernicus*, *Grimmia hartmanii* and *G. funalis*.

Irish Hare, Otter, Freshwater Pearl-mussel and Common Frog have been recorded from the site. These species are protected under the 1976 Wildlife Act. The Owenglin River and Ballynahinch system supports an important population of Salmon and salmon nursery grounds. Arctic Charr, a species listed in the Irish Red Data Book as threatened in Ireland, has been recorded from Lough Inagh, Kylemore Lough, Lough Muck and Lough Fee.

Birdlife reported from the site includes Raven, Wheatear, Stonechat, Meadow Pipit, Red Grouse, a declining species of Heather moorland, Snipe, Curlew, Woodcock, Hooded Crow, Twite, Ring Ouzel (the latter two both Irish Red Data Book species) and the EU Birds Directive Annex I species, Peregrine, Merlin, Golden Plover and Chough. The site provides excellent habitat for Peregrine and this species has traditionally bred at several locations within it.

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The upland vegetation of the site is most threatened by overstocking with sheep and by afforestation with coniferous species.

The Twelve Bens/Garraun Complex includes a wide variety of habitat types, eight of which are listed on Annex I of the EU Habitats Directive, and populations of many rare or scarce plant and animal species. It is one of the largest and most varied sites of conservation interest in Ireland.

6.10.2006

Site Name: Connemara Bog Complex

Site Code: 002034

The Connemara Bog Complex is a large site encompassing the majority of the south Connemara lowlands, Co. Galway. The site is bounded to the north by the Galway-Clifden road and stretches as far east as the Moycullen-Spiddal road. Because of its large size the site contains a wide range of habitats. Extensive tracts of western blanket bog form the core interest, but there are also areas of heath, woodland, lakes, rivers and streams.

The Connemara Bog Complex is underlain predominantly by various Galway granites, with small areas along the northern boundary of Lakes Marble, schist and gneiss. The Roundstone bog area has a diverse bedrock geology composed mainly of the basic intrusive rock, gabbro. An area of rock, possibly Cambrian in age, called the Delaney Dome Formation occurs in the north-west of this area. Gabbro also occurs in the Kilkieran peninsula and near Cashel. The whole area was glaciated in the last Ice Age which scoured the lowlands of Connemara.

The site is a candidate SAC selected for active blanket bog and lagoons, both priority habitats on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for floating river vegetation, wet and dry heath, alkaline fen, transition mires, lowland oligotrophic lakes, dystrophic lakes, Rhynchosporion, old Oak woodlands, *Molinia* meadows and reefs, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive - Atlantic Salmon, Otter, the plant Slender Naiad and the Marsh Fritillary butterfly.

The main habitat within this site is lowland Atlantic blanket bog. Most of the area is covered by blanket peat greater than one metre in depth. The Connemara Bog Complex is characterized by areas of deeper peat surrounded by rocky granite outcrops, covered by heath vegetation. The deeper peat areas are often covered by lakes and river systems. A mosaic of different communities therefore exists. These include, hummock/hollow systems, inter-connecting pools, Atlantic blanket bog pools, flushes, transition and quaking mires, freshwater marshes, lakeshore, lake and river systems. The key plant species of lowland blanket bog are Black Bog-rush (*Schoenus nigricans*), Purple Moor-grass (*Molinia caerulea*), Cross-leaved Heath (*Erica tetralix*), Deergrass (*Scirpus cespitosus*), Common Cottongrass (*Eriophorum angustifolium*), Bog Asphodel (*Narthecium ossifragum*),

White Beak-sedge (*Rhynchospora alba*) and Bog Moss (*Sphagnum*) species.

Small patches of deciduous woodland and a large number of oligotrophic lakes add to the habitat diversity of the site. Also occurring within the site are several lagoons (a type of brackish lake) which display considerable variations in size, depth and salinity, resulting in a diverse assemblage of floral and faunal communities.

Nine legally protected plant species occur within this site (Flora (Protection) Order, 1999): Forked Spleenwort (*Asplenium septentrionale*), Parsley Fern (*Cryptogramma crispa*), Bog Hair-grass (*Deschampsia setacea*), Slender Cottongrass (*Eriophorum gracile*), Bog Orchid (*Hammarbya paludosa*), Slender Naiad (*Najas flexilis*), Heath Cudweed (*Omalotheca sylvatica*), Pillwort (*Pilularia globulifera*) and Pale Dog-violet (*Viola lactea*). The rare and threatened species, Dorset Heath (*Erica ciliaris*), Mackay's Heath (*Erica mackaiana*) and Green-winged Orchid (*Orchis morio*) also occur within this site. All the above species are listed in the Irish Red Data Book and Slender Naiad is listed on Annex II of the EU Habitats Directive.

The site is of national importance for wintering populations of Greenland White-fronted Geese. Small flocks (up to 30) are nowadays found on Roundstone Bog and also use the bogs between Recess and Maam Cross. In April 1989 a synchronised ground and air census of the Connemara bogs located 7 flocks of White-fronts, totalling 134-137 birds. In 1991/93 wintering numbers were considered to be not much more than 60 birds.

There is an internationally important breeding area for Cormorants at Lough Scannive with 218 pairs present in 1985 in a colony which is known to have existed pre-1968. Golden Plover, a species listed on Annex I of the EU Birds Directive, nests at up to four locations in the site, with a maximum of two pairs noted at any one location. Another Annex I species known to be present in the site is Merlin. Lough Naskanniva is an important inland breeding site for Common Terns (up to 60 pairs in 1977 and 1992) and Choughs, both of which are also Annex I species under the EU Birds Directive.

Atlantic Salmon, listed under Annex II of the E.U. Habitats Directive occurs in many of the rivers within the site. The Cashla and Ballynahinch systems are good examples of western acidic spate rivers which support the species. Good spawning and nursery grounds for the species occur in these systems. Arctic Charr occurs in a number of lakes within the site: Ballynahinch Lake, Glenicmurrin Lough and Lough Shindilla. The species has also been reported from Lough Oorid and Lough Glendollagh in the past, but has not been recorded from these lakes in recent years. Arctic Charr is listed in the Irish Red Data Book as being threatened.

Otter has been recorded as occurring in the Connemara Bog Complex. Irish Hare, another mammal listed in the Red Data Book, occurs on the site. Common Frog breeds on the site. It is listed in the Irish Red Data Book as internationally important and on Annex V of the EU Habitats Directive.

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The main damaging operations and threats in the Connemara Bog Complex are peat-cutting, overgrazing and afforestation. Extensive peat extraction using 'Difco' machines has become common in the region in recent years and cutting by excavator and hopper is also increasing. The handcutting of peat is less threatening as it is usually on a much smaller scale but it still needs to be controlled within the site. Afforestation also threatens the site. Forestry affects habitat uniformity, lake and river catchments, nesting and feeding habitats for animals, and landscape integrity. Overgrazing and poaching by sheep and cattle is a widespread problem within the site, with erosion of peat ensuing. The above operations are the most extensive but other threats and potentially damaging operations include land drainage and reclamation, fertilization, quarrying and dumping.

In summary, the Connemara Bog Complex encompasses a large area of relatively undamaged lowland Atlantic blanket bog of high conservation significance to Ireland as well as Europe. The site has nine protected and threatened Irish Red Data Book plant species. The site is internationally important for Cormorants and nationally important for Greenland White-fronted Geese and contains nesting sites for Golden Plover. The site supports several bird species listed on Annex I of the EU Birds Directive and a range of plant and animal species listed on Annex II of the EU Habitats Directive.

6.10.2006

Site Name: Slyne Head Peninsula

Site Code: 002074

This site comprises the peninsula west of Ballyconneely, Co. Galway. It extends northwards to Errislannan Point to include the shallow waters of Mannin Bay. The peninsula is low-lying and undulating, reaching a maximum height of only 64 m (Doon Hill). The underlying rock is predominantly gneiss, except for schist along the northern shores of Mannin Bay, a granite ridge along the western edge of the peninsula and a conspicuous basalt exposure which forms Doon Hill.

The peninsula is fringed with rocky shores and sandy beaches, with some extensive areas of machair and several brackish lakes and lagoons. Inland, the site is a maze of small fields, supporting a mosaic of habitats dominated by grassland and heath, interspersed with numerous lakes and associated swamp, marsh and fen. An important feature of the site is the influence of windblown calcareous sand on these habitats.

The site is a candidate SAC selected for lagoon, machair and orchid-rich grassland, all priority habitats on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for other habitats listed on Annex I of the directive – lowland hay meadows, alkaline fen, *Molinia* meadows, large shallow inlets and bays, perennial vegetation of stony banks, drift line vegetation, reefs, shifting dunes, Marram dunes, Atlantic saltmarsh, Mediterranean saltmarsh, lowland oligotrophic lakes, hard-water lakes, Juniper scrub and dry heaths. In addition, the site is also selected as a candidate SAC for the

liverwort, Petalwort and Slender naiad, both plants listed on Annex II of the E.U. Habitats Directive.

Mannin Bay is an excellent example of a large shallow bay, with a wide range of sediment types. The islets and rocks at the mouth of the bay give some shelter from Atlantic swells. Conditions become more sheltered towards the head of the bay and are extremely sheltered in Mannin Creek. Tidal streams are weak. There are a very high number of sediment communities for such a small area. Mannin Bay is almost unique as a very large proportion of the bay is dominated by a combination of maerl debris and living maerl. Maerl is free living red calcareous algae generally called 'coral'. The two species that are most abundant in Mannin Bay are *Lithothamnion corallioides* and *Phymatolithon calcareum*. In addition *Lithophyllum fasclatum* and *Lithophyllum dentatum* have also been recorded. In shallow water, the eelgrass *Zostera marina* and maerl are found together, an uncommon combination known only from two other locations in Ireland. Mannin Bay has excellent examples of communities characterised by burrowing brittlestars *Amphiura brachiata* and *Amphiura filiformis*. The brittle star *Ophiopsila annulosa* is present and is an uncommon species. In addition there is an unusual community characterised by the tubeworm *Sabella pavonina* in Mannin Creek. The shores on the south side of Mannin Creek are known to have bivalve communities with unusually high species diversity. The beaches of Mannin Bay are unusual as they are composed of maerl debris.

Mannin Bay has good examples of littoral reef communities that are sheltered from wave action and subject to moderate tidal streams. Shoreline communities follow a zonation of lichen zones followed by *Pelvetia canaliculata* and then barnacles and limpets with *Fucus spiralis*. The zones are narrow (1-1.5m), which is typical of sheltered shores. Most of the shore is composed of flat bedrock and boulders characterised by dense *Ascophyllum nodosum* and *Fucus vesiculosus*. The dogwhelk (*Nucella lapillus*) is common. On the lower shore is a band of *Fucus serratus* on boulders and bedrock, with sponges, anemones and red algae. In the sublittoral fringe is a mixed flora of kelps (*Laminaria saccharina*, *Laminaria digitata*, *Saccorhiza polyschides* and *Hilmanthalia elongata*) and red algae, with areas of sand and gravel with maerl. Sponges, anemones, tunicates and bryozoan crusts are common on the vertical sides and under the boulders. In the shelter of Mannin Creek the uncommon community characterised by *Ascophyllum nodosum* var. *mackii* is found on the north side of the creek.

Machair is particularly well developed and forms extensive plains at Mannin Beg and Aillebrack. The machair has a typically herb-rich sward dominated by species such as Red Fescue (*Festuca rubra*), Wild Thyme (*Thymus praecox*), Lady's bedstraw (*Galium verum*), Daisy (*Bellis perennis*), Clovers (*Trifolium* spp.) and Plantains (*Plantago lanceolata* and *P. coronopus*), with damp areas of Creeping Bent (*Agrostis stolonifera*), Silverweed (*Potentilla anserina*) and small sedges (*Carex* spp.). The rare liverwort *Petalophyllum ralfsii*, a species listed under Annex II of the E.U. Habitats Directive, occurs within damp hollows in the machairs. The population at this site is the largest known in both Ireland and the world.

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The machair gives way to bare sand in places with embryonic shifting dunes. These areas are characterised by the presence of Sand Couch (*Elymus farctus*) and Sand Sedge (*Carex arenaria*). Some Marram (*Ammophila arenaria*) dunes occur west of Mannin and towards the tip of the Slyne Head headland. Sandy beaches occur at the seaward side of the machair systems, some of which are 'coral' strands composed of the chalky skeletons of red seaweeds (*Lithothamnion* sp. and *Phymatolithion* sp.). Above the beaches typical driftline vegetation and shingle is found with species such as Prickly Saltwort (*Salsola kal*), Frosted Orache (*Atriplex lacinata*) and Sea Rocket (*Cakile maritima*). Parts of the shoreline, particularly east of Mannin machair, are fringed with saltmarsh vegetation developed on peat. Typical species found here include Common Saltmarsh-grass (*Puccinellia maritima*), Sea Plantain (*Plantago maritima*), Sea Milkwort (*Glaux maritima*) and Thrift (*Armeria maritima*). Saltmarsh dominated by dense stands of Sea Rush (*Juncus maritimus*) occur at the entrance to Salt Lough.

Brackish lakes and lagoons are a feature of this site. These include Ballyconneely Lake, Lough Silverhill, Lough Aillebrack South and Lough Athola. These lakes are shallow, with sandy bottoms and shores and may be directly connected to the sea. They all receive sea spray and during storms may be flooded by the sea. Characteristic species are Pondweeds (*Potamogeton* spp.), Stoneworts (*Chara* spp.) and Tasselweed (*Ruppia maritima*).

The largest freshwater lake is Lough Anaserd, a typical oligotrophic (nutrient-poor) lake surrounded by heathland. It has a stony shore and numerous rocky islands, some covered with heath vegetation. Aquatic species noted from here include Quillwort (*Isoetes lacustris*), Bulbous Rush (*Juncus bulbosus*), Pipewort (*Eriocaulon aquaticum*), Alternate Water-milfoil (*Myriophyllum alterniflorum*) and Awlwort (*Subularia aquatica*). The rare Slender Naiad (*Najas flexilis*), a species protected under the Flora (Protection) Order, 1999, and listed on Annex II of the E.U. Habitats Directive, is also found here. Truska Lough is another oligotrophic lake and Manninmore Lake is also probably of this type. Other lakes within the site are more nutrient-rich in character, possibly due to a brackish influence (e.g. Dereen Lough), and are fringed with Common Reed (*Phragmites australis*) and Many-stalked Spike-rush (*Eleocharis multicaulis*). Also of importance are the associated areas of species-rich marsh (e.g. Ballyconneely and Bunowen marshes) and fen (e.g. Triska), the latter dominated by Black Bog-rush (*Schoenus nigricans*), Blunt-flowered Rush (*Juncus subnodulosus*) and sedges (*Carex elata*, *C. lasiocarpa*). A scarce orchid, *Dactylohriza traunsteineri*, typically found in calcareous marshes and fens, is recorded from this site.

Much of the inland peninsula consists of small fields which contain a complex mosaic of habitats ranging from dry grassland, hay meadow and heath through to wet grassland and marsh. The heath occurs mainly in areas of outcropping rock and is dominated by Western Gorse (*Ulex gallii*), Bell Heather (*Erica cinerea*), Cross-leaved Heath (*Erica tetralix*) and St. Dabeoc's Heath (*Daboecia cantabrica*). Juniper (*Juniperus communis*) is also a frequent component of the heath communities here. The dry grassland supports vegetation rich in orchid species, including Early Purple Orchid (*Orchis mascula*), the two

Butterfly orchids (*Platanthera bifolia* and *P. chlorantha*) and the Red Data Book species Green-winged Orchid (*Orchis morio*). Two further Red Data Book species, Pyramidal Bugle (*Ajuga pyramidalis*) and Pale Dog-violet (*Viola lactea*), occur amongst the heath/grassland mosaic.

Three Annex I Bird Directive species are known to breed - Chough (8 pairs in 1992), Sandwich Tern (31 pairs in 1995) and Common Tern (5 pairs in 1995).

The main landuse within the site is grazing by cattle, along with some sheep and horses. This is mostly of low to moderate intensity though parts of the machair may be over-grazed. Part of the machair and dune system at Aillebrack has been damaged by the construction of a golf course and this area is excluded from the site. Leisure and tourist related activities may also be damaging parts of the machair system.

This site is of ecological importance for the range and diversity of its semi-natural habitats, many of which are listed on Annex I of the Habitats Directive. The interface between calcareous sand dunes, machair, heath and grassland communities is of particular note. The site is also important for a number of rare and scarce species, especially the liverwort *Petalophyllum ralfsii*.
16.1.2003

Site Name: Corliskea/Trien/Cloonfelliv Bog

Site Code: 002110

This site, located approximately 5km south of Castlerea and straddling the Roscommon/Galway county border, comprises a complex of three raised bogs. The site contains large, wet raised bog with well-developed pool systems, large diverse flush systems, subterranean streams with swallowholes and a lake.

A remarkable feature of these bogs is the presence of well-developed, wooded flushes. Here, the canopy is of Downy Birch (*Betula pubescens*), and some areas have a shrub layer composed of Ling Heather (*Calluna vulgaris*), Bog-myrtle (*Myrica gale*) and Bilberry (*Vaccinium myrtillus*). The ground layer includes such species as Purple Moor-grass (*Molinia caerulea*) and Buckler-ferns (*Dryopteris carthusiana* and *D. dilatata*), and a characteristic feature is the abundant presence of Bog Mosses (including *Sphagnum recurvum* var. *mucronatum*, *S. squarrosum*, *S. fimbriatum* and *S. palustre*) which form thick carpets among the ground flora. The scarce species, Cranberry (*Vaccinium oxycoccos*), is abundant here, creeping over the carpet of Bog Mosses. In this habitat on Trien Bog, the rare liverwort species, *Cephaloziella elachista*, has been recorded. The rare shrub, Alder Buckthorn (*Frangula alnus*), which is listed in The Irish Red Data Book, occurs at a swallowhole flush on Corliskea Bog. Non-wooded flushes also occur in the site. Some of these feature stands of Bog-myrtle with Common Reed (*Phragmites australis*) and Purple Moor-grass.

Elsewhere, there are pool-and-hummock systems, in which hummocks are formed by Bog Mosses (*Sphagnum capillifolium*, *S. subnitens*) and are colonised by Ling Heather, Deergrass (*Scirpus cespitosus*), Carnation Sedge

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(*Carex panicea*) and lichens (including *Cladonia portentosa* and *C. uncialis*). The pools are colonised by Bog Mosses (*Sphagnum cuspidatum*, *S. auriculatum*), Bogbean (*Menyanthes trifoliata*) and the insectivorous plant, Great Sundew (*Drosera anglica*). Frequently associated with pool systems are wet, quaking areas consisting of mats of Bog Mosses with White Beak-sedge (*Rhynchospora alba*), Common Cottongrass (*Eriophorum angustifolium*), Bog Asphodel (*Narthecium ossifragum*) and the scarce species, Brown Beak-sedge (*Rhynchospora fusca*). In some places, steep-sided tear pools occur.

A small lake occurs on the southern side of Corliskea Bog, which is colonised by Bogbean. At several locations, series of swallowholes occur along the courses of subterranean streams.

A major threat to raised bogs is drainage, associated with turf-cutting or afforestation, which upsets the delicate hydrology of these ecosystems. Fires cause damage due to removal of the vegetation and dessication of the bog surface. Parts of this site have been burned in the past, and although regeneration of the vegetation is occurring, recovery is a slow process.

This site is of international ecological significance as a largely intact complex of raised bogs. Intact raised bogs are a rare habitat, now much restricted in their European and Irish distribution due mainly to commercial peat extraction. Corliskea, Trien and Cloonfelliv Bogs are excellent examples of this habitat, and show a good diversity of microhabitats which are typical of raised bogs. The wooded flushes are of special significance, as bog woodland is extremely rare and the examples here are of high quality and support a number of scarce and rare species. Both raised bog and bog woodland receive priority status on Annex I of the European Habitats Directive.

No Date

Site Name: Kilkieran Bay and Islands

Site Code: 002111

Kilkieran Bay and Islands is located just north of Galway Bay and extends from Keeraun Point, south of Carraroe, westwards to Mace Head, west of Carna. The site contains a large area of open marine water, many islands and rocky islets, and the coastline is much indented with a series of bays (notably the inter-connected Kilkieran Bay and Greatman's Bay), channels and inlets. The entrances of the bays face the prevailing south-westerly winds and they are subject to strong tidal streams as the sea funnels between islands and through channels. A number of streams, lakes and lagoons drain into the bays. The bedrock of the site is igneous, composed of granite, felsite and other intrusive rocks rich in silica. Generally, the site has a rocky shoreline which in most places gives way to mud in shallow water. The surrounding land is dominated by lowland blanket bog, with rock outcrops and small hills to the north.

The marine habitats found within Kilkieran Bay and Greatman's Bay are of very high conservation value. Both bays have a very wide variety of habitats and Kilkieran

Bay a very high species diversity (only Kenmare River is more diverse than Kilkieran Bay). A very high number of species that are rare or considered to be worthy of conservation in Ireland occur in the area. Communities of particular importance are the extensive and varied beds of free-living red calcareous algae or maerl (which may be known locally as 'coral'). Kilkieran Bay is one of three known localities in Ireland where the maerl species *Lithothamnion corallioides*, *Lithophyllum dentatum* and *Lithothamnion fasciculatum* co-occur. The range of maerl deposits in Kilkieran Bay, including banks of maerl debris, live maerl and mixtures of maerl, gravel and mud gives rise to a variety of communities. Within these communities are a number of rare anemones, i.e. *Scolanthus callimorphus*, *Mesacmaea mitchellii* and *Aurelliana heterocera*. The last-named species is rare in Ireland, being known only from Donegal Bay and Kilkieran Bay, as well as a number of areas on the north-east coast; the population in the site is the largest on the west coast. Kilkieran Bay is the only known Irish locality for *Mesacmaea mitchellii*. *Scolanthus callimorphus* is known only from Kilkieran Bay, Valencia Harbour, Co. Kerry and the Dorset coast in the U.K. The best recorded example of the community characterised by the sea cucumber *Neopentadactyla mixta* occurs in the banks of dead maerl of Kilkieran Bay. The very rare anemone *Halcampoides elongatus*, known only from Kilkieran Bay and Ards Bay in Ireland, occurs in a narrow bed of clean dead maerl at the edges of some of the live maerl beds. Greatman's Bay, like Kilkieran Bay, has extensive maerl beds. A population of the large burrowing anemone *Pachycerianthus multiplicatus* occurs at two muddy sites within Kilkieran Bay and is known from only three other localities in Ireland. The seagrass *Zostera marina* occurs in a number of areas in Kilkieran Bay and in some areas co-occurs with maerl. This association is known from a number of areas in Ireland but has not been recorded in the U.K. Beds of the native oyster *Ostrea edulis* occur in Inner Kilkieran Bay. The outer part of the site has sandy bays, e.g. Mweenish Bay, which supports populations of polychaetes, burrowing anemones and bivalves. Sheltered shores have a variety of communities down the shore - the low shore is very species-rich and supports a variety of polychaetes and bivalves.

The rocky shores of the site are comprised of bedrock or a mixture of bedrock, boulders and gravel; they support a very wide variety of shore communities, with the zonation being typical of shores that range from being exposed to wave action through to extremely sheltered shores and some tide-swept shores. Shores exposed to wave action have a zonation of channel wrack *Pelvetia canaliculata* and barnacles in the upper shore, bladder wrack *Fucus vesiculosus* and barnacles in the mid shore, serrated wrack *Fucus serratus* in the low shore and the kelp *Laminaria hyperborea* on the very low shore. Sheltered shores have the mid shore dominated by knotted wrack *Ascophyllum nodosum*. In the inner part of both bays the brown alga *Ascophyllum nodosum* var. *mackii*, which has very specific habitat requirements, is found. The rapids at Carrickaglegaun Bridge, Lettermore Island, are extremely species-rich (119 species recorded) and includes the rarely-recorded star fish *Asterina phylactica*. This was the highest number of species recorded on any shore in a recent Irish survey. The inner parts of Kilkieran Bay have channels to several extensive lagoons.

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Mixed kelp forests of *Laminaria hyperborea* and *Laminaria saccharina* frequently form a canopy in the very sheltered areas. In contrast, in exposed situations there are extensive areas of *Laminaria hyperborea*, in particular to the south of Golam Head. The rare alga *Dermocorymus montagnei* is known only from the very sheltered narrow inlet Coill Saile on the northern shore of Kilkieran Bay and a handful of sites in Brittany. Also in this creek are large plants of the maerl species *Phymatolithon polymorphum* on which the rare, creeping red alga *Gelidiella calcicola* and the recently described *Gelidium maggsiae* occur. The creek is also unusual for its large population of the red alga *Meredithia microphylla*, which is more characteristic of exposed areas, and for the large form of the sea slug *Akera bullata* var. *farrani* (which may be a separate species).

In Kilkieran Bay, on subtidal reefs dominated by animals, the sponge/sea squirt community of *Raspailia ramosa* and *Corella parallelogramma* is widespread; the best examples in Ireland of this community occur in Gurriga Sound within the site, where a high diversity of encrusting and branching sponges and ascidians are found. The rare sponges *Plakortis simplex* and *Tricheurypon viride* are found in this community. In more exposed situations such as the Namackan Rocks there are good examples of the Axinellid sponge community with the sea fan *Eunicella verrucosa*. The sponge *Axinella damicornis* occurs here and although it is found at ten locations on the west coast it is never abundant. *Phakellia vermiculata*, a deep-water species, has been recorded in shallow water at only a limited number of locations on the south-west and west coasts of Ireland.

The site is extremely important for the number of lagoons that it includes - it is considered to be the best site in the country for this habitat and is an excellent example of a particularly unusual type of saling lake lagoon situated on peat, which appear to be rare on Europe but characteristic of south Connemara. Examples of lagoons in the site include Lettermullen Pool, Lough Tanai, Mill Lough, Carafinla Lough, the Lough Fhada complex and Loch an Aibhnin. Lettermullen lagoon is a particularly good example of a rock lagoon lying on granite. This habitat is one that is listed on Annex I of the E.U. Habitats Directive with priority status.

Areas of salt marsh occur frequently throughout the site - a thin fringe salt marsh is found along most stretches of coastline. The habitat occurs most frequently in the many sheltered bays in the eastern half of the site and has developed in the lee of causeways built to connect islands, e.g. Gorumna Island, to the mainland. The area of salt marsh between Costelloe and Kinvara is particularly well-developed and extensive. The salt marshes in the site are of the fringe type and most occur on peat - the large number of discrete areas of the habitat within the site suggests that it contains the largest area of salt marsh on peat in the country. The salt marshes on the site include both the Atlantic and Mediterranean types, habitats that are listed on Annex I of the E.U. Habitats Directive.

Machair occurs most extensively on Mweenish Island, Finish Island and Mason Island, which lie in the west of the site. These machair areas appear to be the remains of formerly more extensive systems; they are some of the most southerly machair systems in the country and are of

conservation value from both vegetational and geomorphological perspectives. The habitat is listed on Annex I of the E.U. Habitats Directive with priority status.

Lowland hay meadows are relatively rare within the site, but some good examples are known. The habitat is most commonly found in small, unimproved fields located behind beaches, which are influenced by blown sand. Perhaps the most extensive area of the habitat is to be found at Ardmore Point. The vegetation here is dominated by a species-rich mixture of grasses and low-to medium-sized forbs. A number of relatively rare orchids and other vascular plants have been recorded from this site. This is a threatened habitat that is listed on Annex I of the E.U. Habitats Directive.

Otter, a species listed on Annex II of the E.U. Habitats Directive, occurs commonly throughout the site. The site is used by a small breeding population of Common Seal. Grey Seal is a regular visitor and may breed.

The islands and islets of Kilkieran Bay, mainly those on its western side are important for their colonies of seabirds, particularly breeding terns - Arctic Tern (99 pairs recorded in 1995; 308 pairs, 1984), Common Tern (47 pairs, 1995; 371 pairs, 1984), Little Tern (7-9 pairs, 1995; 11 pairs 1984). All of these tern species are listed on Annex I of the E.U. Birds Directive. Inishmuskey, and probably other islands, are used by a population of Barnacle Geese in winter (370 in spring 1994) a species that is also listed on Annex I of the Birds Directive. Eagle Rock is of interest for its population of Black Guillemot (30 individuals, 1984). The site also supports colonies of gulls - Herring Gull (310 individuals, 1994), Great Black-backed Gull (6 individuals, 1984) and Black-headed Gull.

Kilkieran Bay and Islands is an extensive coastal complex site that is of high conservation value, particularly for the fine examples of marine and terrestrial E.U. Habitats Directive Annex I habitats that it supports and for its important Otter and seabird populations.
7.9.2006

Site Name: Lough Coy

Site Code: 002117

Lough Coy is situated approximately 6.5 km north-east of Gort and lies close to the Slieve Aughty hills. The site consists of a small permanent lake in the middle of an almost circular turlough basin. There are drift deposits as well as outcropping rocks and boulders on the relatively steep side walls and small areas of scrub towards the top of the basin. Areas of improved grassland above the normal flood line are included in the site for hydrological reasons. The underlying soils consist of alluvial gleys and a gleyed rendzina-like soil.

A large swallowhole occurs at one side of the basin slightly above summer water level and water enters and leaves the turlough mostly through this. During the winter the fluctuation in levels is extreme and there are no emergent plants such as Common Club-rush (*Scirpus lacustris*) or Common Reed (*Phragmites australis*) in the lake. The turlough experiences a large throughput of

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water and is dependant on the flows in the tributaries of the Coole River. Lough Coy is an excellent example of a 'riverine' type of turlough, and is in essence the floodplain of an underground river.

Practically the entire site consists of turlough habitat, an EU Habitats Directive Annex I priority habitat. In summer the water area contracts to a degree depending on the prevailing weather and flat mud is exposed which splits into polygonal plates. This is the habitat for a variety of specialised plants such as Mudwort (*Limosella aquatica*), Needle Spike-rush (*Eleocharis acicularis*), Northern Yellow-cress (*Rorippa islandica*) and the liverwort *Riccia cavernosa*. The lakeshore itself has some of these species along with Knotgrass (*Polygonum aviculare*) and Redshank (*Polygonum persicaria*). Above this is a more continuous cover of the sedges *Carex nigra* and *C. hirta*, Reed Canary-grass (*Phalaris arundinacea*), Creeping Cinquefoil (*Potentilla reptans*), Corn Mint (*Mentha arvensis*) and Creeping Buttercup (*Ranunculus repens*). A vegetation characterised by Meadowsweet (*Filipendula ulmaria*), Northern Bedstraw (*Galium boreale*), Common Bird's-foot-trefoil (*Lotus corniculatus*) and Adder's-tongue (*Ophioglossum vulgare*) grows amongst the rocks and includes both Dog Violet (*Viola canina*) and Fen Violet (*V. persicifolia*). The limestone boulders on the upper slopes have a covering of the moss *Cinclidotus fontinaloides*. The fringe of scrub at the edge of the basin is mostly of Blackthorn (*Prunus spinosa*), Buckthorn (*Rhamnus catharticus*) and Ash (*Fraxinus excelsior*), with some Hazel (*Corylus avellana*).

Lough Coy is part of a complex of small sites (along with nearby Blackrock, Ballylee and Bullaunagh turloughs) which supports a nationally important population of Whooper Swans and regionally/locally important numbers of several duck and wader species. Maximum counts at Lough Coy in winter 1995/96 were as follows: Whooper Swan 78, Wigeon 285, Teal 283, Pochard 45, Lapwing 300, Dunlin 120 and Curlew 80. Birds move frequently between the various sites in response to water levels and disturbance. Lough Coy is often one of the few sites in the district which holds water in late summer and autumn and consequently is of importance for post-breeding birds and early autumn arrivals - 132 Mallard were counted in August 1996 and 149 Wigeon in September 1996.

Of particular note is the occurrence of three Red Data Book plant species at this site - these are Mudwort (*Limosella aquatica*), Fen Violet (*Viola persicifolia*) and Northern Yellow-cress (*Rorippa islandica*).

The main landuse within the site is cattle grazing which is quite heavy at the lake margins and on parts of the slopes. There is some removal of gravel from the drift deposits on the north western edge.

Lough Coy is an excellent example of a eutrophic (nutrient-rich) turlough. The extreme water fluctuation supports a distinctive zonation of vegetation and provides many niches for specialist plants. It is an important site for wintering waterfowl.
24.10.2006

Site Name: Barnahallia Lough

Site Code: 002118

This small site is situated about 7 km north-west of Clifden and within 2 km of the Atlantic coast. It comprises a small lake, Barnahallia Lough, situated in a depression at the bottom of the steep slope of Barnahallia Hill (rises to 106 m) immediately to the east, and surrounded by blanket bog, heath, acid grassland vegetation and exposed rock. The lake is fed by a small stream in the south-west corner. A second stream exits to the west. The bed of the lake is gravelly in places.

The lake is a good example of an oligotrophic system, a habitat listed on Annex I of the EU Habitats Directive. The aquatic plant flora is well developed, with such characteristic species as Shoreweed (*Littorella uniflora*), Water Lobelia (*Lobelia dortmanna*), Water-milfoil (*Myriophyllum alterniflorum*), Bulbous Rush (*Juncus bulbosus*), Pipewort (*Eriocaulon aquaticum*), White Water-lily (*Nymphaea alba*) and the pondweeds *Potamogeton natans* and *P. graminus* occurring.

On the western side, the lake merges gradually into reedswamp, fen and then blanket bog. The main swamp species are Common Reed (*Phragmites australis*) and Saw-sedge (*Cladium mariscus*). Black Bog-rush (*Schoenus nigricans*) and Purple Moor-grass (*Molinia caerulea*) occur, as well as a little Jointed Rush (*Juncus articulatus*). The bog area has a good diversity of bog mosses (*Sphagnum* spp.). There are some well-developed hummocks with Heather (*Calluna vulgaris*). Other bog species present include Bog Cotton (*Eriophorum angustifolium*), Carnation-sedge (*Carex panicea*) and Deergrass (*Scirpus cespitosus*).

Of particular note is the presence of Slender Naiad (*Najas flexilis*) in the lough. This rare aquatic plant is legally protected under the Flora (Protection) Order, 1999 and is also listed on Annex II of the EU Habitats Directive.

A recent survey of the lake indicated that the water quality is good. However, owing to its small size, the lake would be sensitive to nutrient enrichment derived from agricultural activities.

This lake, although small, is a good example of an oligotrophic system in a coastal location. The presence of Slender Naiad, at one of its most westerly Irish stations, greatly adds to the interest of the site.
6.1.2000

Site Name: Lough Nageeron

Site Code: 002119

This small lake is situated about 9 km west of Kilkieran in Connemara. It overlooks Ard Bay and is actually connected to the sea by a small channel. It is, however, raised above sea level and it does not receive any saline water.

The lake is an oligotrophic system with apparently good quality water. It is surrounded by rocky undulating land. Aquatic plants include Shoreweed (*Littorella uniflora*),

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Water Lobelia (*Lobelia dortmanna*), White Water-lily (*Nymphaea alba*), the pondweeds *Potamogeton berchtoldii* and *P. crispus*, and Alternate Water-milfoil (*Myriophyllum alterniflorum*). The aquatic species of most interest is the rare Slender Naiad (*Najas flexilis*), a species which is found mainly in western oligotrophic lakes.

A number of small islands are scattered around the lough. These islands support a dense vegetation, mainly of Willows (*Salix* spp.) and Bracken (*Pteridium aquilinum*). Reedbeds, mainly of Common Reed (*Phragmites australis*), are present around the lake shores though none are extensive. Several areas of freshwater marsh occur, with typical species such as Yellow Flag (*Iris pseudacorus*), Water Mint (*Mentha aquatica*) and Marsh Cinquefoil (*Potentilla palustris*). In places the marshes have a more acidic and boggy character and here species such as Purple Moor Grass (*Molinia caerulea*), Bog Asphodel (*Narthecium ossifragum*) and Bog Bean (*Menyanthes trifoliata*) occur, along with bog mosses (*Sphagnum* spp.).

Wet grassland is the main habitat which borders the lake. It is closely grazed and supports grasses such as *Poa* spp., *Agrostis* spp., *Festuca* spp. and *Holcus lanatus*. In the wetter areas Soft Rush (*Juncus effusus*) is common. The wet grass merges into wet heath in places and species such as Devil's-bit Scabious (*Succisa pratensis*) and Lousewort (*Pedicularis sylvatica*) appear. Remnants of the heath vegetation which would have surrounded most of the lake at one time still occur in places but mainly at the north and north-west. Typical species include Cross-leaved Heath (*Erica cinerea*), St. Dabeoc's Heath (*Daboecia cantabrica*), Ling Heather (*Calluna vulgaris*), Autumn Gorse (*Ulex gallii*) and Crested Dog-tail (*Cynosurus cristatus*).

The main landuse of the area is grazing by cattle. Agricultural improvement schemes have included scrub and heath clearance and drainage of wet fields.

The main conservation interest of the site lies in the presence of Slender Naiad which is legally protected under the Flora (Protection) Order, 1999 and is listed on Annex II of the EU Habitats Directive. The lake itself is also a good example of an oligotrophic lake, a habitat which is listed on Annex I of the EU Habitats Directive. 25.9.2000

Site Name: Pollagoona Bog

Site Code: 002126

Pollagoona Bog is located 300 m east-south-east of Lough Atorick, close to the Clare-Galway county boundary, and some 10 km west-south-west of Woodford. The bog is situated on a shallow saddle, on flat to gently sloping land surrounded by conifers at an altitude of 150 m above sea level. The site is a small blanket bog that shows some features of a raised bog.

For such a small blanket bog site, Pollagoona Bog supports a wide diversity of plant species. Bog Mosses (*Sphagnum* spp.) are abundant within the site, and there is an extensive cover of Heather (*Calluna vulgaris*). Other

species typical of bogs occur commonly: Deergrass (*Scirpus cespitosus*), Bog Asphodel (*Narthecium ossifragum*), Common Cottongrass (*Eriophorum angustifolium*), the Beak-sedges (*Rhynchospora alba* and *R. fusca*). Of note is the presence on the site of Bog-rosemary (*Andromeda polifolia*), a species more usually found on raised bogs. At its western end the bog supports a small patch of Bog-myrtle (*Myrica gale*). Pollagoona Bog is bordered by a wide margin of Purple Moor-grass (*Molinia caerulea*) intermixed with scattered Bog-myrtle along its southern side. Lichens (*Cladonia* spp.) occur abundantly.

Pollagoona Bog contains extensive, slightly quaking flats of Bog Asphodel and Beak-sedges with hummocks of Heather and mosses (*Sphagnum* spp. and *Hyprnum* spp.). At the north-western side of the site, a poorly-developed pool system is found. The pools mostly contain algae, but some also have the Bog Mosses *Sphagnum cuspidatum* and *S. auriculatum*. On the southern and south-eastern side the bog is wetter and more quaking and the pool system found there is colonised by Bogbean (*Menyanthes trifoliata*), Common Cottongrass and Bog Mosses. Brown Beak-sedge (*Rhynchospora fusca*) and Bog-sedge (*Carex limosa*) have also been recorded.

Due to its topographical location Pollagoona Bog does not appear to be adversely affected by the surrounding afforestation. Within the site there are two small pockets of forestry, though the trees are sparse, scattered and largely moribund.

Intact blanket bogs are becoming increasingly rare in Ireland through turbary, afforestation and drainage. The scarcity of this habitat in Europe has also been recognised and active blanket bog is listed as a priority habitat on Annex I of the EU Habitats Directive. Pollagoona Bog is a small, but important example of an intact, active saddle blanket bog.

24.1.1997

Site Name: Murvey Machair

Site Code: 002129

Murvey Machair is located on the coast approximately 6.5 km west of Roundstone. The site comprises a 30 m high granite hill, covered in windblown sand supplied from the adjacent beach, and a series of wetlands occurring in the low-lying area to the north of the hill.

The main habitat is hill machair, with a typically herb-rich sward characterised by species such as Red Fescue (*Festuca rubra*), Daisy (*Bellis perennis*), Plantains (*Plantago coronopus* and *P. lanceolata*), White Clover (*Trifolium repens*) and mosses (e.g. *Tortula ruraliformis* and *Brachythecium albicans*). Seepage zones and damp hollows also occur and support abundant sedges, mosses, Fool's Water-cress (*Apium nodiflorum*), Brookweed (*Samolus valerandi*) and Creeping Bent (*Agrostis stolonifera*). Because of its hilliness, Murvey Machair is geomorphologically somewhat atypical of other Irish machairs; it is thought to represent the relict stages of a once more extensive system.

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A population of Petalwort (*Petalophyllum ralfsii*) has recently been discovered associated with the machair habitat. This small thallose liverwort is rare in Europe and is listed on Annex II of the EU Habitats Directive.

The northern part of the site contains two loughs which provide an excellent example of hydrosere succession. The open waters contain abundant Pondweed (*Potamogeton* spp.) and are fringed with swamp, dominated by Common Reed (*Phragmites australis*), Common Club-rush (*Scirpus lacustris*) and Great Fensedge (*Cladium mariscus*). The swamp gives way to freshwater marsh and wet grassland. The eastern lake, Lough Namanawaun, is largely in-filled.

These lakes contain two rare plant species - Slender Cottongrass (*Eriophorum gracile*) and Slender Naiad (*Najas flexilis*). Both are legally protected (Flora Protection Order, 1987) and listed in the Irish Red Data Book. The latter species is also listed on Annex II of the EU Habitats Directive.

Most of the site is heavily grazed by sheep, cattle and rabbits. This is exacerbating the natural erosion along the back of the beach.

This site is of value primarily for its machair, a priority habitat listed on Annex I of the EU Habitats Directive. The lakes are also of importance in that they provide a good example of vegetational succession and are the site of two rare and protected plant species, one of which is listed on Annex II of the EU Habitats Directive.

24.1.1997

Site Name: Tully Lough

Site Code: 002130

Tully Lough is situated in Connemara, Co. Galway, approximately 4 km north-west of Letterfrack and just over 1 km from the coast. Tully Mountain (peak 357 m) towers above the site to the south-west.

Tully Lough is a small to medium-sized oligotrophic lake, a habitat listed on Annex I of the EU Habitats Directive, set in a landscape of bog and pasture. A stream enters at the west end of the lake and another exits at the east end and flows to the sea. The shoreline is stony in parts but otherwise fringed by swamp or marsh vegetation. The aquatic vegetation is typically oligotrophic. Species present include Quillwort (*Isoetes lacustris*), Water Lobelia (*Lobelia dortmanna*), Shoreweed (*Littorella uniflora*), Pipewort (*Eriocaulon aquaticum*), Bulbous Rush (*Juncus bulbosus*), Perfoliate Pondweed (*Potamogeton perfoliatus*), Alternate Water-milfoil (*Myriophyllum alterniflorum*) and Canadian Waterweed (*Elodea canadensis*). The moss *Fontinalis antipyretica* occurs on rocks. The EU Habitats Directive Annex II plant species Slender Naiad (*Najas flexilis*) has been recorded from the lake. The presence of Canadian Waterweed may indicate that the lake is not extremely oligotrophic. The fringing swamp and marsh vegetation includes Common Reed (*Phragmites australis*), Common Clubrush (*Scirpus lacustris*), Common Spike-rush (*Eleocharis palustris*),

Water Horsetail (*Equisetum fluviatile*) and Yellow Flag (*Iris pseudacorus*).

The lake is surrounded by blanket bog and wet grassland, improved to varying extents, to the south, east and north-east. Some of the blanket bog is fairly intact and has typical species such as Ling (*Calluna vulgaris*), Bell Heather (*Erica cinerea*), Cross-leaved Heath (*Erica tetralix*), Purple Moor-grass (*Molinia caerulea*), Bog Asphodel (*Narthecium ossifragum*) and bog mosses (*Sphagnum* spp.). The localised St. Dabec's Heath (*Daboecia cantabrica*) occurs. The wet grassland includes such species as Sweet Vernal-grass (*Anthoxanthum odoratum*), Creeping Bent (*Agrostis stolonifera*), Sedges (*Carex nigra*, *C. echinata*), Soft Rush (*Juncus effusus*), Lesser Spearwort (*Ranunculus flammula*) and Marsh Cinquefoil (*Potentilla palustris*). To the north and north-west the main habitat is improved grassland.

The lake has one large island, Heath Island, and several smaller ones. Mixed scrubby woodland occurs on these islands, mainly Sycamore (*Acer pseudoplatanus*), Willows (*Salix* spp.), Rhododendron (*Rhododendron ponticum*) and several exotic conifers. The Royal Fern (*Osmunda regalis*) also occurs.

The house which occurs on Heath Island is a roost site for a nationally important breeding colony of Natterer's Bat - 140 bats were counted in 1992. The bats forage amongst the woodland on the island but also visit the mainland. Natterer's Bat is one of the scarcest species of bat in Ireland and is listed as a Red Data Book species.

The main threat to this site is further agricultural intensification, leading to loss of bog and wet grassland habitats surrounding the lake and ultimately to eutrophication of the lake. The oligotrophic vegetation, including Slender Naiad, could be adversely affected. Afforestation in the catchment would also be a serious threat. Modifications to the house where the bats roost could affect their use of the site.

This site is of conservation value as it provides a good example of an oligotrophic lake, a habitat listed on Annex I of the EU Habitats Directive. Of particular importance is the occurrence of the Annex II plant species Slender Naiad. The presence of a nationally important roost of Natterer's Bat is also of note.

7.1.2000

Site Name: Gortacarnaun Wood

Site Code: 002180

This site is situated in the foothills of the Slieve Aughty Mountains, approximately 2 km east of Lough Cutra. The northern boundary is marked by the Owendalulleagh River. It is a substantial area of woodland on sloped ground between approximately 60 and 90 metres. Soils are a sandy clay and there are many rock outcrops.

The woodland is classified as the Blechno-Quercetum petraeae var. coryletosum type. Sessile Oak (*Quercus petraea*) is the dominant species of the canopy, with Birch (*Betula pubescens*) being frequent. There is a well

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developed understorey of Holly (*Ilex aquifolium*) and Hazel (*Corylus avellana*). Other tree and shrub species include Ash (*Fraxinus excelsior*), Willow (*Salix atrocinerea*), Blackthorn (*Prunosa spinosa*), Hawthorn (*Crataegus monogyna*), Rowan (*Sorbus aucuparia*) and Aspen (*Populus tremula*). The ground flora appears somewhat restricted, probably due to heavy shading by such species as Holly but also due to grazing pressures. Common Bent (*Agrostis capillaris*) is a frequent component of the ground flora. Other species include Bracken (*Pteridium aquilinum*), Wood Sorrel (*Oxalis acetosella*), Hard fern (*Blechnum spicant*), Great Wood-rush (*Luzula sylvatica*), Irish Spurge (*Euphorbia hiberna*) and Violets (*Viola* spp.). Bilberry (*Vaccinium myrtillus*) forms a low shrub layer in places. The occurrence of Crab-apple (*Malus sylvestris*) is considered a good sign of old woodland. The bryophyte flora is well developed in places but no studies have been carried out. A notable feature of the wood is the frequency of established oak saplings.

There are indications that the wood has been subjected to exploitation in the past and may have been clear-felled in the early part of present century. It seems that the wood continues to be managed for timber extraction. Owing to timber extraction, there are few very old trees. Rhododendron (*Rhododendron ponticum*) occurs in places.

Other habitats which occur within site are heath, wetland vegetation and streams. The heath occurs to the south-east of the woodland and is used as rough pasture. There is outcropping rock and the area is being colonised by young Birch trees. The wetland vegetation occurs mainly to the east of the wood. Of most interest is a fen or flushed area with iron stained water. The vegetation is dominated by Sharp-flowered Rush (*Juncus acutiflorus*), Marsh Horsetail (*Equisetum palustre*) and Bottle Sedge (*Carex rostrata*). Other species include Ragged Robin (*Lychis flos-cuculi*), Lesser Spearwort (*Ranunculus flammula*), Meadowsweet (*Filipendula ulmaria*), Cuckoo Plant (*Cardamine pratensis*), Water Mint (*Mentha aquatica*), Marsh Cinquefoil (*Potentilla palustris*), Common Marsh Bedstraw (*Galium palustre*) and Spotted Orchid (*Dactylorhiza maculata*). Saplings of a range of tree species are established in the flush area. In this same area, there is also some wet grassland and a stand of reeds (*Phragmites australis*).

Old oak woodlands are scarce in Ireland and the habitat is of particular conservation importance as it is listed on Annex I of the EU Habitats Directive.
16.9.1999

Site Name: Drummin Wood

Site Code: 002181

Drummin Wood is situated on sloping ground in the foothills of the Slieve Aughty Mountains at an altitude of approximately 50-70m, some 3 km east of Lough Cutra. The area is drained by the Owendalulleagh River, which occurs to the south. The soils found on the site are sandy clays, with sticky dark clays in wetter areas, and there are many rock outcrops.

Woodland occupies about 60% of the area of the site. Most of the woodland is referable to a type known as the Blechno-Quercetum petraeae association, subassociation coryletosum. Sessile Oak (*Quercus petraea*) is the dominant species of the canopy, along with Ash (*Fraxinus excelsior*). The lower canopy and understorey is comprised of Birch (*Betula pubescens*), Holly (*Ilex aquifolium*), Hazel (*Corylus avellana*) and Willows (*Salix* spp.). Crab-apple (*Malus sylvestris*) and Wild Cherry (*Prunus avium*) occur sparsely. The ground flora is mostly well-developed, with such species as Wood-sorrel (*Oxalis acetosella*), Great Wood-rush (*Luzula sylvatica*), Bluebell (*Hyacinthoides non-scripta*) and Wood Anemone (*Anemone nemorosa*) occurring. Of particular note is the occurrence of the Narrow-leaved Helleborine (*Cephalanthera longifolia*), a rare species of woodlands and one that is listed in the Red Data Book.

The wood has been managed in the past, but in recent times little woodland management has been carried out. Dead or fallen timber is a feature of the wood, as are, notably, the frequency of established Oak saplings. Grazing does occur but is not excessive. There are no signs of Rhododendron (*Rhododendron ponticum*).

The other main habitats on the site are heath and areas dominated by Bracken (*Pteridium aquilinum*). The heath is of good quality and includes such species as Ling (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), Purple Moor-grass (*Molinia caerulea*) and Tormentil (*Potentilla erecta*). In places the heath has been invaded by Birch and Oak. A stream and small lake (Lodgehill Lough) occur within the site, along with some marsh and wet grassland vegetation.

Pine Marten and Badger have been recorded from the site; both species are listed in the Red Data Book.

Drummin Wood is of considerable conservation significance as it conforms to a woodland habitat type that is scarce in Ireland and one that is listed on Annex I of the EU Habitats Directive. The occurrence of Red Data Book plant and animal species adds to the importance of the site.

2.2.2000

Site Name: Glenloughaun Esker

Site Code: 002213

Situated approximately 5 km south-west of Ballinasloe, this small site comprises a fine example of dry, mostly unimproved, orchid-rich calcareous grassland on an esker ridge. This type of grassland is listed on Annex I of the EU Habitats Directive. A feature of the site is the somewhat unusual mixture of calcicole and calcifuge species. Leaching of the base-rich substrate of the esker is likely to have given rise to soil conditions suitable for colonisation by calcifuge plants.

Species typical of dry calcareous grassland which are present include Quaking Grass (*Briza media*), Bird's-foot Trefoil (*Lotus corniculatus*), Yellow-wort (*Blackstonia perfoliata*), Eyebright (*Euphrasia* sp.), Wild Thyme

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(*Thymus praecox*), Cowslip (*Primula veris*), Common Centaury (*Centaureum erythraea*), Knapweed (*Centaurea nigra*), Kidney Vetch (*Anthyllus vulneria*), Fairy Flax (*Linum catharticum*) and Spring Sedge (*Carex caryophyllea*). The calcifuge component is represented by such species as Ling (*Calluna vulgaris*), Tormentil (*Potentilla erecta*), Devil's-bit Scabious (*Succisa vulgaris*), Heath Milkwort (*Polygala serpyllifolia*), Heath Grass (*Danthonia decumbens*) and Lousewort (*Pedicularis sylvatica*).

Of particular interest is the occurrence of a large population of Green-winged Orchid (*Orchis morio*), a scarce orchid of calcareous grassland which is listed in the Red Data Book. Early Purple Orchid (*Orchis mascula*) also occurs.

The site is grazed at moderate levels by cattle and some areas have been partly improved through fertilization resulting in a lower plant diversity.

Scrub is present in places within and around the site, with Gorse (*Ulex europaeus*), Blackthorn (*Prunus spinosa*), Hawthorn (*Crataegus monogyna*) and Hazel (*Corylus avellana*). Bracken (*Pteridium aquilinum*) is also present. Any further spread of these species into the grassland areas would be detrimental.

Quarrying of the esker for gravel or sand would be very detrimental to the site.

Overall, this grassland site has an excellent species diversity and a very significant population of the scarce *Orchis morio* (Red Data species). It is very typical of the habitat and probably one of the best remaining examples in the country.

16.9.1999

Site Name: Lough Derg, North-East Shore

Site Code: 002241

Lough Derg, the lowest order lake on the River Shannon, is one of the largest bodies of freshwater in Ireland. The site, however, only includes the northern shore of the lake from the mouth of the Cappagh River in the north-west to just below Black Lough at the north-eastern shore. The greater part of this site lies on Carboniferous limestone, although there is Old Red Sandstone on the southern shores of the eastern section.

The site is of significant ecological interest, with six habitats listed on Annex I of the E.U. Habitats Directive. Four of these are priority habitats - *Cladium* fen, alluvial woodland, limestone pavement and Yew woodland. Other annexed habitats present include alkaline fen and Juniper scrub formations on heath and calcareous grasslands. In addition, the lake itself is an SPA (Special Protection Area) that supports important numbers of wintering wildfowl, Greenland White-fronted Goose, Common Tern and Cormorant. Both the Greenland White-fronted Geese and Common Tern are listed under Annex I of the EU Birds Directive. A Wildlife Sanctuary is located in the lake close to Portumna Forest Park.

The priority Annex I habitat, *Cladium* fen occurs occasionally along the lake margins, mainly in association with alkaline fens, Common Reed (*Phragmites australis*) and other swamp vegetation. Typically Saw Sedge (*Cladium mariscus*) forms dense stands up to 2 m in height. Associated species include Common Reed, Black Bog-rush (*Schoenus nigricans*), Water Horsetail (*Equisetum fluviatile*) Bottle Sedge (*Carex rostrata*) and occasional Slender Sedge (*Carex lasiocarpa*). This community generally merges with alkaline fen dominated by Black Bog-rush with Purple Moor-grass (*Molinia caerulea*), Marsh Horsetail (*Equisetum palustre*), Meadowsweet (*Filipendula ulmaria*) and scattered tussocks of Greater Tussock-sedge (*Carex paniculata*).

Yew (*Taxus baccata*) woods in Ireland are mostly confined to the west of the country. However, a substantial area of Yew is located on limestone at Cornalack, where Yew forms a scrub woodland along the east shore of Lough Derg. Here, Yew is found in association with small amounts of Juniper (*Juniperus communis*), which forms protection against grazing for the young Yew. Other notable species present include, Hawthorn (*Crataegus monogyna*), Hazel (*Corylus avellana*), Holly (*Ilex aquifolium*) Cotoneaster (*Cotoneaster microphyllus*) along with occasional Ivy (*Hedera helix*), Strawberry (*Fragaria vesca*), Bramble (*Rubus fruticosus* agg.) and Wood-sorrel (*Oxalis acetosella*). Elsewhere, small stands of Yew up to 5 m high occur with Spindle (*Euonymus europaeus*), Blackthorn (*Prunus spinosa*), Gorse (*Ulex europaeus*) and Ash (*Fraxinus excelsior*). Due to shading and in places cattle trampling the ground flora supports few herbs. However, the bryophyte layer is good with many moss covered rocks present.

Juniper occurs throughout this site in a range of habitats, associated with calcareous grasslands, heath and limestone outcrops. Some of the finest examples of Juniper formations in Ireland occur along the lake edge where upright, bushy Juniper shrubs up to 6 m tall are found. Typically, Juniper forms dense hedges with Ash, Hawthorn, Gorse, Hazel and Bramble and occasional Yew. These tall Juniper shrubs are a unique feature in Ireland, where it is more typically found growing in prostrate form. In places along the lake shore Juniper forms a mosaic with Black Bog-rush and Saw Sedge fen. The best examples are seen at the north and north east of the site. On drier ground above the flood level, Juniper occurs in association with species-rich calcareous grassland with Mouse-ear Hawkweed (*Hieracium pilosella*), Daisy (*Bellis perennis*), Lady's Bedstraw (*Galium verum*), Thyme (*Thymus praecox*) and Burren Blue Grass (*Sesleria albicans*). An extensive area of this vegetation is seen north of Kilgarvan Quay. Many of the islands also support significant Juniper cover. This is particularly evident on Bounla Island. Juniper generally occurs as fringing vegetation around the islands, which typically have wooded centres. At Cornalack, along the eastern shore of Lough Derg, tall Juniper is found in association with loose limestone rubble with a significant cover of Yew.

Deciduous woodlands are also a notable feature of the site, dominated by Oak (*Quercus* spp.), as at Bellevue, and Hazel/Ash at many of the examples along the north eastern shore. The woodlands along the lake edge at Portumna are Birch (*Betula* spp.) dominated with some Willow (*Salix* spp.), Ash and Hazel. Typically the ground

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layer includes Early-purple Orchid (*Orchis mascula*), Violets (*Viola* spp.), Ivy (*Hedera helix*), Lesser Celandine (*Ranunculus ficaria*), Bluebell (*Hyacinthoides non-scripta*), Wood Anemone (*Anemone nemorosa*), Wood-sorrel, Primrose (*Primula vulgaris*), Bramble, Ground Ivy (*Glechoma hederacea*), Pignut (*Conopodium majus*) and Honeysuckle (*Lonicera periclymenum*). Beech (*Fagus sylvatica*) and Scots Pine (*Pinus sylvestris*) are often present at the lake edge along areas which were once parts of estates. Some areas of coniferous forestry have been included within the site. When these areas are felled no further planting should take place as afforestation damages the wetland habitats between the plantation and lake edge.

The only known site in the country for the Red Data Book plant Irish Fleabane (*Inula salicina*) occurs along the lake shore. This plant is legally protected under the Flora (Protection) Order 1999. Other Red Data Book species present within this site are Marsh Pea (*Lathyrus palustris*) and Ivy Broomrape (*Orobanche hederaceae*). The Red Data Book stonewort *Chara tomentosa* has its stronghold in Lough Derg.

The lake is rated as nationally important for waterfowl. The entire lake, including all islands, is a designated SPA. Counts from *I-WeBS* Report 1995/96 carried out at 7 locations on the lake indicate that the lake holds nationally important numbers for Mute Swan, Cormorant, Mallard, Teal, Tufted Duck and Goldeneye. The lake also supports a number of Greenland White-fronted Geese, a bird species listed on Annex I of the EU Birds Directive. There is a Wildlife Sanctuary at the north western edge of the lake.

Lough Derg is of conservation interest for its fish and freshwater invertebrates. Lampreys, listed under Annex II of the EU Habitats Directive, are known to occur and the lake contains an apparently self-sustaining landlocked population of Sea Lamprey (*Petromyzon marinus*). A landlocked population, where the fish are feeding and not completing a seaward migration, is unique in an Irish context, though there are several such populations in the U.S. and one is known from Loch Lomond in Scotland. Brook Lamprey (*L. planeri*) is known to be common in the lower Shannon catchment where all three Lamprey species breed.

The endangered fish species Pollan (*Coregonus autumnalis pollan*) is recorded from Lough Derg, one of only three sites in Ireland and in western Europe. The Pollan is a landlocked species of Coregonid or "White Fish" thought to have colonised Irish waters after the last Ice Age. Its nearest relative, the Arctic Cisco, is found as far away as Alaska, Northern Canada and Siberia. Although it is anadromous throughout most of its northern range, the Irish population are all non-migratory and purely freshwater. Lough Derg is also a well known fishing lake with a good Trout (*Salmo trutta*) fishery. Atlantic Salmon (*Salmo salar*) also use the lake as a spawning ground. Although this species is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the EU Habitats Directive.

The Otter and Badger have been recorded within the site. Both of these species are listed in the Irish Red Data Book and are legally protected by the Wildlife Act 1976.

Landuse within the site is mainly of a recreational nature with many boat hire companies, holiday home schemes and angling clubs located at the lake edge. Recreational disturbance may pose a threat to the wintering wildfowl populations though tourism is scaled down during the winter. The water body is surrounded mainly by improved pastoral farmland to the south and east with areas of bog to the southwest and west. Coniferous plantations are present along the west and north west shore and small areas of these are included within the site.

The main threats to the quality of the site are water polluting activities resulting from intensification of agricultural activities around the lake shore, uncontrolled discharge of sewage, which is causing eutrophication of the lake, and housing and boating development which has resulted in the destruction of lakeshore habitats. There is also significant fishing and shooting pressure on and around the lake. Forestry can result in the loss of some areas of wetland habitat. The spread of Zebra Mussel (*Dreissena polymorpha*) in Lough Derg also poses a threat to the ecology of the lake.

20.03.2003

Site Name: Ardrahan Grassland

Site Code: 002244

This site lies immediately west and north of Ardrahan in south Co. Galway. It is dominated by a large flat limestone area with a mosaic of calcareous habitats including limestone pavement, alpine heath, Juniper scrub and species rich dry grasslands. In contrast, the south west of the site consists of a small marl lake and adjoining fens and marshes with Juniper heath frequent on the higher ground. Soils associated with limestone pavement are generally thin rendzina, deeper pockets are more mineral rich and support limestone grassland and scrub in places.

The site contains a good example of limestone pavement, a priority habitat listed on Annex I of the EU Habitats Directive, a small though excellent example of the Annex I habitat alpine heath, along with one other Annex I habitat, Juniper scrub. Of particular note is the abundance of Bearberry (*Arctostaphylos uva-ursi*) and Juniper (*Juniperus communis*) in association with a typical Burren flora including such species as Mountain Aven (*Dryas octopetala*), Spring Gentian (*Gentiana verna*) and various orchid species including Fly Orchid (*Ophrys insectifera*). The southern and western part of the area is of significant interest due to the low intensity of management in the area.

In the north of the site Juniper scrub forms a dense mat over limestone pavement along with Bearberry and Mountain Aven. Further south it occurs on higher undulating ground over a species rich calcareous heath with Wild Thyme (*Thymus praecox*), Carline Thistle (*Carlina vulgaris*), Tormentil (*Potentilla erecta*), Bloody Cranesbill (*Geranium sanguineum*), Black Bog-rush

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(*Schoenus nigricans*), Ling (*Calluna vulgaris*) and occasional Bearberry.

Brackloon Lough, occurs in the south of the site and is a fine example of a small shallow marl lake, one of very few in this locality. This open lake has a pronounced whitish appearance and a flora of lime-encrusted Thread-leaved Water-crowfoot (*Ranunculus trichophyllus*) and a little Curled Pondweed (*Potamogeton crispus*). Shoreweed (*Littorella uniflora*) is locally abundant on the shoreline, where it grows with Many-stalked Spike-rush (*Eleocharis multicaulis*), Pink Water-speedwell (*Veronica catenata*), Lesser Water-plantain (*Baldellia ranunculoides*) and some Amphibious Bistort (*Polygonum amphibium*). Although small the lake seems in a relatively natural state.

There are two small turloughs present within the site. Both are well grazed and consist of a short-turf peaty vegetation with Common Sedge (*Carex nigra*), Lesser Spearwort (*Ranunculus flammula*), Creeping Buttercup (*Ranunculus repens*) (turlough form), Lesser Marshwort (*Apium inundatum*), Cuckooflower (*Cardamine pratensis*), Marsh Pennywort (*Hydrocotyle vulgaris*) and Water Mint (*Mentha aquatica*), along with Common Marsh-bedstraw (*Galium palustre*), Creeping Bent (*Agrostis stolonifera*), Jointed Rush (*Juncus articulatus*) and Common Spike-rush (*Eleocharis palustris*).

Bird species recorded from the site include Snipe, Mute Swan and Curlew.

Landuse at this site consists mainly of the traditional practise of winter grazing by cattle. This is a low intensity farming practise generally confined to the Burren in Ireland and one that is vital to the maintenance of the high scientific interest of this site. However, recent agricultural improvement has damaged the scientific interest of part of the site through loss of habitat in the turlough and limestone pavement areas. Intensification of the land usage around Brackloon Lough could lead to a deterioration in the water quality of the lake.

Ardrahan Grassland contains a mosaic of calcareous habitats including good examples of three habitats listed on Annex I of the EU Habitats Directive - limestone pavement, alpine heath and Juniper scrub. The presence of a relatively unpolluted marl lake adds further diversity and interest to the site.
3.2.2000

Site Name: Kingstown Bay

Site Code: 2265

Kingstown Bay is a small, narrow bay situated approximately 7 km north-west of Clifden and south of Streamstown Bay, Co. Galway. It is an unusually shallow bay that is about 3 km long and 500 m wide at the mouth. The north-westerly aspect of the bay and the offshore islands of Omev, Inishturk and Turbot at the mouth afford shelter from Atlantic swells. Conditions become even more sheltered towards the head of the bay where the sediment is muddy. Currents within the bay can be moderately strong.

The bay is of conservation importance because there are excellent populations of the free-living, red coralline algae (maerl-forming species) *Lithophyllum dentatum*, *Lithophyllum fasciculatum* and *Lithothamnion corallioides* (which may be locally known as 'coral'). These occur midway along the bay at 0-2 m in depth. The bed is very dense and is formed by unusually large individuals. It has a very heterogeneous composition in which patches dominated by *Lithophyllum dentatum* and *Lithophyllum fasciculatum* alternate with patches dominated by *Lithothamnion corallioides*. Kingstown Bay has the second largest known population of *Lithophyllum dentatum* in Ireland and the largest population of *Lithophyllum fasciculatum*, but species being rare nationally. There are only three known sites where these three species co-occur (the others being Kilkieran slip and Kinvarra Bay, both also in Galway), and this is by far the best example of this association, in terms of plant density and plant size.

Seagrass (*Zostera marina*) occurs in a number of places in the bay and is dense in areas within the maerl bed. The algal community is characterized by several species of filamentous and foliose red algae (e.g. *Antithamnion* spp., *Ceramium* spp., *Polysiphonia* spp. and *Cryptopleura ramosa*), brown algae (e.g. *Mesogloia vermiculata* and *Dictyota dichotoma*) and green algae (e.g. *Derbesia marina* and *Ulva lactuca*). Several epiphytic algae also occur in the area. Of particular interest are *Gelidiella calcicola*, thought to be endemic to maerl, and the common coralline alga, *Corallina officinalis*, which grows in unattached balls at Kingstown Bay. Sheltered rocky shores are dominated by the brown alga *Ascophyllum nodosum*. The faunal community of the bay includes sponges, anemones, crustaceans, bivalve and gastropod molluscs, and fish. The oyster (*Ostrea edulis*) occurs.

Broken coralline algae accumulates between rocky outcrops on the shore, forming shallow beaches that are approximately 20 – 30 m wide. A small grassy island, Hog Island, occurs at the mouth of the bay.

Kingstown Bay is of high conservation importance owing to the presence of an excellent example of a sheltered bay, a habitat that is listed on Annex I of the EU Habitats Directive.

17.9.2001

Site Name: Carrowbaun, Newhall and Ballylee Turloughs

Site Code: 002293

This complex is a group of three turloughs hydrologically linked in times of high flood. It is situated in the vicinity of the Thoor Ballylee Interpretive Center, 3 km west of Peterswell and 6 km north-east of Gort, in the limestone lowlands of south Co. Galway. The site is at the southern end of a complex of turloughs which includes the SACs Lough Coy (2117) and Peterswell (318). It is the last of these to flood.

The site is a candidate SAC selected for turlough, a priority habitat listed on Annex I of the E.U. Habitats Directive.

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The lowest part of Carrowbaun is at its northern end and an artificial channel links the marsh with the Ballylee River. At the north end of Ballylee there is a swallow-hole (Pollaleen) which introduces water from Lough Coy. The Ballylee River is joined from the south (via the castle) by the Streamstown River and water sinks into the channel floor, or disappears in a tangle of scrub at Pollanoween further south. Newhall lies in a broad peaty depression with gravel deposits at the southern end. At high water-levels Newhall floods into Carrowbaun West.

The northern end of Carrowbaun is covered by a wet Common Sedge (*Carex nigra*) community which remains wet all year. Plants indicating this wetness are Bottle Sedge (*Carex rostrata*), Bogbean (*Menyanthes trifoliata*), Marsh Cinquefoil (*Potentilla palustris*), Water Horsetail (*Equisetum fluviatile*) and Marsh Marigold (*Caltha palustris*). On the drier edges Brown Sedge (*Carex disticha*), Meadowsweet (*Filipendula ulmaria*) and Marsh Ragwort (*Senecio aquaticus*) occur. Turlough scrub at the northern end contains Blackthorn (*Prunus spinosa*), Buckthorn (*Rhamnus catharticus*) and some Ash (*Fraxinus excelsior*). This grades up into dry rocky Hazel (*Corylus avellana*) scrub with a good ground flora.

The southern end of Carrowbaun floods less often and is largely modified by fertilisation and heavy grazing. Hairy Sedge (*Carex hirta*), Sorrel (*Rumex acetosa*) and Autumn Hawkbit (*Leontodon autumnalis*) characterise this vegetation with frequent Rye Grass (*Lolium perenne*), White Clover (*Trifolium repens*) and Timothy Grass (*Phleum pratense*) indicating semi-improvement.

Newhall is rather similar to Carrowbaun though there is less intensification and more poaching. Animal treading has exposed the peaty soil and tussocks of a drier Carnation Sedge-Glaucous Sedge (*Carex panicea* - *Carex flacca*) community occur amongst a wetter Floating Sweet-grass/Starwort (*Glyceria fluitans*-*Callitriche* spp.) community.

Ballylee contains more turlough scrub than the other two sites, especially around the Pollanoween sink which is overgrown by a tangle of shrubs. Tall herbs such as Meadowsweet, Nettle (*Urtica dioica*) and Wild angelica (*Angelica sylvestris*) grow beneath Buckthorn, Blackthorn, Hazel, Guelder Rose (*Viburnum opulus*) and Spindle (*Euonymus europaeus*). Ash occurs in turlough scrub along the central ridge. There is some dry limestone pavement along this ridge.

Much of the rest of Ballylee is uniform wet grassland with, for instance, Creeping Bent (*Agrostis stolonifera*) and Crested Dog's-tail (*Cynosurus cristatus*). In places, semi-improvement has increased the percentage of Rye grass.

Carrowbaun and Newhall are part of a complex of neighbouring turloughs and, because they are the last to flood completely, there is a concentration of waterbirds at certain times. During monthly surveys in the winters of 1995/6 and 1996/7 Carrowbaun and Newhall was noted for its diversity and numbers of waterbirds when in flood. The maximum counted was 1,740 (involving 13 species). Maximum counts during this period were as follows (a count made on 18th December 2000 is given in parenthesis):

Mute Swan 4 (6); Bewick's swan 40 (0); Whooper swan 141 (118); Wigeon 356 (270); Mallard 22 (15); Teal 55 (25); Pochard 35 (9); Tufted duck 38 (16); Golden plover 400 (0); Lapwing 1000 (0); Dunlin 140 (30); Curlew 87 (35).

Whooper Swan and Bewick's Swan are listed on Annex I of the E.U. Birds Directive and these numbers are of National Importance. This site has been of importance for wintering swans since at least the 1970s. Dunlin are very scarce on inland waters and their presence here is of note.

Ballylee Castle, a Visitors' Center, is included in the site. A breeding population of the Lesser Horseshoe Bat (*Rhinolophus hipposideros*), an Annex II species under the E.U. Habitats Directive, has been recorded regularly since 1996. Counts for 1996 were 20+ and for 2000 were 27. 20 roosting Long-eared Bats (*Plecotus auritus*) were also recorded. In addition, according to the literature, the castle is a known Pipistrelle Bat (*Pipistrellus pipistrellus*) site. These three bat species are listed as Internationally Important in the Irish Vertebrate Red Data Book. A pair of Kestrels (*Falco tinnunculus*) nest and have successfully bred at the top of the castle for the past three years.

The vegetation of Carrowbaun, Newhall and Ballylee has been largely modified by drainage works, fertilization and over-grazing, which reduce their botanical value. However, the wet plant communities in north Carrowbaun and the turlough scrub are important botanically. The presence of a high diversity of waterbirds and the roost of Lesser Horseshoe Bats, an Annex II species under the E.U. Habitats Directive adds to the ecological interest of the site.

20.3.2003

Site Name: Cahermore Turlough

Site Code: 002294

Cahermore Turlough is situated in the limestone lowlands of south Co. Galway about 5 km north-west of Gort and 5.5 km south-east of Kinvara. It is part of a series of lakes and turloughs in the region, most of which are Special Areas of Conservation (SAC) or Natural Heritage Areas (NHA). The nearest is Caherglassaun Turlough, the water levels of which are slightly higher than Cahermore. The site is mostly covered by drift which is mounded into hillocks in the south-eastern parts.

The site is a candidate SAC selected for turlough, a priority habitat listed on Annex I of the E.U. Habitats Directive.

The turlough is a dry one and there is no standing water in summer except for a few small ponds dug for cattle. A few collapse features occur in the drift on the southern side with a regular swallow-hole at the edge of the flooded area. Another hole occurs just behind the bungalow at the road junction in the south-east corner. The turlough appears to flood largely from the southern side.

The site has quite a uniform grassland cover. Creeping Bent (*Agrostis stolonifera*), Rough meadow-grass (*Poa*

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trivialis), Smooth Meadow-grass (*Poa pratensis*), Red Fescue (*Festuca rubra*) and Couch Grass (*Elytrigia repens*) are the main constituents. Hairy Sedge (*Carex hirta*) and Common Sedge (*Carex nigra*) are widespread sedges over the site. Marsh Foxtail (*Alopecurus geniculatus*) grows in the southern half. Pools dug into the drift have a varied flora, some have Pond water-crowfoot (*Ranunculus peltatus*) and Common Duckweed (*Lemna minor*) while others have Amphibious Bistort (*Persicaria amphibia*), Floating Sweetgrass (*Glyceria fluitans*), Water Forget-me-not (*Myosotis scorpioides*) and Common Spike-rush (*Eleocharis palustris*).

Two areas of limestone pavement which are largely scrub-covered occur. The one in the east is grazed by sheep and has grassland plant species such as Thyme (*Thymus praecox*) and Downy Oat-grass (*Avenula pubescens*). The shrubs on this pavement include Blackthorn (*Prunus spinosa*), Burnet Rose (*Rosa pimpinellifolia*), Juniper (*Juniperus communis*) and the exotic species Small-leaved Cotoneaster (*Cotoneaster microphyllus*). A larger area of turlough scrub in the northern part is impenetrable and consists of Hawthorn (*Crataegus monogyna*), Buckthorn (*Rhamnus catharticus*), Blackthorn (*Prunus spinosa*) and Spindle (*Euonymus europaeus*). There is some Crested Dog's-tail (*Cynosurus cristatus*) grassland on the fringes of this scrub.

The site holds a diverse population of wintering waterbirds at times of flood. Dunlin are not common inland but occurred throughout the 1998/99 winter season. The following counts were made on 15th December 1998 and, in parentheses, 30th November 2000:

Whooper Swan 49 (35); Mute Swan 9 (5); Wigeon 180 (160); Teal 10 (-); Mallard 6 (22); Pochard 86 (12); Tufted Duck - (8); Lapwing 250 (150); Curlew 25 (-); Dunlin 120 (70); Redshank - (4). Bewick's Swan (7i in winter 1995/96) and Golden Plover (60i in winter 1998/99) have been recorded.

Cahermore Turlough supports a wide range of turlough habitats with well-developed plant communities. The amount and quality of the developing woodland is a special feature of this turlough. Whooper Swan, Bewick's Swan and Golden Plover are listed on Annex I of the E.U. Birds Directive.
21.10.2002

Site Name: Ballinduff Turlough

Site Code: 002295

Ballinduff Turlough is situated in a narrow basin in the limestone lowlands of south Co. Galway, 5 km north-east of Gort. It is part of the Coole Lough complex of lakes and turloughs, most of which are Natural Heritage Areas (NHAs) or Special Areas of Conservation (SACs). Rock outcrops around the northern half but there is glacial drift in the south. There is a low hill to the south outside the site. The boundary in the south-west is the Galway-Limerick railway line.

The site is a candidate SAC selected for turlough, a priority habitat listed on Annex I of the E.U. Habitats Directive.

The turlough is late-draining and a pool persists into June or July and re-floods easily. There is a marshy hollow in the middle of the southern section which receives an inflow of water from the south. The hydrology of the site is probably controlled by a complex of swallow holes and subsidence below the houses at Coolfin. During floods the turlough drains overland towards Coole Lough.

The main habitats on the site are various types of turlough grassland and turlough scrub which are related to the flooding regime. The turlough grassland types vary. In the wettest parts plant species such as Marsh Horsetail (*Equisetum fluviatile*), Amphibious Bistort (*Persicaria amphibia*) and Common Spike-rush (*Eleocharis palustris*) occur with some Lake Club-rush (*Schoenoplectus lacustris*). Higher up Yellow Sedge (*Carex lepidocarpa*), Marsh Pennywort (*Hydrocotyle vulgaris*) and Jointed Rush (*Juncus articulatus*) occur on marly rises, while the common community includes Common Sedge (*Carex nigra*), Creeping Bent Grass (*Agrostis stolonifera*), Creeping Cinquefoil (*Potentilla reptans*) and Silverweed (*Potentilla anserina*). There is also a wide band of nutrient-poor grassland with Purple Moor-grass (*Molinia careulea*), Common Sedge, Yellow Sedge and Tawny Sedge (*Carex hostiana*).

An unusual feature is that Shoreweed (*Littorella uniflora*) is very widespread and prominent throughout the turlough and is present in all the above plant communities.

Low dense woodland, liable to flood, is the other main habitat on the site, mostly along the north-western edge of the basin. Ash (*Fraxinus excelsior*), Buckthorn (*Rhamnus catharticus*) and Hawthorn (*Crataegus monogyna*) are the main constituents with other shrubs such as Guelder Rose (*Viburnum opulus*) and Spindle (*Euonymus europaeus*). The vicinity of the swallow holes has a good woodland edge with tall herbs such as Yellow Loosestrife (*Lysimachia vulgaris*), Dewberry (*Rubus caesius*) and a large colony of Meadow-rue (*Thalictrum flavum*).

Other habitats include scrub not subject to flooding and the inflowing drain from the south-east which contains abundant Watercress (*Nasturtium* sp.), around which wet grassland with Sharp-flowered Rush (*Juncus acutiflorus*) occurs. The rest of the site is mainly improved grassland, which is included for water quality reasons.

In winter, Whooper Swans and Bewick's Swans have been recorded at the site. These swans feed mainly on improved pasture on Corker Hill to the south but roost on the open water of the turlough. They are considered to be part of the large swan population that is centred at Coole Lough. In winters 1996/97 and 1997/98, between 200 and 300 Whoopers were recorded and between 10 and 50 Bewick's. Lower numbers of Whoopers occurred in subsequent winters and Bewick's are now rarely recorded in south Galway (a trend reflected throughout Ireland). Both of these swan species are listed on Annex I of the EU Birds Directive, and the numbers of Whoopers recorded in the above years were of International Importance. Numbers of other waterbirds using the site in winter are low.

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The rare invertebrate *Eurycercus glacialis*, which was first found in Ireland in 1985, occurs at Ballinduff Turlough. In Ireland, the species is seen to be a turlough specialist of the east Galway region, rare elsewhere in Atlantic Europe. Its presence at the site adds to the ecological interest.

Grazing intensity on the turlough grassland is very low. Some clearance of dry scrub has taken place recently.

Ballinduff Turlough offers a wide range of turlough habitats with plant communities well-developed and with little grazing. The widespread presence of Shoreweed within different plant communities is an unusual turlough feature. The development of Buckthorn woodland and the swallow-hole vegetation are other unusual features. The presence of a rare turlough invertebrate adds to the ecological interest.

13.03.2003

Site Name: Williamstown Turloughs

Site Code: 002296

Williamstown Turloughs are a suite of turloughs - Curragh, Polleagh (and Polleagh West) and Gortduff, the first two of which are situated alongside the R380 about 7 km west of Williamstown, Co. Galway. They lie within a complex of esker ridges and raised and valley peats, very close to the Shannon - Corrib watershed. Drainage is westwards. To the north-west is the Old Red Sandstone ridge of Slieve Dart and sandstone is probably present at, or close, to the north-west side of Curragh.

The site is a candidate SAC selected for turlough, a priority habitat listed on Annex I of the E.U. Habitats Directive.

Polleagh Lough is an oligotrophic turlough. It has a permanent very shallow lake which is probably dependent for its existence in summer on a perched water-table fed only by water from its surrounding small catchment area. This catchment area includes a significant area to the east of the main road. Polleagh Lough is joined to Polleagh West at times of high flood, completely surrounding a low hill of glacial drift. In summer, Polleagh West almost dries out. Curragh is similar in many ways and is in hydraulic continuity with Polleagh. Gortduff is a small well-grazed, elongated and undulating steep-sided turlough with a number of sink-holes. It has a permanent pond (at its south-eastern end) which is also dependent on a perched water-table.

Polleagh has a particularly diverse vegetation with eleven true turlough plant communities. Reedbeds with Common Reed (*Phragmites communis*) and Common Club-rush (*Schoenoplectus lacustris*) cover a significant part of the southern end. Marl pond vegetation with Shoreweed (*Littorella uniflora*), Lesser Water-plantain (*Baldellia ranunculoides*) and Bulbous Rush (*Juncus bulbosus*) occur where a layer of marl deposition covers a bare peat substrate, especially in the northern and eastern shore-lines. Wet annual vegetation occurs along the narrow parts of Polleagh West which contains a small number of specialised annual plants such as Redshank (*Polygonum persicaria*), Red Goosefoot (*Chenopodium rubrum*), Marsh

Cudweed (*Filaginella uliginosa*) and Northern Yellow-cress (*Rorippa islandica*). Amphibious Bistort (*Polygonum amphibium*) is quite widespread in the turlough and occurs as almost pure stands with Creeping Bent grass (*Agrostis stolonifera*), Common Spike-rush (*Eleocharis palustris*) and the moss *Fontinalis antipyretica*. Much of the remainder of the turlough comprises a low growing sward of mixed sedges.

Curragh has less diverse vegetation with five true turlough plant communities. Pure stands of Amphibious Bistort with *Fontinalis* occupy much of the small hollows and larger bays close to the lake margins. Elsewhere sedge grassland is widespread.

The steep sides of Gortduff show a good zonation from Amphibious Bistort at the base to a dry Common Sedge (*Carex nigra*) community which merges into semi-improved and improved grassland around the upper margins.

For a small site this suite of turloughs is considered to have a good diversity of wintering waterbirds. Peak numbers at Polleagh during twice monthly counts from December 1995 to April 1996 were as follows: Whooper swan 8; Mute swan 3; Mallard 34; Wigeon 230; Teal 20; Shoveler 4; Tufted duck 17; Pochard 5; Goldeneye 2; Lapwing 1,190; Golden plover 1,550; Curlew 155; Dunlin 31; Redshank 2; Moorhen 6; Black-headed gull 110. Curragh had lesser numbers of all species but there is bound to be frequent interchange between the two turloughs.

During a further site visit (31/01/01) a similar range and number were recorded (numbers refer to Polleagh, Curragh and Gortduff combined): Whooper swan 9; Mute swan 2; Mallard 55; Wigeon 200; Teal 30; Tufted duck 8; Lapwing 800; Golden plover 150; Curlew 55; Dunlin 25; Redshank 1. A good number of waterbirds were present in grassy pools in the north of Polleagh where the two turloughs join at high water-levels.

In 1996 Polleagh and Curragh held significant numbers of breeding waders: Snipe 10 (drummers); Lapwing 12 pairs; Redshank 7 pairs; Ringed plover 2 pairs. In addition small numbers of Tufted duck, Mallard, Little grebes and Moorhen also bred.

The Annex II animal, the Otter (*Lutra lutra*) was recorded at the site in 1996. Fish have been reported in both Polleagh and Curragh Loughs.

Drainage works which have damaged the site were carried out privately in 1996 and are still effective to date. Drainage at the eastern end of Polleagh has been reversed and water to the turlough is being lost at times of high flood. Water input from the small catchment is also being lost during the summer. The long term effect on this suite of turloughs has not yet been assessed.

An assessment of the ecological value of these turloughs, using a recognised evaluation system, ranks Polleagh and Curragh combined as being the 11th most valuable turlough in Ireland. On this basis the Williamstown Turloughs are evaluated as being of International Importance meriting strict conservation measures. The Northern Yellow-cress (*Rorippa islandica*) is a Red Data

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book species and a characteristic turlough species. Golden Plover have reached Nationally Important numbers. Lapwing has been in decline in Ireland as a breeding bird since the early 1990s though a substantial population occurred here in 1996. Ringed plovers are scarce as an inland breeding species.
25.03.2003

Site Name: Cregg House Stables, Crusheen

Site Code: 002317

Cregg House is situated approximately 10 km south of Gort, Co. Galway. The site consists of an old, stone stable block. It is a candidate Special Area of Conservation because it contains an important maternity roost of the Lesser Horseshoe Bat (*Rhinolophus hipposideros*), a species listed on Annex II of the EU Habitats Directive.

The stables are still used for horses and the building is in good repair with a well maintained slate roof. The bats roost in the loft and 100 bats were counted using this breeding site in 1997, making it a site of international importance.

The surrounding landscape consists of improved grassland with hedgerow boundaries. There are several small lakes with fringing woodland in the vicinity of the roost, providing some foraging habitat for the bats.

While there are no apparent threats to the conservation status of the bats at this summer roost, the foraging areas and the winter roost of this population remain unknown.
21.03.03

Site Name: Camderry Bog

Site Code: 002347

Camderry Bog is part of a cluster of bogs in Co. Galway, situated approximately 12 km north-east of Mountbellew and 9 km south-east of Glenamaddy. It is almost entirely within the townlands of Camderry, Boggauns and Corracullin. The site comprises a relatively large raised bog that includes both areas of high bog and cutover bog. The northern and western margins of the site are bounded by the Shiven River, the eastern margin is bounded by a mineral ridge and those to the south by roads.

The site is a candidate Special Area of Conservation selected for active raised bog, degraded raised bog and Rhynchosporion, habitats that are listed on Annex I of the E.U. Habitats Directive. Active raised bog comprises areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses (*Sphagnum* spp.) is high, and where some or all of the following features occur: hummocks, pools, wet flats, *Sphagnum* lawns, flushes and soaks. Degraded raised bog corresponds to those areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration. The Rhynchosporion habitat occurs in wet depressions,

pool edges and erosion channels where the vegetation includes White Beak-sedge (*Rhynchospora alba*) and/or Brown Beak-sedge (*R. fusca*), and at least some of the following associated species, Bog Asphodel (*Narthecium ossifragum*), Sundews (*Drosera* spp.), Deergrass (*Scirpus cespitosus*), Carnation Sedge (*Carex panicea*).

The site consists of two domes separated by a broad ridge of mineral soil. Overall the northern dome appears to be quite dry with limited areas of wet hummock/hollows. The lower southern dome contains an area of quaking bog with hummocks and tear pools. A small flushed area showing small-scale hummock-hollow development is found on the northern dome to the north and north-west of a forestry plantation on the high bog. To the east there is an extensive flush with areas of open water. Cutover bog occurs all around the margins of the high bog apart from a semi-natural margin to the north by the Shiven River.

Much of the high bog has vegetation typical of the Western Raised Bog type, consisting of Ling Heather (*Calluna vulgaris*), Cottongrass (*Eriophorum* spp.) and Carnation Sedge. Bog Mosses (*Sphagnum* spp.) form a spongy mat in places but due to damage from drying out and burning are rarely present as carpets. Over large areas, especially in the south, lichens (*Cladonia* spp.) occur in abundance. Hummocks of the moss *Racomitrium lanuginosum* occur in the centre of the site and the liverwort *Pleurozia purpurea* is also present. The area of quaking bog has hummocks and hollows and is characterised by hummocks formed of bog mosses *S. papillosum* and *S. capillifolium*, extensive lawns of bog mosses *S. cuspidatum* with Bogbean (*Menyanthes trifoliata*) and tear pools. There are Bog Asphodel-dominated hollows and the moss *Campylopus atrovirens* occurs at the margins of the tear pools. This area of the site supports several rare species of bog moss i.e. *S. fuscum* and *S. imbricatum*. In the flushed areas low hummocks of *S. capillifolium* and *S. imbricatum* occur with Bog Asphodel lawns and abundant Cranberry (*Vaccinium oxycoccos*). The large eastern flush consists of a depression with open water and bog moss *S. cuspidatum* around the margin. Other species present include Soft Rush (*Juncus effusus*), Bogbean, and the cottongrasses (*Eriophorum angustifolium* and *E. vaginatum*).

The old cutover is mainly dominated by Ling Heather, Purple Moor-grass (*Molinia caerulea*), Soft Rush and cottongrass. Gorse (*Ulex europaeus*), Birch (*Betula* sp.) and willows (*Salix* spp.) also occur along the drains. Along the north of the site on the banks of the Shiven River, Hawthorn (*Crataegus monogyna*), willow and Ling Heather grow with typical river bank species such as Meadow-sweet (*Filipendula ulmaria*), Nettle (*Urtica dioica*) and docks (*Rumex* spp.). An area of cutover to the east of the site is waterlogged by water discharged from the high bog. Drains in this cutover contain species indicative of some enrichment, such as *Potamogeton polygonifolius* and *Carex rostrata*. To the south old cutover is very wet and regenerating well, with a good cover of bog mosses, including such species as *S. papillosum*, *S. capillifolium* and *S. auriculatum*. Here, Purple Moor-grass and cottongrass over a carpet of bog mosses is the dominant vegetation.

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Red Grouse, a Red listed species and one that is becoming increasingly rare in Ireland, has been recorded on the site.

Current landuse on the site consists of peat-cutting around the edge of the high bog and forestry. Active peat-cutting is carried out to the south, east and north-west using mechanised methods for peat extraction. Damaging activities associated with these landuses include drainage and extensive and frequent burning of the high bog. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability. The whole site may have subsided due to water loss from drainage in the past.

Camderry Bog is a site of considerable conservation significance comprising as it does a large raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats, including hummock/hollow complexes, tear pools, flushes and regenerating cutover, as well as a number of scarce plant species. Active raised bog is listed as a priority habitat on Annex I of the E.U. Habitats Directive. Priority status is given to habitats and species that are threatened throughout the E.U. Ireland has a high proportion of the total E.U. resource of this habitat (over 60%) and so has a special responsibility for its conservation at an international level.

31.10.2002

Site Name: Curraghlehanagh Bog

Site Code: 002350

Curraghlehanagh Bog is part of a bog cluster situated approximately 6 km north of Mountbellew Co. Galway, mainly in the townlands of Curraghlehanagh, Rushestown and Milltown. The site comprises a raised bog with areas of high bog and cutover, and lies on a relatively low-lying plateau entirely within the upper reaches of the Shiven River. Mature coniferous forestry occurs on the high bog to the north of the site.

The site is a candidate Special Area of Conservation selected for active raised bog, degraded raised bog and Rhynchosporion, habitats that are listed on Annex I of the E.U. Habitats Directive. Active raised bog comprises areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses (*Sphagnum* spp.) is high, and where some or all of the following features occur: hummocks, pools, wet flats, *Sphagnum* lawns, flushes and soaks. Degraded raised bog corresponds to those areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration. The Rhynchosporion habitat occurs in wet depressions, pool edges and erosion channels where the vegetation includes White Beak-sedge (*Rhynchospora alba*) and/or Brown Beak-sedge (*R. fusca*), and at least some of the following associated species, Bog Asphodel (*Narthecium ossifragum*), Sundews (*Drosera* spp.), Deergrass (*Scirpus cespitosus*), Carnation Sedge (*Carex panicea*).

The site has a typical raised bog topography with a central dome which slopes gently towards the margins. The high bog supports an extensive quaking area with many pools. Hummocks and pools are confined to the top of the dome and the rest consists of pools separated by lawns of bog mosses. Two bog bursts and associated tear pools occur on the eastern side of the site. A number of flushes occur at the western edge of the high bog. Habitat diversity is increased with the presence of a narrow strip of old mixed woodland on the north-eastern margin of the bog. A number of bare erosion channels occur in association with the bog burst to the east of the site.

This is a typical example of Western Raised Bog and the vegetation consists of Carnation Sedge with Bog Asphodel hollows, and tussocks of Ling Heather (*Calluna vulgaris*), Hare's-tail Cottongrass (*Eriophorum vaginatum*) and Deergrass. Other species present include the mosses *Campylopus atrovirens*, *Racomitrium lanuginosum* and the liverwort *Pleurozia purpurea*. Cranberry (*Vaccinium oxycoccos*) and Bog-rosemary (*Andromeda polifolia*) are locally abundant. The high bog supports an extensive quaking area with linear pools and lawns with bog moss (*Sphagnum cuspidatum*) and Bogbean (*Menyanthes trifoliata*). Lawns of bog mosses, including *Sphagnum magellanicum* and *S. auriculatum*, occur between the pools. In general, hummock cover is low, with occasional large *Racomitrium lanuginosum* tussocks. Purple Moor-grass (*Molinia purpurea*) and Common Reed (*Phragmites australis*) are found in association with flush areas to the west of the site along with scattered Downy Birch (*Betula pubescens*). Flora associated with the main channel in the bog burst to the east includes Ling Heather, Royal Fern (*Osmunda regalis*), Bog-myrtle (*Myrica gale*), Narrow Buckler-fern *Dryopteris carthusiana* and some orchid species. The epiphytic lichen flora is diverse, with *Coelocaulon aculeatum*, and *Usnea* spp. occurring on Ling Heather, and *Cladonia cervicornis* subsp. *verticillata* on the bark of Birch trees. The small area of mixed woodland to the north-east supports Downy Birch, Rowan (*Sorbus aucuparia*), Oak (*Quercus* sp.) and Scots Pine (*Pinus sylvestris*). In areas of abandoned cutover, Gorse (*Ulex europaeus*), Purple Moor-grass and Downy Birch are common, with bog moss regeneration being notably good in the south and north-eastern cutover.

Red Grouse, a species that is becoming increasingly rare in Ireland, has been recorded on the site.

Current landuse on the site consists of peat-cutting along the north and east margins. Afforestation has occurred on the high bog to the north-west of the site. Damaging activities associated with this landuse include drainage and burning. Fire damage has been recorded in the 1980s but the present abundance of bog mosses indicates significant recovery of the bog surface in these areas. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Curraghlehanagh Bog is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats including hummock/hollow complexes, pools and flushes, and regenerating cutover which add to the diversity and

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scientific value of the site. Active raised bog is listed as a priority habitat on Annex I of the E.U. Habitats Directive. Priority status is given to habitats and species that are threatened throughout the E.U. Ireland has a high proportion of the total E.U. resource of this habitat type (over 60%) and so has a special responsibility for its conservation at an international level.
31.10.2002

Site Name: Monivea Bog

Site Code: 002352

Monivea Bog is situated approximately 5 km north-east of Athenry, Co. Galway. It is located in the townlands of Corrantarrmud, Newcastle, Glenaslat and Lenamor. To the east lies the Killaclogher River and to the north a large coniferous plantation. It is located in an area of Karstic limestone.

The site is a candidate Special Area of Conservation selected for active raised bog, degraded raised bog and Rhynchosporion, habitats that are listed on Annex I of the E.U. Habitats Directive. Active raised bog comprises areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses (*Sphagnum* spp.) is high, and where some or all of the following features occur: hummocks, pools, wet flats, *Sphagnum* lawns, flushes and soaks. Degraded raised bog corresponds to those areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration. The Rhynchosporion habitat occurs in wet depressions, pool edges and erosion channels where the vegetation includes White Beak-sedge (*Rhynchospora alba*) and/or Brown Beak-sedge (*R. fusca*), and at least some of the following associated species, Bog Asphodel (*Narthecium ossifragum*), Sundews (*Drosera* spp.), Deergass (*Scirpus cespitosus*), Carnation Sedge (*Carex panicea*).

The site consists of two higher areas to the north and south with a central depression associated with an extensive flush system. The dome of the bog features a pool/hummock complex including wet, quaking areas. There is also a lake and swallow holes located in the north-west flush and soak system. Cutover is found all around the margins of the high bog and is extensive on the north and eastern margins. Tracks are found on the high bog to allow access for peat-cutting.

The high bog has vegetation typical of the Western Raised Bog type consisting of Carnation Sedge, Ling Heather (*Calluna vulgaris*), Bog Asphodel, Deergass, the lichen *Cladonia portentosa* and the moss *Racomitrium lanuginosum*. Overall, Deergass dominates the drier part of the high bog. In the pool/hummock complex on quaking bog, the cover of bog mosses (*Sphagnum* spp.) reaches 75%, consisting mainly of lawns of *Sphagnum cuspidatum*. Elsewhere, *Sphagnum* cover is typically low, ranging from 5-20%. Some pools are algae-dominated, but healthier pools have Hare's-tail Cottongrass (*Eriophorum vaginatum*) and bog mosses (*S. cuspidatum* and *S. auriculatum*). Hummocks consist of the bog mosses *S. fuscum*, *S. capillifolium* and *S. imbricatum*, with the mosses *Campylopus introflexus* and *Leucobryum glaucum*. Ling Heather and lichens are also found on the

hummocks. The bog features a large soak-system in the north-west which originates at the lake. The open water is colonised by Bottle Sedge (*Carex rostrata*), Bogbean (*Menyanthes trifoliata*), Soft Rush (*Juncus effusus*) and Marsh Cinquefoil (*Potentilla palustris*), associated with quaking bog moss lawns. To the south-east of the lake there is a pool surrounded by scraw vegetation, this consists of a quaking mat of mosses (i.e. *Sphagnum cuspidatum*, *S. recurvum*, *S. palustre* and *Aulacomnium palustre*), Cranberry (*Vaccinium oxycoccos*), Purple Moor-grass (*Molinia caerulea*) and Bog sedge (*Carex limosa*). Swallow holes are vegetated by willows (*Salix* spp.), Downy Birch (*Betula pubescens*), Broad Buckler-fern (*Dryopteris dilatata*), Tormentil (*Potentilla erecta*), Honeysuckle (*Lonicera periclymenum*) and Devil's-bit Scabious (*Succisa pratensis*). A number of small flushes with Purple Moor-grass, Bog-myrtle (*Myrica gale*) and bog mosses (*S. imbricatum*, *S. palustre* and *S. fuscum*) occur around the site. The cutover areas are sparsely vegetated in the north east and south, and where vegetation occurs it is dominated by Common Cottongrass (*Eriophorum angustifolium*). The tracks in and around the bog are lined mainly with Gorse (*Ulex europeus*) and willows with some Birch (*Betula* sp.) and Bracken (*Pteridium aquilinum*). Gorse encroaches onto the high bog at the mid-west of the site.

There is extensive mechanical peat cutting to the north, east and south of the site, and some hand-cutting in the south-west. In places the facebank reaches 3m in height with associated cracking and slumping. Some of the present high bog drains are new and others have been deepened. Burning events have occurred on the bog in the past and in places the peat remains unvegetated. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Monivea Bog is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The site supports a diversity of raised bog microhabitats including hummock/hollow complexes, pools, flushes, soak system and open water. Active raised bog is listed as a priority habitat on Annex I of the E.U. Habitats Directive. Priority status is given to habitats and species that are threatened throughout the E.U. Ireland has a high proportion of the E.U. resource of this habitat type (over 60%) and so has a special responsibility for its conservation at an international level.
31.10.2002

Site Name: Ardgraigue Bog

Site Code: 002356

Ardgraigue Bog is situated approximately 3 km north-east of Killimor, in the townlands of Ardgraigue, Kilquain, Woodfield, and Lissaniska North and South, Co. Galway. The site comprises a raised bog that includes both areas of high bog and cutover bog. It is surrounded by agricultural fields and is located within a cluster of raised bogs. The bog is just north of the Killimor-Eyrecourt Road

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with a number of local access roads leading to the bog and one leading onto the high bog.

The site is a candidate Special Area of Conservation selected for active raised bog, degraded raised bog and Rhynchosporion, habitats that are listed on Annex I of the E.U. Habitats Directive. Active raised bog comprises areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses (*Sphagnum* spp.) is high, and where some or all of the following features occur: hummocks, pools, wet flats, *Sphagnum* lawns, flushes and soaks. Degraded raised bog corresponds to those areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration. The Rhynchosporion habitat occurs in wet depressions, pool edges and erosion channels where the vegetation includes White Beak-sedge (*Rhynchospora alba*) and/or Brown Beak-sedge (*R. fusca*), and at least some of the following associated species, Bog Asphodel (*Narthecium ossifragum*), Sundews (*Drosera* spp.), Deergrass (*Scirpus cespitosus*), Carnation Sedge (*Carex panicea*).

The site consists of a small raised bog that developed in a basin. It is actively cut on all margins. It is described as being of excellent quality with a very wet quaking surface and soft margins. The vegetation is described as uniform throughout the bog. There are few pools on this site but it has very good hummock and hollow complexes. There is a small flush to the north of the high bog area. The bog does not appear to have been burnt in over 20 years according to the survey and had good lichen flora as a result.

Much of the high bog has vegetation typical of a Midlands Raised Bog including Bog-rosemary (*Andromeda polifolia*), Cranberry (*Vaccinium oxycoccos*) and the bog moss *Sphagnum magellanicum*. Other plants species found on the bog include Bogbean (*Menyanthes trifoliata*), Sundews (*Drosera anglica* and *D. rotundifolia*), Cottongrass (*Eriophorum angustifolium*), Ling Heather (*Calluna vulgaris*), Deergrass, White Beak-sedge and Carnation sedge. The bog has a luxuriant cover of bog mosses including *Sphagnum fuscum*, *S. papillosum*, *S. imbricatum*, *S. capillifolium*, *S. subnitens* and *S. tenellum*. This is a highly diverse range of species and these are found in hummocks and lawns. The site has very good hummock/hollow complexes with the bog mosses *Sphagnum pulchrum*, *S. cuspidatum* and *S. auriculatum* present. The bog supports a number of other moss species, including *Campylopus atrovirens*, *Hypnum jutlandicum*, *Aulacomnium palustre*, *Leucobryum glaucum* and *Pleurozium schreberi*, and the liverworts *Pleurozia purpurea*, *Calypogela sphagnicola*, *Cladopodiella fluitans*, and *Odontoschisma sphagni*. Lichen growth on the bog is excellent with some large colonies, include such species as *Cladonia ciliata*, *C. arbuscula* and *C. uncialis*. A flush dominated by Bog Myrtle and Ling Heather and surrounded by Crowberry (*Empetrum nigrum*) is found to the north of the site. Other species occurring in this flush include Bog-rosemary, Cranberry, Bilberry (*Vaccinium myrtillus*), Cow Wheat (*Melampyrum pratense*) and the bog moss *Sphagnum recurvum*.

Current landuse on the site consists of peat-cutting around most of the margins of the high bog. Areas of cutover have been reclaimed for agricultural purposes to

the north of the site. Peat-cutting on the site appears to be domestic mechanised peat extraction. Damaging activities associated with these landuses include drainage around the high bog and burning of the high bog. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Ardgraique Bog is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The site has a high diversity of raised bog plant species and supports a good diversity of raised bog microhabitats, including hummock/hollow complexes, pools, and flushes, as well as a number of scarce plant species. Active raised bog is listed as a priority habitat on Annex I of the E.U. Habitats Directive. Priority status is given to habitats and species that are threatened throughout the E.U. Ireland has a high proportion of the total E.U. resource of this habitat type (over 60%) and so has a special responsibility for its conservation at an international level.

31.10.2002

SPAs

Site Name: Inner Galway Bay

Site Code: 004031

Galway Bay SPA is a very large, marine-dominated, site situated on the west coast of Ireland. The inner bay is protected from exposure to Atlantic swells by the Aran Islands and Black Head. Subsidiary bays and inlets (e.g. Poul-na-clough, Aghinish and Kinvarra Bays) add texture to the patterns of water movement and sediment deposition, which lends variety to the marine habitats and communities. The terraced Carboniferous (Viséan) limestone platform of the Burren sweeps down to the shore and into the sublittoral. The long shoreline is noted for its diversity, with complex mixtures of bedrock shore, shingle beach, sandy beach and fringing salt marshes. Intertidal sand and mud flats occur around much of the shoreline, with the largest areas being found on the sheltered eastern coast between Oranmore Bay and Kinvarra Bay. A number of small islands composed of glacial deposits are included, such as Deer Island, along with some rocky islets.

The southern part of Galway Bay holds a very high number of littoral communities. They range from rocky terraces to sandy beaches with rock or sand dunes behind. The intertidal sediments of Galway Bay support good examples of communities that are moderately exposed to wave action. A well-defined talitrid zone in the upper shore gives way to an intertidal, mid-shore zone with sparse epifauna or infauna. On the lower, flat part of the shore, the tubes of the deposit-feeding terebellid worm, *Janice conchilega*, are common on the surface. Nereid and cirratulid polychaete worms (*Hediste diversicolor*, *Arenicola marina*), small crustaceans and bivalves (*Angulus tenuis*, *Cerastoderma edule* and *Macoma balthica*) are present. Sublittorally, the area has a number of distinctive and important communities. Of particular note is that Ireland's only reported piddock bed thrives in the shallows of Aghinish Bay. The rare sponge, *Mycale contarenii*, is also found here. Of additional interest is the presence of an extensive maerl bed of *Phymatolithon calcareum* which occurs in the strong tidal currents of Muckinish Bay. There is also maerl off Finavarra Point and in Kinvarra Bay (*Lithothamnion corallioides*, *Lithophyllum dentatum* and *Lithophyllum fasciculatum*). An oyster bed in Kinvarra Bay and seagrass (*Zostera* spp.) beds off Finavarra Point are also important features.

Salt marshes are frequent within this extensive coastal site, with the best examples located east of a line running between Galway City and Kinvarra. In this area the coastline is highly indented, thus providing the sheltered conditions necessary for extensive salt marsh development. Common salt marsh species present include Thrift (*Armeria maritima*), Red Fescue (*Festuca rubra*), Common Scurvygrass (*Cochlearia officinalis*), Lax-flowered Sea-lavender (*Limonium humile*), Common Saltmarsh-grass (*Puccinellia maritima*), Saltmarsh Rush (*Juncus gerardi*) and Sea Rush (*Juncus maritimus*). On

the lower levels of the salt marshes and within pans is found Glasswort (*Salicornia europaea* agg.). Shingle and stony beaches occur throughout the site, with the best examples found along the more exposed shores to the south and west of Galway City and to the north and east of Finavarra. In general, these shingle shorelines are sparsely vegetated, with such species as Curled Dock (*Rumex crispus*), Common Couch (*Elymus repens*), Sea Sandwort (*Honkenya peploides*) and Sea Beet (*Beta vulgaris*).

Galway Bay is one of the most important ornithological sites in the western region. It supports an excellent diversity of wintering wetland birds, with divers, grebes, cormorants, dabbling duck, sea duck and waders all well represented. There are internationally important wintering populations of Great Northern Diver (83) and Brent Goose (676), and nationally important populations of an additional sixteen species, i.e. Black-throated Diver (25), Cormorant (266), Mute Swan (150), Wigeon (1,157), Teal (690), Shoveler (88), Red-breasted Merganser (249), Ringed Plover (335), Golden Plover (2,030), Lapwing (3,969), Dunlin (2,149), Bar-tailed Godwit (447), Curlew (697), Redshank (505), Greenshank (20) and Turnstone (182) – all figures are average peaks for the 5 seasons 1995/96-1999/00. Of note is that the populations of Red-breasted Merganser and Ringed Plover represent 6.7% and 3.3% of the respective national totals. Black-throated Diver is a scarce species in Ireland and the Galway Bay population is the most regular in the country. Other species which occur in notable numbers include Little Grebe (35), Grey Heron (102), Long-tailed Duck (19) and Scaup (40). The bay is an important wintering site for gulls, especially Black-headed Gull (1,815), Common Gull (1,011) and Herring Gull (216). In addition, the following species also use the site: Red-throated Diver (13), Great Crested Grebe (16), Mallard (200), Shelduck (139), Common Scoter (79), Oystercatcher (575), Grey Plover (60), Black-tailed Godwit (45) and Great Black-backed Gull (124). The site provides both feeding and roost sites for most of the species, though some birds also commute to areas outside of the site. The wintering birds of Galway Bay have been monitored annually since 1980/81.

The site has several important populations of breeding birds, most notably colonies of Sandwich Tern (81 pairs in 1995) and Common Tern (99 pairs in 1995). A large Cormorant colony occurs on Deer Island – this had 205 pairs in 1985 and 300 pairs in 1989.

Inner Galway Bay provides good quality habitat for Common Seal, a species that is listed on Annex II of the E.U. Habitats Directive. In 1984, this seal colony was one of the top three sites in the country, with over 140 animals recorded. The seals use a range of haul-out sites distributed through the bay. The site provides optimum habitat for Otter.

While there are no imminent threats to the birds, a concern is that sewage effluent and detritus of the aquaculture industry could be deleterious to benthic communities and could affect food stocks of divers, seaduck and other birds. Bird populations may also be disturbed by aquaculture activities. Owing to the proximity of Galway City, shoreline habitats are under pressure from urban expansion and recreational activities.

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This large coastal site is of immense ornithological importance, with two wintering species having populations of international importance and a further sixteen species having populations of national importance. The breeding colonies of Sandwich Tern, Common Tern and Cormorant are also of national importance. Also of note is that seven of the regularly occurring species are listed on Annex I of the E.U. Birds Directive, i.e. Red-throated Diver, Black-throated Diver, Great Northern Diver, Golden Plover, Bar-tailed Godwit, Sandwich Tern and Common Tern.

22.2.2005

Site Name: Lough Corrib

Site Code: 004042

Lough Corrib is situated to the north of Galway City and is the largest lake in the country. The lake can be divided into two parts: a relatively shallow basin, underlain by Carboniferous limestone, in the south and a larger, deeper basin, underlain by more acidic granite, schists, shales and sandstones, to the north. The main inflowing rivers are the Black, Clare, Dooghta, Cregg, Owenriff and the channel from Lough Mask. The main outflowing river is the Corrib, which reaches the sea at Galway City. Over the 1994-97 period Lough Corrib was classified as a mesotrophic system, a change from its oligo/mesotrophic status in the 1991-94 period. It retained its mesotrophic status for the 1998-2000 period, with a reduction in phosphorous and planktonic algal growth noted. Overall, the water quality of the Corrib is considered to be satisfactory.

The shallow, lime-rich waters of the southern basin of the lake support one of the most extensive beds of Stoneworts (Charophytes) in Ireland, with species such as *Chara aspera*, *C. hispida*, *C. delicatula*, *C. contraria* and *C. desmacantha* mixed with submerged Pondweeds (*Potamogeton perfoliatus*, *P. gramineus* and *P. lucens*), Shoreweed (*Littorella uniflora*) and Water Lobelia (*Lobelia dortmanna*). These *Chara* beds are a very important source of food for waterfowl. In contrast, the northern basin contains more oligotrophic and acidic waters, largely lacking Charophyte species, but with such species as Shoreweed, Water Lobelia, Pipewort (*Eriocaulon aquaticum*) and Quillwort (*Isoetes lacustris*). Large areas of reedswamp vegetation, dominated by varying mixtures of Common Reed (*Phragmites australis*) and Common Club-rush (*Scirpus lacustris*), occur around the margins of the lake. Reedswamp usually grades into species-rich marsh vegetation. Of particular note are the extensive beds of Great Fen-sedge (*Cladium mariscus*) that have developed over the marly peat deposits in sheltered bays. Limestone pavement occurs along much of the shoreline in the lower Corrib basin and supports a rich and diverse flora. The lake has numerous islands, from rocky islets to larger islands with grassland or woodland. The surrounding lands are mostly pastoral farmland, to the south and east, and bog and heath, to the west and north.

Lough Corrib is of international importance for wintering Pochard (10,182) - all figures are average peaks for the 5 seasons 1995/96-1999/00. It is one of the top five sites in the country for wintering waterfowl and also qualifies for

international importance because it regularly supports well in excess of 20,000 waterfowl. It is the most important site in the country for Pochard, Tufted Duck (5,521) and Coot (14,473), supporting 21%, 46% and 13% of the respective national totals. It also has nationally important populations of wintering Mute Swan (182), Gadwall (48), Shoveler (90), Golden Plover (1,727) and Lapwing (2,424). The lake is a traditional site for Greenland White-fronted Goose (62). Relatively small numbers of Whooper Swan (35) occur, along with Wigeon (528), Teal (77), Mallard (155), Goldeneye (74), Curlew (114) and Cormorant (36).

Lough Corrib is a traditional breeding site for gulls and terns, with various islands being used for nesting each year. There are important colonies of Common Tern (37 pairs in 1995) and Arctic Terns (60 pairs in 1995), both populations being of national importance. The site supports substantial colonies of Black-headed Gull (856 individuals in 1999) and Common Gull (181 pairs in 1999), these representing 11% and 17% of the respective national totals. Lesser Black-backed Gull (51 individuals in 1999) and Great Black-backed Gull (16 individuals in 1999) also breed, with a few pairs of Herring Gull. Considerably higher numbers of breeding gulls occurred in the recent past, as shown by surveys in 1977 and 1993; the reasons for the continued declines are, however, not fully known.

Whilst only colonised in the 1970/80s by nesting Common Scoter, Lough Corrib now supports approximately half of the national population of this rare duck, a Red Data Book species. The population has been stable since the mid-1990s, with 36 pairs recorded in the most recent survey in 1999.

Lough Corrib supports a range of species listed on Annex II of the E.U. Habitats Directive, including Otter, Salmon and Slender Naiad (*Najas flexilis*). The lake is an internationally renowned salmonid fishery.

Any deterioration in water quality of the lake would be of concern for the wintering birds and perhaps the breeding Common Scoter, though the condition of the lake has been satisfactory in recent years. The reasons for the long-term declines in the breeding gull populations since the 1970s are not known and require investigation. Fishing and shooting occur in and around the lake though is it not considered that these are significant threats to the birds.

Lough Corrib is one of the top ornithological sites in the country, and easily qualifies for international importance on the basis of numbers of wintering birds using it. It is also of international importance for its population of Pochard. There are a further seven species of wintering waterfowl that have populations of national importance. Its populations of breeding gulls and terns are also notable, with nationally important numbers of Common Tern, Arctic Tern, Common Gull and Black-headed Gull. The site is now the most important in the country for nesting Common Scoter. It is of note that several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Greenland White-fronted Goose, Golden Plover, Common Tern and Arctic Tern. The site has been relatively well monitored for birds

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in recent years. Research is required into the reasons for the decline of the breeding gull populations.

13.8.2004

Site Name: Lough Cutra

Site Code: 004056

Lough Cutra is a large oligo/mesotrophic freshwater lake lying on limestone but with much sediment washed down from the sandstone hills above. This lake is situated about 4 km south-east of Gort, Co. Galway. The Owendalulleagh River is the main in-flowing river. The shoreline is often stony or sandy, though in places it is peat-fringed. Marginal wetland vegetation includes well-developed beds of Common Reed (*Phragmites australis*) in sheltered bays, as well as localised patches of swamp and fen vegetation with species such as Black Bog-rush (*Schoenus nigricans*), Great Fen-sedge (*Cladium mariscus*) and a range of associated sedges (*Carex* spp.) and fen mosses. Woodland occurs around much of the lakeshore. While much of this is planted, wet woodland with willows (*Salix* spp.) and Alder (*Alnus glutinosa*) is also represented. The lake has a number of islands, some of which are wooded. The surrounding land is mostly agricultural, mainly pasture grassland. Lough Cutra Castle, which supports hibernating Lesser Horseshoe Bats, is adjacent to the site.

Lough Cutra is a long-established breeding site for Cormorants. The colony is of regional importance (34 pairs in 1996) though has been of national importance in the past (166 nests in 1985). The birds breed on one of the islands and appear to commute to the coast for feeding.

The lake supports wintering waterfowl, though numbers are only of regional importance. Average maximum counts for the three winters 1995/96, 1996/97 and 1998/99 are as follows: Cormorant (20), Whooper Swan (9), Mallard (95), Tufted Duck (53) and Goldeneye (31). Some of the birds, and especially the Goldeneye, also use nearby Ballynakill Lough. Greenland White-fronted Geese used the lake in the past but there are no records in recent years. Several pairs of Mute Swan breed, as well as Common Sandpiper.

Lough Cutra is used for fishing and tourism but these activities do not appear to threaten the breeding or wintering birds that use the site.

Lough Cutra SPA is of particular importance for its long-established breeding colony of Cormorant. It is of regional importance for wintering waterfowl. The regular occurrence of Whooper Swan, albeit in low numbers, is of note as this species is listed on Annex I of the E.U. Birds Directive.

11.2.2004

Site Name: Lough Derg (Shannon)

Site Code: 004058

Lough Derg is the largest of the Shannon Lakes, being some 40 km long. Its maximum breadth across the Scarriff Bay -Youghal Bay transect is 13 km but for most of its length it is less than 5 km wide. The lake is relatively shallow at the northern end being mostly 6 m in depth but in the middle region it has an axial trench and descends to over 25 m in places. The narrow southern end of the lake has the greatest average depth, with a maximum of 34 m. The greater part of the lake lies on Carboniferous limestone but the narrow southern section is underlain by Silurian strata. Most of the lower part of the lake is enclosed by hills on both sides, the Slieve Aughty Mountains to the west and the Arra Mountains to the east. The northern end is bordered by relatively flat, agricultural country. The lake shows the high hardness levels and alkaline pH to be expected from its mainly limestone catchment basin, and it has most recently been classified as a mesotrophic system. The lake has many small islands, especially on its western and northern sides. The shoreline is often fringed with swamp vegetation. Aquatic vegetation includes a range of charophyte species, including the Red Data Book species, *Chara tomentosa*. The shoreline is often fringed by swamp vegetation, comprised of such species as Common Reed (*Phragmites australis*), Great Fen-sedge (*Cladium mariscus*) and Bottle Sedge (*Carex rostrata*).

Lough Derg is of importance for both breeding and wintering birds. The site supports a nationally important breeding colony of Common Tern (55 pairs recorded in 1995). Management of one of the islands used for nesting has increased the area of suitable habitat available and prevented nests being destroyed by fluctuating water levels. Large numbers of Black-headed Gull have traditionally bred on the many islands (2,176 pairs in 1985) but the recent status of this species is not known. A large Cormorant colony occurs in trees on the islands near Portumna - 167 nests were counted in 1995 and 122 in 1999. Lough Derg is also a noted breeding site for Great Crested Grebe (47 pairs in 1995) and Tufted Duck (326 individuals in late May 1995).

In winter, the lake is important for a range of waterfowl species, especially diving ducks, with nationally important populations of Tufted Duck (1,029), Goldeneye (215) and Mute Swan (235) - figures are average peaks for 4 of the 5 seasons 1995/96-1999/00. Other species which occur include Cormorant (120), Whooper Swan (18), Wigeon (272), Teal (342), Mallard (417), Pochard (61), Black-headed Gull (814), Coot (229), Lapwing (1,346) and Little Grebe (14). Lough Derg has traditionally been used by a relatively small flock of Greenland White-fronted Goose based in the Lough Derg-Lough Graney area and possibly further afield. The mean flock size for the 5 winters 1989/90-1993/94 was only 22, but few sightings have been made in recent years. In March 2004, however, c. 20 birds were observed in the Scarriff Bay area indicating that a flock may still be present in the area.

Lough Derg is of conservation interest for its fish and freshwater invertebrates. Lampreys, listed on Annex II of the E.U. Habitats Directive, are known to occur and the lake contains a landlocked population of Sea Lamprey (*Petromyzon marinus*). Brook Lamprey (*Lampetra planeri*) is known to be common in the lower River Shannon catchment where all three Irish Lamprey species breed. The endangered fish species Pollan (*Coregonus*

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autumnalis pollan) is recorded from Lough Derg, one of only four sites (L. Neagh, L. Erne, L. Ree and L. Derg) in which it occurs. Lough Derg is also a well-known fishing lake with a good Trout (*Salmo trutta*) fishery. Atlantic Salmon (*Salmo salar*) also use the lake as a spawning ground.

Lough Derg was classified as being strongly eutrophic in the early 1990s. Since 1997, a monitoring programme on the Shannon lakes has shown that the symptoms of eutrophication previously documented (i.e. high chlorophyll level and reduced water visibility) have been ameliorated significantly. These reductions have coincided with the invasion of the Shannon system by the Zebra Mussel (*Dreissena polymorpha*), a species which feeds on plankton, and also with measures to reduce phosphorus in sewage plants in the catchment. Enrichment of the lake, both by agricultural run-off and sewage, remains a threat and could affect the bird populations, especially the diving duck. Whilst the presence of Zebra Mussel in Lough Derg appears to have improved water quality in the lake, in the long-term this invasive bivalve may threaten the ecology of the lake. Recreational activities presently cause some disturbance to the birds and an increase in such activities would be of concern.

Lough Derg SPA is of high ornithological importance as it supports nationally important breeding populations of Common Tern, Cormorant, Great Crested Grebe, and probably Tufted Duck and Black-headed Gull. In winter, it has nationally important populations of Tufted Duck and Goldeneye, as well as a range of other species including Whooper Swan. The site is still used on occasions by Greenland White-fronted Goose. The presence of Common Tern, Whooper Swan and Greenland White-fronted Goose is of particular note as these are listed on Annex I of the E.U. Birds Directive.
18.8.2004

Site Name: Lough Mask

Site Code: 004062

Lough Mask, at over 8,000 ha, is the sixth largest lake in the country. It extends for over 14 km along its long axis and is on average about 5 km in width. The underlying geology is of Carboniferous limestones, with some shales and sandstones. The main inflowing rivers are the Cloon and Robe, and the stream from Lough Carra to the north-east. The main outflow is to Lough Corrib to the south. The lake is shallow off the eastern shore but considerably deeper off the western where there is a long narrow trench with a maximum depth of 58 m. The water of the lake is moderately hard. During the 1990s, the trophic status of Lough Mask has changed from oligotrophic to mesotrophic due to a steady increase in phytoplankton growth. Aquatic and wetland plant species present are characteristic of oligotrophic systems - Water Lobelia (*Lobelia dortmanna*), Shoreweed (*Littorella uniflora*) and various Pondweed (*Potamogeton*) species. The eastern part of the lake is edged by a low-lying shoreline which is subject to winter flooding. An intricate mixture of plant communities has developed on the limestone, with bare pavement, scrub-dominated pavement, dry grassland and heath. The western shoreline is less diverse and lacks the

limestone communities. Islands are a feature of the lake, especially in the south-east sector.

Lough Mask is one of the most important sites in the country for nesting Black-headed Gull (329 pairs in 1999), Common Gull (124 pairs in 1999) and Lesser Black-backed Gull (286 pairs in 1999). Whilst higher numbers of nesting gulls have been recorded in the recent past, the 1999 populations of the three species still accounted for 8.4%, 1.7% and 10% of the respective national totals. The lake is also a traditional breeding site for Common Tern, with 44 pairs in 1995 and 39 pairs in 1999.

In winter the site has a range of waterfowl, especially diving duck, with the Tufted Duck population (453) being of national importance - all figures are average peaks for 4 of the 5 winters in the period 1995/96-1999/00. It also supports Whooper Swan (54) and is visited at times by part of the Erriff/Derrycraff population of Greenland White-fronted Goose (16). Other species using the site include Wigeon (84), Teal (99), Mallard (101), Pochard (65), Goldeneye (89), Coot (112), Red-breasted Merganser (12), Little Grebe (17), Mute Swan (49) and Cormorant (36).

The lake has a population of Arctic Char, a Red Data book species, and is an important site for Otter, a species that is listed on Annex II of the E.U. Habitats Directive. Lough Mask is an important salmonid fishery.

The lake continues to be vulnerable to enrichment from surrounding agricultural and other commercial/domestic activities. The reasons for the decline in the breeding gull colonies in recent years are unknown, but it is considered that predation by feral American Mink is a problem.

Lough Mask is one of the most important inland gull breeding sites in the country, with nationally important populations of three gull species. It also has a nationally important colony of Common Tern, a species that is listed on Annex I of the E.U. Birds Directive. The site supports a good diversity of wintering waterfowl, including a nationally important population of Tufted Duck. The occurrence of Whooper Swan and Greenland White-fronted Goose, albeit in small numbers, is of note as these species are also listed on Annex I of the E.U. Birds Directive.
19.8.2004

Site Name: High Island (Galway)

Site Code: 004067

High Island is a small, uninhabited island lying some 3 km west of Aughrus Point on the Galway coast. It is very exposed to the force of the Atlantic Ocean. The island rises to over 60 m and is mostly surrounded by fairly sheer cliffs. Maritime grassland is the main vegetation type, though there is also some dry heath and some freshwater marsh vegetation. Two small lakes occur which have a brackish character from salt spray. A number of very small islands or islets occur off the main island, notably Carrickarone and Carrickawhilla. An area of marine waters to a distance of 200 m from the island and associated islets is included within the site for the

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benefit of the breeding seabirds. High Island is the site of an important ancient ecclesiastical settlement.

High Island is of ornithological importance principally for its breeding seabirds. There is a long-established colony of Storm Petrel which may be up to 1,000 pairs strong (not recently censused) and one of the largest in the region. Storm Petrels nest in crevices in old stone buildings and in natural scree slopes and rock crevices. The site also supports regionally important populations of Fulmar (210 pairs in 1999) and Manx Shearwater (<100 pairs). Great Black-backed Gull (16 pairs in 1999), Herring Gull (c. 10 pairs) and Black Guillemot (c. 10 pairs) also breed.

The island is used on occasions by wintering Barnacle Geese, though numbers are relatively small (40 in spring 1993). The birds are likely to be part of the large flock that frequents Inishshark and other islands in the area. Both Chough and Peregrine have bred in the past but their recent status is unknown.

High Island is fairly inaccessible and is seldom visited. There are no known significant threats to the breeding seabird populations.

This site is of national importance for its breeding seabirds. Of particular note is the large population of Storm Petrel, a species that is listed on Annex I of the E.U. Birds Directive. Barnacle Goose, Peregrine and Chough are also listed on Annex I of this directive.
7.2.2004

Site Name: Lough Scannive

Site Code: 004088

Lough Scannive is one of a maze of small- to medium-sized lakes within a large complex of lowland blanket bog in Connemara, Co. Galway. It is located about 3 km from the coast at Bertraghboy Bay. The lake is typically oligotrophic and surrounded by bog. It has many small islands, some of which are wooded. The underlying rock is migmatite.

The site has a nationally important breeding colony of Cormorant, which is one of the largest in the country and one of the few inland breeding sites. The colony has been well monitored since 1970 when 150 pairs were present. By 1985 this had increased to 218 pairs. The most recent census in 2001 gave a total of 160 pairs (c. 3.5% of the national total).

In 2001 the site had three pairs of Common Gull and one pair of Great Black-backed Gull. Merlin is known to breed locally and could at times use the islands in the lake for nesting.

The site is fairly inaccessible and there are no known threats to the birds.
8.2.2004

Site Name: Rahasane Turlough

Site Code: 004089

Rahasane Turlough lies in gently undulating land, approximately 2 km west of Craughwell, Co. Galway. It consists of two basins which are connected at times of flood but separated as the waters recede. The larger of these, the northern basin, takes the Dunkellin River westwards. Rahasane was formerly the natural sink of the Dunkellin River, but now an artificial channel takes some of the water further downstream. Water escapes the artificial channel to sweep around the northern basin, and again in the west, where it flows into an active swallowhole system. Some minor collapses are found elsewhere in the turlough, as well as a small number of more permanent pools. Mostly, the edges of the turlough rise gradually into the surrounding land, but in places rocks mark a more sudden transition. The southern basin has high rocky sides above an undulating base that is strewn with boulders. There is a low hill on the south side of the main basin, and another on the north-east, near Shanbally Castle. The major part of the turlough is open, flat and grassy, with occasional depressions and dry channels. The substrate consists largely of silty clay. Locally in the main basin there are signs of marl, but peat is absent everywhere.

The vegetation of Rahasane is divided between dry and wet communities. Because of its large catchment, the turlough is naturally eutrophic and this, together with a lack of peat, limits the sedges (*Carex* spp.) which are usually abundant in turlough vegetation. In places with outcropping limestone, the vegetation is predominantly dry grassland among a generally calcicole community. Large areas in the drier parts of the turlough are covered by a community characterised by an abundance of Creeping Cinquefoil (*Potentilla reptans*), with Common Sedge (*Carex nigra*), Silverweed (*Potentilla anserina*) and Creeping Bent (*Agrostis stolonifera*). Where the soil is less well-drained, Creeping Cinquefoil disappears from this community and the rare, Red Data Book species, Fen Violet (*Viola persicifolia*), occurs. The wet communities are all associated with the river channels and pools. Fully aquatic communities include such species as Fan-leaved Water-crowfoot (*Ranunculus circinatus*) and pondweeds (*Potamogeton* spp.). Semi-aquatic communities fringe the main channel of the river and colonise muddy pools in the basin. Species such as Lesser Water-parsnip (*Berula erecta*), Fool's Water-cress (*Apium nodiflorum*) and Amphibious Bistort (*Polygonum amphibium*) occur, as well as the rare, Red Data Book species, Northern Yellow-cress (*Rorippa islandica*). There are also some narrow fields with Yellow Iris (*Iris pseudacorus*). There are small areas of scrub on the southern and north-western sides of the turlough, but the area of flooded woodland is small.

Rahasane is considered to be the most important turlough in the country for wintering waterfowl. It is a traditional site for Greenland White-fronted Goose, and supports a population of national importance (218 individuals) - all figures are average peaks for the period 1995/96-1999/00. It also has nationally important populations of Whooper Swan (141), Wigeon (3,630), Pintail (21), Golden Plover (6,626), Lapwing (2,220) and Black-tailed Godwit (435). The Shoveler population (29) is very close to the threshold for national importance. The site has the largest inland population of Dunlin (864) in the country, and also supports Mute Swan (76), Teal (367), Tufted

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Duck (32), Curlew (197), Redshank (149), Mallard (124), Black-headed Gull (280) and Grey Heron (31). As at all turlough sites, numbers of birds present can vary considerably owing to fluctuations in water levels. The site has long been known as an important waterfowl site and has been monitored annually in recent years.

The Crustacean, Fairy Shrimp (*Tanymastix stagnalis*) was first recorded in Ireland from the southern basin at Rahasane, though it has since been noted elsewhere. It requires isolation from predators to grow to reproductive age and so does not occur in permanent waterbodies.

Arterial drainage, whilst probably now unlikely to occur, would cause serious damage to the flooding pattern of this turlough and would be expected to affect the bird populations. The Greenland White-fronted Goose population is particularly vulnerable to habitat degradation as the flock has only one alternative feeding site (at Cregganna). Some degree of artificial enrichment of the basin is occurring from the farming areas upstream, and local enrichment is associated with grazing practices at the site; however, the bird populations are unlikely to be affected by such activities. The turlough is closely grazed by cattle, sheep and horses, and grazing is a critical factor in maintaining a balance between open swards and woodland development at the edges of the turlough.

Rahasane Turlough SPA is of high ornithological importance and supports seven species of national importance. The Wigeon and Golden Plover populations are of particular note as they each represent approximately 4% of the national totals of these species. The occurrence of Greenland White-fronted Goose, Whooper Swan and Golden Plover is of importance as these species are listed on Annex I of the E.U. Birds Directive.

1.12.2004

Site Name: Middle Shannon Callows

Site Code: 004096

The Middle Shannon Callows SPA is a long and diverse site which extends for approximately 50 km from the town of Athlone (at southern point of Lough Ree) to the town of Portumna (northern point of Lough Derg). The site averages about 0.75 km in width though in places is up to 1.5 km wide. Water levels on the site are greatly influenced by the very small fall between Athlone and Portumna and by the weir at Meelick. The Shannon Callows has a common boundary with two other sites of similar habitats, the River Suck Callows and the Little Brosna Callows, both of which are also Special Protection Areas.

The site has extensive areas of callow, or seasonally flooded, semi-natural, lowland wet grassland, along both sides of the river. The callows are mainly too soft for intensive farming but are used for hay or silage or for summer grazing. Other habitats of smaller area which occur alongside the river include lowland dry grassland, freshwater marshes, reedbeds and wet woodland. Along most of its length the site is bordered by raised bogs, now mostly exploited for peat, esker ridges and limestone-

bedrock hills. The diversity of semi-natural habitats and the sheer size of the site attracts an excellent diversity of bird species and significant populations of several species.

The composition of the lowland wet grassland varies, depending on elevation and flooding patterns. Two habitats listed on Annex I of the EU Habitats Directive are well represented within the site – *Molinia* meadows and lowland hay meadows. The former is characterised by the presence of the Meadow Thistle (*Cirsium dissectum*) and Purple Moor-grass (*Molinia caerulea*), while typical species in the latter include Meadow Fescue (*Festuca pratensis*), Rough Meadow-grass (*Poa trivialis*), Downy Oat-grass (*Avenula pubescens*) and Common Sorrel (*Rumex acetosa*). In places these two habitats grade into one another.

Low-lying areas of the callows with more prolonged flooding are characterised by Floating Sweet-grass (*Glyceria fluitans*), Marsh Foxtail (*Alopecurus geniculatus*) and wetland herbs such as Yellow Cress (*Rorippa* spp.), Water Forget-me-not (*Myosotis scorpioides*) and Common Spike-rush (*Eleocharis palustris*). Most of the callows, however, consist of a plant community characterised by Creeping Bent (*Agrostis stolonifera*), Brown Sedge (*Carex disticha*), Common Sedge (*Carex nigra*), and herbs such as Marsh Marigold (*Caltha palustris*) and Marsh Bedstraw (*Galium palustre*). Scarce plant species associated with the grassland include Meadow-rue (*Thalictrum flavum*), Summer Snowflake (*Leucojum aestivum*) and Marsh Stitchwort (*Stellaria palustris*).

The dry grassland areas, especially where they exist within hay meadows, are species-rich, and can contain many orchid species and such species as Cowslip (*Primula veris*), Adder's-tongue Fern (*Ophioglossum vulgatum*) and Spring-sedge (*Carex caryophyllea*), as well as an unusually wide variety of grasses. In places along the edge of the callows there occurs wet broad-leaved woodland dominated by both Birch (*Betula pubescens*) and Alder (*Alnus glutinosa*) and dry broad-leaved woodland dominated by Hazel (*Corylus avellana*). There are also areas of raised bog and fen on old cut-away bog with species such as Black Bog-rush (*Schoenus nigricans*).

Two legally-protected plant species (Flora (Protection) Order 1999) occur in the site: Opposite-leaved Pondweed (*Groenlandia densa*) in drainage ditches, and Meadow Barley (*Hordeum secalinum*) on dry alluvial grassland. The Red Data Book plant Green-winged Orchid (*Orchis morio*) is known from dry calcareous grasslands within the site, while the site also supports a healthy population of Marsh Pea (*Lathyrus palustris*).

The Middle Shannon Callows qualifies as a site of International Importance for wintering waterfowl both on the total numbers regularly exceeding 20,000 birds (for example 27,581 in winter 1998/99) and for the Whooper Swan population (287 – average peak count 1995/96-1999/00). Whooper Swan is listed on Annex I of the EU Birds Directive. Five further species occur in numbers of national importance (all figures are average peaks for winters 1995/96-1999/00) - Mute Swan 349, Wigeon 2,972, Golden Plover (listed on Annex I of the EU Birds Directive) 4,254, Lapwing 11,578 and Black-tailed Godwit 388. For some of these species, peak counts in the period have been considerably higher than the averages, such as

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1,096 Black-tailed Godwits and 23,839 Lapwings. The importance of the site for species like Black-tailed Godwit and Whimbrel may have been underestimated if count coverage missed the brief spring peaks for these species. A wide range of other species occur in numbers of regional or local importance, including Bewick's Swan (listed on Annex I of the EU Birds Directive) 7, Teal 77, Tufted Duck 33, Dunlin 369, Curlew 129, Redshank 31 and Black-headed Gull 1,061. Small numbers of Greenland White-fronted Goose (listed on Annex I of the EU Birds Directive) use the Shannon Callows (average 21, peak 55) and these are generally associated with larger flocks which occur on the adjacent Little Brosna Callows and River Suck Callows. The callow grasslands provide optimum feeding grounds for these various species of waterfowl, while many of the birds also roost or rest within the site.

The site is also of national importance for breeding waterfowl. The total population of breeding waders (Lapwing, Redshank, Snipe and Curlew) on the Shannon and Little Brosna Callows in 1987 was one of three major concentrations in Ireland and Britain. Since then, however, numbers of at least Lapwing and Redshank have shown serious declines (a full survey of the callows is being carried out in 2002). For example, at a monitoring site at the callows at Shannon Harbour, numbers of Lapwing fell from 29 to 10 pairs and Redshank from 26 to 10 pairs between 1987 and 1994. Black-tailed Godwit, a very rare breeding species in Ireland, nests or attempts to nest in small numbers each year within the site. A further scarce breeding species, Shoveler, also nests in small numbers each year (an estimated 12 pairs in 1987).

The Shannon Callows continues to hold approximately 40% of the Irish population of Corncrake, a species of global conservation concern that is also listed on Annex I of the EU Birds Directive. Between 1997 and 2001, the average number of calling birds was 60, with a peak of 69. BirdWatch Ireland, in association with Dúchas and the RSPB, operate a grant scheme to encourage farming practices that favour the Corncrake and this has probably been responsible for the stabilisation of numbers in recent years. A related scarce species, the Quail, is also known to breed within the callow grasslands.

A good variety of other bird species are attracted to this site. Birds of prey, including scarce species such as Merlin (listed on Annex I of the EU Birds Directive) and wintering Hen Harrier (listed on Annex I of the EU Birds Directive), are regularly reported hunting over the callows. A range of passerine species associated with grassland and swamp vegetation breed, including Sedge Warbler, Grasshopper Warbler, Skylark and Reed Bunting. Kingfisher (listed on Annex I of the EU Birds Directive) is also regularly seen within the site. Whinchat, an uncommon breeding species, occur in small numbers.

The wintering waterfowl within the Shannon Callows are difficult to monitor due to the size and inaccessibility of large parts of the site. In each winter there is usually one complete aerial census, as well as partial land-based counts. The population of Corncrake within the site is monitored each year and research is carried out on various aspects of the species' ecology. The breeding waders are also surveyed at intervals. About 30 ha of the

callows is a nature reserve owned by voluntary conservation bodies.

The Shannon Callows has by far the largest area of lowland semi-natural grassland and associated aquatic habitats in Ireland and one in which there is least disturbance of natural wetland processes. Botanically, it is extremely diverse. In winter the site is internationally important for the total numbers of birds (regularly exceed 20,000) and for Whooper Swan in particular. It also holds nationally important populations of a further five species. Some of the wintering species are listed on Annex I of the EU Birds Directive, including Whooper Swan, Greenland White-fronted Goose and Golden Plover. In summer the site supports important populations of breeding waders. Perhaps the most important species which occurs in the site is Corncrake (the site holds 40% of the national total), as this is listed on Annex I of the EU Birds Directive and is Ireland's only globally endangered species.

20.6.2002

Site Name: River Suck Callows

Site Code: 004097

The River Suck Callows comprise a long, sinuous area of semi-natural lowland wet grassland, which floods extensively each winter along the River Suck between Castlecoote in the north and Shannonbridge in the south, and passing through Ballinasloe.

The River Suck is the largest tributary of the River Shannon. The site follows the river from Castlecoote, near Fuerty to its confluence with the River Shannon, a distance of approximately 70 km of river course. The main habitat is grassland, improved to varying extents, that is seasonally-flooded. The less-improved areas are species-rich. Here the vegetation consists of Common Sedge (*Carex nigra*), Creeping Bent (*Agrostis stolonifera*), Brown Sedge (*Carex disticha*), Marsh Foxtail (*Alopecurus geniculatus*), Reed Canary-grass (*Phalaris arundinacea*), Creeping Buttercup (*Ranunculus repens*), Jointed Rush (*Juncus articulatus*), Common Spike-rush (*Eleocharis palustris*) and Floating Sweet-grass (*Glyceria fluitans*). Many of these species are important food plants for the wintering wildfowl which also forage on the improved grasslands within the site. A large area of flooded fen with Black Bog-rush (*Schoenus nigricans*) and Common Reed (*Phragmites australis*) occurs to the north of Derrycahill Bridge. Small patches of Common Club-rush (*Scirpus lacustris*) occur in shallows along the river margin. The grassland is used mainly for pasture but some is also used for silage or occasionally hay-making. The site adjoins several raised bogs and cutover bogs, and there are turloughs in the vicinity.

The Suck River Callows is an important site for wintering waterfowl. Of particular note is the internationally important Greenland White-fronted Goose flock that is based along the Suck. The birds congregate mainly in the middle reaches of the river. A separate sub-flock is centred at Glenamaddy turlough. The average maximum winter count for the period 1988/89 to 1993/94 was 386 birds. In recent years, the only complete count of

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waterfowl for the site was in January 2002. Three species had populations of national importance, i.e. Whooper Swan (124), Wigeon (1,203) and Lapwing (3,640). Other species present included Mute Swan (90), Teal (325), Pintail (5), Curlew (67) and Black-headed Gull (240). Golden Plover, a species that is listed on Annex I of the E.U. Birds Directive, occurs at times. The good quality riverine and grassland habitats are also home to populations of Otter and Irish Hare, and Brown Trout occur in the river.

Arterial drainage in the past has already reduced the area of naturally flooded grasslands, and drainage and land improvement remain the principal threat to this site. The intensification of agriculture in recent years, with earlier mowing and the replacement of hay with silage, is likely to have caused the decline and eventual absence of breeding Corncrake. Wildfowling causes some disturbance, though there is a Wildfowl Sanctuary at Muckanagh, north of Ballyforan.

This site is of considerable ornithological importance on account of the Greenland White-fronted Goose population which is of international significance and which is one of the largest in the country outside of the Wexford Slob. Despite poor survey data for recent years, it is known to support nationally important populations of at least three species, i.e. Whooper Swan, Wigeon and Lapwing. Detailed survey is likely to show that other species also occur in substantial numbers. Of note is that two of the species which occur regularly, Greenland White-fronted Goose and Whooper Swan, are listed on Annex I of the E.U. Birds Directive.

1.4.2005

Site Name: Coole-Garryland Wood

Site Code: 004107

The Coole-Garryland SPA is situated in a low-lying karstic limestone area west of Gort, Co. Galway. It comprises a series of turloughs, which are fed by springs and a partly submerged river, surrounded by woodland, pasture and limestone heath. Coole Lough is the largest and most permanent of the turloughs, and retains some water throughout the year. Water levels vary greatly depending on rainfall and this has consequences on the numbers of birds present. During prolonged dry spells, higher numbers of some species are present as birds from other sites in the catchment are attracted to the permanent waters of Coole Lough. Excessive flood conditions reduce the potential feeding areas though birds still roost on the lakes.

Vegetation of the turloughs includes Shoreweed (*Littorella uniflora*), Common Spike-rush (*Eleocharis palustris*), Water-purslane (*Lythrum portula*) and Fen Violet (*Viola persicifolia*). A species of Water-starwort, *Callitriche palustris*, has recently been recorded from the site, its only known station in Ireland. The Coole River itself is of particular interest for the occurrence of a rare riverine habitat characterised by Trifid Bur-marigold (*Bidens tripartita*), Red Goosefoot (*Chenopodium rubrum*) and species of Knotgrass (*Polygonum* spp.). The turloughs are fringed by a range of habitats on limestone pavement,

including scrub communities containing Buckthorn (*Rhamnus catharticus*) and Hawthorn (*Crataegus monogyna*). Small areas of orchid-rich grassland occur at Coole-Garryland, and include such species as Pyramidal Orchid (*Anacamptis pyramidalis*), Fragrant Orchid (*Gymnadenia conopsea*) and Fly Orchid (*Ophrys insectifera*). A feature of the turloughs at Coole-Garryland is that they are closely associated with areas of woodland, including semi-natural deciduous woodland of Pedunculate Oak (*Quercus robur*) and Ash (*Fraxinus excelsior*).

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for Whooper Swan. The E.U. Birds Directive pays particular attention to wetlands, and as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The site is of international importance for Whooper Swan (214), which use it for both feeding and roosting purposes, though the flock also visits other feeding areas outside of the site. It was formerly of importance for Bewick's Swan but birds have not been present in recent winters, reflecting a decline that has occurred throughout the country. A good diversity of other wintering birds occurs, notably Wigeon (845) which is close to the threshold for national importance. Also present are Teal (200), Shoveler (23), Pochard (142), Tufted Duck (56), Mallard (330), Pintail (7), Goldeneye (10), Mute Swan (14), Lapwing (297) and Curlew (111) – all figures are average peaks for three of the five seasons 1995/96-1999/00. Dunlin, a scarce species inland, is a visitor to the site at times. In 1996 two pairs of Common Sandpiper bred at Coole Lough.

The complex of habitats at Coole-Garryland provides habitat for a variety of mammal species, including Otter and Pine Marten. Otter is listed on Annex II of the E.U. Habitats Directive, while Pine Marten is considered to be threatened in Europe. The Coole-Garryland complex is also home to one of the most important and unique assemblages of insects in the country, including several notable species of beetles and flies. The nationally rare Mudwort (*Limosella aquatica*) and Dropwort (*Filipendula vulgaris*) also occur at the site. These two plant species are listed in the Irish Red Data Book. Narrow-fruited Water-starwort (*Callitriche palustris*) was recently discovered new to Ireland at the site. Much of the site is a Nature Reserve and is managed by the National Parks and Wildlife Service. It is a popular amenity area, and uncontrolled visitor access would pose a threat to sensitive animals. Other threats to the site may result from agricultural intensification (e.g. fertiliser application or pollution of watercourses) outside of the site.

The turlough system at Coole-Garryland is considered to be the most diverse in the country, for both its physiography and vegetation. The site is of international importance for its population of Whooper Swan, a species that is listed on Annex I of the E.U. Birds Directive. Coole Lough has particular significance for wintering waterfowl as during prolonged dry spells it is one of the few sites in the catchment which retains open water. The ecology of the site has been studied in detail.

29.5.2007

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Site Name: Slyne Head Islands

Site Code: 004123

This site comprises a long archipelago of islands, islets, rocks and reefs located off the western shore and south-western tip of the Slyne Head Peninsula in County Galway. The site, which extends for approximately 7 km along a NE-SW axis, includes the adjacent mainland shoreline and a substantial part of the surrounding shallow marine areas. Most of the islands are of granite, but the southern ones are of migmatites. There are about 15 islands which have a permanent area above the high tide line. Chief among these are Inishdugga, Inishkeragh, Illaunaleama, Chapel Island and Illaunamid. The islands are mostly low-lying, Illaunaleama reaching 22 m above sea level, and have a covering of a grassy maritime turf.

The rocky shores and surrounding shallow seas contain excellent examples of reefs, a habitat listed on Annex I of the EU Habitats Directive. The reefs range from those that are extremely exposed to wave action to more sheltered ones and a good range of different marine habitats and communities are found. On the larger islands a few sandy coves and shingle beaches occur. The islands are uninhabited apart from an automated lighthouse on Illaunamid, the most westerly island of the group.

The islands are a traditional breeding area for terns. In 1995, 329 pairs of Arctic Terns were recorded on Illaunamid Island, a colony of national importance and one of the largest in the country. Terns have also bred on Chapel Island in the past. Also of national importance is the colony of Black Guillemots, with 60 individuals counted in 1980. Other seabirds which have been recorded breeding include Storm Petrel (50 pairs on Illaunamid in 1980), Manx Shearwater (70-90 pairs on Illaunamid in 1980), Shag (6-8 pairs in 1980), Herring Gull (50 pairs in 1980) and Great Black-backed Gull (30 pairs in 1980).

The site contains an important breeding colony of Grey Seal, a species listed on Annex II of the EU Habitats Directive. In 1983, the colony on Chapel Island was estimated at between 32 and 41 animals of all ages. This colony is part of a larger population, some of which breed on Wherune Island off the south-eastern side of the Slyne Head Peninsula.

This site is of high ornithological importance owing to the presence of a nationally important population of Arctic Tern, a species listed on Annex I of the EU Birds Directive. Storm Petrel, also listed on Annex I of the Directive, has been recorded in the past but its current status as a breeding species is unknown. It is thought that small numbers of Barnacle Geese may occur occasionally in winter. This is also an Annex I species. The Black Guillemot population is also of national importance
27.2.2002

Site Name: Lough Rea

Site Code: 004134

Lough Rea, a hard water lake, is situated directly south of the town of Loughrea, Co. Galway. The lake is 2.5 km at its longest axis. The underlying geology of the area is of Carboniferous limestone and water transparency is very high. The lake, which is fed by springs and by a stream, reaches a maximum depth of 15 m.

Some species of stonewort (a type of alga) characteristic of calcareous waters have been recorded in Lough Rea, including *Chara curta* and *C. contraria*. The Red Data Book species *C. tomentosa* has also been found here. Other aquatic plants present include Slender-leaved Pondweed (*Potamogeton filiformis*), Lesser Pondweed (*P. pusillus*), Fennel Pondweed (*P. pectinatus*), Spiked Water-milfoil (*Myriophyllum spicatum*), Least Bur-reed (*Sparganium minimum*), Amphibious Bistort (*Polygonum amphibium*) and the alga *Chaetomorpha incrassata*. On the sheltered western and south-eastern shores of the lake some areas of reedswamp, wet grassland and wet woodland are included in the site.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Shoveler and Coot. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Lough Rea is of considerable ornithological interest. Nationally important numbers of Shoveler overwinter at the site (264); numbers of this species at the site have exceeded the international threshold level on two occasions in recent years (1995/96 and 2002/03). Nationally important numbers of Coot (1,172) also occur. A further 10 species of waterfowl reach regionally or locally important numbers - all population sizes are the mean of peak counts for the 5 years, 1995/96-99/2000.

The site is largely surrounded by intensively farmed pasture and consequently the main threat to the lake comes from agricultural run-off. The lake is also vulnerable to nutrient input from the town of Loughrea. Boating activities may have some impact on the site and may need to be monitored.

Lough Rea is an important ornithological site for the nationally important populations of Shoveler and Coot, and regionally/locally important populations of a further ten species that it holds. It is also of significance as an excellent example of a hard water lake, a habitat that is listed on Annex I of the E.U. Habitats Directive.
30.10.2007

Site Name: Cregganna Marsh

Site Code: 004142

Cregganna Marsh is situated about 3 km south of Oranmore, to the west of the Galway - Ennis road. The predominant habitats on the site are lowland wet grassland and improved grassland, but areas of limestone pavement and other exposed rock, Hazel (*Corylus avellana*) scrub, freshwater marsh, drainage ditches and dry grassland are also represented.

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The site is of major conservation importance as a feeding site for a nationally important flock of Greenland White-fronted Geese. The birds using this site form part of the Rahasane flock (5 year mean of winter maximum, 1995/96 to 1999/00 of 166 individuals). Greenland White-fronted Goose is a species that is listed on Annex I of the EU Birds Directive.
27.02.2002

Site Name: Slieve Aughty Mountains

Site Code: 004168

The Slieve Aughty Mountains SPA 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 consists of a variety of upland habitats, though approximately half is afforested. The coniferous forests include first and second rotation plantations, with both pre-thicket and post-thicket stands present. Substantial areas of clear-fell are also present at any one time. The principal tree species present are Sitka Spruce (*Picea sitchensis*) and Lodgepole Pine (*Pinus contorta*). Almost one-third of the site is unplanted blanket bog and heath, with both wet and dry heath present. Well-developed blanket bog occurs at several locations, notably Sonnagh, Loughatorick South and Glendree.

The vegetation is characterised by such species as Ling Heather (*Calluna vulgaris*), Bilberry (*Vaccinium myrtillus*), Common Cottongrass (*Eriophorum angustifolium*), Hre's-tail Cottongrass (*Eriophorum vaginatum*), Deergrass (*Scirpus cespitosus*) and especially Purple Moor-grass (*Molinia caerulea*). Bog mosses (*Sphagnum* spp.) are well-represented. The remainder of the site is mostly rough grassland that is used for hill farming. This varies in composition and includes some wet areas with rushes (*Juncus* spp.) and some areas subject to scrub encroachment.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for Hen Harrier and Merlin.

The SPA is a stronghold for Hen Harriers and supports the second largest concentration in the country. A survey in 2005 resulted in 24 confirmed and 3 possible breeding pairs, which represents over 17% of the national total. A somewhat lower count of between 15 and 23 pairs in the 1998-2000 period is considered to reflect poorer coverage then. The mix of forestry and open areas provides optimum habitat conditions for this rare bird, which is listed on Annex I of the Birds Directive. The early stages of new and second-rotation conifer plantations are the

most frequently used nesting sites, though some pairs may still nest in tall heather of unplanted bogs and heath. Hen Harriers will forage up to c. 5 km from the nest site, utilising open bog and moorland, young conifer plantations and hill farmland that is not too rank. Birds will often forage in openings and gaps within forests. In Ireland, small birds and small mammals appear to be the most frequently taken prey.

The site also supports a breeding population of Merlin, a species that is also listed on Annex I of the E.U. Birds Directive. The population size is not well known but is likely to exceed five pairs. Red Grouse is found on many of the unplanted areas of bog and heath – this is a species that has declined in Ireland and is now Red-listed.

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.
16.7.2007

Site Name: Cruagh Island

Site Code: 004170

Cruagh Island is located approximately 2 km west of Omev Island, off the Connemara coast. It is a small- to medium sized, low-lying island (maximum height 62 m) and is uninhabited. The island is dominated by a maritime grassy sward with some exposed rock. The sea area to a distance of 500 m is included in the site to accommodate 'rafting' shearwaters.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Manx Shearwater and Barnacle Goose.

The Seabird 2000 survey discovered a new colony of Manx Shearwater on Cruagh Island in 2001. Using the tape playback method, colony size was estimated at 3,286 pairs, which is one of the most important colonies in the country and of international importance. The absence of previous records at this site is not too surprising because nesting Manx Shearwater can easily go undetected as the birds nest underground in burrows and visit land only in darkness.

Cruagh Island is a regular feeding site for Barnacle Goose during the winter. The geese that frequent this island are most probably part of the nationally important Inishshark flock.

Cruagh Island also has a nationally important colony of nesting Great Black-backed Gull (30 pairs in 2001) and small numbers of Fulmar.

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The shearwaters are heavily predated by the Great Black-backed Gulls though it is not known how significant an effect this is having on the colony. It is presumed that there are no rats on the island; the presence of rats would be very damaging to the nesting shearwaters. Grazing by domestic stock and/or rabbits could lead to soil erosion

Cruagh Island SPA is of international importance on account of its large population of nesting Manx Shearwater. The presence of a nationally important Great Black-backed Gull colony is also of note.
10.10.2007

NHAs

Site Name: Lough Namucka Bog

Site Code: 000220

Lough Namucka Bog NHA is situated about 6 km south-east of Ballinlough, mainly in the townlands of Foxborough and Kilbeg, in Counties Galway and Roscommon. The site comprises a raised bog that includes both areas of high bog and cutover bog, and a small lake. It is bordered along most of its western side by the Island River.

Lough Namucka Bog consists of three lobes, the western-most of which is completely separated from the others by areas of cutover peat. There are wet areas with well-developed hummock/hollow systems and pools. A lake, Lough Namucka, adjoins the southern-most lobe of the bog, forming a semi-natural margin and possible lagg zone. A number of interesting features occur on the bog, including several flushes, a dry ridge and swallow holes. The cutover areas surrounding the bog have either been abandoned or have been reclaimed for agriculture, and there is one small area of coniferous forestry at the south of the site.

The high bog at Lough Namucka supports many of the species typical of a Western Raised Bog, such as Ling Heather (*Calluna vulgaris*), Bog Asphodel (*Narthecium ossifragum*), Carnation Sedge (*Carex panicea*), many bog mosses (*Sphagnum* spp.) and the liverwort *Pleurozia purpurea*. In the centre of the bog there is a very wet and quaking region which consists of inter-connecting pools and island hummocks. The pools are filled with the bog moss *Sphagnum cuspidatum*, Bogbean (*Menyanthes trifoliata*) and Common Cottongrass (*Eriophorum angustifolium*), with the bog moss *S. magellanicum* and White Beak-sedge (*Rhynchospora alba*) at the margins. Between the pools there are quaking lawns of Bog Asphodel, White Beak-sedge and the moss *Campylopus atrovirens*. In the southern-most lobe another pool system occurs. The pools are again filled with the bog moss *S. cuspidatum* and Bogbean. The large dry hummocks are topped by Ling Heather, lichens (*Cladonia* spp.) and the moss *Pleurozium schreberi*. Bog Asphodel occurs in the wet hollows.

A number of flushes are found on the high bog, some of which occur in association with the lake. The lake supports Common Reed (*Phragmites australis*), Common Club-rush (*Scirpus lacustris*), White Water-lily (*Nymphaea alba*) and Bottle Sedge (*Carex rostrata*). Just north of the lake an extensive flush occurs which is dominated by Bog-myrtle (*Myrica gale*), Common Reed, Common Cottongrass and Purple Moor-grass (*Molinia caerulea*). Another flush occurs to the east of this, with open water and lawns of the bog moss *S. cuspidatum* and Bog Asphodel, along with tufts of Soft Rush (*Juncus effusus*). There are also a number of swallow holes with Ling Heather and Cranberry (*Vaccinium oxycoccos*). A small dry ridge occurs at the eastern side of the high bog and is covered in Bracken (*Pteridium aquilinum*), Gorse (*Ulex europaeus*), Ling Heather and Hawthorn (*Crataegus monogyna*).

Current landuse on the site consists of peat-cutting around most of the margins of the high bog, and drainage associated with this. Large portions of the bog have been burnt in the past. Significant areas of cutover bog have been drained, cleared and reclaimed for agricultural purposes, and one small area at the south of the site has been planted with coniferous forestry. These activities have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Lough Namucka Bog NHA is a site of considerable conservation significance, comprising as it does, a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The diversity added by the presence of the lake, ridge, flushes, swallow holes and possible lagg zone increase its conservation importance. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

13.11.2002

Site Name: Moorfiels Bog/Farm Cottage

Site Code: 000221

Moorfield Bog/Farm Cottage NHA is situated approximately 5 km north-east of Ballymee, Co. Roscommon in the townlands of Moorfield in Co. Galway and Creggameen in Co. Roscommon. The site comprises a raised bog that includes both areas of high bog and cutover bog.

The site consists of a Western Raised Bog, which has developed between a ridge and a small river. The bog has good hummock/hollow microtopography, pools, quaking areas, swallow holes a small flush. The cutover supports humid grassland, a small area of Downy Birch (*Betula pubescens*) scrub, and forestry.

Much of the high bog has vegetation typical of a Western Raised Bog. Ling Heather (*Calluna vulgaris*), Common Cottongrass (*Eriophorum angustifolium*), White Beak-sedge (*Rhynchospora alba*), Bog Asphodel (*Narthecium ossifragum*) and a range of bog mosses including *Sphagnum imbricatum*, *S. fuscum* and *S. cuspidatum*. Western Raised Bog indicator species present include the liverwort *Pleurozia purpurea*, the mosses *Campylopus atrovirens* and *Racomitrium lanuginosum* and Carnation Sedge (*Carex panicea*). Some Midland Raised Bog indicator species are also found on the bog, including Bog-rosemary (*Andromeda polifolia*), Cranberry (*Vaccinium oxycoccos*) and the bog moss *Sphagnum magellanicum*.

The northern half of the bog is wet and spongy with many pools and quaking areas. The pools are filled with the aquatic bog moss *Sphagnum cuspidatum*, and Bogbean (*Menyanthes trifoliata*). There are swallow holes just north of the county boundary and tear pools are situated alongside the cutover which extends into the middle of the bog. The bog has good hummock/hollow complexes with well-developed hummocks which support *Sphagnum imbricatum* and *Sphagnum fuscum*. The tops of the hummocks support Ling Heather and lichens. The hollows are filled with bog mosses including *Sphagnum*

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magellanicum and *S. papillosum*, Bog Asphodel and White Beak-sedge. A small flush dominated by Soft Rush (*Juncus effusus*) is found in the middle of the bog near the strip of cutover.

The vegetation of the cutover is dominated by Purple Moor-grass (*Molina caerulea*), with Soft Rush, Devil's-bit Scabious (*Succisa pratensis*), Bilberry (*Vaccinium myrtillus*), Tormentil (*Potentilla erecta*), Bent Grass (*Agrostis canina*) and Hard Fern (*Blechnum spicant*) also present. The cutover also supports small patches of Downy Birch scrub and forestry. Small patches of mineral soil with wet grassland occur to the west and south of the site.

Active peat-cutting occurs on sections of the north, east, west and south of the high bog margin, and the bog has been almost bisected by peat-cutting activities. Afforestation on the cutover is located to the west of the site and in a small area of the central cutover. Areas of cutover have been reclaimed for agricultural purposes around the site; the grassland here is used for grazing livestock. Damaging activities associated with these landuses include drainage and burning of the high bog. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Moorfield Bog/Farm Cottage NHA is a site of considerable conservation significance, comprising as it does, a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The site supports a good diversity of raised bog microhabitats, including pools, quaking areas, hummock/hollow complexes, swallow holes and a small flush, as well as a number of scarce plant species. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.
13.11.2002

Site Name: Suck River Callows

Site Code: 000222

The Suck River Callows is a long sinuous area of semi-natural lowland wet grassland, which floods extensively each winter along the River Suck between Castlecoote in the north and Shannonbridge in the south, passing through Ballinasloe. The Suck River forms the Roscommon - Galway county boundary and joins the River Shannon at Shannonbridge. Along most of its borders, former raised bogs (now in the process of large-scale harvesting by Bord na Móna) are present. Just south of Ballyforan, there is a small intact raised bog on the eastern bank of the river, which contains both high bog and cutover. This is situated in the townlands of Ballina, Ballyforan, Coolatober and Cloonagh, Co. Roscommon and can be accessed from a road to the east.

The main habitat of the Suck River Callows is flood meadows of wet grassland and the associated aquatic and semi-aquatic habitats of drainage ditches. Secondary habitats of importance, which directly border the callows within the site are species-rich dry and wet calcareous

grassland, flooded fen, wet woodland and a small raised bog with a tear pool system. There is a semi-natural margin between this raised bog and the river. Improved grasslands are also included within the site at the upper margin of wet grasslands.

The wet grassland vegetation consists of Common Sedge (*Carex nigra*), Creeping Bent (*Agrostis stolonifera*), Brown Sedge (*Carex disticha*), Marsh Foxtail (*Alopecurus geniculatus*), Reed Canary-grass (*Phalaris arundinacea*), Creeping Buttercup (*Ranunculus repens*), Jointed Rush (*Juncus articulatus*), Common Spike-rush (*Eleocharis palustris*) and Floating Sweet-grass (*Glyceria fluitans*). Many of these species are important food plants for the wintering wildfowl which also forage on the improved grasslands within the site. A large area of flooded fen with Black Bog-rush (*Schoenus nigricans*) and Common Reed (*Phragmites australis*) occurs to the north of Derrycahill Bridge. Small patches of Common Club-rush (*Scirpus lacustris*) occur in shallows along the river margin.

At Ballyforan the small intact raised bog has been classified as a True Midland Raised Bog. The vegetation of the high bog has been affected by burning and is dominated by Carnation Sedge (*Carex panicea*), Bog Asphodel (*Narthecium ossifragum*), Deergrass (*Scirpus cespitosus*) and Ling Heather (*Calluna vulgaris*), however, there is active Bog Moss (*Sphagnum* spp.) regeneration occurring. Species occurring on the site include *Sphagnum fuscum*, *S. imbricatum* and *S. capillifolium*, *S. cuspidatum* (in elongated tear pools), Great Sundew (*Drosera anglica*), Brown Beak-sedge (*Rhynchospora fusca*) and Lesser Bladderwort (*Utricularia minor*). Cross-leaved Heath (*Erica tetralix*), Bog-rosemary (*Andromeda polifolia*), cottongrasses (*Eriophorum* spp.) and lichens (*Cladonia* spp.) occur in the unburnt areas. The bog appears to be drying out and the western margin has been invaded by Downy Birch (*Betula pubescens*).

At Ballyforan Bog, the cutover to the south of the high bog is primarily reclaimed grassland. There is an uninterrupted transition from this high bog to low-lying callow grassland to the west. Active peat-cutting occurs to the north-west and east with some scrub encroachment on old cutover.

There are also small areas of cutover at the margins of the developed (cut-away) raised bogs on the banks of the River Suck. Some of this cutover is very wet, bordering on to floodmeadows and contains permanent pools with Lesser Bladderwort. Royal Fern (*Osmunda regalis*), cottongrasses and orchids (*Dactylorhiza* spp.) have been recorded on these cutover areas. Regenerating birch and Alder (*Alnus glutinosa*) woods occurs on old cutover margins throughout the site. These wet woodlands have an understory of Ling Heather and Bog-myrtle (*Myrica gale*).

The Suck River Callows is an important site for wintering waterfowl. Of particular note is the internationally important flock of Greenland White-fronted Geese based along the Suck. The birds congregate mainly in the middle reaches of the river. A separate sub-flock is centred at Glenamaddy turlough. The average maximum winter count for the period 1988/89 to 1993/94 was 386. In recent years, the only complete count of waterfowl for

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the site was in January 2002. Three species had populations of national importance: Whooper Swan 124, Wigeon 1,203 and Lapwing 3,640. Other species which were present included Mute Swan 90, Teal 325, Pintail 5 and Curlew 67. Of the species which occur regularly at this site, Greenland White-fronted Geese and Whooper Swan are listed on Annex I of the E.U. Birds Directive. A further Annex I species, Golden Plover, occurs at times. The good quality riverine and grassland habitats are also home to populations of Otter and Irish Hare, and Brown Trout occur in the river.

Current landuses on the site include, agriculture, active peat-cutting, forestry and conservation. The wet grasslands of the callows are used for agriculture. At Ballyforan Bog, active peat-cutting is most prevalent to the north-west and along the eastern margin of the high bog. The cutover to the south has been reclaimed for agriculture. There are extensive areas of peat-cutting by Bord na Móna along the boundaries of the site and a large area of callow and esker has been recently planted with forestry. Damaging activities associated with these landuses include habitat loss and drainage throughout the site and burning of the high bog. These activities have all resulted in the loss of habitat and damage to the hydrological status of the raised bog, and pose a continuing threat to its viability. There is a no-shooting area at Muckanagh, north of Ballyforan.

The Suck River Callows NHA, along with the River Shannon Callows cSAC (216) and River Little Brosna Callows NHA (564), form by far the largest area of lowland wet grassland in Ireland and Britain. These callows are each designated as a Special Protection Area under the E.U. Birds Directive for the presence of Internationally and Nationally Important numbers of wintering waterfowl.

The presence of raised bog is of considerable conservation significance as it is a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The site supports a good diversity of raised bog microhabitats, including hummocks and pools. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level. The site is of major ornithological importance.
14.11.2002

Site Name: Ballygar Bog

Site Code: 000229

Ballygar Bog NHA is situated approximately 1 km north-west of Ballygar village, in the townlands of Hermitage and Ballygar, Co. Galway. The site comprises a raised bog that includes both areas of high bog and cutover bog. The northern and western margins of the site are bounded by commercial conifer plantation.

The site consists of a small relatively intact bog. Hummocks/hollows and pools are found on the site with algal filled tear pools. Three small flushes are also found on the site. There is forestry on the north-eastern high bog and mixed woodland occurs on the cutover along the

northern margin. Cutover bog occurs on the southern margins of the high bog.

Much of the high bog has vegetation typical of a raised bog, consisting of Ling Heather (*Calluna vulgaris*), Carnation Sedge (*Carex panicea*), White beaked-sedge (*Rhynchospora alba*), Cottongrass (*Eriophorum vaginatum*), Bog-rosemary (*Andromeda polifolia*), the liverwort *Pleurozia purpurea* and Bog Asphodel (*Narthecium ossifragum*). Bog mosses are frequent on the site and include (*Sphagnum capillifolium*, *S. magellanicum* and *S. papillosum*). Hummocks/hollows and pools are found on the bog. The hummocks are colonised by bog mosses including *S. fuscum*, *S. imbricatum*; the pools and hollows are colonised by the bogs mosses *Sphagnum papillosum* and *S. capillifolium* with *S. cuspidatum* the aquatic bog moss in the wettest areas. Great Sundew (*Drosera anglica*) is also found in the hollows.

There are three flushes on the bog which support Bog Myrtle (*Myrica gale*), Bog-rosemary, Cranberry (*Vaccinium oxycoccus*), Ling Heather, Carnation Sedge and Purple Moor-grass (*Molinia caerulea*). Mosses present in the flushes include *Sphagnum imbricatum*, *S. subnitens*, *S. auriculatum*, *Pleurozium schreberi*, *Pseudoscleropodium purum* and *Leucobryum glaucum*. Stunted Downy Birch (*Betula pubescens*), Scots Pine (*Pinus sylvestris*) and Sitka Spruce (*Picea sitchensis*) are found in two of the flushes.

Much of the cutover on this bog is afforested; along the northern and eastern margins there is a thin band of mixed woodland dominated by Downy Birch and Soft Rush (*Juncus effusus*). There is a good diversity of lichens present because the site has not been burnt in the recent past, in some locations the lichens are suppressing the bog mosses.

Current landuse on the site consists of peat-cutting to the south-eastern corner. Forestry is found on the north-east corner of the high bog and along the northern margin of the site. Unlike many other bogs, Ballygar does not appear to have been burnt in over ten years. Areas of cutover have been reclaimed for agricultural purposes. Forestry and agricultural reclamation result in drainage of the site, which leads to habitat loss and damage to the bog's hydrological status, and pose a continuing threat to its viability.

Ballygar Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats, including hummock/hollow complexes, pools, flushes and woodlands, as well as a number of scarce plant species. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.
14.11.2002

Site Name: Bracklash Bog

Site Code: 000235

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Bracklagh Bog NHA is located approximately 5 km west of Ballymoe, in the townlands of Ballaghaugeag East and Bracklagh in County Galway. The site comprises a raised bog that includes both areas of high bog and cutover bog.

The site consists of one main lobe, flanked on the north and north-western side by a small river, and on the south and south-western side by a mineral ridge. Reclaimed agricultural fields make up the boundary at the eastern side. This bog is of particular interest because it contains a number of different types of flushed areas. There is a quaking area with pools in the south. A large area of coniferous forestry has recently been planted on the western half of the bog.

The high bog vegetation is a mixture of Western and Midland Raised Bog type, with species such as Ling Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), Bog Asphodel (*Narthecium ossifragum*), Carnation Sedge (*Carex panicea*) and the liverwort *Pleurozia purpurea*. Cranberry (*Vaccinium oxycoccos*) and Bog-rosemary (*Andromeda polifolia*) are found, although not in abundance. There is good cover of bog mosses, with *Sphagnum papillosum* and *S. subnitens* being very common. A number of flushed areas have been recorded on the high bog. These consisted of areas dominated by Purple Moor-grass (*Molinia caerulea*), Common Reed (*Phragmites australis*) and Downy Birch (*Betula pubescens*). At the southern side, there is a large Bog-myrtle (*Myrica gale*) dominated area. This was associated with a hummock/hollow and pool system. The pools contain species such as the bog moss *S. magellanicum* and the Great Sundew (*Drosera anglica*). The hummocks consist mainly of *S. imbricatum* and *S. subnitens*.

Current landuse on the site consists of a large coniferous forestry plantation on the western half of the bog, areas of active peat-cutting at the east and north-east of the high bog and some areas of cutover bog which have been reclaimed for agriculture. Drainage associated with these activities is drying out the bog, and has resulted in loss of habitat and damage to the hydrological status of the site, and poses a continuing threat to its viability. The high bog surface was completely burned in the spring of 1985, but no evidence of other burning episodes is apparent.

Bracklagh Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

14.11.2002

Site Name: Clooncullaun Bog

Site Code: 000245

Clooncullaun Bog NHA is situated approximately 6 km east of Glenamaddy in the townlands of Clooncullaun, Timacat and Shanbally, Co. Galway. The site comprises a raised bog that includes both areas of high bog and cutover bog. The site is bounded by streams to the west and the south-east.

The site consists of a small basin bog with a flat, wet surface which is quaking in places. Towards the north-east there is a complex of pools, hummocks and hollows and to the south-west and south-east there are two areas with small hummocks and algal pools. Three flushes with swallow holes occur on the bog. Cutover is found all around the site apart from the middle of the southern margin.

Much of the high bog has vegetation typical of a Western Raised Bog, with species including cottongrasses (*Eriophorum angustifolium* and *E. vaginatum*), Ling Heather (*Calluna vulgaris*), Deergrass (*Scirpus cespitosus*) and Bog Asphodel (*Narthecium ossifragum*). Western Raised Bog indicator species found on the bog include Carnation Sedge (*Carex panicea*), the liverwort *Pleurozia purpurea* and the mosses *Campylopus atrovirens* and *Racomitrium lanuginosum*. Midland Raised Bog indicator species also found on the bog include Bog-rosemary (*Andromeda polifolia*) and the bog moss *Sphagnum magellanicum*. Pools and hummocks occur in the wettest part of the bog to the north-east. The bog moss *Sphagnum cuspidatum* fills the pools while the hummocks are comprised of bog mosses, including the scarce *Sphagnum fuscum* and *S. imbricatum*. Algal, tear pools and low hummocks occur in the south-western and south-eastern lobes. While most of the pools and tear pools contain algae, some support the bog moss *Sphagnum cuspidatum* and Bogbean (*Menyanthes trifoliata*). *Sphagnum fuscum* has also been found here.

The flushes and associated swallow holes support Purple Moor-grass (*Molinia caerulea*), Ling Heather, Field Wood-rush (*Luzula campestris*) and Bracken (*Pteridium aquilinum*). The flush nearest the central track has a subterranean stream.

The cutover supports a range of habitats including regenerating cutover, Gorse (*Ulex europaeus*) scrub, humid grassland and areas of both old peat cutting and active peat cutting. The regenerating cutover supports the bog mosses *Sphagnum cuspidatum*, *S. papillosum* and *S. capillifolium*, rushes (*Juncus* spp.) and cottongrasses. Some regenerating cutover also supports Bulrush (*Typha latifolia*). There are extensive areas of humid grassland to the east and west, with Purple Moor-grass, Soft Rush and the moss *Polytrichum commune*. Gorse scrub occurs on old cutover to the west, while the eastern cutover region is grazed and has a high cover of bryophytes and a variety of sedge (*Carex* spp.) species.

Red Grouse, a species that is becoming increasingly rare in Ireland has been recorded on the site.

Current landuse on the site comprises active peat-cutting around the north, east and south-eastern margins of the site; areas of old peat-cutting occur to the west, south-east and east of the site. Areas of cutover have been reclaimed for agricultural purposes to the south, east and west of the site. Damaging activities associated with these landuses include drainage and burning of the high bog. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

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Clooncullaun Bog NHA is a site of considerable conservation significance, comprising as it does, a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats, including hummock/hollow complexes and pools, as well as a number of scarce plant species. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.
13.11.2002

Site Name: Slieve Bog NHA

Site Code: 000247

Slieve Bog NHA is situated about 5 km east of Dunmore, in the townlands of Slieve, Woodfield, Cluid and Carrowkeelanahglass Co. Galway. The site comprises a raised bog that includes both areas of high bog and cutover bog. The south and east margins of the site are bounded by the Yellow River, the northern and western sections by roads.

of one dome of sloping bog associated with subsidence caused by drainage. Intact dome peat is restricted to the south-east. Tear pools are found to the west of the site. There are two extensive flush systems within the extensive drainage system found on the bog. Cutover bog occurs all around the margins of the high bog except where the bog slopes down to the river where the edge is semi-natural.

Much of the high bog has vegetation typical of the Western Raised Bog type, consisting of Ling Heather (*Calluna vulgaris*), Cottongrass (*Eriophorum* spp.), Carnation Sedge (*Carex panicea*), Common Lousewort (*Pedicularis sylvatica*) and the bryophytes *Campylopus atrovirens*, *Racomitrium lanuginosum* and *Pleurozia purpurea*. The intact dome in the south-east is uniformly wet and contains the relic of a good hummock/hollow system. Small hummocks of bog mosses *Sphagnum capillifolium*, *S. subnitens* and the rare *S. pulchrum* are found here. Hollows are poorly vegetated with a lot of bare peat. *Sphagnum papillosum*, *S. cuspidatum*, *S. pulchrum* and the liverwort *Odontoschisma sphagni* occur in small depressions but not in pools. A long sinuous flush dominated by Purple Moor-grass (*Molinia caerulea*), Ling Heather and Deergrass (*Scirpus cespitosus*) flows out towards the north-east margin. The other flush consists of a series of swallow holes which support a vegetation of tall Ling Heather, Hawthorn (*Crataegus monogyna*) and Bracken (*Pteridium aquilinum*). Active cutover is mainly bare peat with Common Cottongrass (*Eriophorum angustifolium*) and Soft Rush (*Juncus effusus*); old cutover is dominated by Purple Moor-grass and Ling Heather. Some drains filled with the bog moss *Sphagnum cuspidatum* also occur.

Red Grouse, a species that is becoming increasingly rare in Ireland, has been recorded on this bog.

of active peat-cutting, with mechanised peat extraction occurring on 60% of the site's perimeter. This has resulted in extensive drainage, with 60% of the bog

(north-west section) becoming severely damaged by deep drainage on the dome. In addition, there has been fire damage, to undrained areas in the recent past and bog mosses have been slow to recover on the site. Erosion of the peat occurs along the north-west perimeter. The south-east intact area shows signs of a lowering water table.

Slieve Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a diversity of raised bog microhabitats including hummock/hollow complexes, pools and flushes as well as *Sphagnum pulchrum* a nationally rare plant. Areas of cutover bog and a semi-natural margin between the bog and the Yellow River also occur on the site. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.
18.11.2002

Site Name: Cloonoolish Bog

Site Code: 000249

Cloonoolish Bog NHA is situated about 4 km north-east of Killimor, mainly in the townlands of Cloonoolish and Lissaniska North in south-east Co. Galway. The site comprises a raised bog that includes both areas of high bog and cutover bog.

Cloonoolish Bog is a small example of a raised bog, but it has a high dome and good bog moss (*Sphagnum* spp.) cover. It is bordered closely on its north-western side by a mineral ridge, and by low-lying agricultural ground on the other sides. The side of the bog bounding the mineral ridge does not appear to have been cut in the past and so may form a semi-natural margin. Overall, the bog surface is quite dry due to drainage and peat-cutting at the margins. There are, however, wet areas with some poorly developed hummock/hollow systems, occasional small pools and one small quaking area. There are three small ridges with unusual vegetation found at the north-east of the site. The cutover areas have mostly been abandoned, but some have been reclaimed for agriculture.

The high bog at Cloonoolish possesses many of the species typical of raised bogs in Ireland. Most of the bog surface is uniformly medium wet with a high cover of Ling Heather (*Calluna vulgaris*) and bog mosses, with species such as *Sphagnum imbricatum*, *S. magellanicum*, *S. papillosum* and *S. cuspidatum*. The eastern half has not been burnt for many years and bushy Ling Heather and lichen (*Cladonia* spp.) growth predominate. The western half has been recently burnt, and Ling Heather and Deergrass (*Scirpus cespitosus*) are vigorously regrowing. The bog moss cover appears to be equally actively regenerating. The small wettest area, north of the centre, appears to be drying out, with deep hollows and no standing water between the hummocks. Three interesting ridges occur, supporting Common Reed (*Phragmites australis*), large tufts of Hare's-tail Cottongrass (*Eriophorum vaginatum*), bog mosses and many young Scot's Pine (*Pinus sylvestris*) trees. An interesting, but

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- Deleted: It is bordered for a quarter of its perimeter, on the south side, by a small river. ¶
- Deleted: The site consists
- Deleted: The most i
- Deleted: parts of the
- Deleted: about 5 ha
- Deleted: , is uniformly very wet and consists of numerous small healthy hummocks of Bog Moss (*Sphagnum* spp.) topped by Ling Heather (*Calluna vulgaris*) and Bog Cotton (*Eriophorum angustifolium*).
- Deleted:
- Deleted: over a large area
- Deleted: In the west of this intact ¶
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- Deleted: Current landuse on the site consists
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very small, feature is a flush consisting of a hollow filled with Soft Rush (*Juncus effusus*) and the bog moss *Sphagnum cuspidatum*, adjacent to a very large relic hummock with Crowberry (*Empetrum nigrum*). This is surrounded by an unusual occurrence of a number of orchid species (*Dactylorhiza* spp.) over a few square metres.

Current landuse on the site consists of peat-cutting around much of the eastern and southern edges of the high bog, and the drainage associated with this. Large portions of the bog have been severely burnt in the past. Significant areas of cutover bog have been drained, cleared and reclaimed for agricultural purposes. These activities have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Cloonoolish Bog NHA is a site of considerable conservation significance, comprising as it does, a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.
13.11.2002

Site Name: Cregganna Marsh

Site Code: 000253

Cregganna Marsh is situated about 3 km south of Oranmore, to the west of the Galway - Ennis road. The predominant habitats on the site are lowland wet grassland and improved grassland, but areas of limestone pavement and other exposed rock, Hazel (*Corylus avellana*) scrub, freshwater marsh, drainage ditches and dry grassland are also represented.

The site is of major conservation importance as a feeding site for a nationally important Greenland White-fronted Goose flock. The birds using this site form part of the Rahasane flock (5 year mean of winter maximum, 1995/96 to 1999/00 of 166 individuals). Greenland White-fronted Goose is a species that is listed on Annex I of the E.U. Birds Directive. The site is also designated a Special Protection Area under this Directive.
18.9.2006

Site Name: Crit Island Bog

Site Code: 000254

Crit Island Bog NHA is situated approximately 4 km south-west of Ahascragh, mainly in the townlands of Doon Upper, Fairfield, Cloonigny and Killure in County Galway. The site comprises a raised bog that includes both areas of high bog and cutover bog. The northern margin of the site is bounded by a road, while the other margins are bounded by areas of cutover and grassland.

The high bog consists of two main sections. The larger section, at the north, is elongated and very complex in

shape. There are large areas of cutover and forestry associated with it. The southern section is smaller and rectangular in shape, with a large area of coniferous forestry on the high bog. On the northern section there is an area with permanent pools and hummocks/hollows at the western side of the high bog. At the extreme north-west of the site there is a block of rectangular wet semi-natural fields which are situated on the high bog. They are in existence at least since the beginning of the 19th century. There is a flush (Crit Lough) at the centre of the site.

The high bog vegetation at this site is typical of a raised bog, with species such as Ling Heather (*Calluna vulgaris*), Cottongrasses (*Eriophorum* spp.) and bog mosses (*Sphagnum* spp.). For ease of description the bog has been divided into 3 areas: the wettest and mostly western section, the central and north-eastern section and the separated southern section. An area of about 20 ha of active bog has been recorded at the western section of the site with hummocks/hollows and pools. In this area, the hummocks are principally composed of bog mosses such as *Sphagnum fuscum*, *S. papillosum* and *S. imbricatum*, and the pools are largely *S. cuspidatum*-filled, with *S. magellanicum* lawns in between. Further east, the hollows become smaller and the pools drier, indicating a lowering of the water level. Much of the rest of this western area is wet, but with Bog Asphodel (*Narthecium ossifragum*) becoming dominant. In areas which have not been burned, there is abundant lichen (*Cladonia* spp.) cover which suppresses the bog moss growth. There is also an area of semi-natural wet grassland on the high bog at the extreme north-west of the high bog.

The north-eastern section of this bog is of poor quality, having little in the way of bog moss cover. Instead, it is dominated by Carnation Sedge (*Carex panicea*), Bog Asphodel and Deergrass (*Scirpus cespitosus*). A number of long, narrow tear-pools which are bog moss-filled and aligned east-west are present east of Crit Lough. Crit Lough is found at the centre of the site and consists of a flush which has been severely damaged by an old drain which flows south and also by the new drains. Abundant Cranberry (*Vaccinium oxycoccos*) occurs on the drying surface of a bog moss carpet. Nearby is a large mound with Downy Birch (*Betula pubescens*) and Crowberry (*Empetrum nigrum*).

The southern section of this site is quite dry and has been planted with a large block of coniferous forestry.

Current landuse on the site consists of a large amount of peat-cutting around much of the edge of the high bog, and the drainage associated with this. Large portions of the bog have been burnt in the past. There are also large amounts of coniferous forestry on both the high bog and on the cutover. These activities have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Crit Island Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The area of old reclaimed grassland on the high bog may be of considerable historical and agricultural interest as such areas are very rare. Ireland has a high proportion of the

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total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.
14.11.2002

Site Name: Funshin Bog

Site Code: 000267

Funshin Bog NHA is located 9 km east of Glenamaddy mainly in the townlands Clooncullaun, Leaha, Funshin and Gortnadeeve West in County Galway. The site comprises a raised bog that includes both areas of high bog and cutover bog. The site is bounded in the south-west by a local road.

There are areas of well developed hummocks that are most prominent on the eastern side of the bog. There is one area of flush in the south-west of the site. Cutover is found all around the site.

This bog has been classified as a Western Raised Bog with Ling Heather (*Calluna vulgaris*), Carnation Sedge (*Carex panicea*), cottongrasses (*Eriophorum* sp.), Deergass (*Scirpus cespitosus*), Cross-leaved Heath (*Erica tetralix*) and the moss *Racomitrium lanuginosum*. Bog mosses recorded on the site include the hummock forming *Sphagnum fuscum* and *S. imbricatum*. The bog moss *S. magellanicum* has also been recorded. Although the bog has well formed hummocks there are no pools and the only hollows are algal and of poor quality. Where the site has not been burnt for a long time, such as the northern region, the lichens *Cladonia portentosa* and *C. uncialis* are common. The moss *Racomitrium lanuginosum* is also common on top of hummocks in areas of the bog that have not been burnt. On the western side of the bog, where the effects of burning have been most severe Deergass, Cross-leaved Heath and Bog Asphodel (*Narthecium ossifragum*) were recorded with patchy carpets of regenerating bog mosses. There is a Purple Moor-grass (*Molinia caerulea*) dominated flush in the south-west of the site with Heath Milkwort (*Polygala serpyllifolia*), Cranberry (*Vaccinium oxycoccos*), Bog-myrtle (*Myrica gale*) and some willows (*Salix* sp.). A small area of wet Downy Birch (*Betula pubescens*) woodland is present on the cutover in the north-east of the site.

The rare bird species Red Grouse has been recorded at the site.

Except at the western edges of the site there is active peat-cutting carried out all around the high bog. Mechanical peat-cutting is most noticeable in the north, south-west and west of the site. Damaging activities associated with this landuse include drainage throughout the site and extensive burning of the high bog. The western side of the bog has also been recently damaged by burning. These activities have all resulted in the loss of habitat, damage to the hydrological status of the site, and pose a continuing threat to its viability.

Funshin Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a

good diversity of raised bog microhabitats, including hummocks and flushes. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.
14.11.02

Site Name: Castle French West Bog

Site Code: 000280

Castle French West Bog is a small raised bog situated about 7 km south-west of Ballyforan. It is located mainly in the townlands of Castle French West, Gowla and Loonaghtan, in east County Galway. It is accessible from local roads and forestry tracks to the east and west.

The site is a raised bog consisting of areas of both high bog and cutover. The high bog is divided into two parts - an eastern, low quality part with tear pools and the western two-thirds, which is of good quality with a high dome. The two are connected by a very narrow strip of high bog and a ridge of mineral soil with cutover on both sides. About 10 ha. (or 25%) of the western section is extremely wet and quaking. Part of this consists of large, inter-connecting pools with low flat 'lawns' between. The rest of this wet area is a wooded flush. The narrow strip of high bog has been planted with conifers and there is also forestry on cutaway to the north and west. There is some wet regenerating cutover to the south-west.

The high bog has vegetation typical of a Western Raised Bog, dominated by Common Common Cottongrass (*Eriophorum angustifolium*) and Carnation Sedge (*Carex panicea*), with the moss *Campylopus atrovirens*, liverwort *Pleurozia purpurea* and Fir Clubmoss (*Huperzia selago*) occurring quite commonly. Ling Heather (*Calluna vulgaris*) is present but not dominant on the high bog and Deergass (*Scirpus cespitosus*) is common in places. The eastern section has poor bog moss (*Sphagnum* spp.) cover and only relic pools. The western section has a wet and quaking area with large, inter-connecting pools containing the bog moss *Sphagnum cuspidatum*, and low flat lawns in between. Cranberry (*Vaccinium oxycoccos*) grows very vigorously here. However, due to burning bog moss cover on these lawns is poor and they are dominated by Bog Asphodel (*Narthecium ossifragum*). To the north these pools grade into a wooded flush, which is quaking and which supports Scot's Pine (*Pinus sylvestris*) trees, some of which are quite mature, over a thick mat of vegetation. This vegetation includes an abundance of Crowberry (*Empetrum nigrum*) and Cranberry as well as Bilberry (*Vaccinium myrtillus*) and other species including bog mosses and orchids (*Dactylorhiza* spp.).

The cutover to the south-west is very wet and regenerating, with good bog moss growth, Soft Rush (*Juncus effusus*), Purple Moor-grass (*Molinia caerulea*) and abundant Cranberry. The mosses, *Calliergon cuspidatum* and *Aulacomnium palustre* are also present. The short mineral ridge in the centre of the site is dominated by Gorse (*Ulex europaeus*) scrub and Bracken (*Pteridium aquilinum*). This ridge extends under the thin section of the high bog.

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Current landuse on the site consists of forestry, agricultural reclamation of old cutover and mechanical peat-cutting to the east and south. Damaging activities associated with these include drainage and burning with large portions of the bog being burnt at regular intervals. These activities have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Castle French West Bog NHA is a site of considerable conservation significance, comprising as it does, a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The site supports a range of raised bog habitats including a pool system and a wooded flush. This bog although small and damaged by extensive cutover and burning, is unusual in having such a relatively large area of wet quaking habitat. The presence of the wooded flush adds to the conservation value of the site. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

13.11.2002

Site Name: Keeloges Bog

Site Code: 000281

Keeloges Bog NHA is located 5.5 km east of Glenamaddy mainly in the townlands Keeloges West, Keeloges East, Sonnagh East, Knockmascahill and Gortnadeeve West in County Galway. The site comprises a raised bog that includes both areas of high bog and cutover bog.

This site is made up of two areas of high bog that are bisected by a road. The eastern section of the site is dry due to a large number of major drains, the western section has an extensive area of hummocks and pools and is wet and quaking in areas. There is one flush in the west of the site. Coniferous forestry is found on three small sections of the high bog and associated cutover in the north, west and south-west of the site. Cutover is found all around the site.

This bog has been classified as a Western Raised Bog with Ling Heather (*Calluna vulgaris*), abundant Common Cottongrass (*Eriophorum angustifolium*), Carnation Sedge (*Carex panicea*) and the moss *Campylopus atrovirens*. In the middle of the western section of high bog stretching east towards the road there is a well developed system of hummocks and pools. The bog mosses *Sphagnum cuspidatum* and *S. auriculatum* are found in the pools as is Round-leaved Sundew (*Drosera rotundifolia*). The area between the pools are wet and quaking and Bog Asphodel (*Narthecium ossifragum*), White Beak-sedge (*Rhynchospora alba*) and Cottongrasses are common. The hummock forming bog mosses *Sphagnum capillifolium*, *S. papillosum* and *S. imbricatum* and the moss *Campylopus atrovirens* were also recorded between the pools. The south-west of the bog has a shallow peat layer and is dryer with Ling Heather dominant. The Purple Moor-grass (*Molinia caerulea*) dominated flush in the west of the site is drained by a channel. Soft Rush (*Juncus effusus*), Bottle Sedge (*Carex rostrata*), Bogbean (*Menyanthes trifoliata*), Marsh Violet (*Viola palustris*),

Cranberry (*Vaccinium oxycoccos*) and the bog moss *Sphagnum recurvum* were recorded in the area of the channel. Coniferous forestry is found on three small sections of the high bog and associated cutover in the north, west and south-west of the site. Also in the south-west of the site there is a small area of Gorse (*Ulex* sp.) scrub on the high bog. In the north-east of the site there is an area of scrub on the cutover.

Current landuses on the site consist of peat-cutting, forestry and agriculture. Peat-cutting has occurred all around the site but active peat-cutting is now mostly in the north-east and south of the site. Since the 1970s conifers have been planted on three small sections of the high bog and cutover in the north, west and south-west of the site. The reclaiming of cutover for agriculture has occurred around the site. Damaging activities associated with these landuses include drainage throughout the site and extensive burning of the high bog. Old burning has been recorded in the north-west of the site. The majority of the eastern portion of the high bog has had major drainage ditches dug through it in preparation for forestry that was never carried out. This was also the case in the west of the site where an area of high bog was damaged due to drainage operations in preparation for forestry. These activities listed have all resulted in the loss of habitat, damage to the hydrological status of the site, and pose a continuing threat to its viability.

Keeloges Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats, including hummocks and flushes. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

14.11.02

Site Name: Kilmore Bog

Site Code: 000283

Kilmore Bog NHA is located 5 km north-west of Ballygar, mainly in the townlands St. Brendans (Cregganagroy), Slievemurry, Boggauns and Kilmore in Co. Galway. The site comprises a raised bog that includes both areas of high bog and cutover bog. The site is bounded in the south by a local road.

This is a medium sized bog with hummocks and pools and a central area that is wet and quaking. There is one large wooded flush in the east of the site. There is a small forestry plantation on cutover in the north of the site. Cutover is found all around the site.

Much of the high bog has vegetation typical of a Western Raised Bog, consisting of Ling Heather (*Calluna vulgaris*), Cottongrass (*Eriophorum* sp.), Deergrass (*Scirpus cespitosus*), Carnation Sedge (*Carex panicea*), the moss *Campylopus atrovirens* and the liverwort *Pleurozia purpurea*. There is an area of hummocks and pools in the south and south-west of the site. The bog mosses *Sphagnum capillifolium*, *S. magellanicum*, *S. imbricatum*

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and *S. fuscum* have all been recorded in this area of the site. The frequent pools seen in this area of the bog are narrow and contain the bog moss *S. cuspidatum* with Bogbean (*Menyanthes trifoliata*). Common Cottongrass (*Eriophorum angustifolium*) and Great Sundew (*Drosera anglica*). White Beak-sedge (*Rhynchospora alba*) and the liverwort *Pleurozia purpurea* are found along the margins of the pools. North of the pools there is some evidence of burning with Bog Asphodel (*Narthecium ossifragum*), Deergrass, Ling Heather, Common Cottongrass, and Cross-leaved Heath (*Erica tetralix*) recorded. There are tear pools in this area and the bog mosses *S. cuspidatum* and *S. auriculatum* have been recorded with Brown Beak-sedge (*Rhynchospora fusca*) and Great Sundew. As the ground slopes down to the flush the pools increase in size and Oblong-leaved Sundew (*Drosera intermedia*) is found.

The east of the site is dominated by a wooded flush with Downy Birch (*Betula pubescens*), Eared Willow (*Salix aurita*) and occasional Ash (*Fraxinus excelsior*) with Bilberry (*Vaccinium myrtillus*) and Blackberry (*Rubus fruticosus* agg.) in the under-storey. The diversity of the epiphytic lichen flora on the birch trees in the flush is high with the genera *Parmelia*, *Pertusaria*, *Evernia* and *Usnea* all recorded. The hummocks are dominated by the bog mosses *S. capillifolium*, *S. squarrosum* and *S. papillosum*. The depression which leads into the flush has fen type vegetation and is composed of several small streams which run between floating mats of the bog mosses *S. papillosum* and *S. subnitens*. Bog Pondweed (*Potamogeton polygonifolius*), Water Horestail (*Equisetum fluviatile*), Bulrush (*Typha latifolia*) and Lesser Bladderwort (*Utricularia minor*) are in the channels.

Cutover in the north of the site contains a failed conifer plantation with willow (*Salix* sp.) and Braken (*Pteridium aquilinum*) in between the mature conifers. This plantation is set in a flooded grassland with Floating Sweet-grass (*Glyceria fluitans*) dominant. In the north-east of the site there are some semi-improved fields on the cutover. In the east of the site there is a large area of cutover with scrub growing on it.

The rare bird species Red Grouse has been recorded at the site.

Current landuses on the site include forestry, peat-cutting and agriculture. The forestry is found on cutover in the north of the site. Active peat-cutting is taking place in the north and south of the site. Two fields on the cutover in the north-east of the site are semi-improved. Damaging activities associated with these landuses include drainage throughout the site and burning of the high bog. There is also evidence of old burning in the north-west and south-east of the site. All these activities have resulted in the loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Kilmore Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats, including hummocks, pools and a flush. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

14.11.2002

Site Name: Kilnaborris Bog

Site Code: 000284

Kilnaborris Bog is situated 6 km west of Eyrecourt, Co. Galway. It is located mainly in the townlands of Killnaborris, Killeragh and Cankilly. The site comprises a raised bog that includes both areas of high bog and cutover bog.

The site consists of one raised bog dome. The central area has a number of degraded pools, which have become infilled. There are more pools north of the bog centre and a flush in the centre of the bog, both of these features appears to be associated with a bog burst. Aligned tear pools and steep slopes associated with the bog burst are located to the south of the site.

Much of the high bog has vegetation typical of for both western and midlands raised bog types, consisting of Ling Heather (*Calluna vulgaris*), Hare's-tails Cottongrass (*Eriophorum vaginatum*), Bog Asphodel (*Narthecium ossifragum*) and bog moss *Sphagnum magellanicum*. Most of the other species are found in localised patches. The bog moss *Sphagnum auriculatum* is found in several large hollows. Other pools are filled with bog moss (*Sphagnum cuspidatum*) along with Bogbean (*Menyanthes trifoliata*) and Long-leaved Sundew (*Drosera anglica*). The bryophytes *Sphagnum fuscum*, *Dicrananum scoparium* and *Pleurozia schreberi* as well as Ling Heather, Downy Birch (*Betula pubescens*), Soft Rush (*Juncus effusus*), Bog-rosemary (*Andromeda polifolia*) and Cranberry (*Vaccinium oxycoccos*) are found in the centre flush. There are extensive lawns of bog moss (*Sphagnum capillifolium*, *S. papillosum* and *S. magellanicum*) in the central area of the high bog. Scots Pine (*Pinus sylvestris*) can be found growing on dryer areas of the bog in areas where the drainage has been affected by the old bog burst. Ling Heather is found on steep slopes and on the cutaway. The club moss *Huperzia selago* is scattered throughout the bog vegetation.

Current landuse on the site consists of peat cutting, which is now mainly confined to the western margin. Peat cutting and burning have led to the drying out of the bog surface. Peat cutting was the probable cause of a major bog burst pre-1973. There is some evidence that the bog burst has caused considerable drying out of the bog surface. Bog bursts are relatively infrequent occurrences on a raised bog. Scots Pine is becoming established on dryer areas of the bog and on steep banks.

Kilnaborris Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a diversity of raised bog microhabitats including hummock/hollow complexes, pools, a flush and scrub on the old peat cuttings. Ireland has a high proportion of the E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

18.11.2002

Site Name: Leaha Bog

Site Code: 000292

Leaha Bog NHA is located 9.5 km east-south-east of Glenamaddy mainly in the townlands Clooncullaun and Leaha in County Galway. The site comprises a raised bog that includes both areas of high bog and cutover bog. The site is bounded in the south and south-west by a tributary of the Shiven River and in the north of the site by a road.

The site is part of a large bog complex that is now separated by roads and cutover that has been reclaimed for agriculture. Leaha Bog is separated from Funshin Bog NHA (267) by a road, and a tributary of the Shiven River separates Leaha Bog from Camderry Bog NHA (240) and Clooncullaun Bog NHA (245). Leaha Bog has a shallow dome with low hummocks throughout the bog; the site does have pools but they are colonised by algae. In the south-west of the site there is coniferous forestry on the high bog. Cutover is found all around the site.

This bog has been classified as a Western Raised Bog, and supports such species as Ling Heather (*Calluna vulgaris*), Carnation Sedge (*Carex panicea*), cottongrasses (*Eriophorum* spp.), Cross-leaved Heath (*Erica tetralix*), Deergrass (*Scirpus cespitosus*) and the liverwort *Pleurozia purpurea*. Carnation Sedge and Bog Asphodel (*Narthecium ossifragum*) are particularly dominant. Low hummocks of the bog mosses *Sphagnum capillifolium* and *S. imbricatum* occur on the site as well as, but less frequently, *S. fuscum*, *S. subnitens*, *S. tenellum* and *S. magellanicum*. There are occasional large hummocks of the moss *Leucobryum glaucum* and these are colonised, among other species, by the moss *Campylopus introflexus* and the lichens *Cladonia crispata*, *C. portentosa* and *C. floerkeana*. The only pools are of a poor quality and are colonised by algae; they are mainly found in the north-west of the site and the south-west near the forestry. Although the aquatic bog moss *S. cuspidatum* does not dominate in the pools it has been recorded on the bog. The short stature of the Ling Heather and the presence of only algal pools provide some evidence of burning on the bog in the past. Bog-myrtle (*Myrica gale*) formerly grew in a wet area in the south-west of the bog but this section of the high bog has now been planted with coniferous forestry. The cutover in the west of the site is dominated by coniferous forestry and in the east of the site it is primarily reclaimed grassland. Species recorded on the peaty wet grassland include Purple Moor-grass (*Molinia caerulea*), Devil's-bit Scabious (*Succisa pratensis*) and Green-ribbed Sedge (*Carex binervis*).

Current landuses on the site include forestry, active peat cutting and agriculture. There is forestry on the high bog in the south-west of the site and on the cutover along the western edge of the site. Active peat-cutting is most prevalent along the track in the south-west of the site and all around the northern section of the high bog. Along the eastern edge of the site the cutover has been reclaimed for agricultural grassland. Damaging activities associated with these landuses include drainage throughout the site and extensive burning of the high bog. These activities

have all resulted in the loss of habitat, damage to the hydrological status of the site, and pose a continuing threat to its viability.

Leaha Bog NHA is a site of considerable conservation significance, comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The site supports a good diversity of raised bog microhabitats, including hummocks. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level. 14.11.2002

Site Name: Lough Tee Bog

Site Code: 000307

Lough Tee Bog NHA is located 6 km east of Monivea mainly in the townlands Cuddoo East, Derrough, Cormacuagh East, Shanballymore, Ballyglass and Cloonkeenerrill. The site comprises a raised bog that includes both areas of high bog and cutover bog.

This is a large site that is partially divided by tracks and associated drains that run across the eastern section of high bog. In this area of the bog there is also a small ring fort. There are five small lakes included in the site, Lough Corneal in the north, and in the south, Lough Tee, Lough Doo, Shanballymore Lough and an unnamed small lake. There is an area of hummocks and pools in the north-east of the high bog and a section at the centre of this area is wet and quaking. There are four flushes in this site, three in the south and one at the centre of the site. Coniferous forestry is located on two small areas of the high bog in the east and north-east of the site. Forestry is also on the cutover adjoining these areas and a separate section of cutover in the north-east of the site. Cutover is found around most of the high bog and across the centre of the eastern half of the site.

Much of the high bog has vegetation typical of a Western Raised Bog, consisting of Ling Heather (*Calluna vulgaris*), Cottongrass (*Eriophorum* sp.), Carnation Sedge (*Carex panicea*), the liverwort *Pleurozia purpurea* and the moss *Campylopus atrovirens*. The hummock-forming bog mosses *Sphagnum fuscum* and *S. imbricatum* have been recorded on the high bog. The centre of the eastern lobe of the bog has a large area of hummocks and pools. The bog mosses *Sphagnum cuspidatum* and *S. auriculatum* are found in the pools. Brown Beak-sedge (*Rhynchospora fusca*) grows in some of the pools and the liverwort *Pleurozia purpurea* is abundant at the edges of the pools. Around this wet centre there are large areas of Deergrass (*Scirpus cespitosus*) and Bog Asphodel (*Narthecium ossifragum*). Further west towards the centre of the bog there is a second wetter area of hummocks and pools which is dominated by Cottongrass, Carnation Sedge and Bog Asphodel. The bog moss *S. cuspidatum* is found in the pools and there are lawns of *S. magellanicum*. There are four flushes in the site. One is found around Lough Doo and birch (*Betula* sp.), Purple Moor-grass (*Molinia caerulea*) and Bog-myrtle (*Myrica gale*) occur in the flush area. Of the other two flushes in the south the south-eastern flush is atypical of a bog flush. Species recorded

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here include the mosses *Campylium stellatum* and *Fissidens* sp. and Heath Wood-rush (*Luzula multiflora*). The fourth flush in the north-west of the site has Purple Moor-grass, Common Reed (*Phragmites australis*), and Soft Reed (*Juncus effusus*). There are five lakes in the site. The largest is Lough Corneal in the north of the site, which is notable due to its steep edges dominated by Ling Heather. Lough Tee, with Bogbean (*Menyanthes trifoliata*), Broad-leaved Pondweed (*Potamogeton natans*) and Yellow Water-lily (*Nuphar lutea*) is the next largest lake. To the north-east of Lough Tee there is an associated small area of woodland with birch, Hazel (*Corylus avellana*), willow (*Salix* sp.) and oak (*Quercus* sp.). Of the other three lakes in the south of the site Lough Doo is almost completely infilled and dominated by Ling Heather and Purple Moor-grass, and Shanballymere Lough has Bulrush (*Typha latifolia*) and Common Reed growing around it. The third lake in the south-west is surrounded by Hawthorn (*Crataegus monogyna*), birch, Purple Moor-grass and Soft Rush. There is coniferous forestry on two small areas of the high bog in the east and north-east of the site. Forestry is also on the cutover adjoining these two areas and on a separate section of cutover in the north-east of the site. Regenerating cutover occurs in the south-east of the site and it supports vegetation of Ling Heather, Purple Moor-grass and bog mosses; *Sphagnum cuspidatum* lawns occur in the wetter areas. Birch scrub occurs on old cutover in the south-east and the cutover in the far east of the site consists of lowland wet grassland with many sedge (*Carex* sp.) species noted.

Golden Plover, a species that is listed on Annex I of the E.U. Birds Directive, and Otter, a Red Data Book species have been recorded at the site.

Current landuses on the site include forestry, peat-cutting and agriculture. Forestry is found on the high bog and cutover in the north-east and east of the site. Peat-cutting has occurred around most of the site and also across the middle of some of the site. Mechanised active peat-cutting is most extensive in the south-east of the site. The most improved reclaimed agricultural fields are south of the eastern lobe of high bog. Damaging activities associated with these landuses include drainage throughout the site and burning of the high bog. There are old drains along the tracks in the centre of the site that will have a damaging effect. There has also been a new drain dug in the centre of the site and two new drain complexes in the south of the site. There has also been some recent burning in the south of the site. All these activities have resulted in the loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Lough Tee Bog NHA is a site of considerable conservation significance, comprising as it does, a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The site supports a good diversity of raised bog microhabitats, including hummocks, pools and flushes. The presence of five lakes at the site adds to its diversity. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

14.11.2002

Site Name: Meeneen Bog

Site Code: 000310

Meeneen Bog NHA is situated mainly in the townlands of Meeneen, Tiranascragh and Tullinlicky, 6 km south-west of Eyrecourt, Co Galway. The site comprises a medium-sized raised bog that includes both areas of high bog and cutover bog. The River Shannon runs to the south-east of the site.

This raised bog consists of a distinct dome of high bog divided into three sections by trackways. The fragmented nature of the high bog has led to the overall desiccation of this habitat, and a lowering of the water table. There is a large flush in the central lobe. To the north-west and south-east of the site several small areas of mixed deciduous woodland occur. The bog is surrounded by cutover on all its margins.

Much of the high bog has vegetation typical of the Midland Raised Bog type, consisting of Ling Heather (*Calluna vulgaris*), cottongrass (*Eriophorum* spp.), and Carnation Sedge (*Carex panicea*). Other common species on the high bog include Bog Asphodel (*Narthecium ossifragum*) and Deergrass (*Scirpus caespitosus*). Bog moss (*Sphagnum* spp.) growth is good. The overall topography is dominated by hummocks. Many pools contain algae and are showing signs of drying out. In the western lobe, good *Sphagnum papillosum* hummocks occur and some pools contain *S. cuspidatum* and Bogbean (*Menyanthes trifoliata*). The sundews *Drosera rotundifolia* and *D. intermedia* also occur. Bilberry (*Vaccinium myrtillus*) has been recorded from a cutface along the north-eastern margins. An extensive flush dominated by Purple Moor-grass (*Molinia caerulea*) occurs to the east of the site. Other species associated with the flush include Bog-myrtle (*Myrica gale*), Downy Birch (*Betula pubescens*), Cranberry (*Vaccinium oxycoccos*) and the Heath Spotted-orchid (*Dactylorhiza maculata*).

There is extensive cutover to the north-west, south-west and south-east of the site. Downy Birch and Gorse (*Ulex europaeus*) have encroached onto the cutover in many areas. In the north-west two small areas of birch wood occur and a larger area is found on cutover in the south-west.

Irish Hare, a Red Data Book species has been recorded on the site.

Current landuse on the site consists of peat-cutting along the south-east, south-west and north-west margins of the site. A small area of afforestation is found on cutover to the east. Damaging activities associated with this landuse include drainage and burning. Fire damage has been recorded in the 1980s but there is little evidence of recent burning on the high bog. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Meeneen Bog NHA is a site of considerable conservation significance, comprising as it does, a raised bog, a rare habitat in the E.U. and one that is becoming increasingly

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scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats including hummock/hollow complexes, some pools and a significant flush which add to the diversity and conservation value of the site. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level. 14.11.2002

Site Name: Roford River Bog

Site Code: 000321

Roford River Bog NHA is located approximately 3 km north-west of Bellafa (Ballyfa), mainly in the townlands of Cloonbenes, Crossmacrin and Derrynamagh in Co. Galway. The site comprises a raised bog that includes both areas of high bog and cutover bog. The site is bounded in the north and east by the local road running from Bellafa to Attymon.

This site is the remnant of a much larger bog that is now cutover and reclaimed for agriculture. The site is split by a mineral ridge, with the majority of the remaining high bog found north of the ridge and a small elongated section to the south. The larger section of high bog has areas of hummocks and pools towards the centre and the mid-western area is wet and quaking. The high bog also has a series of mounds present. There is one flush in the centre of the high bog. Cutover is found around most of the site.

Much of the high bog has vegetation typical of a Western Raised Bog, consisting of Ling Heather (*Calluna vulgaris*), Common Cottongrass (*Eriophorum angustifolium*), Hare's-tail Cottongrass (*E. vaginatum*) and Carnation Sedge (*Carex panicea*). The bog mosses *Sphagnum papillosum* and *S. capillifolium* are common on the high bog with some *S. magellanicum* and *S. imbricatum* also recorded. Lichen cover (*Cladonia* sp.) is reasonably high throughout the site. The scarce bog moss *S. fuscum* has also been recorded at the centre of the site. In the mid-western section of the high bog Cranberry (*Vaccinium oxycoccos*) has been recorded growing through carpets of bog moss with the liverwort *Pleurozia purpurea*. In the pools complex in the mid-western area of the bog the pools are colonised by the bog mosses *S. cuspidatum* and *S. auriculatum*. These inter-connecting pools also contain Great Sundew (*Drosera anglica*), Bogbean (*Menyanthes trifoliata*); hummocks of the moss *Racomitrium lanuginosum* occur as islands between the pools. Tear pools are found throughout the high bog. Some of these pools are algal while others contain the bog mosses *S. cuspidatum* and *S. auriculatum*. In the eastern margins of the high bog the moss *Campylopus atrovirens* has been recorded. There are noticeable mounds on the high bog and tall Ling Heather (up to 1 m) has been noted to be growing on the top of four of these. There is one large flush at the centre of the site which flows north. Bog-myrtle (*Myrica gale*) is found on the slopes associated with the flush. The flush itself consists of a series of swallow holes in an area dominated by Purple Moor-grass (*Molinia caerulea*). There is a small mineral ridge in the north of the high bog area that is dominated by Hazel (*Corylus avellana*) and Ash (*Fraxinus excelsior*). The cutover to the

east of this ridge is dominated by Purple Moor-grass with Gorse (*Ulex europaeus*) scrub seen to the north of this area. Common reed (*Phragmites australis*) has been recorded on the cutover south of the high bog.

Greenland White-fronted Goose, a species that is listed on Annex I of the E.U. Birds Directive, and Irish Hare, a Red Data Book species, have been recorded on the site.

Current landuses on the site include forestry, peat-cutting and agriculture. The forestry is found on cutover and high bog in the south-west of the site and on cutover in the north of the site. There is mechanised active peat-cutting taking place around most of the site except in the north and west. The largest area of mechanised peat cutting is in the south of the site on an area of high bog. Marginal drains in the east and west of the site are associated with field development. There are also areas of improved grassland associated with the mineral ridge. Damaging activities associated with these landuses include drainage throughout the site and burning of the high bog. There is also evidence of old burning in the western part of the high bog. All of these activities have resulted in the loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Roford River Bog NHA is a site of considerable conservation significance, comprising as it does, a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats, including hummocks and pools. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level. 14.11.2002

Site Name: Auhrim Bog

Site Code: 001227

Auhrim Bog NHA is located 4 km north-west of Ballygar mainly in the townlands Monasternallea (Abbeygreay), Knockaunrainy and Aghrane (Castlekelly) in Co. Galway. The site is 2 km west of the River Suck. The site comprises a raised bog that includes both areas of high bog and cutover bog. The site is bounded in parts by coniferous forestry to the south and north of the site.

The site is partially divided by old tracks and associated drains that run across the high bog. There is an area of hummocks and pools in the middle and west of the high bog and a section at the centre of this area is wet and quaking with a flush present. In the north-west of the site there is a small area of coniferous forestry on high bog. Cutover is found on the north of the site and around the south-west lobe; in the south of the site the cutover has been utilised for forestry.

Much of the high bog has vegetation typical of a Western Raised Bog, consisting of Ling Heather (*Calluna vulgaris*), Hare's-tail Cottongrass (*Eriophorum vaginatum*), Carnation Sedge (*Carex panicea*), Cross-leaved Heath (*Erica tetralix*), the mosses *Racomitrium lanuginosum* and *Campylopus atrovirens* and the liverwort *Pleurozia*

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purpurea. The lichen *Cladonia portentosa* is often found in hummocks with Ling Heather. The bog mosses *Sphagnum papillosum* and *S. capillifolium* are common between pools with some *S. imbricatum* also recorded. To the west of the centre of the site there are many tear pools containing the bog moss *S. cuspidatum* and with Common Cottongrass (*E. angustifolium*) and White Beak-sedge (*Rhynchospora alba*) found around the edges. Some pools contain the bog moss *S. auriculatum* and Brown Beak-sedge (*Rhynchospora fusca*). There are also some small hummocks of the moss *Racomitrium lanuginosum* and the liverwort *Pleurozia purpurea* found amongst the pools and the moss *Campylopus atrovirens* is growing on an island in one of the larger pools. On the margins of the central pools complex carpets of the bog mosses *S. magellanicum* and *S. tenellum* and occasional patches of *S. fuscum* have been noted. The flush in the centre of the site is dominated by Purple Moor-grass (*Molinia caerulea*) and occasional Bog-myrtle (*Myrica gale*). There is a thin cutover margin in the west with Downy Birch (*Betula pubescens*) woodland. In the north the cutover is dominated by Purple Moor-grass, Ling Heather and Gorse (*Ulex europaeus*).

Current landuses on the site include forestry that is found on the high bog in the north-east of the site and on cutover in the south and east of the site. There is active peat-cutting in the north and north-west of the site. Damaging activities associated with these landuses include drainage throughout the site and burning of the high bog, although there has been no recent burning here. There are old drains along the tracks in the centre of the site that will have a damaging effect. All these activities have resulted in the loss of habitat, damage to the hydrological status of the site, and pose a continuing threat to its viability. There is also some dumping occurring at the start of the bog track.

Aughrim Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats, including hummock/hollow complexes, pools and flushes. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

14.11.2002

Site Name: Slieve Aughty Bog

Site Code: 001229

Slieve Aughty Bog NHA consists primarily of upland blanket bog and heath habitat and is located immediately west of the village of Woodford and about 8 km west of Lough Derg, Co. Galway. The site comprises six discrete areas of blanket bog, both intact and cutover, at altitudes between 100 m and 230 m and lies in the townlands of Knockauncarragh, Commons East, Moyglass, Derreenamucka, Boleyveena, Drummin, Cullenagh, Derrybrien East and Derrybrien South. Forestry plantations adjoin all six areas and form the majority of the site boundaries, with the remaining areas bounded by rivers, roads and tracks. Bedrock geology is quartzite.

The dominant habitat is blanket bog, with the largest tract occurring in the eastern sector. Here the vegetation is generally dominated by Purple Moor-grass (*Molinia caerulea*), with Deergrass (*Scirpus cespitosus*), and includes species such as Common Cotton-grass (*Eriophorum angustifolium*), Carnation Sedge (*Carex panicea*), Bog-myrtle (*Myrica gale*), Soft Rush (*Juncus effusus*), Heath Milkwort (*Polygala serpyllifolia*), Lousewort (*Pedicularis sylvatica*), Hare's-tail Cotton-grass (*Eriophorum vaginatum*), Crossed-leaved Heath (*Erica tetralix*), Bog Asphodel (*Narthecium ossifragum*), Tormentil (*Potentilla erecta*), Star Sedge (*Carex echinata*), Heath Rush (*Juncus squarrosus*) and Round-leaved Sundew (*Drosera rotundifolia*). There are some well developed wet areas with excellent growths of bryophytes (mosses and liverworts), including a good diversity of bog mosses including *Sphagnum capillifolium*, *S. papillosum* and *S. subnitens*. Moss cover is consistently high at 80% in both hummock and carpet forms. On deep peat areas the vegetation is more characteristic of raised bog and includes Bog Rosemary (*Andromeda polifolia*) and Cranberry (*Vaccinium oxycoccos*). Ling Heather bushes (30 cm high) occur here and the substrate is soft and wet underfoot. Extensive lawn areas, with some pools, support White-beaked Sedge (*Rhynchospora alba*) Bog-myrtle. Grazing pressure is low with some slight poaching.

Areas of regenerating cutover are dominated by Deergrass, Purple Moor-grass, cottongrasses and Crossed-leaved Heath. Bog moss cover is lower here (30-40%) and there are cushions of lichen *Cladonia portentosa*. The adjacent bog surface has scattered Willow (*Salix* spp.) bushes.

Habitat diversity is increased further by the presence of flushes and small, in-filling lakes. These species poor flushes are dominated by Purple Moor-grass with occasional Bog-myrtle, Ling Heather, Crossed-leaved Heath and Bog Asphodel. Bog mosses *Sphagnum capillifolium* and *S. papillosum* are present (30%), together with the moss *Racomitrium lanuginosum*, the liverwort *Pleurozia purpurea* and the lichen *Cladonia portentosa*. Other species found in the flushes include Carnation Sedge, Deergrass and Hare's-tail Cotton-grass.

The peat becomes shallow on higher slopes and bog vegetation grades into heath and acid grassland dominated by Ling Heather and a low sward of sedges (*Carex* spp.), Sheep's Fescue (*Festuca ovina*) and a variety of mosses.

The site supports Red Data Book species Red Grouse, Hen Harrier and small numbers of Whooper Swan that use Loughaunewa lake.

Landuse on the site includes peat-cutting and agriculture. Activities associated with agriculture include grazing by sheep and burning of vegetation. The site is threatened by afforestation which is the dominant landuse in the vicinity and more recently by wind energy installations. All these activities have resulted in loss of habitat and damage to the hydrological condition of the site. However, the blanket bog is largely intact and relatively lightly grazed and is a good example of a habitat that was

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formerly more widespread in the Slieve Aughty Mountain range.

Slieve Aughty Bog NHA is a site of considerable conservation significance supporting a significant area of upland blanket bog and associated habitats. Blanket bog habitat is a globally scarce resource. It is largely confined to coastal regions at temperate latitudes with cool, wet, oceanic climates. North-west Europe contains some of the best-developed areas of blanket bog in the world. The most extensive areas are found in Ireland and Britain. Upland blanket bogs, due to their exposure to severe climatic conditions at high elevations, are particularly vulnerable to erosion by human activities and extensive areas are currently undergoing active erosion due mainly to overgrazing. The current area of intact upland blanket bog in Ireland represents only a fraction of the original resource, due to the combined impacts of afforestation and overgrazing, and intact examples are therefore extremely valuable for nature conservation. Their long-term survival requires sensitive management.

23.2.2004

Site Name: Capira/Derrew Bog

Site Code: 001240

Capira/Derrew Bog NHA is located 5 km north of Portumna, in the townlands of Capira, Derrew, Gortrea (Fairfield), Kilmalinoe, Corr and Oldstreet in Co. Galway. The site comprises a raised bog that includes both areas of high bog and cutover bog.

This site is the remnant of a larger bog that has now been cutover and reclaimed for agriculture. The site is in close proximity to Ardraigue Bog NHA (1224) and Meeneen Bog NHA (310). Although this bog only has algal pools it is wet and quaking in places with hummocks throughout the high bog. There are vegetated mounds found in the centre and north of the high bog. Cutover is found all around the high bog and the south of the site is dominated by deciduous forestry with dry woodland on an esker ridge in the extreme south.

Much of the high bog has vegetation typical of a Midland Raised Bog, consisting of Ling Heather (*Calluna vulgaris*), Cottongrass (*Eriophorum* sp.), Deergrass (*Scirpus cespitosus*), Bog-rosemary (*Andromeda polifolia*) and Cranberry (*Vaccinium oxycoccus*). The vegetation on the bog is uniform and dominated by Ling Heather and Carnation Sedge (*Carex panicea*) with Cross-leaved Heath (*Erica tetralix*), Deergrass and White Beak-sedge (*Rhynchospora alba*). There are large mounds on the high bog, which are visible on the aerial photographs that are dominated by Ling Heather and Common Reed (*Phragmites australis*). Some smaller mounds also occur with Bog-myrtle (*Myrica gale*), Ling Heather and lichens (*Cladonia* sp.). The bog surface is wet and quaking in the centre and has good bog moss cover throughout. Hummocks of the bog mosses *Sphagnum capillifolium* and *S. papillosum* are common and *S. magellanicum* is also frequent, the hummock forming bog moss *S. imbricatum* was less common as was *S. subnitens*. Many hollows contain the aquatic bog moss *S. cuspidatum* and Great Sundew (*Drosera anglica*) and Round-leaved Sundew (*Drosera rotundifolia*) have been recorded on the bog.

Sphagnum hummocks that are drying out and are often dominated by Ling Heather are common in the south of the site and the one *S. fuscum* hummock was recorded in this area. In this region of the bog there are algal hollows and lawns of Bog Asphodel (*Narthecium ossifragum*), also indicating that the bog is drying out. An old drain on the north-west margin of the high bog is in-filled with the bog mosses *Sphagnum cuspidatum* and *S. magellanicum* with Cottongrasses and Sundew species. In the south of the site Birch (*Betula* sp.) is encroaching onto the high bog and wet woodland occurs on cutover between the high bog and an esker ridge. Dry woodland with Ash (*Fraxinus excelsior*) and Oak (*Quercus* sp.) occurs on the esker ridge in the extreme south of the site.

Current landuses on the site include peat-cutting and agriculture. Active peat-cutting is taking place all along the eastern and western margins of the high bog. Areas of cutover all around the site have been reclaimed for agriculture, but there are only a few fields of improved grassland within the site. Damaging activities associated with these landuses include drainage throughout the site and burning of the high bog. All these activities have resulted in the loss of habitat, damage to the hydrological status of the site, and pose a continuing threat to its viability.

Capira/Derrew Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats, including hummocks. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

14.11.2002

Site Name: Carna Heath and Bog

Site Code: 001241

Carna Heath and Bog NHA is a mosaic of lowland blanket bog and heath habitat situated approximately 1.5 km east of Carna village along the Carna - Kilkieran road in Connemara, Co. Galway. It lies near sea level (altitude 8 m) and is located entirely within the townland of Rusheenamanagh. The northern, western and eastern margins of the site are bounded by a track and a minor road while the southern boundary is marked by the edge of enclosed agricultural land. The bedrock geology in this area is Galway granite.

The site comprises an intricate mosaic of small linear depressions, occupied by blanket bog. Granite outcrops are very frequent and bog development is confined to depressions between these outcrops. The site also contains a lake (Lough Duff), pools, rivers and streams, cutover bog and old walls.

Much of the lowland blanket bog is dominated by Common Cottongrass (*Eriophorum angustifolium*), with Bog Asphodel (*Narthecium ossifragum*), Purple Moor-Grass (*Molinia caerulea*), Cross-leaved Heath (*Erica tetralix*), White-beak Sedge (*Rhynchospora alba*), Round-

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leaved Sundew (*Drosera rotundifolia*) and bog mosses (*Sphagnum* spp.). Bog mosses reach almost complete cover in the wetter areas. The Royal Fern (*Osmunda regalis*) is found growing in the drains. On the drier rocky outcrops, the vegetation is more dominated by Ling Heather (*Calluna vulgaris*), with Western Gorse (*Ulex gallii*), St. Dabeoc's Heath (*Daboecia cantabrica*), Bell Heather (*Erica cinerea*), Carnation Sedge (*Carex panicea*), Green-ribbed Sedge (*Carex binervis*), Royal Fern, Hard Fern (*Blechnum spicant*), Heath Milkwort (*Polygala serpyllifolia*), Tormentil (*Potentilla erecta*) and Deergrass (*Scirpus cespitosus*). In the lee of large boulders Holly (*Ilex aquifolium*), Bilberry (*Vaccinium myrtillus*), Bracken (*Pteridium aquilinum*) and Bramble (*Rubus fruticosus*) also occur.

Lough Duff is surrounded by a quaking raft of vegetation dominated by bog mosses (*Sphagnum* spp.), with Bogbean (*Menyanthes trifoliata*), Marsh St. John's-wort (*Hypericum elodes*) and Royal Fern in the by the lake edge. The lake itself has emergent Pipewort (*Eriocaulon aquaticum*). The heath on the site is noted for the presence of Mackay's Heath (*Erica mackaiana*), an Irish Red Data Book species, which occurs in an area approximately 200 x 100 metres in size. In Ireland, Mackay's Heath is restricted to less than five, 10 km squares.

Former land use is evident from the old peat banks and drains on the site. The stream running from Lough Duff to Lough Sheedagh has recently been mechanically cleared and deepened and there are also some recent excavations within the site, north-east of Lough Duff. Current land use includes grazing by sheep and cattle. There is a small quarrying operation along the eastern margin of the site and dumping of excavated material, as well as of domestic appliances, occurs along the track to the north-east. There is also burning to clear Western Gorse from the low hills. These activities have resulted in habitat loss and damage to the hydrology of the site, and are a potential threat to its conservation.

Carna Heath and Bog NHA is a site of considerable conservation significance. It comprises a mosaic of heath, lake, pools and streams and supports a good diversity of blanket bog microhabitats, including hummock/hollow complexes, flushes and regenerating cutover. Blanket bog habitat is a globally scarce resource and is largely confined to coastal regions with cool, wet, oceanic climates at temperate latitudes. North-west Europe contains some of the best-developed areas of blanket bog in the world. Lowland blanket bog comprises less than 3% of the world's peatlands. In Europe this type of blanket bog is restricted to Ireland, Britain, Norway and Iceland. The lowland blanket bog that occurs in Ireland is considered to be an extreme hyperoceanic variant of the habitat type, found nowhere else in the world except on the coastal fringes of north-west Scotland.

9.12.2003

Site Name: Castle Ffrench East Bog

Site Code: 001244

Castle Ffrench East Bog is located 5km west of Ballyforan, mainly in the townlands of Castle Ffrench East and Gowla, Co. Galway. The site consists of a small, intact raised bog, situated in a region of intensive peat development. It can be accessed from local roads to the north and west. There are extensive areas of cutover peat to the south and east and along with Castle Ffrench West Bog to the south-west, this site represents the only intact raised bog habitat remaining in this region.

The site is a raised bog consisting of areas of both high bog and cutover. The high bog has active bog moss (*Sphagnum* spp.) growth and small pool systems to the north, west and east, some of which have dried out, indicating a lowering water-table. Two series of swallow-holes and two flushed areas are also present. There are also a number of overgrown drains to the north of the high bog. Flooded cutover, wet grassland and dry grassland occur around the margins of the high bog. There is also a small wet woodland and a small dry semi-natural woodland present on the site.

The high bog has vegetation typical of a Midland Raised Bog, dominated by Common Cottongrasses (*Eriophorum angustifolium*) and Deergrass (*Scirpus cespitosus*) with Ling Heather (*Calluna vulgaris*) and lichens (*Cladonia* spp.). The drier areas of the high bog to the west and south are dominated by Ling Heather and Bog-rosemary (*Andromeda polifolia*) is quite abundant especially in wetter areas towards the centre of the high bog along with the moss (*Campylopus atrovirens*). There is good regeneration of bog mosses here with *Sphagnum papillosum* and *S. capillifolium* (but no *S. imbricatum*) and the surface is quaking. The northern pool system is the remnant of a much larger system with most of the pools drying out and containing algae. The small pool system to the west has pools filled with the bog moss *S. cuspidatum* and between the pools Carnation Sedge (*Carex panicea*) dominates with Deergrass and Cottongrasses. There is little bog moss, but some unburnt Ling Heather hummocks are present.

In the east a tear pool system with a north-south alignment occurs close to the high bog margin. It is wet and quaking with the bog mosses (*S. cuspidatum* and *S. auriculatum*) and Sundew (*Drosera* spp.). A flush with Purple moor-grass (*Molina caerulea*) and Bog Myrtle (*Myrica gale*) occurs to the north-east of the site with some small Birch (*Betula* spp.) also present. The flushed area to the south-west has a carpet of bog mosses (*Sphagnum* spp.) with Purple moor-grass, Bog Myrtle and abundant Cranberry (*Vaccinium oxycoccos*). This flush appears to be drying out due to drainage. A small natural drainage channel with swallow-holes occurs to the north of the site. Bilberry (*Vaccinium myrtillus*), Bog moss (*Sphagnum auriculatum*), Carnation Sedge and Hare's-tail Cottongrass (*Eriophorum vaginatum*) are present. Stunted Birch line this channel and Ling Heather with Lichen dominate the surrounding vegetation. A larger swallow-hole system occurs to the south-east of the high bog with tall Birch, Scots Pine (*Pinus sylvestris*), Holly (*Ilex aquifolium*) and Bilberry.

A dry semi-natural woodland with Oak (*Quercus* spp.), Hazel (*Corylus avellana*) and Holly occurs on a small mineral ridge to the south of the site and a small flooded Birch wood is present on cutover to the north-west. Dry

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grassland also occurs along the southern ridge and flooded cutover and wet grassland occur around the margins of the site. Some of the old cutover is wet with Purple moor-grass, Bog Myrtle and regenerating bog mosses.

Current landuse on the site consists of agriculture and mechanical peat-cutting to the north and north-west. Damaging activities associated with these landuses include drainage and burning. There is very little new drainage on the high bog, but large portions of the bog are being burnt at regular intervals with dead hummocks and burnt Ling Heather evident. These activities have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability. However the site is quite wet and some bog moss (*Sphagnum* spp.) regeneration is occurring and this will probably improve if burning stops. Some dumping also occurs by the roadside.

Castle Ffrench East Bog NHA is a site of considerable conservation significance comprising as it does a relatively intact raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a range of raised bog habitats including pool systems, flushes, swallow holes and is showing signs of active regeneration. The presence of woodland and dry grassland adds to the diversity of the site. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

14.11.02

Site Name: Derrinlough Bog

Site Code: 001254

Derrinlough Bog is situated 5km north-west of Moylough in the townlands of Derrinlough, Ballinphuill, Cloonkeen Oughter, Cuilmore, Cloonkeenleananode, Annaghbeg and Annaghmore West, Co. Galway. It can be accessed from the Mount Bellew-Dunmore road (R328). The site consists of two main habitats raised bog and fen. The raised bog includes both areas of high bog and cutover. The fen occurs on the in-filled lake called Derrin Lough to the north of the site. There is wet woodland encroaching into the fen and scrub occurs on the old cutover. The site is bounded by agricultural grassland and an esker ridge borders the site to the north.

There are two lobes of high bog present separated by an esker ridge. The high bog has been damaged by drainage and afforestation with forestry planted on both lobes and adjacent cutover to the north of the site.

Much of the high bog has vegetation typical of a Western Raised Bog mainly dominated by Bog Cottons (*Eriophorum* spp.) and Deer grass (*Scirpus caespitosus*). The surface is quite wet and hummocks of bog moss (*Sphagnum capifolium*) are present but not abundant and Ling Heather (*Calluna vulgaris*) is quite sparse. There is no sign of burning with lichens (*Cladonia* spp.) quite abundant. Old relic hummocks are present with the moss *Racomitrium lanuginosum*. There are a few algal pools present with some bog moss *Sphagnum cuspidatum*. A number of small flushes with Common reed (*Phragmites*

australis) and Purple Moor-grass (*Molinia caerulea*) occur on the bog surface. In the south-west there is a flush on the slope from the high bog dominated by Rushes (*Juncus* spp.), Common Reed, Purple Moor-grass and Bog Myrtle with Cranberry (*Vaccinium oxycoccos*) also present.

The conifer plantations on the high bog and cutover consist of Lodgepole Pine (*Pinus contorta*) and Sitka Spruce (*Picea sitchensis*). There is extensive cutover to the south where active peat-cutting occurs. In the western region of the site there is old cutover dominated by Purple Moor-grass and Soft Rush (*Juncus effusus*). Ling heather and regenerating bog mosses also occur here. Along the margin between the high bog and the stream there is a flush of Common Reed and Purple Moor-grass.

The fen occurs on the infilled lake called Derrin Lough and is dominated by Purple Moor-grass, Common Reed, Meadowsweet (*Filipendula ulmaria*) and Bog Myrtle (*Myrica gale*). The surface is very wet and quaking with some Saw Sedge (*Cladium mariscus*) dominating towards the centre. Hummocks of the bog moss *Sphagnum papillosum* are present, with the mosses *Calliergon cuspidatum* and *Polytricum commune*. There is a nice transition between the high bog and fen with seepage from the high bog down a steep slope dominated by large Hare's-tail Cottongrass (*E. vaginatum*) and Ling Heather over bog mosses. There is Birch (*Betula* spp.) woodland encroaching into the fen.

Other habitats present include old cutover, Birch and Gorse (*Ulex europaeus*) scrub, wet Birch woodland and streams. Red Grouse, a bird that is declining in numbers, occur on this site.

Current landuse on the site comprise active peat-cutting and forestry. Damaging activities associated with these landuses include drainage and burning of the high bog. There are also conifer seedlings encroaching onto the high bog. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Derrinlough Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a diversity of raised bog microhabitats, including hummock/hollow complexes, as well as a number of scarce plant species. The close association between raised bog habitat and fen provides added ecological interest. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

14.11.02

Site Name: Derrynagran Bog and Esker

Site Code: 001255

Derrynagran Bog and Esker NHA is a small site situated 5km north of Moylough, mainly in the townlands of Cloonkeen Eighter, Derrynagran and Cloonagh, in east Co.

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Galway. This is a raised bog habitat with areas of high bog and cutover.

The high bog consists of one small very wet dome closely associated with two esker ridges to the south-west, one of which protrudes into the dome of the bog. The esker ridge supports species rich calcareous grassland and there is some scrub and deciduous woodland development in places.

Much of the high bog has vegetation typical of Western Midland Raised Bog with Carnation Sedge (*Carex panicea*), Deergrass (*Scirpus cespitosus*) and Cottongrass (*Eriophorum angustifolium*) with very little, scattered Ling heather (*Calluna vulgaris*). The high bog supports a notable variety of bog mosses (*Sphagnum* spp.) with *S. magellanicum* and *S. papillosum* present. The central area is very flat and somewhat quaking and supports a distinctive system of hummocks and pools with carpets of bog moss (especially *S. magellanicum*) extending from the edges. Some of these pools have large, actively-growing hummocks of the scarce bog moss, *S. imbricatum* particularly on islands which have escaped any fire damage. Cranberry (*Vaccinium oxycoccos*) occurs amongst the bog moss cover in places, indicating flush conditions. The scarce and localised plant Brown Beak-sedge (*Rhynchospora fusca*) is abundant in some of the pools.

The main area of cutover occurs to the east, this is a complex of banks and abandoned very wet cutover with regenerating bog mosses and Cottongrass. The lowland dry grassland on the steep-sided esker ridges is species-rich with abundant lime-loving plants such as Mountain Everlasting (*Antennaria dioica*) and Spring-sedge (*Carex caryophyllea*), Carline Thistle (*Carlina vulgaris*), Wild Thyme (*Thymus* sp.), Glaucous Sedge (*Carex flacca*) and many others. Several spikes of the Early Purple Orchid (*Orchis mascula*) are also present. The sward is very closely grazed with 100% cover. In many places Ling Heather occurs indicating less calcareous soil.

Dry, semi-natural woodland occurs on some of the slopes of the eskers, consisting mainly of Hazel (*Corylus avellana*), with some Ash (*Fraxinus excelsior*) and the occasional large Oak tree (*Quercus* sp.). The ground flora is diverse where not trampled by stock. In the south-west corner a small turlough-like pond with a stony shore occurs in a steep-sided amphitheatre of eskers. Part of the esker ridge is heavily improved grassland, but it is included to preserve the hydrology of the site. In a zone between the bog and the eskers there is a species-rich flooded fen grassland with low-growing sedge species such as Yellow Sedge (*Carex flava* agg). This is a possible remnant of a lagg zone which naturally surround raised bogs and are now very rare due to drainage and turf cutting.

Red Grouse, a species that is becoming increasingly rare in Ireland has been recorded on the site.

Current landuse on the site consists of mechanical peat-cutting along the north-west margins. Grazing activities along the margins between esker and bog has lead to poaching damage in this area. Damaging activities associated with this landuse include drainage and burning. Fire damage has been recorded in the 1980s and more

recently in a small section along the bog margins. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Derrynagrán Bog and Esker NHA is a site of considerable conservation significance comprising of raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This high bog supports a good diversity of raised bog microhabitats including some hummock/hollow complexes and pools. The site shows a transition from bog to esker (both of good quality) including a possible lagg zone, which considerably increases its overall scientific value. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

14.11.02

Site Name: Eskerboy Bog

Site Code: 001264

Eskerboy Bog NHA is situated approximately 4 km north-west of Killimor, Co. Galway, mainly in the townlands of Eskerboy, Gortknappagh and Lurgan More. The site comprises a long, narrow raised bog with areas of high bog and cutover, which lies between two esker ridges.

The site has a typical raised bog topography with a small, low domed area in the bog centre, with infilling pools. Three flushes occur, one along the southern margin of the high bog the other two towards the central area. Habitat diversity is increased with the presence of Downy Birch (*Betula pubescens*) scrub, in association with the central flush. Narrow bands of abandoned cutover occur along the southern and northern bog margins.

This is a typical example of the Western/Midland Raised Bog Type, with vegetation consisting of Bog Asphodel (*Narthecium ossifragum*), Ling Heather (*Calluna vulgaris*), Hare's-Tail Cottongrass (*Eriophorum vaginatum*), Deergrass (*Scirpus cespitosus*) and Carnation Sedge (*Carex panicea*). Cranberry (*Vaccinium oxycoccos*) has been recorded from the site. The central area of the high bog has pools infilling with Hare's-Tail Cottongrass and there is a good cover of bog mosses (*Sphagnum magellanicum*, *S. capillifolium*, *S. auriculatum* and *S. fuscum*). Purple Moor-grass (*Molinia caerulea*), Bog-myrtle (*Myrica gale*) and Gorse (*Ulex europaeus*) are found in association with the two small flush areas to the south and centre of the site. The larger flush to the centre of the high bog supports a small grove of scattered Downy Birch. Abandoned cutover areas are dominated by Gorse to the north, with abundant Purple Moor-grass in the southern cutover margins.

Current landuse on the site comprises peat-cutting on the eastern and western sides. There has been very limited peat-cutting to the north and south, where a narrow band of cutover separates the high bog from adjoining esker ridges. To the south-east and north-east the cutaway has been reclaimed for agriculture. Damaging activities associated with this landuse include drainage and burning. Drainage has led to drying out of the bog surface;

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however, no recent drains are evident on the site. Fire damage was recorded in the 1980s and 1990s – this has led to an abundance of Bog Asphodel. However, the presence of bog mosses and regenerating Ling Heather indicates recovery of the bog surface in some areas. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site and pose a continuing threat to its viability.

Eskerboy Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The site supports a diversity of raised bog microhabitats including pools and flushes; the presence of Birch scrub adds to the diversity and scientific value of the site. Ireland has a high proportion of the total E.U. resource of this habitat type (over 50%) and so has a special responsibility for its conservation at an international level.

18.11.2002

Site Name: Killaclogher Bog

Site Code: 001280

Killaclogher Bog NHA is situated about 5 km north-east of Monivea, mainly in the townlands of Abbert Demesne and Carrowmore, in Co. Galway. The site comprises a raised bog that includes both areas of high bog and cutover bog, and an in-filled lake. It is bordered along its eastern side by the Killaclogher River, and on the western side by a small stream.

Killaclogher Bog consists of four main lobes, separated from each other by a network of tracks and areas of cutover peat. There are wet areas with some pools in the most southern lobe of the site, but for the most part the bog is uniform with only shallow hollows, which are often filled with algae. A small stream rises at the pool area and flows north-westwards a short distance before it flows into the cutover. Another larger stream exists between the most southern lobe and the one above it, which drains from the bog into the Killaclogher River. A number of interesting flushes occur on the cutover areas at the west of the site. These appear to be linked to the in-filled lake to the north. Some of the cutover areas around the bog are still actively cut, but most have been abandoned or reclaimed for agriculture. There are a number of areas of coniferous forestry at the south and north of the site.

The high bog at Killaclogher possesses many of the species typical of Western Raised Bogs in Ireland, with species such as Ling Heather (*Calluna vulgaris*), Bog Asphodel (*Narthecium ossifragum*), Carnation Sedge (*Carex panicea*), many bog mosses (*Sphagnum* spp.) and the liverwort *Pleurozia purpurea*. The wettest area occurs in the most southern lobe of the site, where pools and hummock/hollow systems are found in association with wet, spongy bog moss mats. Species found in the pools include the bog moss *Sphagnum cuspidatum*, Bogbean (*Menyanthes trifoliata*) and Common Cottongrass (*Eriophorum angustifolium*). Species such as Cranberry (*Vaccinium oxycoccos*) and Bog-rosemary (*Andromeda polifolia*) are frequently found on the hummocks. The remainder of the bog is quite uniform, having been

damaged by fire on a number of occasions. The vegetation consists mainly of Ling Heather, Cross-leaved Heath (*Erica tetralix*), Bog Asphodel, Carnation Sedge, Deergrass (*Scirpus cespitosus*) and Common Cottongrass. Algal hollows are common and regenerating hummocks of the bog mosses *S. capillifolium* and *S. imbricatum* can be found. A number of flushed areas occur on the cutover at the west of the site, which may be linked to the in-filled lake to the north.

The site supports an important colony of the Marsh Fritillary butterfly, a species listed on Annex II of the E.U. Habitats Directive.

Current landuse on the site consists of peat-cutting around many of the margins of the high bog and along the numerous tracks which cross the site, and the drainage associated with this. Large portions of the bog have been severely burnt in the past. Areas of cutover bog have been reclaimed for agricultural purposes, and a number of areas at the south and north of the site have been planted with coniferous forestry. These activities have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Killaclogher Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

16.03.2006

Site Name: Killure Bog

Site Code: 001283

Killure Bog NHA is situated approximately 2 km north-west of Ballinasloe, in the townlands of Killure Castle and Killcloony, County Galway. The site comprises a raised bog that includes both areas of high bog and cutover bog. The bog is bisected by a road. The eastern margin of the site is bounded by the Bunowen River, while the west, north and south of the bog are bounded mainly by local access roads.

The site consists of two sections of high bog. The western section comprises an area of quaking bog with hummocks and pools occurring in the centre. There is a flush on the eastern margin of the western section. Two other flushes appear on the aerial photographs. The eastern section has been afforested. Cutover and drainage channels occur all around the margins of the high bog.

Much of the high bog has vegetation typical of a Midlands Raised Bog. The vegetation consists of Ling Heather (*Calluna vulgaris*) frequent to abundant Bog Asphodel (*Narthecium ossifragum*), Deergrass (*Scirpus cespitosus*) and Cottongrass (*Eriophorum vaginatum*). The western indicator Carnation Sedge (*Carex panicea*) occurs to the east of the western subsection. Midland indicators present at the site include Cranberry (*Vaccinium*

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oxycoccus) and the bog moss (*Sphagnum magellanicum*). Other bog mosses present include *Sphagnum papillosum*, hummock-forming *S. fuscum* and *S. imbricatum*.

The central area of the western high bog is quaking, with large and small pools with open water and large areas of bog mosses *Sphagnum cuspidatum* and *S. auriculatum* and between the pools a wide variety of other bog mosses are present. Great Sundew (*Drosera anglica*) and Oblong-leaved Sundew (*D. intermedia*) are also present in pools. The pools become larger and interlocking in the south-east of this area and become more like a quaking flush with large carpets of Sphagnum between pools including *Sphagnum magellanicum* and vigorous *S. papillosum*. There is an extensive flush area in the mid-east of the high bog. It consists of scattered and sometimes dense Downy Birch (*Betula pubescens*).

Current landuse on the site consists of peat-cutting around the southern edge of the high bog and forestry. Areas of cutover have been reclaimed for agricultural purposes. Peat-cutting on the site has also increased in area and intensity within the last decade through the use of mechanised methods for peat extraction. Damaging activities associated with these landuses include drainage throughout the site (both old and recent) and extensive burning of the high bog. Forestry on the high bog is reaching maturity and should be harvested soon. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Killure Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats, including hummock/hollow complexes, pools and flushes, as well as a number of scarce plant species. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.
15.11.2002

Site Name: Moorfield Bog

Site Code: 001303

Moorfield Bog NHA is located 4 km west of Eyrecourt on the Ballinasloe-Portumna road (R355). It is situated in the townlands of Craughwell, Feaghbeg, Moorfield (Gortnamona), Cloonnamaskry and Raheen in east County Galway. It can be accessed by a bog track, from the R355, to the north-east of the site.

The site consists of a raised bog with a single dome of high bog and associated cutover. The main features of interest are the pools, flushes and wetter areas of the high bog. Towards the centre of the high bog, there is a good though somewhat limited pool system and a large flush is present in the north of the high bog. Two smaller flushes occur further south.

The high bog has vegetation typical of a Western Raised Bog, dominated by Ling Heather (*Calluna vulgaris*) and

Hare's-tail cottongrass (*Eriophorum vaginatum*), with the moss *Campylopus atrovirens* and liverwort *Pleurozia purpurea*. The high bog is quite wet with a good cover of bog mosses (*Sphagnum* spp.). Bog Asphodel (*Narthecium ossifragum*) is present and Bog Myrtle (*Myrica gale*) forms large clumps in places. The dried out marginal areas have little moss cover and are dominated by Ling Heather. Towards the centre of the high bog, there is a pool system with some pools containing algae. However, there are also wet and quaking areas with long tear pools filled with bog mosses (*Sphagnum cuspidatum* and *S. auriculatum*). Species associated with these pools include White Beak-sedge (*Rhynchospora alba*), Brown-Beak-sedge (*R. fusca*), Bogbean (*Menyanthes trifoliata*) and Great Sundew (*Drosera anglica*). The hummock forming bog mosses *Sphagnum tenellum*, *S. capillifolium* and *S. papillosum* are also present. The rare bog moss *S. pulcrum* has been recorded on this raised bog and may still be present in the wetter areas at the centre of the site.

Additional habitat diversity is represented by the flushes, where the following species were recorded: Bog Myrtle, Black Bog-rush (*Schoenus nigricans*), Cranberry (*Vaccinium oxycoccus*), Crowberry (*Empetrum nigrum*), Purple Moor-grass (*Molinia caerulea*), Common Reed (*Phragmites australis*) and Saw Sedge (*Cladium mariscus*). The large flush to the north of the high bog is dominated by Purple Moor-grass and some Saw Sedge. Bog-rosemary (*Andromeda polifolia*) is common here. A smaller flush occurs to the south of the track with Purple Moor-grass and Downy Birch (*Betula pubescens*). Another small flush dominated by Common Reed occurs to the south-east with tall Ling Heather, Common Cottongrass (*Eriophorum angustifolium*) and Carnation Sedge (*Carex panicea*) also present.

There is cutover around most of this site with extensive peat-cutting in the west. Along the eastern margin there has also been some peat-cutting, but this is not as extensive. To the south there is old cutover dominated by Ling Heather with some Gorse (*Ulex europaeus*) and Birch scrub. To the north and north-west, there are a number of reclaimed fields of wet grassland on cutover. An area of dry grassland associated with a mineral ridge to the east is also included in the site. Gorse scrub grows on either side of the bog trackway and Birch scrub occurs on old cutaway to the south. Some of the ditches on the cutover contain Bulrush (*Typha latifolia*), Pondweeds (*Potamogeton* spp.) and other aquatic plants, which reveal the groundwater influence in these locations. Gravel deposits occur in the north-west where they can be seen at the base of the drains, indicating that the peat is shallow in this vicinity.

Current landuse on the site consists of agricultural reclamation of old cutover and peat-cutting around the edge of the high bog. Damaging activities associated with this include drainage and burning, with large portions of the bog being burnt at regular intervals. These activities have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability. There is a small hill to the north, which is being partially quarried for gravel. Dumping of household appliances and agricultural waste has also been noted on this site.

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Moorfield Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a wide range of raised bog habitats including a pool system and flushes, which along with the possible presence of the rare bog moss (*Sphagnum pulcrum*), add to the scientific interest of this site.

Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

15.11.02

Site Name: Annaghbeg Bog

Site Code: 002344

Annaghbeg Bog NHA is located 5 km south-east of Ahascragh, mostly in the townlands of Addergoole West, Addergoole North, Gortbrackmoor and Annaghbeg in Co. Galway. The site comprises a raised bog that includes both areas of high bog and cutover bog.

This raised bog was originally part of an extensive system of bogs that, with the exception for Annaghbeg, have now been cutover. Annaghbeg Bog is in close proximity to Crit Island NHA (254) and Killure Bog NHA (1283). Although this bog has no pools it is wet and quaking in places with hummocks throughout the high bog. Cutover is found all around the high bog.

Much of the high bog has vegetation typical of a Midland Raised Bog, consisting of Ling Heather (*Calluna vulgaris*), Deergrass (*Scirpus cespitosus*), Cranberry (*Vaccinium oxycoccos*) and Bog-rosemary (*Andromeda polifolia*). The vegetation on the bog is uniform and dominated by Carnation Sedge (*Carex panicea*), Deergrass, Bog Asphodel (*Narthecium ossifragum*) and White Beak-sedge (*Rhynchospora alba*). Close to the centre of the bog the surface is wet and quaking, bog moss cover is at its highest and Bogbean (*Menyanthes trifoliata*) is present. Hummocks of the bog mosses *Sphagnum capillifolium* and *S. papillosum* are common and *S. magellanicum* is also frequent, the hummock forming bog moss *S. imbricatum* was less common. Away from the centre of the bog *Sphagnum* cover is low. Bog Asphodel dominates to the south of the site, in areas that have been recently burnt, and towards the south-east Ling Heather becomes more dominant on dryer hummocks. In the east of the site there is an old townland boundary drain that is in-filled with the aquatic bog moss *S. cuspidatum*, Bog Asphodel and White Beak-sedge. In the adjacent drain Sundew (*Drosera* sp.) was also recorded. The high bog is surrounded by cutover, much of which has been reclaimed as agricultural grassland, however small areas in the east and north-west have patches of Gorse (*Ulex* sp.) scrub.

Common frog, a species listed in the Red Data Book, has been recorded on the site.

Current landuses on the site include peat-cutting and agriculture. Active peat-cutting is taking place in the west and south of the site. The cutting in the south seems to be more intensive and commercial. Areas of cutover all around the bog have been reclaimed for agriculture and

much of the grassland seems to have been improved. Damaging activities associated with these landuses include drainage throughout the site and burning of the high bog. All these activities have resulted in the loss of habitat, damage to the hydrological status of the site, and pose a continuing threat to its viability.

Annaghbeg Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats, including hummocks. Ireland has a high proportion of the total E.U. resource of raised bog (over 50%) and so has a special responsibility for its conservation at an international level.

20.11.2002

Site Name: Moycullen Bogs

Site Code: 002364

Moycullen Bogs NHA is an extensive lowland blanket bog located 5 km west of Galway City in Co. Galway. To the west it is largely bounded by the Spiddle - Moycullen Road (some areas west and north-west of this road are, however, included), to the north and east by the Galway - Moycullen road and to the south by the Galway - Spiddle road. It has an altitude range of between 40 m and 143 m and is primarily underlain by granite bedrock. Several lakes and streams are contained in the site as well as large areas of wet and dry heath, fens and flushes and revegetating cutaway.

The main habitat on the site is blanket bog, usually dominated by Purple Moor-grass (*Molinia caerulea*), Cross-leaved Heath (*Erica tetralix*) and Ling Heather (*Calluna vulgaris*). Other species present include Common Cotton-grass (*Eriophorum angustifolium*), Hare's-tail Cottongrass (*Eriophorum vaginatum*), Bog Asphodel (*Narthecium ossifragum*), Black-bog Rush (*Schoenus nigricans*), Tormentil (*Potentilla erecta*), Heath Milkwort (*Polygala serpyllifolia*), Deergrass (*Scirpus cespitosus*), Carnation Sedge (*Carex panicea*) and Bog-myrtle (*Myrica gale*). Bog mosses present include *Sphagnum papillosum*, *S. imbricatum* and *S. capillifolium* with mosses *Hypnum cupressiforme*, *Racomitrium lanuginosum* and *Leucobryum glaucum* and the liverwort *Odontoschisma sphagnii*. The lichen *Cladonia portentosa* also occurs.

Extensive pool systems are found at Laughill. These are interspersed with lawns of White Beak-sedge (*Rhynchospora alba*), Bog Asphodel, mosses (*Campylopus atrovirens* and *C. introflexus*), Lousewort (*Pedicularis sylvatica*) and hummocks of the moss *Racomitrium lanuginosum*. Pool vegetation includes Bogbean (*Menyanthes trifoliata*), Bladderwort (*Utricularia* spp.), Oblong-leaved Sundew (*Drosera intermedia*), Great Sundew (*Drosera anglica*), Round-leaved Sundew, Common Cotton-grass, and the bog moss *Sphagnum auriculatum*. A number of the pools have islands supporting Ling Heather, Purple Moor-grass, Deergrass, Cross-leaved Heath and bog mosses. Other species in pools elsewhere throughout the site include Bog Pondweed (*Potamogeton polygonifolius*) and the bog mosses *Sphagnum cuspidatum* and *S. recurvum*.

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Flushed areas of bog are indicated by the dominance of Bog-myrtle, Purple Moor-grass, Tormentil, Devil's-bit Scabious (*Succisa pratensis*) and Black Bog-rush. Other species in the flushes include cottongrasses, Lousewort, Bogbean, Marsh St. John's-wort (*Hypericum eloides*), Sharp-flowered Rush (*Juncus acutiflorus*), Star Sedge (*Carex echinata*), Bottle Sedge (*Carex rostrata*), Water Horsetail (*Equisetum fluviatile*), Marsh Horsetail (*Equisetum palustre*) and Royal Fern (*Osmunda regalis*). The rare and protected Slender Cottongrass (*Eriophorum gracile*) is found within the site at Tonabrocky. A notable feature of this site is the extensive areas of flushed blanket bog near Knock River dominated by Common Reed (*Phragmites australis*).

There are two large lakes, Lough Inch and Lough Kip, within the site. Their shoreline vegetation is dominated by Purple Moor-grass and Bog-myrtle with varying amounts of Devil's-bit Scabious, Lesser Spearwort (*Ranunculus flammula*), Creeping Bent (*Agrostis stolonifera*), Marsh Ragwort (*Senecio aquaticus*), Marsh Pennywort (*Hydrocotyle vulgaris*), Selfheal (*Prunella vulgaris*), Autumn Hawkbit (*Leontodon autumnalis*) and Royal Fern also present. Many smaller lakes are scattered throughout the site, often with quaking margins and extensive rafts of bog mosses and Oblong-leaved Sundew. Typical vegetation includes Common Reed, Bogbean, Bog-myrtle, Marsh St. John's-wort, Bottle Sedge, White Water-lily (*Nymphaea alba*), Tormentil, Heath Milkwort (*Polygala serpyllifolia*) and Marsh Violet (*Viola palustris*). Great Fensedge (*Cladium mariscus*) is also frequent and forms large stands at Loch an Amadain.

Other habitats present within the site include areas of wet heath, along the summits of low knolls, dominated by Deer-grass, Ling, Cross-leaved Heath, Purple Moor-grass, Bog Asphodel, cottongrasses and Lousewort. Areas of dry heath area found on rocky hillocks that outcrop from the surrounding blanket bog in and around the access road to Lough Kip. These are vegetated with Autumn Gorse (*Ulex gallii*) with frequent Ling, Cross-leaved Heath and occasional Bell Heather (*Erica cinerea*), Tormentil, Purple Moor-grass and St. Dabeoc's Heath (*Daboecia cantabrica*). Additional species noted include Bog-myrtle, Bracken (*Pteridium aquilinum*), Honeysuckle (*Lonicera periclymenum*), hummocks with lichen *Cladonia portentosa*, Purple Moor-grass, Common Cotton-grass, Bilberry (*Vaccinium myrtillus*) and Bearberry (*Arctostaphylos uva-ursi*). Areas of dry heath often merge with Willow (*Salix* spp.) and Gorse (*Ulex europaeus*) scrub. Drainage ditches are vegetated with bog mosses (*Sphagnum* spp.), Bogbean, Bog Pondweed, Water Horsetail, Devil's-bit Scabious, Sharp-flowered Rush, Round-leaved Sundew and Meadowsweet.

The site supports Irish Red Data Book species Red Grouse and several additional notable species of fauna including Irish Hare, Common Frog, Snipe, Curlew, Fox, Kestrel and Lapwing.

Peat cutting (both mechanical and hand) is the dominant land use at present, while grazing pressure by donkey, cattle and ponies is low but locally damaging. Sheep appear to be absent. There are a number of quarries within the site – notably at Derrycruih. A golf course has been constructed on the north side of Lough Inch and a small pitch and putt course has been established on the

southern shores of the lake. There has been some burning of the bog surface in the recent past and conifer plantations have been planted in the centre and eastern area of the site. Due to the proximity of the site to Galway City there is increasing pressure from housing development (typically single dwellings). Development of wind energy installations is also a potential threat.

Moycullen Bogs NHA is an extensive area of lowland blanket bog in an area of high landscape beauty. The site supports a diversity of habitats including large areas of intact blanket bog, wet heath, dry heath, alkaline fen and revegetating cutaway. Blanket bog habitat is a globally scarce resource. It is largely confined to coastal regions with cool, wet, oceanic climates at temperate latitudes. North-west Europe contains some of the best-developed areas of blanket bog in the world. Lowland blanket bog comprises less than 3% of the world's peatlands. In Europe this type of blanket bog is restricted to Ireland, Britain, Norway and Iceland. The lowland blanket bog that occurs in Ireland is considered to be an extreme hyperoceanic variant of the habitat type, found nowhere else in the world except on the coastal fringes of north-west Scotland.

29.6.2005

Site Name: Cloon and Laghtanabba Bog

Site Code: 002374

Cloon and Laghtanabba Bog NHA is a lowland blanket bog situated approximately 8 km north-west of Clifden and 3 km south-east of Cleggan in Connemara, Co. Galway. Most of the site is located within the townlands of Laghtanabba and Maw but a part lies within Cushatrough and Caen townlands. The north-eastern margin of the site is bounded by the Clifden-Cleggan road, the western margins by a stream and fence-line, the eastern margin by a stream while the southern boundary follows a section of a townland boundary. The site covers a narrow altitude range of between 57 m and 61 m. Bedrock geology in this area consists of schist and gneiss.

The site consists of an extensive plain of intact lowland blanket bog on deep peat with pool systems, quaking scraw, lawns of White Beaked-sedge (*Rhynchospora alba*) and hummock-hollow complexes. The blanket bog area is bounded on the south-west by low hills covered with heath and acid grassland vegetation. Other habitats occurring are streams and lakes, flushes, cutover bog and rock outcrops. There is a system of concentric pools in the western part of the site that is bounded by the foothills of Barnahallia Hill to the north-west.

Much of the bog has a well-developed hummock-hollow system. The vegetation is characterised by tussocks of Black Bog-rush (*Schoenus nigricans*) and lawns of White Beak-sedge. Small hummocks of the moss *Racomitrium lanuginosum* occur throughout the site. The bog surface is quaking in parts and species found in such areas include Bog Asphodel (*Narthecium ossifragum*), Cross-leaved Heath (*Erica tetralix*), Ling Heather (*Calluna vulgaris*), Tormentil (*Potentilla erecta*), Round-leaved Sundew (*Drosera rotundifolia*), Hare's-tail Cottongrass (*Eriophorum vaginatum*), White Beak-sedge, Bog-myrtle (*Myrica gale*), Bogbean (*Menyanthes trifoliata*), Great Sundew (*Drosera*

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anglica), the liverwort *Pleurozia purpurea* and the mosses *Campylopus atrovirens*, *C. introflexus* and *C. paradoxus*. Pale Butterwort (*Pinguicula lusitanica*), a locally occurring species is also found on the site. In the very wet quaking scraw areas, there is almost complete cover of bog mosses (*Sphagnum* spp.) with some Common Cottongrass (*Eriophorum angustifolium*) and Purple Moor-grass (*Molinia caerulea*).

There are areas of regenerating bog vegetation on cutover blanket peat towards the north of the site where pools and wet hollows are colonised by bog mosses. Other species on the regenerating cutover include Ling Heather, Common Cottongrass, Hare's-tail Cottongrass, White Beak-sedge, Black Bog-rush, Purple Moor-grass, Cross-leaved Heath, Carnation Sedge (*Carex panicea*), Round-leaved Sundew and mosses *Hypnum jutlandicum* and *Dicranum scoparium*. On very wet parts of the regenerating cutover the vegetation is dominated by Black Bog-rush, with Cross-leaved Heath, Bog-myrtle and Royal Fern (*Osmunda regalis*). Lichens (*Cladonia* spp.) occur over the entire site.

Pool systems are found in the south-eastern and north-western parts of the site. The pools support a rich cover of bog mosses. The bog surface here is a quaking scraw or floating mat of vegetation. Species noted include Black Bog-rush, Bogbean, Oblong-leaved Sundew (*Drosera intermedia*), White Beak-sedge, Bog Asphodel, Lousewort (*Pedicularis sylvatica*) and the lichen *Cladonia portentosa*. A mat of algae (*Zygogonium* agg.) occurs in the pools.

The headwater of a stream rises within the site. The vegetation reflects an up welling of water and species noted here include Common Reed (*Phragmites australis*), Black Bog-rush, Bog-myrtle, Purple Moor-grass, Bog Pimpernel (*Anagallis tenella*) and Cross-leaved Heath. The wetter and open water areas support Bog Pondweed (*Potamogeton polygonifolius*), bog moss *Sphagnum auriculatum* and Bladderwort (*Utricularia* spp.). A lake situated along the eastern boundary of the site is colonised by White Water-lily (*Nymphaea alba*) and Bogbean, with Royal Fern growing on its margins. An extensive flush is found in the centre-west of the site. This flush has open surface water and a quaking scraw of vegetation. The peat is very deep and species noted include Common Reed, Bogbean, Bog-myrtle, Black Bog-Rush, Cross-leaved Heath, Purple Moor-grass, Bog Asphodel and Bog Pondweed.

On the low hills and rock outcrops, vegetation consists of heath and is characterised by Western Gorse (*Ulex gallii*), Ling Heather and Purple Moor-Grass. Although these low hills support a more heath-type vegetation, Black Bog-rush and Bog Asphodel still occur.

Red Grouse and Irish Hare, both Red Data Book species, are recorded on the site. Current landuse on the site consists of peat cutting and grazing by sheep, cattle and ponies.

Cloon and Laghtanabba Bog NHA is a site of considerable conservation significance consisting of lowland blanket and supporting a good diversity of blanket bog microhabitats, including hummock-hollow complexes, aligned pools systems, flushes, stream headwaters and regenerating cutover. Blanket bog habitat is a globally

scarce resource. It is largely confined to coastal regions with cool, wet, oceanic climates at temperate latitudes. North-west Europe contains some of the best-developed areas of blanket bog in the world. Lowland blanket bog comprises less than 3% of the world's peatlands. In Europe this type of blanket bog is restricted to Ireland, Britain, Norway and Iceland. The lowland blanket bog that occurs in Ireland is considered to be an extreme hyperoceanic variant of the habitat type, found nowhere else in the world except on the coastal fringes of north-west Scotland.

24.2.2004

Site Name: Lough Atorick District Bogs

Site Code: 002377

Lough Atorick District Bogs NHA is a cluster of seven, primarily upland, blanket bogs situated in the area around Lough Atorick in the Slieve Aughty Mountains, Co. Clare. The bogs are located in the townlands of Slievenore, Derrycnaw and Drummin and are bounded by forestry plantations, agricultural lands and roads. These bogs have developed in deep basins, within a blanket bog landscape, and have vegetation characteristics intermediate between raised bog and blanket bog. Altitude range within the site is between 90 m and 213 m. Bedrock geology is Old Red Sandstone.

The sites consist of a series of raised domes of peat surrounded by fringes of regenerating cutover peat and regenerating peat banks. The site also contains reedbeds as well as quaking areas, hummock/hollow complexes and heath habitat. The blanket bog vegetation is dominated by Deergass (*Scirpus cespitosus*), Cross-leaved Heath (*Erica tetralix*) and Bog Asphodel (*Narthecium ossifragum*), with abundant Hare's-tail Cottongrass (*Eriophorum vaginatum*) and occasional Ling Heather (*Calluna vulgaris*). The hollows are dominated by White Beak-sedge (*Rhynchospora alba*), with Bog Asphodel and Cross-leaved Heath. Characteristic raised bog species, such as Bog Rosemary (*Andromeda polifolia*) and Cranberry (*Vaccinium oxycoccos*), are frequent. Additional species found include Common Cottongrass (*Eriophorum angustifolium*) and the characteristic blanket bog liverwort *Pleurozia purpurea*. Lichens *Cladonia portentosa* and *C. uncialis* are also present as hummocks. There are wefts of moss *Hypnum jutlandicum* growing prostrate over hummocks of bog mosses (*Sphagnum* spp.). Common Reed (*Phragmites australis*) occurs in stands throughout the site. Irish Red Data Book species Red Grouse, a species that is becoming increasingly rare in Ireland, has been recorded on the site and Hen Harrier are known to use the site and hunt in the area.

Current landuse on the site consists of peat cutting, around the edge of the high bog, and forestry. Threats to the site include potential hydrological impacts from surrounding coniferous forestry. Lodgepole Pine (*Pinus contorta*) is colonising the bog surface. Clay pigeon shooting occurs. Damaging activities associated with these land uses include drainage and disturbance of local populations of important species. These are activities that have resulted in habitat loss and damage to the

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hydrological condition of the site and pose a potential threat to its conservation.

Lough Atorick District Bogs NHA is a site of considerable conservation importance containing upland blanket bog with intermediary characteristics between blanket and raised bog types. Blanket bog habitat is a globally scarce resource. It is largely confined to coastal regions at temperate latitudes with cool, wet, oceanic climates. North-west Europe contains some of the best-developed areas of blanket bog in the world. The most extensive areas are found in Ireland and Britain. Upland blanket bogs, due to their exposure to severe climatic conditions at high elevations, are particularly vulnerable to erosion by human activities and extensive areas are currently undergoing active erosion due mainly to overgrazing. The current area of intact upland blanket bog in Ireland represents only a fraction of the original resource, due to the combined impacts of afforestation and overgrazing, and intact examples are therefore extremely valuable for nature conservation. Their long-term survival requires sensitive management.

24.2.2004

Site Name: Derryoobar Bog

Site Code: 002379

Derryoobar Bog NHA is a lowland blanket bog situated approximately 2 km east of Lough Derg and 5 km south of Woodford in east Co. Galway. It lies within the townlands of Derrygoolin South, Derrygoolin North, Derryoobar West and Coos North. The site contains an extensive area of lowland blanket bog that has formed in depressions between low-lying hills and lies between an altitude range of 50 m to 100 m. It is bounded to the north by forestry and a minor track, to the east by minor roads and enclosed agricultural land, to the south by the Coos River and commercial forestry and to the west by enclosed agricultural land and a minor track. The bedrock geology consists of Old Red Sandstone.

A number of streams run through the site and drain into Lough Derg. A former lake, Black Lough, is now overgrown by a reed bed. The hill of Coos North provides a watershed and the bog at Derrygoolin South is a headwater bog.

Blanket bog vegetation is dominated by Cross-leaved Heath (*Erica tetralix*), Purple Moor-grass (*Molinia caerulea*), Ling Heather (*Calluna vulgaris*) and Bog-myrtle (*Myrica gale*). There are frequent hummocks of bog mosses (*Sphagnum* spp.) with Round-leaved Sundew (*Drosera rotundifolia*). There are also hummocks of the moss *Leucobryum glaucum* with Hare's-tail Cottongrass (*Eriophorum vaginatum*). Between the hummocks are lawns of White Beak-sedge (*Rhynchospora alba*), Bog Asphodel (*Narthecium ossifragum*), Carnation Sedge (*Carex panicea*), Deergass (*Scirpus cespitosus*) and Many-stalked Spike-rush (*Eleocharis multicaulis*). Other species include Common Cottongrass (*Eriophorum angustifolium*).

On the low hills with shallower peat, the vegetation is dominated by Ling Heather with Deergass, Purple Moor-

grass, Cross-leaved Heath, Tormentil (*Potentilla erecta*), Common Cottongrass, lichen *Cladonia portentosa* and scattered bushes of Bog-myrtle and Western Gorse (*Ulex gallii*).

There are pools towards the south east of the site, close to the Coos River. These pools support Brown Beak-sedge (*Rhynchospora fusca*), Oblong-leaved Sundew (*Drosera intermedia*), Common Cottongrass and the bog moss *Sphagnum auriculatum*. Lawns of White Beak-sedge, Cross-leaved Heath and Sharp-flowered Rush (*Juncus acutiflorus*) surround the pools.

Red Grouse, an Irish Red Data Book species, has been recorded on the site.

Current landuse on the site consists of grazing and burning. In the south-east, just north of the Coos River, there are excavation scars and evidence of cattle poaching close to the track. The land to the north and south of this is afforested with conifer plantations. This could have an adverse effect on the hydrology of the site and on the water quality of Lough Derg as the bog provides a catchment through which several streams flow into the lake.

Derryoobar Bog NHA is a site of high conservation value supporting excellent blanket bog habitat. Blanket bog is a globally scarce resource. It is largely confined to coastal regions with cool, wet, oceanic climates at temperate latitudes. North-west Europe contains some of the best-developed areas of blanket bog in the world. Lowland blanket bog comprises less than 3% of the world's peatlands. In Europe this type of blanket bog is restricted to Ireland, Britain, Norway and Iceland. The lowland blanket bog that occurs in Ireland is considered to be an extreme hyperoceanic variant of the habitat type, found nowhere else in the world except on the coastal fringes of north-west Scotland.

24.2.2004

Site Name: Oughterard District Bog

Site Code: 002431

Oughterard District Bog NHA contains a relatively large area of lowland and upland blanket bog extending from Corkernarusheeny in the north to Uggool in the south. It is located to the south-west of Oughterard, Co. Galway. The altitude range is between 80 m and 291 m. Bedrock geology is granite and sandstone, overlain in places by shallow glacial till.

The site consists of a number of hills, Clooshgereen, Knocknalee and Luggakeeraunin. In between the hills are stream corridors, flushed areas, lakes and pool systems. Heath is present on the slopes of some of the hills.

Much of the site has typical blanket bog vegetation, consisting of Ling Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), cottongrasses (*Eriophorum* spp.), Carnation Sedge (*Carex panicea*) and occasional Black Bog-rush (*Schoenus nigricans*). Hummocks of moss species *Racomitrium lanuginosum* and *Campylopus atrovirens* occur. Bog mosses (*Sphagnum* spp.) form a spongy mat in places and lichens (*Cladonia* spp.) occur in

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abundance. There are wetter areas where the bog mosses increase cover up to fifty percent and Bog-myrtle (*Myrica gale*) becomes more dominant.

The areas of quaking bog have a characteristic hummock and hollow topography. The hummocks are formed of bog mosses including *S. papillosum* and *S. capillifolium*. Extensive lawns of bog mosses, *Pleurozium schreberi*, White Beak-sedge (*Rhynchospora alba*), Bog Asphodel (*Narthecium ossifragum*) and cottongrasses dominate the hollows. A flush area at the northern part of the site consists of a depression with open water, the margins of which are infilling with Common Reed (*Phragmites australis*). Other species present in the margins include Great Fen-sedge (*Cladium mariscus*), Black Bog-rush, Purple Moor-grass (*Molinia caerulea*) and Bogbean (*Menyanthes trifoliata*).

A pool system occurs at the southern part of the site. Bog Asphodel and White Beak-sedge occur on the flats where the water level has dropped. Bogbean and algae dominate the pools. The cover of bog mosses is good on the margins of the pools and hummocks are dominated by the moss *Racomitrium lanuginosum* along with Ling Heather and Cross-leaved Heath.

Red Grouse, a Red Data Book species, has been recorded on the site.

Current landuse on the site consists of mechanical peat cutting and grazing. Forestry occurs adjacent to the site. Damaging activities associated with these land uses include drainage and periodic burning of the bog. Some areas are heavily grazed by sheep and cattle and are poached and bare. These developments have resulted in loss of habitat and have impacted on the bog's hydrology. They may continue to pose a threat to the site's conservation prospects.

Oughterard District Bog NHA is a site of considerable conservation significance. It contains upland and lowland blanket bog features including pools, flushes and areas of heath. Blanket bog habitat is a globally scarce resource. It is largely confined to coastal regions at temperate latitudes with cool, wet, oceanic climates. North-west Europe contains some of the best-developed areas of blanket bog in the world. The most extensive areas are found in Ireland and Britain. Upland blanket bogs, due to their exposure to severe climatic conditions at high elevations, are particularly vulnerable to erosion by human activities and extensive areas are currently undergoing active erosion due mainly to overgrazing. The current area of intact upland blanket bog in Ireland represents only a fraction of the original resource, due to the combined impacts of afforestation and overgrazing, and intact examples are therefore extremely valuable for nature conservation. Their long-term survival requires sensitive management. Lowland blanket bog comprises less than 3% of the world's peatlands. In Europe this type of blanket bog is restricted to Ireland, Britain, Norway and Iceland. The lowland blanket bog that occurs in Ireland is considered to be an extreme hyperoceanic variant of the habitat type, found nowhere else in the world except on the coastal fringes of north-west Scotland.

21.1.2004

Site Name: Tooreen Bog

Site Code: 002436

Tooreen Bog NHA is a lowland blanket bog situated approximately 2 km south-east of Cleggan and 6.5 km to the west of Letterfrack, Co. Galway. It is situated within the townlands of Sheeauns and Tooreen. Ballynakill Lough borders the site on the north, conifer plantations occur on the south and grazed acid grasslands occur on the lower slopes to the west and east. The altitude range of this site is between 15 m and 165 m. Bedrock geology of the area is granite and sandstone overlain by shallow glacial till.

The site occurs on the slopes above Ballynakill Lough. This is a large area of ungrazed blanket bog with large, flat expanses of peat on two main plateaux. The western part of the site is mainly flat and close to sea – level, but the site rises gently towards the south-eastern corner to an altitude of 165 m. Other habitats present include flushes, headwaters and quaking areas.

Blanket bog vegetation is characterised by the presence of lawns of Black Bog-rush (*Schoenus nigricans*), Bog Asphodel (*Narthecium ossifragum*) White Beaked-sedge (*Rhynchospora alba*) on wet quaking areas with Bogbean (*Menyanthes trifoliata*) and bog mosses (*Sphagnum auriculatum* and *S. cuspidatum*) in pools. Ling Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), Lousewort (*Pedicularis sylvatica*) and Deergrass (*Scirpus cespitosus*) occur on drier peat. Other species present include Common Cottongrass (*Eriophorum angustifolium*) and Tormentil (*Potentilla erecta*). Purple Moor-grass (*Molinia caerulea*) is occasional in more sheltered areas. There are large intact hummocks of *Racomitrium lanuginosum* and *Leucobryum glaucum* on the western slopes together with bog mosses (*Sphagnum capillifolium* and *S. magellanicum*), lichens *Cladonia portentosa* and *C. uncialis* and liverwort *Pleurozia purpurea*. The Round-leaved Sundew (*Drosera rotundifolia*) and Great Sundew (*Drosera anglica*) are found in pools. Occasional Common Reed (*Phragmites australis*) occurs in flushes.

There is some evidence that deer graze the site, however there is no sign of damage. Current landuse outside the site consists of peat cutting, grazing and forestry. Damaging activities associated with these land uses include drainage of the margins of the bog. These activities may impact on the hydrological integrity of the site and could pose a threat to its conservation.

Tooreen Bog NHA is a lowland blanket bog of considerable conservation value. It is largely intact and supports plant communities that occur only on areas of wet lowland, blanket bog. Blanket bog habitat is a globally scarce resource. It is largely confined to coastal regions with cool, wet, oceanic climates at temperate latitudes. North-west Europe contains some of the best-developed areas of blanket bog in the world. Lowland blanket bog comprises less than 3% of the world's peatlands. In Europe this type of blanket bog is restricted to Ireland, Britain, Norway and Iceland. The lowland blanket bog that occurs in Ireland is considered to be an extreme hyperoceanic variant of the habitat type, found nowhere else in the

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world except on the coastal fringes of north-west Scotland.

20.1.2004

pNHA

Site Name: Lough Derg

Site Code: 000011

Lough Derg is one of the major freshwater lakes of Ireland and the largest of the River Shannon lakes. The lake covers 13,000 ha of non-tidal waters, measuring 33 km from Killaloe, Co. Clare to Portumna, Co. Galway. Its maximum breadth across the Scarriff Bay - Youghal Bay transect is about 13 km but for most of its length it is less than 5 km wide. The lake is relatively shallow at the northern end being mostly 6 m in depth but in the middle region it has an axial trench and descends to over 25 m in places. The east-west section (from Scarriff Bay to Youghal Bay) has a narrow trench along the southern margins with depths up to 36 m while the narrow southern end of the lake has the greatest average depth, with a maximum of 34 m.

The greater part of the lake lies on Carboniferous limestone but the narrow southern section is underlain by Silurian strata and there is Old Red Sandstone on the southern shores of the east-west section. Most of the lower part of the lake is enclosed by hills on both sides, the Slieve Aughty Mountains to the west and the Arra Mountains to the east. The northern end is, however, bordered by relatively flat country.

The site is of significant ecological interest, and includes examples of six habitats that are listed on Annex I of the E.U. Habitats Directive. Four of these are priority habitats, i.e. *Cladium* fen, alluvial woodland, Yew woodland and limestone pavement; other annexed habitats present include alkaline fen and Juniper scrub formations on heath and calcareous grasslands. The priority habitats are found mainly at the north and north-east of the lake. In addition, Lough Derg is a Special Protection Area under the E.U. Birds Directive, of importance for both breeding and wintering birds.

Cladium fen occurs occasionally along the lake margins, mainly in association with alkaline fens, Common Reed (*Phragmites australis*) and other swamp vegetation. Typically, Great Fen-sedge (*Cladium mariscus*) forms dense stands up to 2 m in height. Associated species include Common Reed, Black Bog-rush (*Schoenus nigricans*), Water Horsetail (*Equisetum fluviatile*), Bottle Sedge (*Carex rostrata*) and occasional Slender Sedge (*Carex lasiocarpa*). This community generally merges to alkaline fen dominated by Black Bog-rush with Purple Moor-grass (*Molinia caerulea*), Marsh Horsetail (*Equisetum palustre*), Meadowsweet (*Filipendula ulmaria*) and scattered tussocks of Greater Tussock-sedge (*Carex paniculata*).

Yew (*Taxus baccata*) woods in Ireland are largely confined to the west of the country. However, a substantial area of Yew is located on limestone at Cornalack, where it forms scrub woodland along the east shore of Lough Derg.

Here, Yew is found in association with small amounts of Juniper (*Juniperus communis*), which forms protection against grazing of the young Yew. Other species present include Hawthorn (*Crataegus monogyna*), Hazel (*Corylus avellana*), Holly (*Ilex aquifolium*), the introduced Small-leaved Cotoneaster (*Cotoneaster microphyllus*) along with Ivy (*Hedera helix*), Strawberry (*Fragaria vesca*), Bramble (*Rubus fruticosus* agg.) and Wood-sorrel (*Oxalis acetosella*). Elsewhere, small stands of Yew up to 5 m high occur with Spindle (*Euonymus europaeus*), Blackthorn (*Prunus spinosa*), Gorse (*Ulex europaeus*) and Ash (*Fraxinus excelsior*). Due to shading, and in places trampling by cattle, the ground flora supports few herbs. However, the bryophyte layer is good with many moss-covered rocks present.

Juniper occurs throughout this site in a range of habitats, associated with calcareous grasslands, heath and limestone outcrops. Some of the finest examples of Juniper formations in Ireland occur along the lake edge where upright, bushy Juniper shrubs up to 6m tall are found. Typically, Juniper forms dense hedges with Ash, Hawthorn, Gorse, Hazel, and Bramble and occasional Yew. In places along the lake shore Juniper forms a mosaic with Black Bog-rush and Great fen-sedge fen. On drier ground above the flood level as north of Kilgarvan Quay, Juniper occurs in association with species-rich calcareous grassland with Mouse-ear Hawkweed (*Hieracium pilosella*), Daisy (*Bellis perennis*), Lady's Bedstraw (*Galium verum*), Thyme (*Thymus praecox*) and Blue Moor-grass (*Sesleria albicans*). At Cornalack, along the eastern shore of Lough Derg, tall Juniper is found in association with loose limestone rubble with a significant cover of Yew. Many of the islands support significant Juniper cover. This is particularly evident on Bounla Island. Juniper generally occurs as fringing vegetation around the Islands, which typically have wooded centres.

Other habitats present within the site include wooded islands, semi-natural deciduous woodland, callow grasslands and improved grassland, the latter being of particular importance for feeding by waterfowl.

The woodlands are a notable feature of the site and are dominated by Oak (*Quercus* spp.) as at Bellevue, or Hazel and Ash as in many areas along the north-eastern shore. The woodlands along the lake edge at Portumna are dominated by Birch (*Betula* spp.) with some Willow (*Salix* spp.), Ash and Hazel also occurring. Typically, the ground layer includes Early-purple Orchid (*Orchis mascula*), Violets (*Viola* spp.), Ivy, Lesser Celandine (*Ranunculus ficaria*), Bluebell (*Hyacinthoides non-scripta*), Wood Anemone (*Anemone nemorosa*), Wood-sorrel, Primrose (*Primula vulgaris*), Bramble, Ground Ivy (*Glechoma hederacea*), Pignut (*Conopodium majus*) and Honeysuckle (*Lonicera periclymenum*). Beech (*Fagus sylvatica*) and Scots Pine (*Pinus sylvestris*) are often present at the lake edge along areas which were once parts of estates. Some areas of coniferous forestry are also included within the site.

The only known site in the country for the Red Data Book species, Irish Fleabane (*Inula salicina*) occurs along the lake shore. This plant is protected under the Flora (Protection) Order, 1999. Marsh Pea (*Lathyrus palustris*), also a Red Data Book species, occurs within the site. In addition, a number of plants of restricted distribution in

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Ireland occur, e.g. Ivy Broomrape (*Orobancha hederæ*), Buckthorn (*Rhamnus catharticus*) and Irish Whitebeam (*Sorbus hibernica*). The Red Data Book stonewort, *Chara tomentosa*, a species that is very sensitive to pollution, has its stronghold in Lough Derg.

Lough Derg is of importance for both breeding and wintering birds. The site supports a nationally important breeding colony of Common Tern (55 pairs recorded in 1995). Management of one of the islands used for nesting has increased the area of suitable habitat available and prevented nests being destroyed by fluctuating water levels. Large numbers of Black-headed Gull have traditionally bred on the many islands (2,176 pairs in 1985) but the recent status of this species is not known. A large Cormorant colony occurs in trees on the islands near Portumna - 167 nests were counted in 1995 and 122 in 1999. Lough Derg is also a noted breeding site for Great Crested Grebe (47 pairs in 1995) and Tufted Duck (326 individuals in late May 1995).

In winter, the lake is important for a range of waterfowl species, especially diving ducks, with nationally important populations of Tufted Duck (1,029), Goldeneye (215) and Mute Swan (235) - figures are average peaks for 4 of the 5 seasons 1995/96-1999/00. Other species which occur include Cormorant (120), Whooper Swan (18), Wigeon (272), Teal (342), Mallard (417), Pochard (61), Black-headed Gull (814), Coot (229), Lapwing (1,346) and Little Grebe (14). Lough Derg has traditionally been used by a relatively small flock of Greenland White-fronted Goose based in the Lough Derg-Lough Graney area and possibly further afield. The mean flock size for the 5 winters 1989/90-1993/94 was only 22, but few sightings have been made in recent years. In March 2004, however, c. 20 birds were observed in the Scarriff Bay area indicating that a flock may still be present in the area. An area of the lake close to Portumna Forest Park is a Wildfowl Sanctuary.

Otter and Badger have been recorded within the site; both are protected, Red Data Book species.

Lampreys, listed on Annex II of the E.U. Habitats Directive, are known to occur and the lake contains a landlocked population of Sea Lamprey (*Petromyzon marinus*). Brook Lamprey (*Lampetra planeri*) is known to be common in the lower River Shannon catchment where all three Irish Lamprey species breed. The endangered fish, Pollan (*Coregonus autumnalis pollan*) is recorded from Lough Derg, one of only four sites (L. Neagh, L. Erne, L. Ree and L. Derg) in which it occurs. Pollan is a landlocked Coregonid or "White Fish" thought to have colonised Irish waters after the last Ice Age. Its nearest relative, the Arctic Cisco, is found as far away as Alaska, Northern Canada and Siberia. Although it is anadromous throughout most of its northern range, the Irish population are all non-migratory and purely freshwater. Lough Derg is also a well-known fishing lake with a good Trout (*Salmo trutta*) fishery. Atlantic Salmon (*Salmo salar*) also use the lake as a spawning ground and, although this species is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the E.U. Habitats Directive.

White-clawed Crayfish (*Austropotamobius pallipes*), also an Annex II species, is found in many of the rivers which feed into the eastern edge of the lake. These rivers flow over Carboniferous limestones and include the Lorrha River, the Carrigahoric River, the Borrisokane River, the Ballinderry River, the Nenagh River and the Ballycolliton River. Freshwater Pearl-mussel (*Margaritifera margaritifera*), an Annex II species, occurs in some of the rivers which flow into the lake.

Landuse within the site is mainly of a recreational nature with many boat hire companies, holiday home schemes and angling clubs located at the lake edge. Recreational disturbance may pose a threat to the wintering wildfowl populations though tourism is scaled down during the winter. The water body is surrounded mainly by improved pastoral farmland to the south and east with areas of bog to the south-west and west. Coniferous plantations are present along the west and north-west shore, and small areas of these are included within the site.

The main threats to the site are water polluting activities resulting from intensification of agricultural activities around the lake shore, uncontrolled discharge of sewage which is causing eutrophication of the lake, and housing and boating development which has resulted in the destruction of lakeshore habitats. There is also pressure from fishing and shooting on and around the lake. Recreational activities presently cause some disturbance to the birds and an increase in such activities would be of concern. Lough Derg was classified as being strongly eutrophic in the early 1990s. Since 1997, a monitoring programme on the Shannon lakes has shown that the symptoms of eutrophication previously documented (i.e. high chlorophyll level and reduced water visibility) have been ameliorated significantly. These reductions have coincided with the invasion of the Shannon system by the Zebra Mussel (*Dreissena polymorpha*), a species which feeds on plankton, and also with measures to reduce phosphorus in sewage plants in the catchment. However, enrichment of the lake, both by agricultural run-off and sewage, remains a threat. Whilst the presence of Zebra Mussel in Lough Derg appears to have improved water quality in the lake, in the long-term this invasive bivalve may threaten the ecology of the lake.

Lough Derg is of considerable conservation significance for the variety of rare or threatened habitats and plant and animal species that it supports. It is of particular importance for birds in that it has nationally important breeding populations of Common Tern, Cormorant, Great Crested Grebe, and probably Tufted Duck and Black-headed Gull. In winter, it has nationally important populations of Tufted Duck and Goldeneye, as well as a range of other species including Whooper Swan. The site is still used on occasions by Greenland White-fronted Goose. The presence of Common Tern, Whooper Swan and Greenland White-fronted Goose is of particular note as these are listed on Annex I of the E.U. Birds Directive. 18.8.2004

Site Name: Rathbaun Turlough

Site Code: 000215

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Rathbaun turlough occupies a well defined, rectangularly-shaped basin in low-lying countryside halfway between Tuam, Co. Galway and Ballinrobe, Co. Mayo.

A river flows into the turlough from the north and the turlough is drained by a swallow hole to the west, near a temporary lake. The drainage into the bedrock has been altered by human interference, which results in abandoned channels and piles of debris.

The turlough seems drier than it would naturally be, and as a result there is little likelihood of peat formation at the present time.

Rathbaun turlough has a simple topography and the associated vegetation follows its contours in a fairly regular way. The uppermost zone is predominantly sedge/ heath grassland with dry grassland associated with the limestone rock outcrops at the northern end. As the slope lessens, wet grassland predominates, and rushes are common in the hollows that retain dampness the longest.

Grazing and trampling by cattle and sheep is common, and leads to a breakdown of the vegetation structure. Despite this, and although the hydrology of the basin has been altered from its natural state, the size and character of the turlough is noteworthy.

At present, the turlough is too dry and heavily grazed for a full development of its potential vegetation, or for the breeding of birds. But the nature of its drainage would make it possible for its water levels to be managed. However, because of its physical uniformity, the site contains large areas of three plant communities: the largest stand of the Dry *Carex nigra* community, the third largest of species poor *Potentilla repens* community and a stand of Wet Annuals which contains both Red Goosefoot (*Chenopodium rubrum*) and Northern Yellow-cress (*Rorippa islandica*), two rare plant species. The site is therefore worthy of NH status.
13.2.1995

Site Name: Altore Lake

Site Code: 000224

Altore lake is situated approximately 11 km north-west of Tuam and 4 km south-west of Milltown, between the L7 and the N17, in a lowland Karst area. The site is underlain by limestone with a thin covering of free-draining sandy boulder clay.

The site was formerly a lake that was drained around 1969. Therefore, the main habitats within the site are lowland wet grassland, freshwater marsh and reedbeds.

Species associated with the permanently wet areas of the site are Branched Bur-reed (*Sparganium erectum*), Bulrush (*Typha latifolia*) and Common Reed (*Phragmites australis*). The plants found in the marsh areas include Marsh Marigold (*Caltha palustris*), Bottle Sedge (*Carex rostrata*), Marsh Bedstraw (*Galium palustre*), Mare's-tail (*Hippuris vulgaris*) and Amphibious Bistort (*Polygonum amphibium*). The area surrounding the former lake is

lowland wet grassland with Soft Rush (*Juncus effusus*), Marsh Ragwort (*Senecio aquaticus*), Creeping Bent (*Agrostis stolonifera*), Daisy (*Bellis perennis*) and Common Mouse-ear (*Cerastium fontanum*).

The site is an important winter feeding site for Greenland White-fronted Geese (mean peak is 62, 1985/86-1989/90). Other winter waterfowl species recorded are Teal 80, Mallard 57, Lapwing 170, Curlew 60 (all figures are from 1 count during 1984/85 - 86/87). Teal, Mallard and Snipe also breed at this site.

Otters (an Annex II species listed in the E.U. Habitats Directive) occur on the site. This site is of importance because of the occurrence of Greenland White-fronted Geese and the presence of Otters. The site also provides habitat diversity with a small area otherwise surrounded by improved grassland.

Site Name: Ballycurke Lough

Site Code: 000228

The Ballycurke Lough site includes Lough Kip, the Loughkip River and Ballycurke Lough itself and is situated 2-5 km south of Moycullen. Lough Kip and Loughkip River lie on acidic granite rocks and receive water from surrounding blanket bog peat. The eastern shore of Ballycurke Lough is on limestone. The freshwater algae and invertebrates along the river and in Ballycurke Lough are reported to be of interest (An Foras Forbartha 1971). Herring Gulls and Common Gulls (20 pairs) are reported to nest on rocky islets in Ballycurke Lough (Lloyd, 1982).
12.7.1995

Site Name: Belclare Turlough

Site Code: 000234

This triangular turlough lies below the hill of Knockacarrigeen on which Belclare village is situated. On the other sides of the turlough there are large flat, drift-covered fields, with an area of bog to the north-east. The basin floor is also flat but at two different levels; a lower central area and a flat upper-terrace 30-50 cm above. The turlough is completely dry during summer months except for a stream which enters from the north-east and runs to a swallow hole on the eastern side.

Since this turlough is a dry one without any standing water in the summer, there is very little vegetation diversity; the main area of the turlough is grassland with Perennial Rye-grass (*Lolium perenne*). However the influence of peat in the north-eastern corner, adjacent to exposed limestone rock, and the presence of scrub on the western side, adds habitat interest.

The peat area is cutaway and now covered with such species as Purple Moor-grass (*Molinia caerulea*), Black Bog-rush (*Schoenus nigricans*), Horsetail

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(*Equisteum* spp.) and Bedstraw (*Galium* spp.). This vegetation grades into Heather (*Calluna vulgaris*) and Gorse (*Ulex europaeus*). There are also some sedges (*Carex* spp.) and even Amphibious Bistort (*Polygonum amphibium*).

On the western edges, grassy areas are colonised by Bramble (*Rubus fruticosus* agg.), Guelder-rose (*Viburnum opulus*), Buckthorn (*Rhamnus catharticus*), Hawthorn (*Crataegus monogyna*) and Blackthorn (*Prunus spinosa*), which grow out from a taller woodland of Hawthorn, Ash (*Fraxinus elcelsior*), Sycamore (*Acer pseudoplatanus*) and Spindle Tree (*Euonymus europaeus*). Apple Trees (*Malus domestica*) have invaded this area.

The drainage ditch has introduced an aquatic community containing Whorled Water-milfoil (*Myriophyllum verticillatum*) amongst others.

Belclare Turlough is a noted bird site attracting wintering wildfowl and waders as well as birds on migration through Connaught. Based on 3 counts over the 1984/85 - 1986/87 season the following were recorded: Wigeon 475, Teal 165, Mallard 52, Lapwing 250, Golden Plover 58, Lapwing 250, Dunlin 20 and Curlew 208.

The site is visited by the Galway lowland population of Greenland White-fronted Geese (100-150).

The main central area is still commonage but the margins have been enclosed by walls. There are cattle and sheep on the common land but mainly cattle elsewhere. Some tillage farming has also occurred along with silage cutting. There is also abandoned peat-cuttings visible.

Belclare turlough shows considerable diversity, with a range of plant communities from the oligotrophic north-eastern corner to the eutrophic south-east. Further habitat diversity is introduced with the presence of scrub. The birdlife, including Greenland White-fronted Geese, adds to the scientific and conservation value of the site.

Site Name: Camderry Bog

Site Code: 000240

Camderry Bog NHA is part of a cluster of bogs in Co. Galway, situated approximately 12 km north-east of Mountbellew and 9 km south-east of Glenamaddy. It is almost entirely within the townlands of Camderry, Boggauns and Corracullin. The site comprises a relatively large raised bog that includes both areas of high bog and cutover bog. The northern and western margins of the site are bounded by the Shiven River, the eastern margin is bounded by a mineral ridge and those to the south by roads.

The site consists of two domes separated by a broad ridge of mineral soil. Overall the northern dome appears to be quite dry with limited areas of wet hummock/hollows. The lower southern dome contains an area of quaking bog

with hummocks and tear pools. A small flushed area showing small-scale hummock-hollow development is found on the northern dome to the north and north-west of a forestry plantation on the high bog. To the east there is an extensive flush with areas of open water. Cutover bog occurs all around the margins of the high bog apart from a semi-natural margin to the north by the Shiven River.

Much of the high bog has vegetation typical of the Western Raised Bog type, consisting of Ling Heather (*Calluna vulgaris*), Cottongrass (*Eriophorum* spp.) and Carnation Sedge (*Carex panicea*). Bog Mosses (*Sphagnum* spp.) form a spongy mat in places but due to damage from drying out and burning are rarely present as carpets. Over large areas, especially in the south, lichens (*Cladonia* spp.) occur in abundance. Hummocks of the moss *Racomitrium lanuginosum* occur in the centre of the site and the liverwort *Pleurozia purpurea* is also present. The area of quaking bog has hummocks and hollows and is characterised by hummocks formed of bog mosses *S. papillosum* and *S. capillifolium*, extensive lawns of bog mosses *S. cuspidatum* with Bogbean (*Menyanthes trifoliata*) and tear pools. There are Bog Asphodel (*Narthecium ossifragum*) dominated hollows and the moss *Campylopus atrovirens* occurs at the margins of the tear pools. This area of the site supports several rare species of bog moss i.e. *S. fuscum* and *S. imbricatum*. In the flushed areas low hummocks of *S. capillifolium* and *S. imbricatum* occur with Bog Asphodel lawns and abundant Cranberry (*Vaccinium oxycoccos*). The large eastern flush consists of a depression with open water and bog moss *S. cuspidatum* around the margin. Other species present include Soft Rush (*Juncus effusus*), Bogbean, and the cottongrasses (*Eriophorum angustifolium* and *E. vaginatum*).

The old cutover is mainly dominated by Ling Heather, Purple Moor-grass (*Molinia caerulea*), Soft Rush and cottongrass. Gorse (*Ulex europaeus*), Birch (*Betula* sp.) and willows (*Salix* spp.) also occur along the drains. Along the north of the site on the banks of the Shiven River, Hawthorn (*Crataegus monogyna*), willow and Ling Heather grow with typical river bank species such as Meadow-sweet (*Filipendula ulmaria*), Nettle (*Urtica dioica*) and docks (*Rumex* spp.). An area of cutover to the east of the site is waterlogged by water discharged from the high bog. Drains in this cutover contain species indicative of some enrichment, such as *Potamogeton polygonifolius* and *Carex rostrata*. To the south old cutover is very wet and regenerating well, with a good cover of bog mosses, including such species as *S. papillosum*, *S. capillifolium* and *S. auriculatum*. Here, Purple Moor-grass and cottongrass over a carpet of bog mosses is the dominant vegetation.

Red Grouse, a species that is becoming increasingly rare in Ireland, has been recorded on the site.

Current landuse on the site consists of peat-cutting around the edge of the high bog and forestry. Active peat-cutting is carried out to the south, east and north-west using mechanised methods for peat extraction. Damaging activities associated with these landuses include drainage and extensive and frequent burning of the high bog. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site,

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and pose a continuing threat to its viability. The whole site may have subsided due to water loss from drainage in the past.

Camderry Bog NHA is a site of considerable conservation significance comprising as it does a large raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats, including hummock/hollow complexes, tear pools, flushes and regenerating cutover, as well as a number of scarce plant species. Active raised bog is listed as a priority habitat on Annex I of the E.U. Habitats Directive. Priority status is given to habitats and species that are threatened throughout the E.U. Ireland has a high proportion of the total E.U. resource of this habitat (over 60%) and so has a special responsibility for its conservation at an international level.

30.5.2002

Site Name: Clonfert Cathedral

Site Code: 000244

Clonfert Cathedral (also known as St. Brendan's Cathedral) is a small church belonging to the Church of Ireland which contains a large colony of long-eared bats (*Plecotus auritus*). There may be over 100 bats roosting in the church roof, and they may be present all year round. The church is used for a variety of services, including Diocesan and Ecumenical services, as well as parish services which are held whenever there is a fifth Sunday in the month. It is also an historical monument, sections of the building may be 400-500 years old while the well documented Romanesque entrance and wattle-roofed variety vestry date back to 1162.

Due to the size of the colony, large quantities of droppings are scattered around the church when the bats fly around inside the building at dusk. This is a source of annoyance to the clergy and cleaning committee but it is unlikely that anything will be done to completely exclude the bats. Due to the size of the colony, this site is of national importance and possibly also international importance.

Long-eared bats are dependent on woodland for foraging and do not travel far from the roost site to feed. Any changes to existing woodland around the cathedral could adversely affect a colony of this size by reducing the availability of suitable foraging grounds.

12.7.1995

Site Name: Curraglehanagh Bog

Site Code: 000256

Curraglehanagh Bog NHA is part of a bog cluster situated approximately 6 km north of Mountbellew Co. Galway, mainly in the townlands of Curraglehanagh, Rushestown and Milltown. The site comprises a raised bog with areas of high bog and cutover, and lies on a relatively low-lying plateau entirely within the upper reaches of the Shiven

River. Mature coniferous forestry occurs on the high bog to the north of the site.

The site has a typical raised bog topography with a central dome which slopes gently towards the margins. The high bog supports an extensive quaking area with many pools. Hummocks and pools are confined to the top of the dome and the rest consists of pools separated by lawns of bog mosses. Two bog bursts and associated tear pools occur on the eastern side of the site. A number of flushes occur at the western edge of the high bog. Habitat diversity is increased with the presence of a narrow strip of old mixed woodland on the north-eastern margin of the bog. A number of bare erosion channels occur in association with the bog burst to the east of the site.

This is a typical example of Western Raised Bog and the vegetation consists of Carnation Sedge (*Carex panicea*), with Bog Asphodel (*Narthecium ossifragum*) hollows, and tussocks of Ling Heather (*Calluna vulgaris*), Hare's-tail Cottongrass (*Eriophorum vaginatum*) and Deergrass (*Scirpus cespitosus*). Other species present include the mosses *Campylopus atrovirens*, *Racomitrium lanuginosum* and the liverwort *Pleurozia purpurea*. Cranberry (*Vaccinium oxycoccos*) and Bog-rosemary (*Andromeda polifolia*) are locally abundant. The high bog supports an extensive quaking area with linear pools and lawns with bog moss (*Sphagnum cuspidatum*) and Bogbean (*Menyanthes trifoliata*). Lawns of bog mosses, including *Sphagnum magellanicum* and *S. auriculatum*, occur between the pools. In general, hummock cover is low, with occasional large *Racomitrium lanuginosum* tussocks. Purple Moor-grass (*Molinia purpurea*) and Common Reed (*Phragmites australis*) are found in association with flush areas to the west of the site along with scattered Downy Birch (*Betula pubescens*). Flora associated with the main channel in the bog burst to the east includes Ling Heather, Royal Fern (*Osmunda regalis*), Bog-myrtle (*Myrica gale*), the fern *Dryopteris spinulosa* and some orchids. The epiphytic lichen flora is diverse, with *Coelocaulon aculeatum*, and *Usnea* spp. occurring on Ling Heather, and *Cladonia cervicornis* subsp. *verticillata* on the bark of Birch trees. The small area of mixed woodland to the north-east supports Downy Birch, Rowan (*Sorbus aucuparia*), Oak (*Quercus* sp.) and Scots Pine (*Pinus sylvestris*). In areas of abandoned cutover, Gorse (*Ulex europaeus*), Purple Moor-grass and Downy Birch are common, with bog moss regeneration being notably good in the south and north-eastern cutover.

Red Grouse, a species that is becoming increasingly rare in Ireland, has been recorded on the site.

Current landuse on the site consists of peat-cutting along the north and east margins. Afforestation has occurred on the high bog to the north-west of the site. Damaging activities associated with this landuse include drainage and burning. Fire damage has been recorded in the 1980s but the present abundance of bog mosses indicates significant recovery of the bog surface in these areas. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Curraglehanagh Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming

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increasingly scarce and under threat in Ireland. This site supports a good diversity of raised bog microhabitats including hummock/hollow complexes, pools and flushes, and regenerating cutover which add to the diversity and scientific value of the site. Active raised bog is listed as a priority habitat on Annex I of the E.U. Habitats Directive. Priority status is given to habitats and species that are threatened throughout the E.U. Ireland has a high proportion of the total E.U. resource of this habitat type (over 60%) and so has a special responsibility for its conservation at an international level.

30.5.2002

Site Name: Drumbulcaun Bog

Site Code: 000263

Drumbulcaun Bog is a small complex of raised bog, fen, open water and flooded grassland, situated about 7 km south of Dunmore. The site is surrounded by low limestone hills, and has one stream flowing from the west. The raised bog is unusual, showing evidence of mineral enrichment, probably due to flooding from mineral-rich groundwater during periods of high water-table each winter. Also, most of its surface has been damaged by fire.

A small unburnt patch in the east of the site is intact and quaking. It has bushy clumps of Ling Heather (*Calluna vulgaris*) on large loose hummocks of Bog Moss (*Sphagnum* spp.), with a variety of other mosses occurring, including *Aulacomnium palustre*. Cranberry (*Vaccinium oxycoccos*) is very abundant on the site and interestingly, Purple Moor-grass (*Molinia caerulea*) is widespread - in the fire-damaged part of the site this species is particularly abundant. The bog grades to a quaking fen in the north.

Four scarce plant species are found in the fen area on the northern side of the site - Marsh Fern (*Thelypteris palustris*), Mud Sedge (*Carex limosa*), Slender Sedge (*Carex lasiocarpa*) and Great Fen-sedge (*Cladium mariscus*). Large hummocks of the moss *Calliergon cuspidatum* and an almost complete cover of Bog Moss (*Sphagnum* spp.) characterise much of this fen. Vegetation with Crowberry (*Empetrum nigrum*) and Ling Heather also occur in this fen area.

A small area of open water is fringed by Common Reed (*Phragmites australis*) and sedges (*Carex* spp.). Further west, fen grassland with Black Bog-rush (*Schoenus nigricans*) grades into wet flooded grassland and another area of permanent water. Both breeding and wintering birds use this area (60 Teal and many Moorhen were recorded on one visit in 1993).

Drumbulcaun Bog is of conservation significance for a variety of reasons - it is the only intact raised bog in the catchment of the Nanny River. It supports a variety of habitat types and a diversity of vegetation communities and species. The fen on the site is of particular interest, being at a late stage in the transition from fen to bog and including, as it does, an unusual vegetation community - Crowberry - Ling Heather quaking swamp.

27.6.2001

Site Name: Eeshal Island

Site Code: 000265

Eeshal Island is a small marine island situated about 2 km south of Omey Island (c. 5ha) and west of Inishturk.

The island is of interest for Arctic Tern (100 pairs in 1984), Common Tern (12 pairs in 1984) and breeding gulls (250 pairs of five species in 1984).

12.7.1995

Site Name: High Island

Site Code: 000275

High Island is a small (c. 35ha, 60m high) uninhabited marine island about 3 km west of Aughrus Point, of interest for its colonies of seabirds.

It holds nationally important colonies of Fulmar (350 pairs pre-1988) and Great Black-backed Gull (200 pairs pre-1988). Important numbers of Shag (estimate 10-99 pairs in 1980) also breed on the island. The island holds one of the five most important colonies of Storm Petrel in the region (c. 1000 birds visited the island in 1976, breeding numbers unknown) and Leach's Petrel have been heard and may also breed.

Other birds recorded include Manx Shearwater (estimate 10-99 pairs in 1969, c. 100 pairs in 1987), Black Guillemot (11 pairs pre-1988) and Herring Gull (estimate 10-99 pairs in 1980). Choughs (1-3 pairs pre-1988) and Barnacle Geese (c. 80 individuals pre-1988, 40 in 1993) have also been reported.

The vegetation and lagoons on the island are of ecological interest.

Site Name: Ballyconneely Bay

Site Code: 001231

The Ballyconneely Bay NHA comprises a group of islands in Ballyconneely Bay, important for its colonies of terns.

Fox Island, the most westerly of the island group, supports populations of Little Tern (30 individuals in 1969, 6 pairs in 1984), Sandwich Tern (35 individuals in 1969) and Arctic Tern (11 pairs in 1984).

Wherune Island supports populations of Arctic Tern (23 pairs in 1984) and Little Tern (2 pairs in 1984).

Inishdawros and the neighbouring islands of Illaunnameenoga and Illaunee support populations of Sandwich Tern (34 pairs in 1984).

12.7.1995

Site Name: Bertraghboy Bay

Site Code: 001234

Bertraghboy Bay is a south-west facing bay on the Connemara coast. It is a complex bay with a relatively narrow opening (c. 3 km). Depths of over 30 m occur near the entrance. Offshore reefs close to the entrance give it some protection from the prevailing southwesterly winds. The complex nature of the bay ensures that much of the bay is very sheltered from wave action. Many areas in the inner part of the bay are at a higher elevation than the mid area of the bay and these areas drain through a complex set of channels. The bay receives the flows of the Owengowla and Owenmore rivers, along with a number of smaller rivers.

The site is a candidate Special Area of Conservation selected for large shallow inlets and bays, and reefs, habitats that are listed on Annex I of the E.U. Habitats Directive.

The shores of Bertraghboy Bay generally vary from gently sloping platforms of rocks to shores of mixed boulders, cobbles, pebbles, gravel and sand. In some areas the shores may be steep. All the shores within the bay are sheltered to very sheltered from wave action. On gently sloping shores, the upper shore is characterised by a lichen zone of grey and yellow lichens with the black lichen *Verrucaria maura*. This is followed by a zone of Channel Wrack (*Pelvetia canaliculata*) and then a zone of Spiral Wrack (*Fucus spiralis*). In some areas these zones are quite extensive i.e. 10 m in width, but in other areas they are narrow, i.e. 1-3 m in width. The snails *Osilinus* (= *Monodonta*) *lineata* and *Littorina saxatilis* may be common and barnacles are occasional. Boulders in the upper mid shore may be colonised by dense barnacles with the limpets *Patella vulgata* and the dogwhelk *Nucella lapillus*. The low mid shore has a canopy of Bladder Wrack (*Fucus vesiculosus*) followed by Knotted Wrack (*Ascophyllum nodosum*). In some parts of the bay the *Ascophyllum nodosum* band is very wide i.e. 100 m or greater with 100% cover of *Ascophyllum*. The *Ascophyllum* is colonised by the hydroid *Dynamena pumila* and bryozoan *Flustrellidra hispida* indicating the presence of a current. A tideswept *Ascophyllum* community is considered to be scarce in Ireland and Britain. Where boulders are present there is generally a species rich under-boulder fauna. Under the algal canopy in the low shore the sediment binding red algae *Audouinella* spp. occurs. In areas where there is strong tidal flow the sublittoral fringe is characterised by the brown alga *Laminaria saccharina*, occasional *Halidrys siliquosa*, with some *Fucus vesiculosus* and *Fucus serratus*. The understory in areas with sand scour is characterised by the red algae *Furcillaria lumbricalis*, *Polyides rotundus* and *Plocamium cartilagineum*, but these species are generally absent when there is no sand scour. Boulders in the sublittoral fringe may have an extremely species-rich under-boulder fauna of ascidians and sponges indicating that the area is tideswept (124 species have been recorded at one site in the bay). Such tideswept communities are considered to be scarce in Ireland and Britain.

Where the shore is composed of boulders and has strong tidal currents the mid to low shores are species-rich (75–90 spp.) and again the tideswept communities present are considered to be scarce. The under-boulder fauna is characterised by sponges, hydroids, encrusting bryozoans and occasional ascidians.

The *Ascophyllum nodosum* of Bertraghboy Bay is harvested on 3-5 year cycle and this harvesting has been carried out for at least the last 40 years and probably for the past century. Finfish farming take place in the outer part of the bay.

In very sheltered areas where there is some tidal current the uncommon brown alga *Ascophyllum nodosum* var. *mackii* is found.

In the shallow subtidal on the north-west side of the bay maerl beds mixed with Eelgrass (*Zostera marina*) occur. The maerl is a mixture of *Phymatolithon calcareum* and *Lithothamnion coralloides* with scattered plants of the rare *Lithophyllum dentatum*.

Elsewhere in the bay the sediments are sands, with muds in the more sheltered areas. Lobsters (*Homarus gammarus*) occur in most areas of the bay, along with other crustaceans such as Crawfish (*Palinurus elephas*) and Edible Crab (*Cancer pagurus*). Spider Crab (*Maia squinado*) also occurs. The molluscan fauna is well-represented and includes Escallop (*Pecten maximus*), Otter Clam (*Lutraria* spp.), Razorfish (*Ensis* sp) as well as Smooth Cockle (*Laevicardium crassum*), Whelk (*Buccinum undatum*), Venerid Clam (*Venus verrucosa*) and European Oyster (*Ostrea edulis*). Intertidal areas are limited in extent, occurring mainly in the sheltered areas of the bay.

Other habitats present within the site include a salt marsh on Inishnee Island, which is dominated by Sea Rush (*Juncus maritima*). A short stretch of low sea cliff composed of boulder clay also occurs on Inishnee Island, and supports typical species such as Thrift (*Armeria maritima*), Red Fescue (*Festuca rubra*) and Scurvy Grass (*Cochlearia officinalis*).

Terns breed on some of the islands in the site. In 1984, Greens Island had a sizable colony of Sandwich Terns (30 pairs) and Common Terns (45 pairs). In 1995, however, none were recorded on Greens Island but Inishlacken had 4 pairs of Little Terns and 1 pair of Arctic Terns. A few pairs of Common Terns have bred on Greens Island in the last few years. Sandwich Tern, Common Tern, Little Tern and Arctic Tern are all listed on Annex I of the E.U. Birds Directive.

Bertraghboy Bay is of high conservation importance due to the presence of very good examples of shallow bay and reef habitats, both of which are listed on Annex I of the EU Habitats Directive.

31.10.2002

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Site Name: Boyounagh Turlough

Site Code: 001237

The Boyounagh turlough fills a rectangular hollow below and south of the Dunmore - Glenamaddy road. The surrounding landscape is composed of low glacial hills, but the floor of the turlough is relatively flat except for a rise in the eastern half. The basin is confined by slopes on the north and part of the south but is more open to the west. Water enters the basin from the eastern end via an excavated drain from Lough Nahask. This continues through to a central marshy pond where drainage has resulted in some drying.

The turlough has a uniform vegetation cover with much Common Sedge (*Carex nigra*), from low parts of the site to areas where there is a greater depth of wet peat. At the eastern end there are higher banks of cutover peat, which are occasionally flooded. A rise, east of centre, carries a heath composed of the moss *Climacium*, along with Common Dog-violet (*Viola canina*), Adder's-tongue (*Ophioglossum vulgatum*) and some Tufted Hair-grass (*Deschampsia cespitosa*). This is mirrored at the western end by former cultivation ridges now colonised by Mat-grass (*Nardus stricta*), Carnation Sedge (*Carex panicea*) and Lady's Bed-straw (*Galium verum*). The northern shore is more steeply sloping with a good zonation from wet to drier grassland, while wetland herbs predominate in wetter areas.

The central marshy area contains Amphibious Bistort (*Polygonum amphibium*), with a temporary pond housing Water Horsetail (*Equisetum fluviatile*), Floating Sweet-grass (*Glyceria fluitans*) and Lesser Marshwort (*Apium inundatum*).

Boyounagh Turlough has a varied vegetational cover for its size, with patches of ten separate communities around the floor of the basin. The occurrence of abandoned cultivation ridges adds to habitat diversity and overall scientific interest.

Site Name: Callow Lough

Site Code: 001239

Callow Lough is a medium sized shallow lake located 4km northeast of Kilconnell in East Galway. This site has been designated as a Natural Heritage Area because of its importance to wintering wildfowl. It provides a winter feeding ground for several bird species and is a breeding area for waders.

The lake is quite natural in character and is relatively undisturbed. It is surrounded by lowland wet grassland, hedges and scrub woodland and there is a large wooded island in the centre of the lake which is probably a crannog. The water level in the lake fluctuates and it resembles a turlough in some ways. It is managed by the Kilconnell Gun Club as a bird sanctuary and is also used by the local fishing club. This site valuable both as a wildlife habitat and as a general amenity area.

Site Name: Cloonascragh Fen and Black Wood

Site Code: 001247

Cloonascragh Fen and Black Wood consists of two small areas of different habitats situated 8 km north of Laurencetown in east Co. Galway. Both are associated with a section of a long esker ridge running east-west which crosses the River Suck and Shannon. Both are at the edge of Cloonascragh Bog which is thoroughly drained. Much of the esker in this vicinity is being worked (or has been worked out).

The fen is an area between the esker and the bog and is partly quite dry. It consists of a fairly species-rich vegetation in which four Orchids are widespread and common - Twaebblade (*Listera ovata*), Lesser Butterfly Orchid (*Platanthera bifolia*), Common Spotted Orchid (*Dactylorhiza fuchsii*), and Heath Spotted Orchid (*D. Maculata*). The heathers Ling Heather and Cross-Leaved Heath (*Calluna vulgaris* and *Erica tetralix*) and Milkwort (*Polygala vylgaris*) are common. A number of short old 'causeways' across the fen are made of esker material and consequently support a calcareous flora with Mountain Everlasting (*Antennaria dioica*), Mouse-ear Hawkweed (*Hieracium pilosella*) and Carline Thistle (*Carlina vulgaris*). The central section of this long narrow site is the wettest and is probably the location of the rare snail. The only open water is in the form of small 'bog holes' full of Bog Bean (*Menyanthes trifoliata*) and Lesser Tussock Sedge (*Carex diandra*), but the ground is semi-quaking. Sparse reeds occur here suggesting the former presence of a small lake. Great Sundew (*Drosera anglica*) is abundant at the edge of the old hand-cut face of the bog.

The very scarce and declining semi-aquatic snail species *Vertigo geyeri* has one of its main Irish sites here (last report 1981). This snail is listed in Annex II of the EU Habitats Directive as it is declining throughout Europe. It requires wet calcareous fen grassland with some open water and little shading. There is a possibility that some habitat rehabilitation is required at this site to preserve the species for the future.

At Black Wood dense woodland of old coppiced hazel occurs on two very steep-sided esker ridges separated by a hollow of species-rich dry meadow developed from the woodland soils. The ground flora of this wood is extremely species-rich and unaffected by grazing with a luxuriant growth and high ground cover of all species, which include Early Purple Orchid (*Orchis mascula*),

Twaebblade (*Listera ovata*), Primrose (*Primula vulgaris*), Wild garlic (*Allium ursinum*), Sanicle (*Sanicula europaea*). There are many other typical woodland species, including grasses and sedges. The site includes a woodland transition from esker soils to peat. Rose Campion (*Silene dioica*) is common on the peat with Foxglove (*Digitalis purpurea*). Golden saxifrage (*Chrysosplenium oppositifolium*) is particularly abundant at the junction between esker and peat. A variety of common woodland birds are breeding here, as well as the Whitethroat.

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Obviously, further encroachment of the sand quarry into the northern section of this wood would destroy most of the woodland site.

The fen is one of the main sites for the very scarce and declining snail. Woodland on eskers are a rare and fragmented habitat in Ireland. There has probably always been woodland at Black Wood. Although coppicing has occurred, the ground flora is extremely diverse and intact. In this situation it gives rare clues as to the character of the original post-glacial woodland development. The transition to peat gives the wood extra interest.

Site Name: Dernasliggaun Wood

Site Code: 001253

Dernasliggaun Wood is situated in the valley between Lough Fee and Killary Harbour, Co. Galway. The site is divided by the Bunowen River. Oak (*Quercus petraea*) is dominant with a rich moss and lichen flora with characteristic western species, such as the filmy fern (*Hymenophyllum tunbrigense*) and St. Patrick's cabbage (*Saxifraga spathularis*). The site is of importance because of the general lack of native deciduous woodlands in Ireland on the whole. Despite the small size of this woodland it does represent a rare and declining habitat and should therefore be managed and protected.

Site Name: Drimcong Wood

Site Code: 001260

Drimcong Wood is situated approximately 1.5km. north-east of Moycullen, Co. Galway, in a limestone region. It is a mixture of deciduous and coniferous woodland.

The main habitat is deciduous woodland, with Ash (*Fraxinus excelsior*) and Birch (*Betula pubescens*) common, at least on the fringes. Coniferous woodland, with sitka spruce (*Picea sitchensis*) is also frequent. Two lakes are included in part in the site, Lough Aroraun and Lough Pollalehy, leading to the inclusion of an area of reedswamp (*Phragmites australis* - dominated) in the site.

The 1971 AFF County Report notes that part of the site is used as a deer forest.

The main damaging operations and threats within the site are afforestation and mineral extraction. A new road has been built to access a recently purchased area in the south-east of the site. The intention is to resume quarrying. An application has also been made to the Local Planning Authority to develop the area as an amenity park and motor sport facilities complex.

The scarcity of woodland in the west of Ireland in particular, as well as the good range of habitats, justifies the designation of this site as a N.H.A.

Site Name: Furbogh Wood

Site Code: 001267

Furbogh Wood is situated directly north of the Galway-Spidde coast road, equidistant (3.5 km) from Spiddle and Barna at Furbogh. The site consists of Oak (*Quercus* spp.) woodland bordering the Furbogh River.

The woodland is dominated by Oak with a Hazel (*Corylus avellana*) and Birch (*Betula pubescens*) understory. The flora of the woodland is diverse. The foliose lichen *Lobaria scrobicularia* has been recorded from the woodland.

The Furbogh River which flows southwards through the centre of the site to Furbogh Strand increases the habitat diversity of the site.

Tree felling remains a threat to the woodland.

The site is considered a Natural Heritage Area because it is one of only a few Atlantic woodlands which occur directly adjacent to the coast. The occurrence of oakwood on mineral soil is not a common feature of West Galway.

Site Name: Kilkerrin Turlough

Site Code: 001279

Kilkerrin Turlough lies in a basin amongst rolling countryside approximately 6 km south of Glenamaddy. It is crossed by a road from the northern side which divides it roughly in two halves. Both parts extend southwards in a crescentic shape, the western one leading to a deep trench which cuts through bedrock - there is a little outcrop on the eastern arm. There is a small inflow from the north-eastern corner, with ditches and swallow holes throughout.

This is a dry turlough with aquatic vegetation limited to the small stream. Most of the vegetation is fen, comprising os sedges (*Carex* spp.) and Knot-grass (*Polygonum* spp.). In the wettest areas, Amphibious Bistort (*Polygonum amphibium*) occurs. The sedge community merges into Purple Moor-grass (*Molinia caerulea*) and Fescues (*Festuca* spp.). From this develops a rough grassland comprising of Rye-grass (*Lolium* spp.).

The vegetation of this site is rather uniform but the area is, nevertheless, of local scientific interest.

Site Name: Kiltullagh Lough

Site Code: 001282

Kiltullagh Lough is located 3km south-west of Glenamaddy. It is neighbouring the Lough Lurgeen Bog/Glenamaddy turlough complex, an NHA, and is (possibly?) itself a turlough.

The three lakes together provide a good habitat for waterfowl. At Kiltullagh counts for waterfowl are : Mute

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Swan (20), Whooper Swan (12), Wigeon (346), Teal (59), Mallard (196), Tufted Duck (152), Ringed Plover (6), Golden Plover (303), Lapwing (86) and Curlew (59). (Counts from 1984/85 - 86/87). Golden Plover and Whooper Swan are species listed in Annex I of EU Birds Directive.

With its close association with the Lough Lurgeen Bog/Glenamaddy Turlough NHA and its importance for waterfowl this site is of scientific importance and should be preserved. Threats are from drainage and eutrophication from farming practices.

I have heard that there is very species - (and Orchid) - rich grassland on eskers running down into the turlough. 12.7.1995

Site Name: Knockmaa Hill

Site Code: 001288

Knockmaa hill is a prominent limestone Knoll located 10 km west of Tuam. The surrounding countryside consists of good quality, pastoral farmland on limestone. The hill itself is 180m high and is covered with deciduous woodland. Towards the summit of the hill there is an area of limestone pavement and heath.

The main tree species in the woodland are Ash (*Fraxinus excelsior*) and Oak (*Quercus* sp.) and the associated ground flora is species-rich. There is some Alder (*Alnus glutinosa*) in wetter seepage areas and close to the summit, there is an area of dwarf Oak (*Quercus* sp.) woodland on thin soils. The wood contains numerous exotic tree species including Beech (*Fagus sylvatica*), Sycamore (*Acer pseudoplatanus*), Cherry Laurel (*Prunus laurocerasus*), Larch (*Larix* spp.) and Pine (*Pinus* spp.). Of these, only Beech and Sycamore are regenerating.

At the top of the hill there is an area of limestone pavement which supports a species-rich, Burren-type, flora with some small areas of heath.

Despite the incidence of tree felling in the past, the site is still of interest because it is a good example of deciduous woodland on thin limestone soil. Similar sites are rare in this part of the country. The occurrence of species-rich limestone pavement vegetation at the top of the hill adds significantly to the interest of the site.

Site Name: Leagaun Machair

Site Code: 001289

Leagaun Machair is situated at the mouth of Streamstown Bay, opposite Omey Island. The site was surveyed by aerial photography. Machair habitat is rare in Europe and is confined to the western seaboard of Ireland and Scotland. It is listed as a priority habitat in Ireland under the EU Habitats Directive.

Site Name: Lough Hacket

Site Code: 001294

Lough Hacket is located 4.5km. east north-east of Headford. This small lake is situated in an area where the underlying geology is carboniferous limestone.

The main habitat of this site is the lake itself, which is surrounded to the west by reedswamp, areas of fresh water marsh as well as lowland wet grassland. The eastern side of the lake has improved grassland. A small island occurs in the lake.

The site was noted in 1971 (AFF County Report) as an area of ornithological importance for wintering wildfowl. Sheppard (1993) lists the site as being of regional/local importance. Wigeon (40), Pochard (110), Tufted Duck (10), Golden Plover (20), Lapwing (150) and Curlew (150) (1 Count, Sheppard 1993) occur. The lake island has a few pairs of breeding grey herons and cormorants (Ranger report).

This site holds a wintering population of Golden Plover, a species listed in Annex 1 of the E.U. Birds Directive and in the Red Data Book as being threatened in Ireland.

This site is of interest as an important site for wintering wildfowl.

Site Name: Mace Head Islands

Site Code: 001300

Mace Head Islands are a group of marine islands west of Mace Head, including Freaghillaun, Illaunnacroagh More, Illaunnacroagh Beg and CroaghnaKeela Island.

The islands are important for wintering Barnacle Geese, particularly CroaghnaKeela and Freaghillaun. The Illaunnacroagh group holds nationally important numbers of Great Black-backed Gulls (30-36 pairs in 1970). Freaghillaun has a population of Arctic Terns (25 pairs in 1970). 12.7.1995

Site Name: Killower Turlough

Site Code: 000282

Killower Turlough is located approximately 5km west of Tuam, Co. Galway. It is part of the River Clare group of turloughs, which also includes Belclare Turlough just to the south of the site. It is situated in an area of carboniferous limestone, with large amounts of Marl underlying thin soils. The main habitats are the turlough itself, as well as lowland grassland, wet, dry and improved, heath and reedswamp.

Due to the Corrib Drainage schemes of the 1960's, the total flooding area has decreased, and a large part of the original site is now improved grassland.

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The main interest of this site is ornithological. It is part of the North East Galway identified by Sheppard (1993) and is of local or regional importance for 14 species of waterfowl, including Whooper Swan and Greenland White-fronted Goose. These two species are listed in Annex 1 of the Habitats Directive.

The damage of this site to date has been caused by drainage and the subsequent improvement of land. This continues to be the only apparent threat to the site, since the soil is of such poor quality that a forestry application was turned down. The designation of this site as an NHA rests purely on its regional importance for waterfowl.

Site Name: Kiltullagh Turlough

Site Code: 000287

Kiltullagh lies close to Galway airport, north-east of the city. It is a flat linear basin running northeast-southwest, deepening at its southern end. A few boulders occur along the edges, but it has the general appearance of a grassy field.

The majority of the turlough is covered by pasture with Tormentil (*Potentilla erecta*) and Sea Plantain (*Plantago maritima*) at the edges. On deeper soil Common Sedge (*Carex nigra*) is present. The lower ground contains Creeping Cinquefoil (*Potentilla reptans*), while the spring at the south end is partly grown over by Small Sweet-grass (*Glyceria declinata*).

The entire area is grazed closely by cattle and sheep.

Kiltullagh is at the dry extreme of turloughs, and has a large proportion of dry grassland. The turlough is in the catchment of the Clare River and may therefore be affected by the drainage scheme. This would explain the preponderance of a dry vegetation type and if true, reduces the level of ecological interest at the site. However it is possible that it is a natural phenomenon, in which case the site is quite unusual.

Site Name: Knockavanny Turlough

Site Code: 000289

Knockavanny Turlough is a small turlough in the Nanny sub-catchment of the larger Corrib catchment. It is situated about 5 km north-east of Tuam.

The site has a range of grazed plant communities typical of turloughs in the region. In addition, a small patch of Saw-sedge (*Cladium mariscus*) with the carnivorous plant Bladderwort (*Utricularia* spp.) is the only such example in this sub-catchment. A small area of species-rich grassland on calcareous soil on a steep south-facing slope is also included.

Cowslip (*Primula veris*) is extremely abundant on this slope, and a summer visit to the site would record many more interesting species.

The turlough, under flood, is shallow and hosts a large number of Wigeon (140 were present on 7 February 1994).

Turloughs are a uniquely Irish habitat and are therefore very rare on a European scale. This contributes very considerably to their conservation and scientific value.

Site Name: Monivea Bog

Site Code: 000311

Monivea Bog NHA is situated approximately 5 km north-east of Athenry, Co. Galway. It is located in the townlands of Corrantarrmud, Newcastle, Glenaslat and Lenamor. To the east lies the Killaclogher River and to the north a large coniferous plantation. It is located in an area of Karstic limestone.

The site consists of two higher areas to the north and south with a central depression associated with an extensive flush system. The dome of the bog features a pool/hummock complex including wet, quaking areas. There is also a lake and swallow holes located in the north-west flush and soak system. Cutover is found all around the margins of the high bog and is extensive on the north and eastern margins. Tracks are found on the high bog to allow access for peat-cutting.

The high bog has vegetation typical of the Western Raised Bog type consisting of Carnation Sedge (*Carex panicea*), Ling Heather (*Calluna vulgaris*), Bog Asphodel (*Narthecium ossifragum*), Deergrass (*Scirpus cespitosus*), the lichen *Cladonia portentosa* and the moss *Racomitrium lanuginosum*. Overall, Deergrass dominates the drier part of the high bog. In the pool/hummock complex on quaking bog, the cover of bog mosses (*Sphagnum* spp.) reaches 75%, consisting mainly of lawns of *Sphagnum cuspidatum*. Elsewhere, *Sphagnum* cover is typically low, ranging from 5-20%. Some pools are algae-dominated, but healthier pools have Hare's-tail Cottongrass (*Eriophorum vaginatum*) and bog mosses (*S. cuspidatum* and *S. auriculatum*). Hummocks consist of the bog mosses *S. fuscum*, *S. capillifolium* and *S. imbricatum*, with the mosses *Campylopus introflexus* and *Leucobryum glaucum*. Ling Heather and lichens are also found on the hummocks. The bog features a large soak-system in the north-west which originates at the lake. The open water is colonised by Bottle Sedge (*Carex rostrata*), Bogbean (*Menyanthes trifoliata*), Soft Rush (*Juncus effusus*) and Marsh Cinquefoil (*Potentilla palustris*), associated with quaking bog moss lawns. To the south-east of the lake there is a pool surrounded by scraw vegetation, this consists of a quaking mat of mosses (i.e. *Sphagnum cuspidatum*, *S. recurvum*, *S. palustre* and *Aulacomnium palustre*), Cranberry (*Vaccinium oxycoccos*), Purple Moor-grass (*Molinia caerulea*) and Bog-sedge (*Carex limosa*). Swallow holes are vegetated by willows (*Salix* spp.), Downy Birch (*Betula pubescens*), Broad Buckler-fern (*Dryopteris dilatata*), Tormentil (*Potentilla erecta*), Honeysuckle (*Lonicera periclymenum*) and Devil's-bit Scabious (*Succisa pratensis*). A number of small flushes with Purple Moor-grass, Bog-myrtle (*Myrica gale*) and bog mosses (*S. imbricatum*, *S. palustre* and *S. fuscum*) occur around the site. The cutover areas are sparsely vegetated

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in the north, east and south, and where vegetation occurs it is dominated by Common Cottongrass (*Eriophorum angustifolium*). The tracks in and around the bog are lined mainly with Gorse (*Ulex europaeus*) and willows with some Birch (*Betula* sp.) and Bracken (*Pteridium aquilinum*). Gorse encroaches onto the high bog at the mid-west of the site.

There is extensive mechanical peat cutting to the north, east and south of the site, and some hand-cutting in the south-west. In places the facebank reaches 3 m in height with associated cracking and slumping. Some of the present high bog drains are new and others have been deepened. Burning events have occurred on the bog in the past and in places the peat remains unvegetated. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Monivea Bog NHA is a site of considerable conservation significance comprising as it does a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The site supports a diversity of raised bog microhabitats including hummock/hollow complexes, pools, flushes, soak system and open water. Active raised bog is listed as a priority habitat on Annex I of the E.U. Habitats Directive. Priority status is given to habitats and species that are threatened throughout the E.U. Ireland has a high proportion of the E.U. resource of this habitat type (over 60%) and so has a special responsibility for its conservation at an international level.

31.5.2002

Site Name: Pollduagh Cave, Gort

Site Code: 000320

This site is the rising of the Cannahowna River. It is on the outskirts of Gort, Co. Galway. This site is a limestone cave with only the entrance accessible by wading. Quite soon into the cave the water becomes quite deep, a sump begins 30 metres into the cave. A nursery colony of Daubenton's bats hang in a cluster from the roof of the cave, a small inflatable boat is needed to reach the bats. As approximately 100 bats were counted in the cave, this is a site of national importance, being one of the largest nursery roosts, and also probably international importance.

This species is dependent on aquatic insects so it is important that the river system remains pollution free and nearby vegetation is not removed.

12.7.1995

Site Name: Richmond Esker Nature Reserve

Site Code: 000323

Richmond Esker Wood is a small wooded esker ridge situated about 6 km north-west of Moylough.

The most abundant tree species is Beech (*Fagus sylvatica*), up to 1 m in diameter and tall, but some Ash (*Fraxinus excelsior*), Holly (*Ilex aquifolium*) are present, sometimes in locally abundant thickets. Scattered Yew (*Taxus baccata*) are also present. Spruce and Larch trees are frequent, and the occasional exotic conifer, for instance Hemlock (*Tsuga* sp.), is also present. The ground flora is quite diverse, especially on the summit and on the steep western slope which overlooks pasture, and is not shaded by commercial forest. A field layer with a very high cover of lime-loving mosses occurs, and Bluebell (*Hyacinthoides non-scriptus*), Cowslip (*Primula veris*), Wood Rush (*Luzula sylvatica*), Wood Sedge (*Carex sylvatica*) and False Brome (*Brachypodium sylvaticum*) are much in evidence, along with occasional Dogwood (*Cornus sanguinea*), a reasonably scarce woodland plant. A visit in spring or summer will certainly show that many more interesting plants exist there.

Although this wood cannot be said to be natural, having a predominance of Beech (which is not native to Ireland) and conifers, nevertheless wooded eskers are rare in the region (being mostly reclaimed or quarried). The variety of tree species allows a very good population of woodland birds to exist, including Jays (which feed on Beech masts amongst other things). Also, the ground flora has retained much of its original diversity.

The boundary of Richmond Esker Wood follows the extent of the State-owned National Nature Reserve over much of its length, but also includes a section of commercial forest outside the Reserve in the north-eastern corner. Management of this and other blocks of commercial forest should take account of and enhance the conservation interest of the site.

The presence of an old track along the crest of the esker adds historical interest to the site.

Site Name: Turlough O'Gall

Site Code: 000331

Turlough O'Gall lies between Shrulle and Tuam, approximately 3 km west of Belclare. The surrounding countryside is very flat, but the turlough can be viewed from the Knockmaa ridge to the south. The floor of the basin, particularly in the east, is uneven because of bedrock. To the west there is a large expanse of level ground on limestone, which occasionally outcrops. The turlough is a dry one, and the arterial drainage of the Clare river is believed to curtail flooding.

Apart from the vicinity of the ponds, the southern half of the turlough has a simple vegetation structure made up mainly of limestone grassland, with prominent Mat-grass (*Nardus stricta*). There is a little scrub invasion with Hawthorn (*Crataegus monogyna*) bushes present.

Towards the north of the site the vegetation is more complex as this area is prone to fluctuations in water level. Creeping Cinquefoil (*Potentilla reptans*) is widely spread, but there are also sedges and grasses. Above this is an area of unmanaged grassland with Tufted Hair-grass (*Deschampsia cespitosa*), Purple Moor-grass

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(*Molinia caerulea*) and Sea Plantain (*Plantago maritima*) amongst Willow (*Salix repens*) and Buckthorn (*Rhamnus catharticus*).

The three depressions on the floor of the turlough are ringed by Common Sedge (*Carex nigra*). The pools themselves contain Pondweeds (*Potamogeton* spp.) and Bogbean (*Menthanthes trifoliata*). Typical fen vegetation surrounds these pools.

The area is used for grazing by some cattle, but predominantly sheep.

Turlough O'Gall is distinct in vegetational terms in having large areas of both sedge heath and limestone grassland - the rock outcrops and pools add habitat diversity. Its unmodified drainage adds to its conservation value.

Site Name: Rostaff Turlough

Site Code: 000385

Rostaff Turlough is located approximately 2km. north-west of Headford, beside Ross Abbey. The Black River flows through the site, which is situated in a limestone area. The main habitats within the site are improved grassland and turlough.

The interest of the site is zoological, mainly wintering waterfowl. Two species with nationally important numbers occur: Greenland White-fronted Geese (average peak 83, absolute maximum 88, 1982/83 - 1991/92) and Shoveler (average peak 70, 1984/85 - 1986/87). Species with regionally/locally important numbers are Wigeon (300), Teal (20), Mallard (89), Golden Plover (350), Lapwing (453), Dunlin (37) and Curlew (173) (numbers are average peaks over 3 seasons 1984/85 - 1986/87). Whooper Swans occasionally use the site, with up to 37 in November 1984. Species breeding at the site are Ringed Plover, Snipe, Tufted Duck, Pochard, Grey Heron and Redshank. One Peregrine Falcon has used the site as a winter residence over a number of years.

The importance of Rostaff Turlough is primarily ornithological with nationally important numbers of Greenland White-fronted Geese and Shoveler. The site also has a number of notable populations of breeding birds. The site is a bird sanctuary.
12.7.1995

Site Name: Maumtrasna Mountain Complex

Site Code: 000735

The Maumtrasna Mountain Complex is situated to the north-east of the Maumturk Mountains and to the west of Lough Mask and Lough Corrib. The site is bounded to the north-west by the Erriff River, to the north-east by the Owenbrin River and to the south-west by the Bealanabrack River and Joyce's River. Most of the mountains exceed 500m in height and more than half of the land within the site lies above an altitude of 300m. The main bedrock in the north and west of the site is

Mweelrea Grits, with occasional bands of slate. The remainder of the site is composed of mudstones and sandstones, with occasional outcrops of mica-schist and basic igneous rocks.

The major habitat within the Maumtrasna Mountain Complex is upland grassland on peaty soil. The dominant plant species in this habitat include Deergrass (*Scirpus cespitosus*), Mat-grass (*Nardus stricta*), Purple Moor-grass (*Molinia caerulea*) and occasional Ling Heather (*Calluna vulgaris*) and Bell Heather (*Erica cinerea*). Overgrazing by sheep has greatly reduced the amount of heather cover in these communities and consequently resulted in a large scale change from upland heath to grassland.

The secondary habitat in this site is upland grassland on mineral soil. This is largely confined to a distinct band running parallel to the southern boundary e.g. at Lugnabrick and Knocknagussy. This vegetation type is generally found in association with sedimentary rocks of Silurian and Ordovician age, other than Mweelrea grits. Species of note here include Bent Grass (*Agrostis* spp.), Fescue Grass (*Festuca* spp.), Mat-grass (*Nardus stricta*) and Heath Bedstraw (*Galium saxatile*). Minor habitats present, include upland heath, lowland blanket bog, scree, exposed rock, lakes, flushes, river valleys and streams.

The very Rare and legally protected Irish St. John's wort (*Hypericum canadense*) (Flora Protection Order, 1987) is found at one location in the site, in a patch of moorland approximately 1.5km east of Lough Nadirkmore.

In areas where cliffs occur at altitude e.g. the Dirkmore and Dirkbeg corries, the cliffs at Lugnabrick and at Benbeg ridge, nationally scarce plant species such as Alpine Hair-grass (*Deschampsia cespitosa* subsp. *alpina*), Alpine Meadow Rue (*Thalictrum alpinum*) and Mountain Sorrel (*Oxyria digyna*) are present.

Arctic Char (*Salvelinus alpinus*) has been recorded in Lough Nafoeey. This species is listed in the Irish Red Data Book as threatened in Ireland.

The Irish Hare (*Lepus timidus hibernicus*) has been recorded from the site and is probably widespread. This endemic sub-species is also listed as being threatened in the Irish Red Data Book.

The main damaging operations in the Maumtrasna Mountain Complex are overgrazing and peat-cutting. Sheep grazing is widespread and quite severe within the site. Peat cutting, both by hand and by machine, has become more of a problem in recent years but is largely confined to areas of deep, lowland blanket bog, which is a rare habitat within the site. Other potentially damaging operations here include afforestation, land drainage and reclamation, fertilization, quarrying and dumping.

This site is of interest as it is a good example of an extensive mountain landscape, containing tracts of upland grassland on both peaty and mineral soils. The summits of the mountains within the site, particularly where there are high altitude cliffs and/or base-rich substrates, provide a locus for a good variety of arctic/alpine species. The presence of the Rare and legally protected St. John's Wort (*Hypericum canadense*) and other scarce species adds to the interest of the site.

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15.2.1995

Site Name: Ardgraigne Bog

Site Code: 001224

Ardgraigne Bog is located 3km northeast of Killimor just north of the Killimor/Eyrecourt Road (L2). It is located in a cluster of bogs with two NHA sites, Moorfield bog and Meneen bog, nearby. This site has not been visited since 1984.

The main habitat is raised bog and is described in the 1984 FWS report as an excellent example of a raised bog. The surface is very wet and surprisingly intact. Very few open pools exist but a good hummock/hollow system present with a complete cover of the bog mass (Sphagnum). *S. pulcrum* predominates in the hollows. There is good lichen cover with epiphytic growth on the stems of Ling Heather (*Calluna vulgaris*).

There is old cutaway with scrub encroachment around most of the site.

Sphagnum pulcrum and the liverwort, *Pleurozia purpurea* are interesting plant species recorded and grouse is also reported on this site.

Most of the bog surface is remarkably clear of drains but old tracks and cutaway occur in the south. Extensive hopper turf cutting occurs to the south and east of the site. This will seriously affect scientific value of the bog if not controlled. This bog is reported as being unburnt for over 20 years.

This bog has good active Sphagnum growth and has an intact wet centre. Raised bog is an Annex I habitat of the Corine biotypes list (51.1) as it is a rare habitat in Europe. This is a very good example of raised bog and is of high scientific interest.

Site Name: St. Macdara's Island

Site Code: 001318

St. Macdara's Island is a small, uninhabited, marine island situated about 3 km south-west of Mace Head.

The island is of interest for its colonies of seabirds, which include Great Black-backed Gull (40 pairs in 1970), Lesser Black-backed Gull (50 pairs in 1970), Herring Gull (200 pairs in 1970) and Common Gull (2 pairs in 1970). Unspecified numbers of Arctic Tern and Little Tern have also been reported from the island.

8.12.2005

Site Name: Summerville Lough

Site Code: 001319

Summerville Lough is a relatively small permanent lake, with an associated raised bog and wet, species-rich grassland, situated about kilometres west of Moylough, in east Co. Galway.

The lake is quite shallow, with patches of Common Club-rush (*Schoenoplectus lacustris*) near the centre and on the margins. This makes it attractive to a large number (relative to its size) and variety of winter wildfowl. Whooper Swans, an Internationally Important bird in Ireland, are regular visitors in small numbers (c.20), and the Otter (a legally-protected mammal in Ireland and Europe) is resident here. A large expanse of wet, species-rich grassland on peat (some of it developed over old 'lazy beds') grades down through marsh to the lake. The raised bog is not typical or of good quality but the transition to lake and marsh makes it necessary to include it.

Summerville Lough is an important wintering site for wildfowl and the unusually large expanse of semi-natural wet grassland on peat adds considerable interest to the area. The undisturbed north and eastern areas are an advantage to the wildfowl population.

12.7.1995

Site Name: Turlough Monaghan

Site Code: 001322

Turlough Monaghan is situated just to the north of Fearagha.

It has a flat floor in most places apart from a rocky rise that projects from the south-west side. The north-east edge is marked by level beds of outcropping limestone which rise about 8 km above the basin. The turlough seems to flood regularly but is relatively shallow.

The two ponds in the lower parts of the floor resemble each other in having a central area of Broad-leaved Pondweed (*Potamogeton natans*) and Small Pondweed (*Potamogeton berchtoldii*) surrounded by weedy species. Creeping Cinquefoil (*Potentilla reptans*) is widespread but the vegetation structure is modified by grazing pressure.

A depression at the northern end carries Common Sedge (*Carex nigra*), which changes to marginal communities as the land rises. A similar rise in the south is colonised by a heathy vegetation with a considerable amount of Purple Moor-grass (*Molinia caerulea*). The soils are thin there and rock breaks through in places.

More definite outcrop on the eastern side bears some Blackthorn (*Prunus spinosa*) scrub centrally, while at the edge the pavement is sometimes flooded - Yellow-rattle (*Rhinanthus minor*), Buckthorn (*Rhamnus catharticus*), Quaking-grass (*Briza media*) and Tawny Sedge (*Carex hostiana*) are frequent, with both Rough Hawkbait (*Leontodon hispidus*) and Lesser Hawkbait (*Leontodon taraxacoides*).

Flocks of Lapwing have been recorded at the turlough.

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The turlough is basically a dry one with little physical variation except for the outcrops of bedrock. The vegetation, however, is quite diverse, with ten community types in a relatively small area. The site is of local scientific and conservation value.

Site Name: Tiaquin Bog.

Site Code: 001709.

Tiaquin Bog is situated approximately 10km. north-east of Athenry. The site is located east of Monivea village, with the Killaclogher river flowing just west of the site boundary. The sites underlying geology consists of carboniferous limestone.

In 1971 An Foras Forbartha, Galway County Report, provided the following description for the site: "Another excellent example of a raised bog, included in a Game Reserve. Bordered by some birch (*Betula pubescens*) wood, which adds to its value because of the change in plant communities from bog through to woodland".

NO information on the present condition of the habitats occurring in this site is available. However, turf cutting by "sausage machine" is presently damaging the site as well as the planting of coniferous trees.

Site Name: Ballinasloe Esker

Site Code: 001779

Ballinasloe esker is about 6km long and stretches due west from Ballinasloe roughly along the line of the Galway-Dublin rail-line.

The main habitats are a mixed wood and a dry broadleaved semi-natural woodland. The mixed wood consists of Beech (*Fagus sylvatica*) and Sycamore (*Acer pseudoplatanus*) with some Oak (*Quercus robur*) and a grove of Yew (*Taxus baccata*).

The dry wood has Ash (*Fraxinus excelsior*), coppiced Hazel (*Corylus avellanus*) and some solitary Oaks (*Quercus robur*). There is a good ground flora present with Early Purple Orchid (*Orchis mascula*) and Primrose (*Primula vulgaris*) common. Wood Anemone (*Anemone nemorosa*) and Lesser Celandine (*Ranunculus ficaria*) are also abundant in places.

A freshwater marsh and wet woodland and a small fen also occur on this site with Yellow Flag (*Iris pseudacorus*), Marsh Marigold (*Caltha palustris*) and Horsetail (*Equisetum fluviatile*) present in the marsh and woodland and the fen being dominated by Sedges (*Carex flacca*, *C. panicea*, *C. flava*). The Twayblade (*Listera ovata*) is also present.

Parts of the esker are grazed by cattle which are causing damage due to trampling in places. Also the size of the esker is being reduced due to quarrying and improvement of grassland by fertilizing and reseeded.

Continued quarrying is a threat to this site as is the clearing of mature trees. A good ground flora only occurs in undisturbed regions of the woodland and so will be destroyed if woods cleared.

Esker woodlands are scarce in Ireland (" <150 ha in total", Cross 1992) and undisturbed stands with a good ground flora such as occurs on this site (?) are important links with the original woodland. For these reasons it is important to preserve esker woods and so this should be designated as an N.H.A.

Site Name: Turloughcor

Site Code: 001788

Turloughcor is located approximately 5km south-east of Headford, Co. Galway in a lowland karstic limestone area. A small lake, Doolough is the centre of the site, surrounded by a large area which was liable to flooding in the past. Due to extensive drainage, most of the area no longer floods. There are still some small areas to the north-east of the lake which flood, along natural springs. The dominant habitat in the area is improved grassland, with no plant species of importance being noted.

The main secondary habitats at this site are water bodies, rivers, streams and drainage channels. Some inland wet and dry grassland occur, along with small amounts of scrub and limestone pavement.

The main interest of this site is ornithological. In excess of 500 Wigeon graze the grassland around the turlough, with lesser numbers of Teal and Mallard. Greenland White-Fronted Geese do not use the site anymore. Mute Swans (2), Mallard and Lapwing breed at the site.

Drainage is the main damaging operation affecting this site. It has already considerably lowered the scientific value of the turlough. Fertilization of the surrounding grassland is also a problem. Black River and District Gun Club manage the shooting on the turlough and have had a Mallard-release programme over the last few years.

Turloughcor is a locally important site, which would be of more importance if drainage and fertilization were controlled.

Site Name: Crump Island Complex

Site Code: 001917

The Crump Island Complex includes the islands of Freaghillaun North, Shanvallybeg, Carrigeen North and Crump Island itself. These are located about 1 km north-east of Rinvyle Point.

The islands support internationally important numbers of Barnacle Geese (150 birds recorded from Crump Island in 1994).
12.7.1995

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Site Name: Friar Island

Site Code: 001972

Friar Island comprises a group of marine islets (totalling c. 20ha and rising to 30m) about 1 km west of Aughrus Point, of interest for their colonies of seabirds. The following have been reported, Herring Gull (63 pairs in 1969), Great Black-backed Gull (6 pairs in 1969), Lesser Black-backed Gull (2 pairs in 1969) and Common Tern (10 pairs between Friar and Aughrus in 1969). Terns were not found at this site in 1984.

Barnacle Geese are thought to graze here in winter.
12.7.1995

Site Name: Cruagh Island

Site Code: 001973

Cruagh Island is a small (c. 35ha) uninhabited island (c. 60m high) situated about 2 km west of Omev Island. Herring Gull (100 pairs in 1969), Great Black-backed Gull and Fulmar are recorded from the island. Storm Petrel are reported by Whilde to breed on the island.

Barnacle Geese are thought to graze on the island in winter.
12.7.1995

Site Name: Castle Hackett Souterrain

Site Code: 002038

This site consists of a man-made, stone, underground passageway which dates from between 500 and 1200 A.D. It is situated in a field close to Castle Hackett Estate, Caherlistrane, County Galway. It is a winter hibernation site for the Lesser Horseshoe Bat (*Rhinolophus hipposideros*), a species listed on Annex II of the EU Habitats Directive.

In the past, souterrains were used for food storage or as places of refuge. Today they offer ideal hibernation conditions for the Lesser Horseshoe Bat as they are humid and remain at a constant temperature.

There is no vegetation cover surrounding the entrance to this souterrain, which is in a field grazed by sheep. There are, however, trees and hedgerows within 100 m of the site.

Bats have been seen at this site each winter since 1985. The highest number recorded was 35. Public access has been a problem in the past and in 1995 a grille was fitted in the passageway running from the entrance - this should lead to an increase in the numbers of bats using the site.

As well as being a regular hibernation area, this site is notable as it is one of the few Lesser Horseshoe Bat sites in County Galway.
19.10.1997

Site Name: Old Domestic Building, Heath Island, Tully-Lough.

Site Code: 002062

This site is a nursery roost of the Natterer's bat (*Myotis nattereri*). Approximately 140 bats roost in the attic of the only dwelling on Heath Island, the largest island in Tully Lough, north of Letterfrack, Co. Galway. Although the site was only discovered to contain a Natterer's roost in 1992, the owners report that there has been bats in the house for many years and are extremely happy to have bats in the attic. The replacement, in 1993, of a broken window through which the bats entered and left the attic with a section of piping did not adversely affect the bats. As the national population of this species is estimated to be only several thousand, this site is of national importance. It is considered "vulnerable" throughout Europe so this site may also be of international importance.

Although it is unlikely that the existing woodland and shrubs on the island could sustain a colony of this size, bats do feed on the island. This foraging habitat is safe as the owners plan to plant more trees on the island. Any changes to more extensive woodland in the vicinity of the island could adversely affect a colony of this size.

It might be more accurate to refer to this site as "Heath Island" rather than Tully Lough as the site concerns the building on Heath Island rather than the Lough itself.
12.7.1995

Site Name: Letterfrack Hostel

Site Code: 002080

This site is a mixed nursery roost of the Natterer's bat (*Myotis nattereri*) and long-eared bat (*Plecotus auritus*). Approximately 50 of each species hand from the roof of the Hostel in Letterfrack.

As the national population of the Natterer's bat is estimated to be only several thousand, this site is of national importance. As most long-eared colonies are small, this colony is of national importance also. This site is also important because it contains reasonable numbers of two bat species.

As both these species are dependent on woodland for foraging habitat, any changes in woodland in the vicinity of the building could adversely affect these colonies.

The owners of the church, the Benedictine Nuns, are aware of the bats in the church and are willing to allow them to use the loft area. The nuns plan to use the restored church as a venue for music recitals but it is unlikely that this will interfere with the nursery colony.
12.7.1995

Site Name: Oughterard National School

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Site Code: 002082

This site consists of a two-storey primary school which is used as a nursery site by approximately 300 Leisler's bats (*Nyctalus leisleri*). The bats roost in two sites in the roof.

This site is probably the largest Leisler's nursery colony in Ireland and possibly in Europe. It was first discovered in 1992 and has increased in size every year since then.

The children and teachers are happy having the bats in the school and the school management have been persuaded to allow the bats to stay, providing droppings are removed regularly.

This tolerance is an important consideration when trying to protect roosts of this species, the largest and possibly the noisiest of the seven bat species. Although the Leisler's bat is considered common in Ireland, the number of safe nursery roosts are small.
12.7.1995

Site Name: Killarainy Lodge, Moycullen

Site Code: 002083

This site is a nursery roost of the Natterer's bat (*Myotis nattereri*). Approximately 70 bats use the roof at the gable end of a stone building in the grounds and Kilrainey Lodge, Moycullen. The house is privately owned.

As the national population of this species is estimated to be only several thousand, this site is of national importance. It is considered "vulnerable" throughout Europe so this site may also be of international importance.

This species is dependent on woodland for foraging habitat so any changes to existing woodland surrounding the roost would have adverse effects on this colony.
12.7.1995

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a raised bog

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The dome of the bog features a pool/hummock complex, including wet, quaking *Sphagnum* areas, abundant lichens and heather. A number of small flushes with Purple Moor-grass (*Molinia caerulea*), Bog Myrtle (*Myrica gale*) and Bog Mosses (*Sphagnum imbricatum*, *S. palustre* and *S. fuscum*) occur around the site.

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(*Salix* sp.)

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Fauna

Cutaway

Landuse/Damage/Threats

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Selection criteria Despite these factors Monivea bog is still considered to be of national conservation importance.

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The vegetation of this site is characterised by an abundance of Carnation Sedge (*Carex panicea*), Bog Asphodel (*Narthecium ossifragum*) and Deergrass (*Scirpus cespitosus*). In the wettest areas total *Sphagnum* cover reaches 75%, consisting mainly of very wet and quaking *S. cuspidatum* lawns, but elsewhere *Sphagnum* cover is typically low, ranging from 5-20%. The northern half of the bog is dominated by Deergrass, Heather (*Calluna vulgaris*) and Hare's-tail Cottongrass (*Eriophorum vaginatum*) communities with lichen (*Cladonia portentosa*) cover of up to 60% in places. The bog features a large soak-system in the north-west with deep *Sphagnum* hummocks, which are crowned by Crowberry (*Empetrum nigrum*) and Cranberry (*Vaccinium oxycoccos*). The open water areas, which are quite deep in places, have been invaded around the edges by sedges (*Carex rostrata*, *C. limosa*), Bogbean (*Menyanthes trifoliata*), Soft Rush (*Juncus effusus*) and Marsh Cinquefoil (*Potentilla palustris*).

Flora

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(<i>Carex panicea</i>),		
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(<i>Narthecium ossifragum</i>)		
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Appendix IV

Policy-by-Policy Assessment

Policy-by-policy generalised assessment of the effects on Critical Environmental Conditions required to sustain Favourable Status of Qualifying Interests.

This section provides a policy-by-policy generalised assessment of the effects on Critical Environmental Conditions required to sustain Favourable Status of Qualifying Interest. It assesses whether there will be a positive effect, a neutral effect or no effect. Where it is identified that there is a potential threat, then the affected Qualifying Interest Types are identified.

This identification facilitates cross-referencing to Appendix II which illustrates the relevant legislation, standards and Mitigation Measures that will need to be adhered to.

Assessment of effects on Critical Environmental Conditions required to sustain Favourable Status of Qualifying Interest	
Key	Colour Code
1. Will have positive effects on Critical Environmental Conditions required to sustain Favourable Status of Qualifying Interest	
2. Will have no/neutral effects on Critical Environmental Conditions required to sustain Favourable Status of Qualifying Interest	
3. Will require adherence to existing relevant legislation, standards and mitigation measures proposed herein to have no adverse effects on Critical Environmental Conditions required to sustain Favourable Status of Qualifying Interest See Table 2	
4. Will require detailed assessment of subsidiary plans or proposals to ensure no adverse effects on Critical Environmental Conditions required to sustain Favourable Status of Qualifying Interest - See Table 3	

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	Critical Environmental Conditions required to sustain Favorable Status of Qualifying Interest												
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Strategic Aims of the Plan													
Aim 1: Implement an overall development strategy for the County aimed at achieving the balanced development of County Galway in a strategic and plan led manner.													
Aim 2: Improve the quality of life for the people of Galway and maintain the County as a uniquely attractive place in which to live, work and visit.													
Aim 3: Create a receptive development environment in response to national and regional policy, such as the National Spatial Strategy, the National Development Plan 2007 - 2013 and the West Regional Planning Guidelines 2004-2016 (i.e. Counties Galway, Mayo, Roscommon and Galway City) (RPGs) and secure the development of the identified major infrastructural projects which will underpin sustainable development throughout the County and Region during the Plan period.													
Aim 4: Conserve the natural, built and cultural uniqueness of the County whilst accepting that this uniqueness has the potential to generate economic well being, enhanced quality of life and													

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create vibrant communities.													
Aim 5: To drive forward the balanced economic and social development of Galway by facilitating new strategic developments at appropriate locations and enhancing the quality of life for the citizens of Galway within an environment of outstanding quality.													
Aim 6: Develop the Gaeltacht as an Irish speaking community, in line with Government policy, recognising its importance locally, nationally and internationally.													
Aim 7: Recognise the Galway Metropolitan Region as a location with the potential to attract investment both to the City and to the County, with mutually beneficial consequences, if managed and planned properly between the joint Authorities.													
Aim 8: Facilitate and encourage greater public involvement in the planning process.													
Aim 9: To move towards a more sustainable and integrated concept of development with regard to land use, transportation, water services, energy supply and waste management over the lifetime of the Plan.													

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Strategic Spatial Planning Policies													
Policy SP1: The promotion and development of the Galway Metropolitan Area as a Gateway and Tuam as a Hub Town – a nationally significant urban centre, whose location and scale support the desired critical mass necessary to sustain strong levels of economic growth and prosperity in the West and a strong, independent hub to support the spatial strategy at national and local level, together with improved connectivity between the gateway and hub to enhance their complementary status and development.													
Policy SP2: The careful management of growth in the Galway Transportation and Land Use Study Area, in particular, the commuter zone of the greater Galway City area needs strong policies to shape and direct growth. This area corresponds with what the NSS describes as ‘rural areas under strong urban influences’.													
Policy SP3: The co-ordination of new growth within the emerging new transportation and economic corridors through the County and Region in order to create more sustainable development													

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<p>patterns and to optimise public and private investment. The development of the Western Rail Corridor and new commuter services, together with significant road network improvement during the plan period will have a major impact on development and settlement patterns.</p>															
<p>Policy SP4: The development of Key Support Towns to serve rural areas. Throughout much of County Galway, there is a need to address the imbalance at County level and build on the strengths and scale of existing settlements and to assist in promoting, sustaining and diversifying the rural economy.</p>															
<p>Policy SP5: The protection and strengthening of vulnerable rural communities and the promotion of diverse and sustainable rural areas and villages. Significant residential growth has taken place in the form of ribbonised development on rural roads, in the hinterland of the City. The more peripheral areas of the County have continued to experience depopulation and economic decline, which has resulted in continuing rural decline and the loss of community services in small towns and villages. Further residential growth must be deployed in a manner consistent with sustainable principles and the balanced development of the County.</p>															
<p>Policy SP6: The protection and management of the areas and assets of the County that contribute to the unique visual and environmental character and sense of identity of the County and which underpin tourism, heritage and quality of life.</p>															
<p>Policy SP7: While it is accepted that gateway boundaries have not been formally defined for any of the gateways, it is considered by Galway County Council, based on emerging patterns of development, settlement and economic and social ties that the gateway as defined by the Western Regional Authority (Map SP5, Page 19) is an acceptable definition. This conceptual gateway is supported by the investment in critical infrastructure, e.g. road, rail, water, waste water, electricity and gas investment which has and is taking place which has provided the economic infrastructure to support the gateway as defined herein.</p>															

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<p>A key element in the development of the gateway will be the preparation of an overarching framework plan which should be integrated into the County and City settlement strategies and should incorporate plans for emerging development such as Ardaun, Briarhill and Garraun and the implementation of an integrated land use and transportation strategy (based on the Galway Transportation and Planning Study) and to incorporate balanced County development.</p>													
<p>Strategic Spatial Planning Objectives</p>													
<p>Objective SP1: The Council will seek to direct development in such a manner as is appropriate to the social, economic and environmental characteristics of the County, building on the strengths and attributes of the existing settlements, emerging transport patterns and communications and the distinctive characteristics of the identified rural areas of the County.</p>													
<p>Objective SP2: The Council will support and seek to secure investment in the necessary infrastructure to pursue the spatial and settlement strategies as set out in Plan.</p>													
<p>Objective SP3: The Council will support and seek to secure investment for the advancement of the East Galway Waste Water Treatment Plant and the Western Rail Corridor.</p>													
<p>Objective SP4: The Council will investigate the potential for development of integrated transportation hubs at Tuam, Garraun and at Athenry to maximise the strategic integration of transport and rational land uses.</p>													
<p>Objective SP5: The Council will seek to manage development and interact with the relevant state bodies and private investors, in order to achieve key strategic objectives, particularly those that relate to the development of the strategic economic corridor. The Council will seek to control inappropriate development or development which may be incompatible with the achievement of key strategic objectives, particularly in relation to development in the strategic economic corridor.</p>													
<p>Objective SP6: The Council will have regard at all times to the environmental and ecological designations, characteristics and sensitivities in the pursuit of the proposed strategy.</p>													
<p>Objective SP7: Consider the preparation of sub-</p>													

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<p>county local area plans for geographically cohesive areas such as the coastal belt, the City/County interface areas, south-eastern uplands, etc to bring about greater social, economic and environmental connectivity between settlements and their rural hinterlands.</p>															
<p>Objective SP8: The Council shall seek to review the Galway Transportation and Land Use Study within the lifetime of the County Development Plan 2009-2015 subject to funding and in cooperation with Galway City Council.</p>															

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Strategic Settlement Policies													
Policy SS1: It will be the policy of the Council to recognise the role of Galway city and the Gateway concept as key drivers of social and economic growth in the County and in the wider Western Region. The Council will support the growth of the strategic settlements within the Galway Metropolitan area.													
Policy SS2: It will be a key policy of the Council to secure the development of Tuam to fulfil its potential as a hub town, catering for the residential, employment, educational, social and retail needs of its target population and for the population of its wider hinterland in north and east Galway.													
Policy SS3: It will be the policy of Galway County Council to secure the sustainable growth of the key service towns of the county to become self – sufficient settlements and act as service centres for the inhabitants of their rural hinterlands													
Policy SS4: It will be the policy of Galway County													

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Council to encourage and facilitate where possible, the sustainable, balanced development of existing settlements along the strategic emerging road and rail corridors as identified in the Spatial Strategy.													
Policy SS5: It will be the policy of Galway County Council to support the development of rural areas in a balanced, sustainable manner, having regard to the social, economic and environmental characteristics of the area and its residents and in accordance with the relevant policies and objectives set out elsewhere in the Plan.													
Policy SS6: In the case of smaller settlements for which no specific plans are available, development shall be considered on the basis of its connectivity, capacity (social, cultural and economic) and compliance with the settlement strategy, good design, community gain (this requirement shall not apply to single houses) and proper planning and sustainable development.													
Policy SS7: In order to control the scale of development, a deviation in the allocated population of up to 20% will generally be acceptable, between 20% and 30% will be assessed in the context of the group of settlements and the growth experienced by each, over 53% generally will not be accepted. Regard will also be had to the rate of growth in each settlement.													
Strategic Settlement Objectives													
Objective SS1: Masterplans and/or Local Area Plans for Briarhill, Ardaun and Garraun will be developed as a priority and brought forward for adoption by the Council within the lifetime of the Plan.	✓	✓							✓	✓	✓	✓	
Objective SS2: Local Area Plans or Development Boundaries will be prepared for all Settlements designated as Local Service Centres.	✓	✓							✓	✓	✓	✓	
Objective SS3: A Local Area Plan for the North Connemara area will be prepared.	✓	✓							✓	✓	✓	✓	
Objective SS4: Settlement guidelines or Action Area Plans/Local Area Plans for other key settlements in the Gateway area and along strategic public transportation corridors will be prepared as needed during the lifetime of the Plan.	✓	✓							✓	✓	✓	✓	
Objective SS5: An Action Area Plan for the off-shore Islands will be prepared.	✓	✓							✓	✓	✓	✓	

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Objective SS6: A Local Area Plan for Kilcolgan will be prepared based on the Bearna Local Area Plan template.	✓	✓								✓	✓	✓	✓	
Objective SS7: To prepare a Local Area Plan as a guidance document for the Carnmore/Galway Airport area to guide future development	✓	✓								✓	✓	✓	✓	

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<p>Rural Enterprise Centres Policies</p> <p>Policy ED1: Small scale enterprises, which applicants seek to establish in rural areas in which the applicant is resident which can be accommodated in existing farm buildings or can be established on brownfield sites and which are not suitable or would not be appropriate on industrial or commercially zoned lands in towns and villages will be considered on individual merit. Criteria that will be considered will include:</p> <ol style="list-style-type: none"> 1. Scale of development (number of employees, scale of buildings required) 2. Nature of the development 3. Compatability of the development with the rural economic profile (supportive of part time farming families) 4. “Good Neighbour” principles (compatibility with agricultural land uses and impact on existing residences) 5. Impact on road network, road capacity and traffic levels. 6. General suitability in the unserved rural area. 7. Substantiate need to locate in rural area. 													

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<p>8. Consideration of social, economic and environmental impacts. 9. Re-use of existing buildings. 10. Compliance with the policies of the NRA and Galway County Council with regard to access onto National Roads.</p>													
<p>Policy ED2: Re-use of brownfield sites. In general, new enterprises or industries which seek locate within or adjoining the settlement centres and can demonstrate connectivity and compliance with normal planning conditions and the development control standards as set out in this Plan shall be facilitated. The possibility of re-using old or disused rural buildings for new commercial enterprises shall be encouraged, provided they are capable of conversion and their re-use does not contravene environmental, traffic or visual controls set out elsewhere in the Development Plan.</p>													
<p>Policy ED3: Where existing enterprise nodes have developed, the Planning Authority will take a positive view of proposals which consolidate the node as a place where new, similar development may be accommodated, subject to normal planning considerations. Where, due to changing economic or physical circumstances, an alternative or expanded enterprise is proposed at an established commercial location, the Planning Authority will be favourably disposed towards same, provided that the traffic, environmental or visual impacts of such a new development are acceptable and in accordance with other policies and objectives of the Development Plan.</p>													
<p>Policy ED4: Identify Commercial Rural Enterprise Centres consistent with emerging identified demand.</p>													
<p>Policy ED5: Examine the possibility of introducing reduced development contribution levies and/or rates payable by businesses choosing to locate in Clar areas, subject to normal planning considerations and compliance with planning legislation and any permission granted.</p>													
<p>Policy ED6: Provide a flexible approach to start-up businesses and small-scale industrial/enterprise activities. Where a proposed development needs to locate near an existing natural resource, it will be necessary to demonstrate that it can be accommodated without damage to the visual,</p>													

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natural or heritage environment, or adverse impact on the character of the area.													
Policy ED7: Ensure that a high standard of design, layout and amenity is provided and maintained at locations developed for enterprise development.													
Policy ED8: In general, existing commercial or industrial activities in towns and villages will not be permitted to re-locate to unserved rural areas. However, certain resource industries and other industries more suitable to rural locations will be considered. These industries, along with their associated service industries should be considered in rural areas.													
Policy ED9: Where established, authorised rural based enterprises seek to expand beyond their existing capacity, they will be accommodated by the Local Authority. In principle, existing unauthorised rural enterprises which are in existence for in excess of 7 years prior to the adoption of the plan, and which seek to regularise their unauthorised status, will be considered, subject to the normal planning considerations.													
Policy ED10: Enterprises and businesses, which applicants seek to establish in rural areas will be considered on individual merit taking into account the dynamic and positive rural development policies of the EU and the Irish Government.													
Rural Enterprise Centres Objectives													
Objective ED1: Consider the preparation of Area Action Plan for Carrowbrowne.													
Retail Development Policies													
Policy ED11: Recognise the principles established in the Retail Planning, Guidelines for Planning Authorities, January 2005 as the primary basis for the control of future retail development.													
Policy ED12: The Planning Authority will prepare a Retail Strategy in conjunction with Galway City Council for adoption by both Authorities within the lifetime of this Plan.													
Policy ED13: The Planning Authority will have regard to and implement the recommendations of the Retail Planning Guidelines in the discharge of its Development Management Functions with regard to retail developments.													
Policy ED14: The Planning Authority will consider the possibility of a Regional Retail facility within the Galway Gateway Metropolitan area, subject to													

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the Retail Planning Guidelines and the locational requirements of such a facility, the transport assessment requirements and in accordance particularly with the provisions of Paragraph 26 of the Retail Planning Guidelines.													
Policy ED15: The Planning Authority recognises the inefficient use of land that many marts located in prime town centre locations represents. Existing marts and livestock co-ops that seek to re-locate to edge of town locations thus allowing for the expansion of the town centre/core area will be considered positively, subject to normal planning requirements and development control standards. Where such marts or co-ops seek to consolidate their activities at appropriate edge of town locations, this will be given positive consideration.													
Retail Development Objectives													
Objective ED2: Encourage and promote the development of appropriate types and patterns of retail development that support the vitality and viability of existing town centres and main streets.													
Objective ED3: Encourage and promote a high quality of retail development in accordance with the Development Management Standards set out in Section 11.4.													
Objective ED4: The Planning Authority will engage with Galway City Council to produce a new joint Retail Strategy for Galway City and County within 2 years of the coming into force of this Development Plan													
Objective ED5: The Planning Authority will prepare a policy document setting design standards for retail signage and fronts of retail/commercial developments.													
Extractive Development Policies													
Policy ED16: Facilitate the extraction of stone and mineral material from authorised sites having regard to its location in the landscape sensitivity rating.													
Policy ED17: Restrict development in the neighbourhood of existing extractive sites or sites which have obvious resource potential, and so avoid conflict in development activities.													
Policy ED18: Control all new operations and carefully evaluate all proposed developments to ensure that the visual or other environmental													

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impacts of such works will not materially injure the amenities of the area.													
Policy ED19: The Planning Authority shall be favourably disposed towards planning applications for the use of temporary borrow pits for aggregates or materials that are located adjacent to or adjoining major public roads or infrastructure projects serving the county where the need to haul along public roads is eliminated. All normal planning considerations shall apply													
Extractive Development Objectives													
Objective ED6: The Planning Authority shall have regard to the Quarries and Ancillary Facilities Guidelines published by the DoEHLG in 2004 and to DM Standard 36 of this Plan in the assessment of any applications for extractive developments.													
Objective ED7: Consider the preparation of an Extractive Industry Policy to provide greater clarity and guidance regarding extractive industry operations, planning application requirements and environmental and rehabilitation provisions.													
Tourism Policies													
Policy ED20: Positively support and promote sustainable Tourism Infrastructure development related to the enhancement of the County's tourism profile, with facilities such as those related to sailing, boating, angling, walking and pony trekking routes, pier or marina development, golf courses, adventure centres, theme parks, interpretative centres and Gaelic Games and other sporting facilities; and ensure that all such developments are built to a high environmental standard to protect the County's most significant tourism asset – its natural environment and landscape.													
Policy ED21: Some tourism related developments involve the interaction of a number of the above listed activities with accommodation facilities. As not all can be located on one site, facilitate such proposals where integration and linkage between tourism facilities is promoted.													
Policy ED22: Support the provision of tourism related developments that promote the redevelopment of existing derelict sites and contribute to the economic wellbeing of the community. However, such development, as with all tourism proposals must be capable of being													

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satisfactorily screened and assimilated into the landscape. It shall not be located in areas, or close to areas, where an unsatisfactory level of visually unsympathetic development has already taken place or has otherwise been permitted.													
Policy ED23: Key rural assets must be protected and the local potential of rural areas developed. This will be achieved through identifying, conserving and developing on a sustainable basis the various types and combinations of economic strengths of rural areas, with the support of appropriate levels of infrastructure provision. Their potential for economic activity, such as natural resource, local enterprise and tourism related development, and qualities that underpin such activity such as a clean and attractive environment will be central to this process.													
Policy ED24: Encourage tourism related developments inside existing settlements to preserve the open countryside free of inappropriate development. Tourism related developments outside settlement centres will be considered only where there is proven sustainable need. The need to locate in a particular area must be balanced against the environmental impact of the development and benefits to the local community. Alternative energy sources shall be developed and utilized where possible to service such development.													
Policy ED25: Assess existing tourism venues for the purpose of identifying any shortcomings that may exist and / or any over-provisions that may have been made.													
Policy ED26: Encourage eco-tourism projects or those tourism projects with a strong environmentally sustainable design and operational ethos.													
Policy ED27: Maintain and preserve the rural character, visual amenity and scenic views of the open countryside.													
Policy ED28: Protect and maintain water quality, both coastal and inland, in order to maintain and enhance the development of special interest tourism activities.													
Policy ED29: Facilitate the provision of tourism information centres and cultural venues at appropriate locations and in co-operation with Fáilte Ireland and other relevant tourism agencies.													

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Policy ED30: The clustering of appropriately scaled holiday home development will generally be limited to in or adjoining small towns and villages. The Council also recognises that certain other tourism infrastructure facilities listed in elsewhere in this section may be provided as stand alone developments and that ancillary facilities (e.g. club houses, hotel, residential accommodation/development) may be required to ensure long term viability. Where the provision of such facilities meet the other requirements of the County Development Plan as set out and the requirements of proper planning and sustainable development it is the policy of the Council to support the provision of same subject to the submission of the following: Comprehensive justification of need of the facility; Overall master plan of the facility; Documentary evidence of compliance with the other requirements of the development Plan here set out.													
Policy ED31: The Planning Authority shall have regard to the cumulative total of holiday homes contained within a Settlement Centre. Maintain this total at a level appropriate to the size and function of the Settlement Centre.													
Policy ED32: Support on-farm tourism accommodation and supplementary activities such as health farms, heritage and nature trails, pony trekking and boating.													
Policy ED33: Ensure that all built elements of agri-tourism are appropriately designed and satisfactorily assimilated into the landscape.													
Policy ED34: Give sympathetic consideration to the improvement of, and modest extension to, existing facilities.													
Policy ED35: Support the strategic recommendations of the "Water-based Tourism, A Strategic Vision for Galway" report.													
Policy ED36: Facilitate infrastructure for the leisure craft and marine tourist sector.													
Policy ED37: Facilitate the development of the an integrated tourism and recreational complex at Bearna Golf and Country Club, including the development of a hotel, leisure centre, conference centre, golf apartments, aparthotel and associated residential units.	✓	✓							✓	✓	✓		
Policy ED38: Facilitate the development of the													

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Gaeltacht area as a tourist destination in the context of cultural tourism and its importance to the local economy and facilitate the development of sustainable and green tourism which draws on the cultural, linguistic, archaeological, marine and ecological wealth of the islands while protecting the social, cultural and environmental sensitivity of these areas and the Council's commitment to the protection of the linguistic and cultural heritage of the County.													
Policy ED39: Facilitate the development of the sustainable, appropriately scaled integrated tourism and recreational facilities at locations where there is already authorised tourist and recreational infrastructure or facilities.													
Policy ED40: Facilitate the development of integrated tourism proposals at appropriate locations throughout the County inter alia, golfing and sporting complexes and including the development of associated accommodation and/or leisure facilities.													
Policy ED41: Encourage and facilitate the development of alternative, appropriately scaled rural tourism products, including agric-tourism projects in the rural areas of the county experiencing economic decline in the traditional agricultural sector having regard to proper planning and sustainable development.													
Policy ED42: Implement a strategy for the development of a sustainable tourism industry in consultation with Fáilte Ireland (West Region) and relevant tourism authorities which minimises adverse impacts on local communities, the built heritage, landscapes, habitats and species, while supporting social and economic prosperity.													
Policy ED43: Support a geographical spread and diversification of Tourism Product throughout the County through the provision of infrastructural development which complements the area's natural and built heritage. Ensure that the cultural and natural aspects of tourism, such as the ecclesiastical heritage of East Galway and the recognition of the Burren as a major tourist attraction for South Galway are developed and promoted in an appropriate fashion having regard to the County Settlement Strategy, proper planning and sustainable development.													
Policy ED44: Signage for tourism related products													

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shall be limited, innovative, sensitive, and of the highest quality. It shall be minimally intrusive in all areas. Alternative means of tourism information provision shall be provided where at all possible, whether of a directional or informational content. Establish a Signage Policy committee to design, and investigate funding opportunities for integrated welcome, directional and interpretative signage with a timeframe for implementation in the county, and guidance for the appearance and location of these. Opportunities to create additional themed trails with appropriate sign posting will be explored with a view to creating overlapping trails throughout the county – e.g. a folklore trail, music trail, maritime trail, wildlife trail, etc. all of which follow different but overlapping routes through the county. There is a need to ensure joined up thinking in this area and to firstly ensure that developments are in tune with visitor demand and requirements, and secondly to ensure cohesion and integration.													
Policy ED45: Facilitate the improvement and development of the National Programme of Way-Marked Ways including the Beara Breifne-Hymany Way, The Western Way, The Suck Valley Way and traditional walking ways in Ballinasloe to Clontuskert Abbey and Poolboy within the County. Continue to support the Architectural Walking and Ecclesiastical Driving Tours within Galway County.													
Lakes and Beaches Policies													
Policy ED46: Restrict development, which would significantly diminish the amenity, landscape value and/or economic value of lakes or beaches or any of their assets or amenities.													
Policy ED47: Any additional berth facilities required by angling clubs or commercial berthing facility providers on inland waterways, including Lough Corrib shall be encouraged to locate close to established facilities in order to avoid further erosion of the shoreline.													
Policy ED48: The Planning Authority shall be generally positively disposed towards the provision of additional berthing and ancillary facilities on Lough Derg, where they are being provided in association with an integrated, sustainable recreational or tourist facility and compatible with the provisions of the Department of Finance's		✓			✓	✓			✓	✓	✓	✓	✓

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proposed Tax Relief Scheme for the area.													
Policy ED49: Seek to identify new beaches and coastline which could be suitable for Blue Flag or Green Coast status.													
Policy ED50: It is the policy of the Council to work with the County Development Board, IDA, Enterprise Ireland, Udarás na Gaeltachta and other relevant agencies to promote industry and enterprise at appropriate locations in accordance with the County Spatial Strategy, Settlement Strategy and Local Area Plans for the County, and to support and facilitate the provision of the necessary infrastructure supports and linkages.													
Industry and Enterprise Objectives													
Objective ED8: Encourage and promote a high quality of industrial/enterprise development in accordance with the Development Management Standards set out in Section 11.4.													
Objective ED9: Encourage and promote industrial and enterprise development on the lands zoned for this purpose within the various Local Area Plans in the County, subject to an adequate consideration of the policies and objectives of these plans and the need to protect the vitality and amenities of the town or settlement.													
Objective ED10: Seek to ensure that sufficient serviced and suitably-located lands are identified and zoned for different types of industry and enterprise, in accordance with the hierarchical approach to location as set out in the Regional Planning Guidelines. As part of this objective, the Council will endeavour to ensure that an adequate level of start-up/incubation units is provided within industrial/enterprise parks.													

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Local Authority Housing Policies													
Policy HP1: Provide public sector housing in existing towns, villages and settlement centres and rural areas in accordance with substantiated eligible need and proper Planning and Sustainable Development.													
Policy HP2: Maintain land banks in towns and villages, which will be determined by the periodic assessment of housing needs.													
Policy HP3: Provide adequate accommodation facilities for travellers in accordance with the Traveller Accommodation Programme.													
Policy HP4: Ensure that appropriate units are developed in the housing market for the elderly, people with disabilities and other special needs households.													
Policy HP5: Incorporate the Housing Authority's Traveller Accommodation policy into the County Development Plan (Appendix 2).													
Policy HP6: To implement the provisions of the Derelict Sites Acts to prevent or remove injury to amenity arising from dereliction													
Local Authority Housing Objectives													

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policies and in the discharge of its Development Management functions.													
Policy HP14: Details of the "Design Guidelines for the Single Rural House" are set out in Appendix 5 and shall apply to all new developments													
<p>Policy HP15: While it is necessary to control inappropriate residential development in the countryside (the rural areas of County Galway outside the development boundaries of towns and villages), the Planning Authority will consider "one-off" development for those who are:</p> <ul style="list-style-type: none"> • functionally dependent on the land, or • who have an essential rural housing need, or • are involved in rural economic activities 													
<p>Policy HP16: In determining whether an application within the Galway Transportation and Planning Study (GTPS) area is intended to meet a genuine rural generated housing need, the provisions of the "Sustainable Rural Housing Guidelines for Planning Authorities" (Appendix 6) shall be considered.</p> <p>Any area designated as a CLAR Region 5 area within the GTPS area shall not be subject to the need to demonstrate compliance with policy HP14 unless that area coincides with Landscape designation 3, 4 or 5 as determined by the Landscape Sensitivity and Character Areas Map included in the Plan.</p> <p>The following factors will also be considered on the documentary evidence presented on a case by case basis.</p> <p>1. (a) Those applicants with links to the area through long standing existing close family ties seeking to develop their first home on existing family farm holdings.</p> <p>or</p> <p>1. (b) Those applicants who have no family lands but who wish to build their first home within the community in which they have long standing links and where they have spent a substantial, continuous part of their lives (i.e. have grown up in the area, schooled in the area and have existing close family connections in the area e.g. son or</p>													

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<p>family member shall be defined as the brother, sister, son, daughter, niece, nephew or grandchild of the person with such exceptional health circumstances.</p>															
<p>Policy HP17: In situations where an exception to the restriction on new rural dwellings has been made based on the circumstances outlined above, an enurement condition restricting the occupation of the house shall apply to all Grants of Planning Permission.</p>															
<p>Policy HP18: The weaker agricultural base and weak urban structure outside the GTPS area in other parts of the County have led to a population and economic decline. These areas are generally distant from major urban areas and the associated pressure for residential development. In general, any demand for permanent residential housing in these areas should be accommodated as it arises, subject to good practise in matters such as design, location and the protection of landscape and environmentally sensitive areas. Housing need and its associated enurement clause will not apply outside the GTPS. However, language enurement, restrictive road enurement and Classes 3, 4 and 5 landscape sensitivity enurement will apply as appropriate in this area.</p>															
<p>Policy HP19: Applicants, who require the demolition or replacement of an existing dwelling house shall be accommodated without the requirement to establish a Housing Need or proof of residence and will not be subject to an enurement clause. Where such existing dwellings are vacated they shall not be used for human habitation except to accommodate the bone fide housing need of a family member of the original owner who has been accommodated by the new permitted dwelling or for tourist or related economic activity.</p>															
<p>Policy HP20: Where restrictions based on housing need apply all new Grants of Planning permission for rural houses shall be subject to an enurement condition which shall apply for a period of 7 years, after the date that the house is first occupied by the person or persons to whom the enurement clause applies.</p>															
<p>Policy HP21: Within the commuter belt of Galway City (GTPS Area) in the interests of promoting more sustainable patterns of development and the</p>															

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use of infrastructure, urban generated residential development will be strictly controlled.																
Policy HP22: The Council, subject to compliance with other policies, objectives and development management standards of this plan, shall require applicants seeking to locate in Landscape Class 3, 4 and 5 to provide a substantiated housing need to reside in such areas and may require to provide a visual impact assessment of their development, particularly where the proposal is located in an area identified as "Focal Points/Views" in the Landscape Character Assessment of the County or in Class 5 areas.																
Policy HP23: <u>Bona fide</u> applicants who are not considered eligible under the preceding categories may be considered as qualifying to build a permanent home in the rural areas, which are not subject to strong urban influence, subject to being able to satisfy the planning authority of their commitment to operate a full-time business from their proposed home in a rural area, as part of their planning application, in order, for example, to discourage commuting to towns or cities. Applicants must be able to submit evidence that <ul style="list-style-type: none"> - their business will contribute to and enhance the rural community in which they seek to live and that they can satisfy the planning authority that the nature of their employment or business is compatible with those specified in the local needs criteria for rural areas i.e. that they are serving a predominantly local rural business need.																
Policy HP24: The planning Authority shall encourage the re-development of derelict/semi ruinous buildings for commercial, residential or economic purposes (including Tourism). The refurbishment of some derelict structures may not be possible due to conflict with building regulations. In such instances the Council will consider permitting development. It will be a requirement that the proposed development be designed to be externally similar to the original property using traditional materials. In practise the redevelopment of these buildings will be permitted where they; <ol style="list-style-type: none"> (1) Can be adequately serviced 																

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(2) Have their original external walls largely intact An enurement will not be imposed where the property is in the ownership of a local farm holder on their holding.													
Policy HP25: Building conversions in Gaeltacht areas will be considered for the purposes of advancing Gaeltacht Tourism and Gaeltacht Colleges provided they reach Environmental Protection Agency requirements for effluent.													
Policy HP26: Where an applicant possesses a house which was built pre-1963 or where planning was granted under different requirements, of site area of less than 0.5 acres they shall be facilitated in planning, for renovation or extension subject to standard Environmental Protection Agency and road requirements.													
Policy HP27: Lifetime enurement clauses will be considered to have expired after a period of seven years of full time occupancy by the applicant has elapsed. Actual removal of the enurement clause will have to be established by a Planning Application.													
Rural Housing Objectives													
Objective HP5: To prepare design guidance for the Settlement Centres that will provide a graphical representation of design styles and layouts appropriate to the rural area. This design guidance will be additional to the provisions of the Development Plan and pending its adoption will not preclude any development-taking place.													
Objective HP6: The Planning Authority will have regard to the Sustainable Residential Guidelines for Urban Areas and the Urban Design Manual issued by the DoEHLG in 2008 and the Galway Clustered Housing Guidelines in the assessment of any proposals for multiple unit housing developments in settlement centres and rural areas.													
Residential Development Policies													
Policy HP28: Support the consolidation and appropriate development of the urban areas, towns and villages of the County as attractive living environments with a range of services, facilities, amenities and employment opportunities appropriate to its size, role and potential.													
Policy HP29: Promote high standards of design													

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Sustainable Transport System Policies													
Policy RT1: Seek to promote the development of a sustainable transport system that provides a range of transport options for the County, including a safe road network, a range of bus services and rail services, adequate facilities for walking and cycling and opportunities for air and water-based travel. The Council will seek to ensure that improvements in transportation infrastructure and services support the strategic development and settlement strategy for the County and provide an appropriate level of accessibility to urban and rural facilities, services and opportunities. The Planning Authority shall have regard to any new guidance on the integration of roads planning, development planning and development management practices that may issue from the DOEHLG and/or Dept of Transport during the lifetime of this Plan.													
Strategic Economic Infrastructure Policies													
Policy RT2: Seek to protect and safeguard the significant investment made in strategic economic infrastructure, in particular the network of national roads, the existing rail line, the Western Rail													

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<p>Corridor and major water and wastewater projects, through the promotion of appropriate development and settlement patterns and the integration of land use and transportation activities.</p>															
<p>Policy RT3: As a general policy, the location of new means of access to the National Primary Road and National Secondary Road network, for residential, commercial, industrial or other development dependent on such means of access, shall not be permitted except in areas where a speed limit of 50-60 km/h applies, or in the case of infilling, in the existing built-up areas. The Planning Authority shall in the first instance, seek to channel traffic from new development onto existing local roads and in this way use established access points to gain entry onto national roads. The only exemptions to this general restriction that may be considered would be developments of national or regional strategic importance which by their nature are most appropriately located outside urban centres and where the developments proposed have specific locational requirements or are dependent on fixed physical characteristics. In this regard, Galway County Council shall engage with relevant stakeholders including the NRA, Dept of Environment, Heritage and Local Government and, if appropriate, neighbouring Local Authorities to develop a strategy to identify such strategic activities or strategic locations and a set of criteria which would guide development in such circumstances.</p> <p>Relevant considerations may include;</p> <ul style="list-style-type: none"> - Relevance and appropriateness of the proposed development in supporting the aims and objectives of the National Spatial Strategy and the Regional Planning Guidelines. - The nature of the proposed development and the volume of traffic to be generated by it - The implications for the safe and efficient operation of the national road as well as any proposed upgrades or routes for new roads - Implications for the traffic carrying capacity and service life of the road - Suitability of the location vis-à-vis other locations - Existing development in the area - The precedent that could be created for follow-on development of a similar nature and potential 															

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implications for national roads													
Policy RT4: In general, any proposed development that may contribute to the premature obsolescence or would serve to undermine the strategic transport function of national roads, including interchanges and which would be more appropriately served by the local or regional road network, will not be permitted.													
Roads and Transportation Policies													
<p>Policies RT5-25:Support the National Roads Authority programme of works for National Routes through out the county, including the completion of the M6/N6, the M18/N18 and M17 and other planned new routes over the lifetime of the Plan</p> <p>Support the provision of the R336 along a new alignment between Galway and Scriob, via Ros a Mhil.</p> <p>Facilitate the safe and efficient movement of people and goods in the interests of the economy. Seek to preserve the visual amenity and rural character of the roadside environment where possible.</p> <p>Endeavour to ensure all footpaths, public roads and crossing points are designed and provided so that they are available to all users, including those with reduced visibility or mobility.</p> <p>Encourage a better environment for pedestrians and cyclists in towns and villages and ensure that new developments comply with the provisions of the Disability Acts.</p> <p>Facilitate the up-grading of air transportation services, including the air services between the mainland and the islands.</p> <p>Provide a safe road system throughout the County through Road Safety Schemes, which will include the continuation of the Low Cost Safety Measure Programme, Signage and Delineation, Traffic Calming, Safety Features in the vicinity of schools.</p> <p>Require all new proposed developments of a commercial or industrial nature or residential developments of 4 or more units to provide Safety Audits and, where necessary, traffic impact assessments, as part of their Planning application documentation.</p> <p>Provide adequate access for people with disabilities such as through the provision of parking facilities, and disability access facilities, which are incorporated into existing/new</p>													

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<p>development. Ensure, where possible, that adequate off-street parking and loading/unloading facilities are provided as part of each development, to ensure that parked vehicles do not cause a traffic hazard, obstruct vehicle or pedestrian movement or create a negative visual impact. Where this cannot be provided on site consideration may be given to the payment of a levy to the county council for such a provision off-site. Provide/improve parking facilities in towns and villages as development and traffic demand. Ensure that annual co-ordination between public utility providers and the Roads Authority takes place in relation to work programmes to avoid duplication of excavations and unnecessary nuisance and obstruction of road users and pedestrians. The Planning authority shall comply with the requirements of the EU Transportation Noise Directive 2002/49/EC and the proposed Galway County Council Transportation Noise Plan in the exercise of its Development Management Functions and in the planning and development of its own projects. It shall be the policy of the planning authority to protect the strategic role of the national roads through the county, including the route corridors of planned national roads, and particularly the motorway network to ensure that they continue to function as conduits of traffic in a safe and efficient manner. There shall be a general presumption against direct access to national routes from new housing developments in compliance with the Sustainable Rural Housing Guidelines and against inappropriate retail development adjacent to existing/planned national routes and interchanges as set out in the DOEHLG Retail Planning Guidelines. . In exceptional circumstances, direct access may be considered, in consultation with the NRA on a case by case basis, onto national routes (non-motorways) to accommodate strategic infrastructure or regional significant development. National roads and strategic regional roads shall be protected from inappropriate development to ensure that they are not overloaded with local traffic more appropriately served by the local road</p>													
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<p>network. The planning authority shall have regard to any future statutory guidance that may issue from the DoEHLG, Department of Transport and the National Roads Authority on road planning, development planning and development management processes. Special attention shall be given to any development that will attract many trips and the guidance provided in the Retail Guidelines for the location of such developments within established towns and district centres shall apply. In general, any proposed development that may contribute to the premature obsolescence or would serve to undermine the strategic transport function of national roads, including interchanges and which would be more appropriately served by the local or regional road network, will not be permitted. The local authority recognises the importance of protecting lands which will be needed for the construction of national routes from development is needed. Proposed development in areas identified as study corridors for the route selection of national primary routes generally will not be permitted until such time as a particular route had been identified and approved. Reserve lands to provide for the option of "free flow" interchanges at 1) Glenascaul at the M6/N18 junction, 2) Parkmore at the GCOB/N17 overbridge, 3) Ballindooley at the GCOB/N84 junction and 4) Killeen at the GCOB/N59 junction.</p>													
<p>Roads and Transportation Objectives</p>													
<p>Objectives RT1-RT38 Secure the timely completion of the N6 / M6 Galway to Athlone scheme. This includes the construction of the dual carriageway/motorway for the Galway City Outer Bypass along a new alignment, the construction of dual carriageway/motorways under the Galway to Ballinasloe scheme with a new single carriageway link to the Loughrea By pass and the Ballinasloe to Athlone scheme. Secure the timely completion of the N18 / M18 as part of the Atlantic Corridor. This involves the construction of a dual carriageway / motorway under the Oranmore to Gort scheme along a new alignment and the construction of a dual</p>	✓	✓	✓	✓			✓	✓	✓	✓		✓	

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<p>carriageway / motorway under the Gort to Crusheen Co. Clare scheme along a new alignment.</p> <p>Facilitate the development of the N17/M17 Scheme from Galway to Claremorris.</p> <p>Facilitate the development of a new strategic route along the Cois Fharráige corridor from Galway to Scriob via Ros an Mhíl.</p> <p>Secure the timely completion of the Tuam bypass.</p> <p>Retain the existing National Routes N6, N18 and N17 as Class II Controlled roads upon commissioning and opening of the new National Routes through the county.</p> <p>Retain the National Secondary status of the N63 National Secondary Route.</p> <p>Secure the timely completion of inner relief roads for the towns of Tuam, Loughrea, Gort, Athenry, Bearna, Baile an Chláir, Clarinbridge, Craughwell, Headford, Maigh Cuilinn, An Spideal Portumna, and Oughterard all subject to funding. Design and construct new Oughterard and Kinvara inner relief roads.</p> <p>Construct the new Station Road link road in Athenry.</p> <p>Improve the Regional Routes R355 and R358 and include these routes as Class II controlled roads in recognition of their function as strategic links between the peripheral areas of the county and the new National Route Network.</p> <p>Continue with the strengthening and improvements of the Local Road network and to improve strategic sections on those roads servicing aquaculture/forestry/agriculture/ industry and tourism. Provide additional maintenance as necessary to those local roads that are under pressure due to high traffic volumes.</p> <p>Continue with the strengthening and improvements of the Regional Road network.</p> <p>Develop strategic service and link roads within towns and village areas to open up lands within settlements and reduce the pressure for ribbon development.</p> <p>Continue to develop and implement Parking Byelaws for the County.</p> <p>Provide car parks for the control of on street and off-street car parking, adequate to meet short-term shopping and business requirements and for the needs of local residents.</p>																
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<p>Carry out Traffic Management Plans in Ballinasloe, Craughwell, Headford, Portumna, Kinvara, Gort, Athenry & Bearna. Review existing Plans every 5 years prior to review of Local Area Plan.</p> <p>Construct a Bypass at Baile Chláir on the existing N17.</p> <p>Continue with the strengthening and improvements of the N59, N63, N65, N66, N67, N83, and N84.</p> <p>Construct an N59 bypass for Maigh Cuillinn as well as the Inner Relief Road.</p> <p>Evaluate controlled pelican pedestrian facilities and traffic lights to ensure that an audible signal is installed to assist the visually impaired in crossing the street.</p> <p>Provide designated car parking spaces for the disabled driver in all public car parks in every town as well as at specific priority locations on street.</p> <p>Improve bridges, culverts and all roadside drainage as necessary in accordance with best engineering practices and having regard to the protected status, if applicable of any such structures that may be include in the Record of Protected Structures.</p> <p>Investigate the potential for the development of integrated transportation hubs at Tuam and at Garraun to maximise the strategic integration of transport and rational landuses.</p> <p>The local authority recognises the importance of protecting lands which will be needed for the construction of national routes from development is needed. Proposed development in areas identified as study corridors for the route selection of national primary routes generally will not be permitted until such time as a particular route had been identified and approved.</p> <p>Require all new proposed commercial, industrial and retail developments and all significant proposed residential developments, or where significant changes are proposed to existing commercial, industrial or retail developments, to submit Road Safety Audits and Traffic Impact Assessments as part of their planning application documentation. For large scale developments, a Transport Assessment will also be required. These assessments shall comply with the requirements as set out under DM Standard 22.</p> <p>Develop a pilot scheme to improve the N59 from</p>															
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<p>Galway to the Mayo Boundary via Leenane and the N67 from Ballinderreen to the Clare Boundary. To complete the Oranhill link roads and Bealnabradan roundabout. Facilitate the NRA, OPW & Shannon Navigation to improve the N65 Shannon River crossing in Portumna. Reserve the lands required for improvements on the Tubber Road in Gort and a link between a possible future Tubber Road M18 Interchange and the N18 south of Gort. Provide a pedestrian gateway overbridge on the N6 at Carrowmoneash to link Oranmore Town to the Industrial area on the N18. To facilitate a link road from the proposed N18 Deerpark roundabout to Garraun with extensions to the Airport and Ardaun. To complete the N6 Loughrea Bypass to the N66. To complete the N6 Aughrim-Cappataggle Realignment. To complete the N17 Castletown Realignment. To ensure that the Ballyglunin Railway Overbridge on the N63 is raised with associated road realignment to ensure adequacy of access to the M17 Interchange at Annagh Hill. All new proposed developments within 300 metres of roadways with traffic volumes greater than 8220 AADT, major railways which have more than 60 000 train passages per year and major airports shall include a noise assessment and mitigation measures, if necessary with the planning application documentation."</p>																
<p>Public Transport Policies</p>																
<p>Policy RT26: Seek to extend the public transportation options available to the travelling public throughout the county through the pursuit of a variety of options, including new Quality Bus corridors, commuter rail, and appropriately located park and ride facilities. Consideration should also be given, where appropriate, to the creation of additional lanes or alteration to existing lanes for Quality Bus Corridors on the N6, N17, N59, N84 and the Galway City Outer By-Pass and linkage to the Western Rail Corridor.</p>																
<p>Policy RT27: Promote and encourage appropriate development patterns and densities that will support the provision and improvement of public transport services. In this regard, it is the policy</p>																

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of the Council to promote development on serviced land in towns and villages, particularly those located along public transport corridors, in accordance with the Sustainable Residential Development in Urban Areas Guidelines, having regard to existing settlement patterns and form, adequacy of existing/planned facilities and services to facilitate the development of viable and effective public transport networks.														
Policy RT28: Encourage the high quality design and layout of residential development that reduces reliance on the motor car, supports movement by pedestrians and cyclists, provides adequate and convenient access to public transport and connects well with the wider locality.														
Policy RT29: The planning authority and roads authority will seek to consult with and co-ordinate with the City Council with regard to traffic management into, out of and circulating within the metropolitan Gateway area, particularly with regard to the provision of bus priority lanes and park and ride facilities at strategic, suitable locations.														
Policy RT30: To consider the development of a strategy for the provision of Park & Ride sites at appropriate locations on the major approaches to Galway City area in consultation and cooperation with Galway City Council and the relevant statutory and other relevant stakeholders, including the National Roads Authority.														
Public Transport Objectives														
Objective RT39: Support the Rural Transport Initiative and seek to have it extended through the county during the lifetime of the plan.														
Objective RT40: Support the proposals for the laying of dual track between Galway and Athenry and the development of new commuter stations along the new Western Rail Corridor as appropriate.	✓	✓	✓	✓				✓	✓	✓	✓			✓
Objective RT41: Reduce the congestion on public roads caused by the existing commuting movements to and from the City, by consolidating existing towns and villages and thus facilitating a more rational and better quality public transport system.														
Objective RT42: Investigate suitable locations for new park and ride facilities at the "gateways" to														

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Galway City.													
Objective RT43: Facilitate the development of appropriate settlement patterns and densities that support the existing and proposed rail corridors, including intensification of development around rail stations where appropriate in accordance with the DoEHLG Sustainable Residential Guidelines for Urban Areas, subject to the necessary services and facilities being provided and potential impacts fully assessed.													
Objective RT44: Promote the development of safe and convenient pedestrian and cycling facilities in towns and villages to minimise the dependence on private motor vehicles and to encourage an active and healthy lifestyle.													
Objective RT45: The Planning Authority will support the provision of new bus shelters at appropriate locations in settlement centres and at key rural locations to facilitate and complement the rural transport initiative and other such initiatives and programmes in conjunction with service providers.													
Objective RT46: To facilitate the dualing of the N17 from Parkmore junction to the City Boundary to provide interchanges and appropriate junctions and QualityBus Corridor.													
Objective RT47: To provide a Parkway Railway Station in Garraun in consultation with Iarnrod Eireann.													
Objective RT48: To work towards the provision of a coastal walkway/cycleway from Bearnna to Oranmore in conjunction with Galway City Council.													
Objective RT49: The Council will investigate the potential for development of integrated transportation hubs at Tuam, Garraun and Athenry to maximize the strategic integration of transport and rational land uses. Support the development of an Integrated Public Transport Facility in the Tuam Hub Town.	✓	✓	✓					✓	✓	✓	✓	✓	✓
Air Transport Policies													
Policy RT31: The Local Authority will support the expansion of Galway Regional Airport and associated facilities and ancillary and complementary activities, subject to normal planning requirements. The Planning Authority, together with Galway City Council shall consider the preparation and implementation of Public	✓	✓	✓					✓	✓	✓	✓	✓	✓

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Safety Zones in the vicinity of the Galway Regional Airport in the event of same being recommended by the Department of Transport and/or the Department of Environment, Heritage and Local Government.													
Policy RT32: The Local Authority will have regard to the recommendations of the Irish Aviation Authority and will control inappropriate development in the vicinity of the Airport which may have technical or other implications for safety or the normal operation of the airport.													
Galway Ports and Harbours Policies													
Policy RT33: The Council will support the expansion of Galway Sea Port and Ros a Mhil and potential benefits that can be delivered to the County through the development of rail distribution facilities at appropriate locations in the County.	✓	✓					✓	✓	✓	✓	✓	✓	✓

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Water Supply Policies													
Policy IS1: Pursue the augmentation of the Tuam Regional Water Supply Scheme and extend the public water supply network served by this scheme.													
Policy IS2: Consider additional abstraction from the Lough Corrib to service an extended water supply network.		✓	✓		✓						✓		✓
Policy IS3: Adopt the provisions of the strategic rural water plan and Implement Stage 2 of the Rural Water Strategic Plan.		✓	✓		✓						✓		✓
Policy IS4: Provide and maintain quality water and wastewater services necessary for environmental purposes, and for economic, regional and rural development purposes.													
Policy IS5: Ensure that the provision of water and sewerage facilities is undertaken in accordance with EU policies and directives and national legislation.													
Policy IS6: Work to eliminate existing deficiencies in water supply and drainage facilities.													
Policy IS7: Use a mixture of public and private partnerships together with funding under the													

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Serviced Land Initiative to deliver the necessary services.														
Policy IS8: Identify, prioritise and progress the implementation of the water investment programme.														
Policy IS9: Develop and augment the supply of water through the Regional Water Supply networks including the interlinking of networks to ensure continuity and security of supply throughout the expanded network.														
Policy IS10: Ensure that the water provided through the Galway Regional Water Supply Scheme meets EU Drinking Water standards.														
Policy IS11: Introduce new Licensing requirements for Group Water Schemes in accordance with the timeframes set out in the Water Services Act 2007.														
Policy IS12: Plan to provide services in unserved towns and villages, particularly those targeted for strategic expansion in the County Galway settlement strategy.														
Policy IS13: To promote an ecosystem approach to water and wastewater management through the integrated management of land, water and living resources, a water safety plan approach for the protection of drinking water supplies in County Galway and consideration for hydrological and natural processes, where appropriate.														
Policy IS14: The local authority shall seek to establish 'source management and protection zones' around drinking water supply (ground and surface) sources and develop appropriate management and maintenance for same.														
Water Supply Objectives														
Objective IS1: Implement Water Conservation measures in the County and seek to prepare a Water Conservation Strategy for County Galway.														
Waterwater Treatment Policies														
Policy IS15: Development under the Plan shall be preceded by sufficient capacity in the public waste water treatment plants and appropriate extensions in the existing public waste water treatment catchments.														
Policy IS16: Galway County Council shall implement the relevant recommendations set out in Urban Waste Water Discharges in Ireland for Population Equivalents Greater than 500 Persons – A Report for the Years 2004 and 2005 Office of														

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both the EPA's National Hazardous Waste Management Plan and the Connaught Waste Management plan.													
Objective IS17: Support and encourage the private sector in the provision of appropriately sited and designed facilities for end of life car recycling facilities to comply with the European Parliament and Council Directive 2000/53/EC, within each electoral division.													
Information and Communication Technology Policies													
Policy IS24: Facilitate the delivery of a high capacity ICT infrastructure and broadband network and digital broadcasting throughout the County.													
Policy IS25: Support the Department of the Environment and Local Government publication "Telecommunications Antennae and support structures – Guidelines for Planning Authorities".													
Policy IS26: Avoid the location of further masts in the highly scenic areas of the County or within significant views of national monuments or listed buildings.													
Policy IS27: Discourage the location of masts close to schools and residential areas.													
Policy IS28: Assist the County Broadband Forum in the roll-out of information and communication technologies though out the county.													
Policy IS29: It shall be the policy of Galway County Council to promote the co-location of telecommunications masts and facilities where practicable and technically feasible. It shall be the responsibility of the developer of such facilities to demonstrate to the satisfaction of the Planning Authority why co-location is not possible.													
Policy IS30: Galway County Council shall strive to provide high quality Information and communications systems to all the Area Offices throughout the county.													
Policy IS31: Galway County Council shall discourage the development of individual telecommunications support structures and antennae for private use.													
Energy Policies													
Policy IS32: Support the infrastructural renewal and development of electricity networks in the County, including the overhead infrastructure required to provide the networks.													

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Policy IS33: Facilitate the strategic goal of effective balanced regional development through the implementation of policies that will deliver a reliable and effective electricity network for the West Region including County Galway.													
Policy IS34: Support the infrastructure development of energy networks in the County so as to provide for the energy needs of the Community while avoiding environmental damage and the location of other developments along strategic routes.													
Policy IS35: Promote more sustainable development through energy end use efficiency, increasing the use of renewable energy, and improved energy performance of all new building developments throughout the County. Galway County Council shall investigate the potential of LED and Solar technology as a more cost effective and energy efficient alternative to traditional public lighting.													
Policy IS36: Facilitate the continual development of renewable energy sources having regard to residential amenities and landscape sensitivities.													
Policy IS37: Facilitate the development of alternative energy sources where such proposals are consistent with landscape preservation, the protection of natural habitats, and comply with County Development Plan policy and the principles of proper planning and sustainable development.													
Policy IS38: Facilitate the extension of a natural gas distribution network to serve both the County and the Western Region.	✓	✓					✓		✓		✓	✓	✓
Policy IS39: Support the National Climate Change Strategy by facilitating measures to reduce emissions of greenhouse gases over the committed timeframe 2007-2012.													
Policy IS40: Promote the implementation of the Government's White Paper Document "Delivering a Sustainable Energy Future for Ireland, Energy Policy Framework 2007-2012."													
Policy IS41: Encourage planning applications for developments which maximize energy efficiency through their location, layout or design or which make appropriate use of energy conservation techniques, provided the development would not have a detrimental impact on the amenities of occupiers of nearby properties, or the amenities of													

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the area.													
Policy IS42: Require a performance based Building Energy Rating (BER) target for all new building developments greater than 10 dwellings or greater than 1,000m ² floor area for non residential and mixed developments.													
Policy IS43: Ensure that new developments consider the implications of climatic and sea level changes for natural systems, human settlements and infrastructural elements.													
Energy Objectives													
Objective IS18: Facilitate wind farm developments in suitable locations, having regard to any designations of areas of the county for this purpose, government guidelines and the need to protect, inter alia, designated heritage sites, designated sensitive rural landscapes, visually vulnerable areas, scenic routes and scenic views. The Planning Authority will have regard to DoEHLG Guidelines for Planning Authorities on Wind Energy Development, 2006 in the assessment of any proposals for wind energy production.													
Objective IS19: Undertake a review of the areas of Wind Farm potential in the County, having regard to the designation of lands as Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas or as habitats capable of supporting Annex I species.													
Objective IS20: Encourage and actively promote innovative housing design and layout solutions that address concerns of environmental sustainability with regard to matters such as energy efficiency and use of materials.													
Objective IS21: Actively encourage the integration of micro renewable energy sources into the design and construction of single and multiple housing development throughout the County.													
Objective IS22: The Planning Authority will have regard to the DoEHLG Guidelines on Sustainable Residential Development in Urban Areas, 2008 in the assessment of any proposals for residential development, including inter alia those in respect of energy efficiency, passive solar design and renewable energy sources.													
Objective IS23: Give favourable consideration to small scale commercial renewable energy schemes, such as wind, hydro and biomass, of less													

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<p>than 5MW where grid connection is possible without large scale infrastructural investment in line with national guidelines for sustainable development.</p>															
<p>Objective IS24: The Planning Authority shall seek to reserve a strategic corridor free from conflicting or inappropriate development as shown on Map IS2 for the purposes of providing necessary overhead electrical supply and distribution infrastructure between Galway and Screeb and other strategic infrastructure elements of the Grid Development Strategy.</p>															

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Preserving and Promoting the Gaeltacht in the Planning Process Policies													
Policy CS1: The Council is committed to the provisions, policies and objectives as set out in the Gaeltacht Local Area Plan 2008 and to the full implementation of the measures contained therein to protect and encourage the social, cultural and linguistic heritage of the Gaeltacht whilst seeking to realise the economic and development potential of the Gaeltacht in a balanced and sustainable manner over the lifetime of the Plan.													
Economic Development in the Gaeltacht Policies													
Policy CS2: Galway County Council is committed to working closely with all the statutory development agencies, especially Údarás na Gaeltachta, to achieve sustainable development in the Galway Gaeltacht while protecting and promoting the Irish language as the first community language of the area.													
Language Impact Statement Policies													
Policy CS3: The Council accepts that the language is an asset in the Gaeltacht and in order to support													

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the language, the Council shall endeavour to provide services through Irish. The Council shall ensure that Irish is the language medium of the Carraroe office.													
Policy CS4: Implement the landuse zoning objectives of the Local Area Plan for Gaeltacht na Gaillimhe.													
Policy CS5: Recognise the economic, social and cultural importance of Irish in the Gaeltacht and throughout the county.													
Policy CS6: Put in place an effective system through which the various aspects of the Gaeltacht ethos can be assessed and protected as part of the planning process.													
Policy CS7: Ensure that all contractors employed by Galway County Council in the Gaeltacht will have regard to the culture in which they work.													
Community Services Policies													
Policy CS8: Support the County Development Board in its key objectives of strengthening the Community and Voluntary sector throughout the County and developing a long-term strategy of social investment at Community level.													
Policy CS9: Continue the Planning Authority's programme of infrastructure improvements in line with available funding.													
Policy CS10: Promote the improvement of health services throughout the County and in particular pursue the establishment of comprehensive hospital and healthcare facilities and the location of an ambulance base in Tuam Hub Town. In this regard, the Council shall work closely with the Health Service Executive to identify locations where primary healthcare facilities should and can be provided.													
Policy CS11: The Planning Authority shall work closely with the Department of Education and the Office of Public Works to identify and protect suitable site for new educational facilities Promote the provision of day care and childcare facilities by both the public and private sectors in settlements and communities throughout the county.													
Policy CS12: Promote the provision of out-reach third level education opportunities.													
Policy CS13: To continue to promote the use of the library service and further develop each library as a community gathering place.													

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<p>Policy CS14: To advance the projects identified in the Library Development Programme during the lifetime of the Plan.</p>													
<p>Policy CS15: To recognise the community and cultural needs of new communities in the county and facilitate the development of diverse cultural, religious and social facilities in our towns and villages.</p>													
<p>Policy CS16: Favourable consideration should be given to projects throughout the county and particularly on the county's offshore islands that integrate services for elderly and children. Capital funding should be provided, where available, for the development of high quality, multi-purpose centres which support a range of services, including childcare services. To promote, within the framework of diversification, where vital services presently exist or will be installed, the further development of community services under the particular headings of health and medical care. To promote the continued improvement and expansion of health and medical care facilities within the county in a planned and co-ordinated way, by accommodating projects that assist in providing such medical care facilities, together with their necessary support services and developments, as well as their infrastructural requirements.</p>													
<p>Policy CS17: The planning authority will seek the provision of crèche facilities in mixed use/residential developments in accordance with the ministerial guidelines for Planning Authorities on Childcare Facilities published in 2001". The Planning Authority shall encourage the development of a broad range of childcare facilities, i.e. part-time, full daycare, after-school care, etc., including those based in residential areas, in employment areas and in areas close to where users of such facilities live. In general, childcare facilities outside of established settlements shall only be permitted adjacent to or in close proximity to existing educational or social facilities (national schools, rural shops/post offices, etc).</p>													
<p>Policy CS18: Site reservations for primary and post primary schools shall be implemented in consultation and in accordance with the Department of Education and Science guidelines</p>													

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Policy CS24: Co-operate with all agencies in promoting and developing the recreational potential of the county and carry out appropriate development as and when resources permit.													
Policy CS25: Protect the amenity of scenic and environmentally sensitive areas and promote the knowledge and appreciation of the natural amenities of the County.													
Policy CS26: Prohibit the intrusion of development along public walking routes and public rights of way, particularly those in scenic areas, the sea coast and along inland waterways													
Policy CS27: Loss of existing recreational space or facilities will be resisted.													
Policy CS28: The Council will seek to protect the alignment of the Clifden Railway Line as a cycle and walk way.													
Policy CS29: Support cycling and walking groups and local community groups in promoting their disciplines and developing routes throughout the county, including the islands.													
Policy CS30: Support and help promote national programmes to develop walking and cycle routes including the Irish Trails Strategy and the Cycle Strategy for the Western Region.													
Recreation and Amenity Objectives													
Objective CS1: A systematic survey of the various settlements will be carried out to determine local aspirations and assess their viability.													
Objective CS2: Enhance the provision of swimming facilities throughout the county and ensure the quality of bathing water.													
Objective CS3: To provide an increased number of recreation outlets, including public parks, play areas and walkways.													
Objective CS4: To develop and implement a recreation and play policy for the County within the lifetime of the Plan based on the recommendations of the Recreational Needs Study been undertaken by Galway County Council. The policy will have regard to the needs and aspirations of local communities, the potential for mutual benefits between the County and City areas and the Galway City Recreation and Amenity Needs Study 2008.													
Objective CS5: Develop sport, recreation and amenity facilities in appropriate locations													

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inclusion and universal access to ensure that all individuals have access to goods and services and to assist them to participate in and contribute to social and cultural life.													
Social Inclusion and Universal Access Objectives													
Objective CS14: Support the implementation of the requirements and provisions of the Disability Act 2005 and the Council's <i>Disability Action Plan 2007-2015</i> .													
Objective CS15: Support the implementation of the provisions of the County Galway Local Authorities Social Inclusion Strategy 2006-2009 and any subsequent strategy prepared adopted during the lifetime of the Plan.													
Objective CS16: Consideration should be given to the needs of disabled people in the location, layout and design of housing developments, communal facilities, public spaces and transport services.													

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Heritage Policies													
Policy HL1: Conserve, protect and enhance the special character of the County as defined by its natural heritage and biodiversity, its built environment, landscape and cultural, social and sporting heritage.													
Policy HL2: Ensure that heritage protection is an integral part of coherent policies of economic and social development and of urban and rural planning.													
Policy HL3: Take cognisance, in assessing planning applications and preparing development plans, of the policies and data collected in the "Galway County Heritage Plan 2004-2008" and the Draft 'Galway County Heritage Plan 2009 – 2015' when adopted, and to the 'Galway County Biodiversity Action Plan'.													
Policy HL4: The plan shall support achieving the objectives and actions contained in the County Galway Draft Biodiversity Action Plan 2008 - 2013 (Galway County Council, 2008).													
Policy HL5: Protect and enhance the built, natural and cultural heritage of the islands.													

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regard to the architectural context of the building.													
Objective HL9: Proposals for intervention in relation to protected structures or proposed protected structures shall have regard to the Council's <i>Architectural Survey and Assessment Best Practice Guide</i> and the DoEHLG's <i>Architectural Heritage Protection Guidelines for Planning Authorities 2004</i> and any subsequent Guidelines, Acts, Directives or Policies which may be issued during the lifetime of this Plan.													
Objective HL10: Carry out an audit and assessment of condition of all Protected Structures in the ownership of the Council and devise a management/maintenance plan for these structures.													
Objective HL11: Carry out periodic reviews of the Record of Protected Structures.													
Architectural Conservation Areas Policies													
Policy HL18: Protect Architectural Conservation Areas as important elements of the architectural heritage of the County and ensure that new developments or works respect the external character, form, materials and setting of the ACA.													
Policy HL19: Establish where it is considered appropriate, Areas of Special Planning Control if it is considered that all or part of an Architectural Conservation Area is of special importance to, or as respects, the civic life or the architectural, historical, cultural or social character of a town or village in which it is situated.													
Architectural Conservation Areas Objectives													
Objective HL12: Investigate and, where deemed appropriate, designate historic demesnes in both urban and rural settings throughout the County as Architectural Conservation Areas.													
Objective HL13: Prepare a survey, character appraisal and set of policies and objectives for each ACA as part of the Local Area Plan process where applicable or through the provisions of the County Development Plan.													
Objective HL14: Prohibit the demolition of a Protected Structure, or a structure that contributes positively to the character of an ACA, except in very exceptional circumstances. Where demolition is granted within an ACA, an assessment of the impact of the replacement building on the character of the ACA will be required.													

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planning authority to seek to conserve the integrity of existing archaeological monuments and their settings.													
Objective HL21: It shall be an objective of the planning authority to seek to ensure that development in the vicinity of a site of archaeological interest shall not be detrimental to the character of the archaeological site or its setting by reason of its location, scale, bulk or detailing.													
Designated Sites, Habitats and Species Policies													
Policy HL31: It is the policy of the Council to implement Article 6(3) of the EU Habitats Directive, and to subject any plan (including County Development Plan, Local Area Plans) or project likely to impact Natura 2000 or European Sites (SACs, SPAs), whether directly (in situ), indirectly (ex-situ) or in combination with other plans or projects, to an Appropriate Assessment in order to inform decision making. A plan or project may only be authorised after the competent authority has made certain, based on scientific knowledge, that it will not adversely affect the integrity of the site; in the case of derogations, authorisation must be pursued under Article 6(4). Refer to Section 9.3 Mitigation Measures of the Environmental Report of the SEA and DM Standard 38													
Policy HL32: It shall be the policy of Galway County Council to ensure that development in Galway and the provision of services take into account the relevant Management Plans (if any) for SACs and SPAs in the county.													
Policy HL33: Have regard to any impacts developments may have on or near existing and proposed, Natural Heritage Areas, Special Protection Areas and Special Areas of Conservation, Nature Reserves, Ramsar Sites, Wildfowl Sanctuaries, Conamara National Park and any other designated sites including any future designations													
Policy HL34: Consult the Department of the Environment, Heritage and Local Government in relation to proposed developments adjoining designated conservation sites.													
Policy HL35: Protect and conserve habitats and Species-designated under the Habitats Directive,													

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Policy HL70: It is the policy of the Council to require all significant developments proposed in the settlements identified in the County Settlement Strategy to incorporate SuDS as part of the development proposals where appropriate.													
Flood Risk Management and Assessment Objectives													
Objective HL38: Carry out Flood Risk Management in accordance with The Planning System and Flood Risk Management Draft Guidelines 2008 and with the approach as adopted by the OPW where there is potential risk of flooding within the County.													
Objective HL39: Adopt appropriate zoning of lands and restriction of use in areas liable to flooding to avoid increased risk of flooding of the lands either within or adjoining the zoned areas.													
Objective HL40: The Council shall implement the provisions of The Planning System and Flood Risk Management Draft Guidelines 2008 in the carrying out of their development management functions. The avoidance of development in areas where flood risk has been identified shall be the primary response of the Planning Authority. Development proposals which include proposals for mitigation and management of flood risk will only be considered where avoidance is not possible and where development can be clearly justified with the Guidelines Justification Test".													
Objective HL41: Seek to carry out Flood Risk Assessments in a timely fashion within the lifetime of this County Development Plan, subject to the availability of information from the OPW on flood risk areas in the county.													
Objective HL42: Incorporate the recommendations and measures in the Western River Basin Management Plan and Shannon International River Basin Management Plan once adopted into the Development Plan, as necessary and appropriate. In the interim, seek to ensure that all developments and activities that flow from the Development Plan contribute to the requirement under the EU Water Framework Directive to bring water up to a good standard by 2015 and are guided, where appropriate, by the information and guidance contained in the Draft Western River Basin Management Plan and Draft Shannon International River Basin Management Plan.													
Natural Water Systems Policies													

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prospect and the amenities of places and features of natural beauty or interest. This shall be balanced against the need to develop key strategic infrastructure to meet the strategic aims of the Plan.													
Policy HL96: Preserve the status of traditionally open/unfenced landscape. The merits of each case will be considered in light of landscape Sensitivity Ratings and views of amenity importance.													
Policy HL97: The Planning Authority shall prepare a detailed scheme of listed views for protection in addition to the views and prospects included in Map HL2 within 2 years of adoption of the Plan.													
Policy HL98: Review the views and prospects set out on Map HL2 to provide greater clarity and guidance with respect to important views and prospects to be retained.													
Landscape Conservation and Management Objectives													
Objective HL44: The Planning Authority shall have regard to the Landscape Sensitivity Classification of sites in the consideration of any development proposals and, where necessary, require a Landscape/Visual Impact Assessment to accompany such proposals.													
Objective HL45: Development that would have a detrimental effect on listed views and prospects will generally not be permitted.													

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Agriculture Policies													
Policy AM1: Provide for farm enterprises such as processing, co-ops farm supply stores and agri-business in accordance with the development control policies of the Plan.													
Policy AM2: Facilitate the sustainable development of the countryside. The Council recognises the fact that the most effective means of ensuring the protection of the rural landscape is to encourage the continued use of agricultural farm holdings. However, the Council acknowledges that the diversification of uses on rural landholdings may be necessary in order to ensure the continued viability of agricultural ways of life and that cross subsidisation between uses and activities may be necessary in order to make rural farm holdings viable													
Policy AM3: Provide infrastructural services to facilitate the production and sale of organic and speciality foods to meet the increase in demand for such products.													
Policy AM4: Facilitate agricultural development whilst ensuring that development does not have a													

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negative impact on the scenic amenity of the countryside, in particular to ensure that it does not infringe on any views an objective of which it is to preserve in the County Development Plan.													
Policy AM5: Investigate suitable locations for the establishment or facilitation of local farmers markets within the towns and villages of the county in accordance with best practice and in a manner that is complimentary to the existing market and retail activities of those towns and villages.													
Policy AM6: Have regard to S256 of the Planning and Development Act 2000 when assessing intensive agricultural developments.													
Forestry Policies													
Policy AM7: Facilitate afforestation in appropriate locations, in co-operation with Coillte and the Forest Service and in line with national policy, while ensuring that no pollution or injury is caused to natural waters, wildlife habitats or conservation areas.	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
Policy AM8: Consider the likely impact of forestry on landscape quality and visual amenity in any afforestation proposals brought before the Local Authority for comment.													
Policy AM9: Galway County Council will seek to work with Coillte to identify areas of forestry that could be developed or protected as amenity areas.													
Forestry Objectives													
Objective AM1: Encourage sustainable forestry development and related management activities, including the promotion of mixed species forestry and selective rather than clear felling.													
Marine Policies													
Policy AM10: Facilitate the provision of infrastructure, which is necessary for the development of the fishing, seaweed and Mari-culture industry. The provision of infrastructure, which is necessary for the development of the fishing and Mari-culture industry, should be located in proximity to established landing facilities.													
Policy AM11: Require the design of buildings in marine locations to reflect their exposed locations and respect local traditional styles.													
Policy AM12: Protect the amenity of the coastal zone by restricting development, which would													

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overlook or intrude on unspoilt coastline or alter the character of boreens, which lead to the foreshore.													
Policy AM13: Support the further development of the N.U.I.G. marine research station at Mweenish having regard to its long established land use on the site and its importance to the aquaculture industry to the local community and to the development of scientific knowledge.	✓	✓			✓	✓			✓	✓	✓	✓	✓
Policy AM14: Support the sustainable development of the marine aquaculture industry, consistent with other policies of this plan, so as to maximise its contribution to jobs and growth in the coastal communities of the County and to the growth of the National economy.													
Piers and Harbours Policies													
Policy AM15: Facilitate the development of Rosamhil Harbour as the main harbour for County Galway.	✓	✓			✓	✓			✓	✓	✓	✓	✓
Policy AM16: Promote the development of those strategic piers and piers serving islands, identified in the report "Assessment of Piers, Harbours and Landing Places in County Galway".	✓	✓			✓	✓			✓	✓	✓	✓	✓
Policy AM17: Continue improvement works to other piers, including Kinvara, harbours and landing places under the Fisheries Harbours Programme in conjunction with the relevant government Departments.	✓	✓			✓	✓			✓	✓	✓	✓	✓
Policy AM18: Consider the delivery of services/facilities in collaboration with Galway City Council and the Galway Harbour Company that will promote interconnectivity between Ros an Mhil and Galway Port													
Policy AM19: Seek enhancement of existing electricity network at Ros An Mhil and at other appropriate coastal areas for the promotion of tidal and wave energy and their research and development into the National Grid.													
Policy AM 20: Improvement to piers and harbours should be carried out in such a way as to avoid or minimise disturbance to wildlife, damage to habitats or other adverse effects on the land and seascapes.													

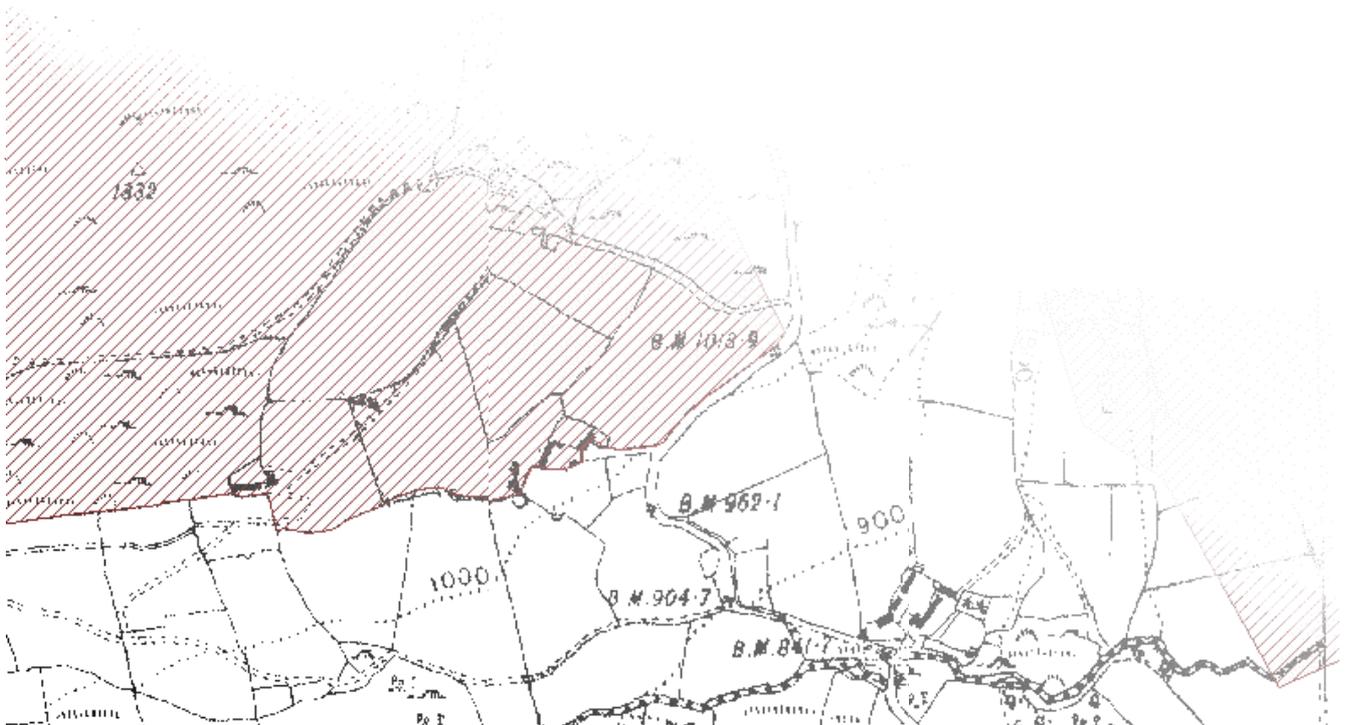


National Parks and Wildlife Conservation Plan for 2005-2010



Lough Coy cSAC

Site Code 2117 Co. Galway



SUMMARY

Site Description

Lough Coy Turlough is situated about 1km due west of the village of Peterswell in Co. Galway. The site comprises an oval shaped depression containing a permanent lake with sloping grassy edges and areas of scrub on the rim.

This site has been designated as a cSAC because of the presence of the Turlough which is listed as a Priority Habitat under the E.U. Habitats Directive. Whooper Swans which are listed as Annex I species under the E.U. Birds Directive, roost and feed at this Turlough also.

The underlying bedrock is Carboniferous limestone. This is overlain with a mixture of gleys and alluvial gleys with drift deposits of sand and gravel on top. The turlough is essentially the floodplain for an under ground river. The water enters and leaves the site through a swallow hole to the west of the lake and the waters are nutrient rich in nature which makes this an ideal feeding site for winter wildfowl. During times of high rainfall, the level of the permanent lake rises and floods part of the surrounding grassland and scrub.

The lake makes up the largest area of the priority habitat and when flood waters recede an area of flat mud is exposed that supports several specialist plants such as Mudwort, which is the most dominant along with other species such as Needle spike-rush, Northern yellow-cress and the liverwort *Riccia cavernosa*. Mudwort is a protected species, listed in the Flora (Protection) Order, 1999.

Above the mud is an area of turlough grassland that contains species such as Knotgrass, Redshank and Common Sedge. Above the lake shoreline species found include Hairy Sedge, Creeping Cinquefoil, Reed Canary-grass, Cornmint, and Creeping Buttercup.

Among the boulders especially to the east and south of the lake, is a community supporting species such as Meadowsweet, Common Birds-foot Trefoil, Adder's Tongue and Curled Dock, with both Dog Violet and Fen Violet also occurring.

Small patches of scrub, with Buckthorn present, are found along the outermost areas subject to periodical flooding. Areas of scrub and woodland occur above the flood line. Species found here include Ash, Hazel, Elder, Crab Apple, Blackthorn, and Hawthorn.

Above the level of the floodwaters are areas of unimproved grassland with grasses such as Timothy and Meadow Fescue, with herbs including Creeping Thistle and Autumn Hawks-bit.

Land Use

The main activity carried out within the site is the grazing of cattle.

Some areas of improved and re-seeded grassland occur.

There are several small gravel pits within the site.

Shooting occurs around the lake shore.

Main conservation issues

- Flood Relief schemes within the turlough catchment.
- Water Quality.
- Grazing
- Gravel and Sand extraction
- Bird Numbers

Main management objectives

- To maintain and where possible, enhance the ecological value of the priority habitat, Turlough (78% of the site)
- To maintain and, where possible, increase the population of Annex I bird species; Whooper Swans and other notable bird species using the site.
- To maintain and where possible enhance the ecological value of all other habitats, Lowland dry grassland (8%), Scrub and woodland (9%), Improved grassland (4%), Hedges and stone walls (not mapped).
- To initiate and maintain effective liaison between Dúchas, relevant authorities, landowners, ferry operators and any other interested parties regarding conservation of the site.

Main strategies to achieve objectives

- To prevent any drainage of the turlough basin.
- To monitor the spreading of fertilisers on the turlough and within 50m of the high flood mark.
- To investigate and establish a suitable grazing regime within the site.
- To control damaging activities.
- To monitor both the habitats and the bird populations within the site.

ACKNOWLEDGEMENTS

The original draft plan for this site was prepared by Sarah Carroll. Thanks are due to the regional and other NPW staff who contributed to the contents of the plan and to all who participated in public consultation.

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READER'S GUIDE

The Department of Environment, Heritage and Local Government (DEHLG), has produced this plan to provide ecological information about the site and to outline the main objectives for the conservation of the special features of the site.

The **Introduction** outlines the **policy background** to the site's designation and the relevant legislation.

The **Site description** contains **general information** on the site's boundaries, ownership and organisations involved. It also contains sections on the **physical aspects** of the site such as geology and hydrology as well as the **biological features**, in particular, the habitats and species found there. **Land use** and cultural features are also described.

The **Ecological Assessment** assesses the main ecological attributes of the site.

The **Objectives, Strategies and Zoning section** outlines the management necessary for the conservation of the site. It starts with a set of specific **conservation objectives**. These are followed by the main **management issues** that may impact on the conservation of the site and the **strategies** that will be used to achieve the objectives as outlined. In cases where more information is required, general strategies are usually applied. Where sufficient data and knowledge is available, specific management prescriptions are outlined for the timescale of the plan. In the final section, the site is divided into management **zones** to indicate where each strategy applies.

The appendices include a **glossary** where scientific and technical terms are explained, a list of **notifiable actions** relevant to each habitat within the site, and additional information on the site.

INTRODUCTION

Legal Background for Conservation Plans

The legal basis for selection and designation of **Special Areas of Conservation (SACs)** is the **EU Habitats Directive**, which was adopted in 1992. Focusing on the conservation of natural and semi-natural habitats and species of flora and fauna, the Habitats Directive seeks to establish “Natura 2000”, a network of protected areas throughout the European Community. The Habitats Directive includes a list of habitats that require SAC designation and specific conservation measures. This list is known as Annex I and the habitats are referred to as Annex I habitats. On this list, habitats that require special attention because they are in danger of disappearance, are termed ‘priority habitats’. A second list, Annex II in the Habitats Directive comprises species that must be afforded special protection.

In Ireland, the habitats and species that must be afforded protection under the Habitats Directive include:

- 16 Annex I priority habitats that require particular attention – including raised bogs, active blanket bogs, turloughs and machair,
- 45 other Annex I habitats – such as certain types of heaths, lakes and woodlands,
- 25 Annex II species – including Otter, Freshwater Pearl Mussel and Killarney Fern.

It is the responsibility of each member state to designate SACs to protect the Annex I habitats and Annex II species. These sites, together with the **Special Protection Areas (SPAs)** designated under the **EU Birds Directive (1979)**, form the European “Natura 2000” network.

The Birds Directive contains annexes, which are lists of birds that require particular conservation measures (Annex I), and also species that may be hunted, and species that may be sold. There are 28 Annex I species regularly occurring in Ireland including Whooper Swan, Greenland White-fronted Goose, Peregrine Falcon, Corncrake and Terns. Member states are also required to protect sites that are important for migratory species such as ducks, geese and waders.

The Habitats Directive was transposed into Irish law through the **European Communities (Natural Habitats) Regulations 1997**. The **Wildlife Act 1976** is the main statute governing the protection of wildlife in Ireland and was amended in 2000 to take account of European law, particularly the Habitats and Birds Directives. The **Wildlife (Amendment) Act 2000** also makes legal provision for the designation and protection of a national network of **Natural Heritage Areas (NHAs)**. Over 1,100 proposed NHAs were published in 1995 and almost 400 of these are also selected as candidate SACs.

The European Communities (Natural Habitats) Regulations 1997 include the following points:

The Minister for the Environment, Heritage and Local Government must transmit a candidate list of sites to the European Commission for consideration.

Following adoption of this list by the Commission, the Minister will formally designate the sites as SACs.

Sites are legally protected once they are publicly advertised.

Landowners and other users with a legal entitlement should be notified of designation, and the Minister must make all reasonable efforts to do so. Notification also includes a list of activities that may alter, damage, destroy or interfere with the integrity of the site. A person who illegally damages a site may be prosecuted or required to repair damage.

Landowners and other users with a legal entitlement may appeal the designation of lands on scientific grounds.

Landowners and other users with a legal entitlement will be compensated for actual loss of income arising from restrictions imposed as a result of designation.

DEHLG is the government department with responsibility for the designation and protection of wildlife habitats, species and areas of conservation interest. As part of their responsibility in relation to biodiversity and wildlife under the Wildlife Acts (1976 and 2000), the Minister's brief extends far beyond the habitats and species listed in the annexes of the Habitats and Birds Directives. For this reason, cSAC conservation plans may deal with species that are not mentioned in these annexes.

Reasons for Site Designation

The reason for the proposal to designate this site as an SAC is the presence of:

HABITATS LISTED IN ANNEX I OF THE E.U. HABITATS DIRECTIVE	
<ul style="list-style-type: none"> • • *Turlough (Habitat Code: 3180) 	<p>This riverine turlough is in excellent ecological condition both from a structural and functional viewpoint.</p> <p>The extreme water fluctuations allow a good zonation of vegetation to develop and provides many niches for specialist plants, particularly at the lower levels. A number of plant species are rare, for example, Mudwort and Fen Violet.</p>

* indicates priority habitat in Annex I of the Habitats Directive

As part of his responsibility in relation to biodiversity and wildlife under the Wildlife Acts, the Minister's objective is to protect important habitats and species even though they may not appear in the Annexes of the Habitats Directive. This may mean that they are included in SAC conservation plans.

General Conservation Objectives

Under Article 6 of the EU Habitats Directive, Member States are required to ensure the favourable conservation status of all Annex I habitats and Annex II species within cSACs. By preparing, implementing and reviewing this plan on a five year basis, DEHLG aims to achieve the objectives of the Habitats Directive in relation to this site. The general objectives DEHLG will apply to achieve this are:

- to maintain the Annex I habitat(s) for which the cSAC is selected
- to liaise with the landowners, relevant authorities and interested parties
- to increase the scientific knowledge of the site through further scientific research and development of monitoring programmes

Specific conservation objectives and strategies are outlined in the section, **Objectives, Strategies and Zoning**.

Implications for landowners and other site users

In most areas designated as cSACs, current practices will not have to change significantly.

In cases where users are required to change practices or restrict activities to protect the wildlife interest of the site, compensation will be payable based on actual loss of income.

If an owner, occupier or user of a site wishes to carry out certain activities within the designated area (that are not covered by licence or consent from another statutory body), they must consult with, and get consent from, the Minister for the Environment, Heritage and Local Government. These activities are listed as “Notifiable Actions” for each habitat (see Appendix IV). Local Authorities are obliged to ensure appropriate assessment of the implications of any development permission sought that may have an impact on a designated area.

The designation of the site or any conservation actions can be appealed by landowners or right-owners on a scientific basis. Details of the appeals procedure are also given in Appendix V.

SITE DESCRIPTION

Location including site boundaries

Grid Ref.:	M 490 074
Latitude:	W 08 45 30
Longitude:	N 53 07 00
Area:	78 ha
Altitude Range:	18 m to 24 m
Townlands:	Dromorehill, Loughaunawadda, Shanvally Skehanagh

(Map references are provided in Appendix II).

Site Boundaries

This site is situated approximately 1km due west of the village of Peterswell in Co. Galway (see Map No. 1: Location and Boundaries).

Site Infrastructure

There are two roads that run through the site.

Legal Status

Ownership

All land within the site is held in multiple private ownership.

Designations of the Site

candidate Special Area of Conservation	Site Code IE0002172
Special Protection Area	Site Code 2117

Management Infrastructure

Individuals and Organisations Involved

Landowners	Landowners manage the site, mainly by grazing livestock
National Parks & Wildlife (NPW) of the Department of Environment, Heritage and Local Government (DEHLG)	NPW is responsible for maintaining the nature conservation value of the site. The site is patrolled by local Conservation Rangers, with input from other staff as necessary (see Appendix IX for further details of NPW regional staff).
Planning Authority	Galway County Council is responsible for infrastructural planning and development.

Local Authority Policy in relation to the Site

In the draft Development Plan for the county (Galway County Council 1996) the site is classed as being in a zone of high vulnerability for major aquifers but the County Council has placed no designations or planning restrictions on the site.

Physical Features

Climate

30 year mean data for the period 1961-1990 recorded at Shannon Airport Meteorological Station (Grid reference: R379603; Altitude: 6 m), which is situated approximately 30 miles south west of the site is given in Appendix III. The mean daily temperature for this period was 13.5 degrees Celsius and the mean annual rainfall was 926.8 mm, with an annual average of 160 days with 1mm more of rain recorded. The prevailing wind is westerly.

Geology & Geomorphology

Lough Coy is a small permanent lake that occupies an oval shaped depression with regular sloping sides. It is situated in a low-lying plain bounded by the Burren Plateau in the west and the Slieve Aughty Mountains to the east.

The underlying bedrock consists of Visean Carboniferous limestone that is visible as outcrops along the northern boundary and also as scattered boulders on the eastern shore of the lake.

The site contains considerable depths of drift deposits of sand and gravel, especially in the north and these are overlain by a gleyed redzina-like soil and alluvial gleys. The alluvial gleys are overlain by mud on the lakeshore.

Hydrology & Water Quality

The lake is a permanent waterbody, but in a dry summer it can shrink to half its normal area and to a depth of only 60 cm. The topographical catchment area of the turlough is very small and is believed to be the overflow of nearby Blackrock (Peterswell) turlough and the underground river, possibly the Owenshree, which feeds it.

The water enters and leaves the lake via a large swallow hole in the north west, located just above the permanent water level. An artificial channel appears to have been dug here connecting the

swallow hole to the lake. The fluctuation in water levels is extreme in the winter months but even in a wet summer the water level may rise rapidly overnight after heavy rain, and subside again just as quickly. Winter levels generally persist from October to the end of February depending on rainfall in that season.

At times of very high water levels some water overflows southwards through a rough channel, to join with a small permanent flow outside the site.

See the Gort flooding study for further information on the hydrology, geology and geomorphology of the site (Jennings, O Donovan and Partners, Southern Water McDowells Ltd (1997).

Biological Features

Habitats and Vegetation

Note: Throughout the conservation plan, habitats are named and described under two different systems: the Annex I habitat(s) are as listed in the EU Habitats Interpretation Manual, while all other habitats are as listed according to the NPW NHA classification system.

The following table lists the habitats within the site. The Annex I habitat(s) of the Habitats Directive for which the site was selected is listed, with the relevant NHA/Guide to Habitats category also shown. Annex I priority habitats are marked with an asterisk (*). The Gross Habitat map for the site is presented in Map 3. The percentage presented for each habitat type is based on the approximate geographic area of each habitat, as shown in Map 3.

Habitats Found within Lough Coy cSAC

ANNEX I HABITAT TYPE	CORRESPONDING HABITAT CATEGORY	% AREA
Turloughs*	Turlough (mapped as permanent water, flat mud, turlough grassland, streams/ditches & flooded scrub)	42%
	Lowland dry grassland	2%
	Improved grassland	45%
	Scrub/Woodland	10%
	Hedge (not mapped)	-
	Old walls(not mapped)	-

Annex I Habitat:

Turlough (42% of total site area)

Lough Coy is a turlough with a large throughput of water. It is basically the flood plain of an underground river and is eutrophic in nature. The Lough Coy basin consists of an oval shaped depression, the sides of which are sloped at about 4-8 degrees except at the northern end where a small inland cliff forms the boundary of the site. Lough Coy floods and empties through a swallow hole in the west slope of the basin which is situated above the site floor and therefore slightly beyond summer maximum water levels. The swallow hole to the south of the site has been excavated, and there is a linear wetland drainage channel draining to the south. There are two separate areas of turlough within the Lough Coy cSAC. One is Lough Coy itself, and the small section of turlough draining into Lough Coy. The other is the Ballylee section which drains into a swallow hole at the very south of the site. In high winter flood, the two sections become one water body.

The following sub-habitats are all found within the turlough area and can be considered part of the priority habitat. The vegetation communities within the turlough have been mapped out by Goodwillie: see Map No. 4 Vegetation communities.

***Permanent Water (9%)**

A permanent lake, Lough Coy, is present in the northern part of the site. Although this may shrink to half its area and only 60 cm deep in a dry summer, it never completely dries out. There does not appear to be any submerged or emergent aquatic plants present in the lake, which is probably due to the high fluctuation in water levels, especially in the winter months.

***Flat mud (8%)**

In the summer months when water levels drop, an extensive area of flat mud is exposed around the shoreline of the lake. The mud cracks into polygonal shapes and this provides a habitat for a variety of specialised plants such as Mudwort (*Limosella aquatica*), which is the dominant species, along with other species such as Needle Spike-rush (*Eleocharis acicularis*), Northern yellow-cress (*Rorippa islandica*) and the liverwort *Riccia cavernosa*.

***Turlough Grassland (24%)**

At the shoreline of the lake itself and in some other areas which flood, some of the above-mentioned species are found along with Knotgrass (*Polygonum aviculare*) with some Redshank (*Polygonum persicaria*) and Common Sedge (*Carex nigra*) depending on the level of trampling that the vegetation is subject to from livestock. Above the lake shoreline species found include Common Sedge, Hairy Sedge (*Carex hirta*), Creeping Cinquefoil (*Potentilla reptans*), Reed Canary-grass, (*Phalaris arundinacea*), Corn Mint (*Mentha arvensis*), and Creeping Buttercup (*Ranunculus repens*), with a little Annual Meadow-grass (*Poa annua*).

Among the rocky boulders especially to the east and south of the lake is a community with species such as Meadowsweet (*Filipendula ulmaria*), Common Birds-foot Trefoil (*Lotus corniculatus*), Adder's Tongue (*Ophioglossum vulgatum*) and Curled Dock (*Rumex crispus*), with both Dog Violet (*Viola canina*) and Fen Violet (*Viola persicifolia*) also found here. Many of the limestone boulders on the upper slopes are covered with the moss (*Cinclidotus fontinaloides*).

***Scrub (flooded) (<1%)** Towards the outer edges of the flood area in some places are small patches of scrub that are periodically flooded. Species found here include Buckthorn (*Rhamnus carthartica*) and Blackthorn (*Prunus spinosa*) with a little Hawthorn (*Crataegus monogyna*).

***Streams/ditches (<1%)** On the western shore of the lake is a swallowhole with species such as Water pepper (*Polygonum hydropiper*), while the channel leading to the lake and the springs on the eastern shore contain Fool's watercress (*Apium nodiflorum*).

Other Habitats

Lowland dry grassland (2%) Above the level of the floodwaters are areas of dry grassland with grasses such as Timothy (*Phleum pratense*), Meadow Fescue (*Festuca pratense*) and Tall Fescue (*Festuca arundinacea*) and herbs such as Meadow Buttercup (*Ranunculus acris*), Creeping Thistle (*Cirsium arvense*) and Autumn Hawks-bit (*Leontodon autumnalis*).

Improved/Semi-improved grassland (45%) Much of the area above the turlough basin is grassland that has been fertilised and in parts reseeded. The most common species here is Perennial Rye-grass (*Lolium perenne*) with White Clover (*Trifolium repens*) and Daisy (*Bellis perennis*).

Scrub and Woodland (10%) Along the northern boundary of the site in the cliff and rocky area, above the swallow hole and along other margins of the site, particularly at the southern end, are areas of scrub and woodland. Species present include Hawthorn and Blackthorn with occasional Crab Apple (*Malus sylvestris*), Elder (*Sambucus nigra*), Hazel (*Corylus avellana*) and Ash (*Fraxinus excelsior*) also occurring. There is also some Dog Rose (*Rosa canina*) and Sweet-briar (*Rosa rubiginosa*) in the northern area. The ground flora is absent in most areas of the scrub due to grazing by cattle but some Ground Ivy (*Glechoma hederacea*) and Cleavers (*Galium aparine*) are present in patches. In the south east of the site the scrub is encroaching on the grassland and there is a lot of Bramble (*Rubus fruticosus* agg.) present.

Hedges/Walls (not mapped) Many of the hedges within the site contain old stone walls as well. The main hedge species are Hawthorn and Blackthorn. The stone walls in the flooded areas support moss species.

Notable Flora:

There are three plant species listed as Rare in the Red Data Book recorded at this site, as follows:

- Mudwort- Found in small pools or wet mud at lake margins. Very localised, and found only in the western half of the country. This species is protected under the Flora (Protection) Order, 1999.
- Fen violet- Occurs locally on grassland subject to flooding in the west of the country.
- Northern Yellowcress- Associated with mainly with turloughs, scattered sites from east Mayo to Kilkenny.

Fauna:

Invertebrates

The following invertebrate species have been found in the Lough Coy cSAC, and were chosen (O'Connor (2001) and Good (1997)) as indicators of the high conservation value of this turlough.

Species	Number recorded
Carabidae	
Blethsia multipunctata	4
Pelophila borealis	3
Bembidion doris	1
Staphylinidae	
Atheta basicornis	1
Calodera nigrita	14
Oxypoda lentula	1
Philonthus furcifer	11
Sepedophilus pedicularuis	3
Stenus carbnarius	6
Carpelimus subtilicornis	4

Birds

Lough Coy is surveyed regularly by both Birdwatch Ireland (BWI) volunteers and the local Conservation Ranger, as part of the Irish Wetland Bird Survey (IWeBS) every winter. It is one of the sub-sites in the 'Lough Coy-Blackrock-Bullaunagh-Ballylee' complex. The local Conservation Ranger carries out regular counts and has figures starting from the winter of 2000/2001.

Lough Coy is especially important within this as it contains a safe roosting area in the form of permanent water all year round. Lough Coy provides a feeding and roosting site for regionally important numbers (up to 72 have been recorded) of Whooper Swan, a species listed in Annex I of the Birds Directive, as well a number of other species.

The following table shows the mean and peak for counts carried out during the winters of 1995/96, 1996/97 and 1997/98.

Species		Mean	Peak
Whooper Swan	<i>Cygnus cygnus</i>	6	72
Mute Swan	<i>Cygnus olor</i>	0	6
Little Grebe	<i>Tachybaptus ruficollis</i>	0	2
Great-crested Grebe	<i>Podiceps cristatus</i>	0	2
Red-breasted Merganser	<i>Mergus serrator</i>	0	1
Mallard	<i>Anas platyrhynchos</i>	15	132
Pochard	<i>Aythya ferina</i>	12	45
Wigeon	<i>Anas penelope</i>	109	285
Teal	<i>Anas crecca</i>	39	283
Tufted Duck	<i>Aythya fuligula</i>	15	93
Shelduck	<i>Tadorna tadorna</i>	0	2
Curlew	<i>Numenius phaeopus</i>	24	112
Dunlin	<i>Caladris alpina</i>	10	120
Lapwing	<i>Vanellus vanellus</i>	58	300
Redshank	<i>Tringa totanus</i>	0	3
Black-headed Gull	<i>Larus ridibundus</i>	2	16

Mammals

Badger (*Meles meles*), a species listed in the Irish Red Data Book as Internationally Important, use the site as foraging grounds. Fox (*Vulpes vulpes*) also hunt in the site.

Cultural Features

Land use and impacts on the site

Grazing

The main agricultural use on the site is the grazing of cattle and some horses. There is no information available on the stocking rates on the turlough. In many areas the stock have access to grazing here from fields adjoining the site as no fences or field boundaries separate the turlough from surrounding fields. The turlough wetlands to the south are grazed only in drier years.

Re-seeding/ Fertilisation

Some of the grassland areas above the flood level of the turlough are fertilised, and in some cases, reseeded has also taken place. These fields are used to make silage.

Boundary Removal

Many of the field boundaries marked on the map have been removed or modified, especially some of the site boundary walls.

Sand/Gravel extraction

There are three small gravel pits within the site, one in the west just above the area of the swallow hole and one in the north. Two of these flood when water levels rise in the winter. Consent has been given for the extraction of gravel in the pit above the turlough.

Shooting

The presence of shotgun cartridges along the lakeshore indicate that there is a certain level of shooting on the site.

Infrastructure Pipes for the Peterswell Group Water Scheme have been laid along the road at the southern boundary of the site.

Land use adjacent to the site

Agriculture Agriculture adjacent to the site is very similar to that happening within the site. Most of the surrounding land is receiving both organic and inorganic fertilisers and many fields have been re-seeded also.

Boundary removal Many of the adjacent fields have been enlarged by removing field boundaries.

Flood Relief Measures Six flood relief measures are currently being considered by a steering committee appointed by the Office of Public Works (OPW), including representatives from Dúchas, OPW, Galway CO. Council, Irish Farmers Association (IFA) and local groups. One, the Kilchreest area flood relief measure, could have an impact on the site.

Past human use

There are no archaeological sites listed in the Monuments Record for this site.

There is no information available on past stocking rates or grazing regimes for the turlough, but it can be assumed that the area was extensively grazed by livestock.

There is a drainage feature present in the southern block of the turlough which is present on the 6 inch map which indicates that agriculture has been intensive in this area for over 100 years.

Other Features

Although the site does not have any landscape designations in the County Development Plan, it is an area of natural beauty enhanced in winter with the extended area of lake and presence of wintering wildfowl.

ECOLOGICAL ASSESSMENT

Note: The following is an assessment of the ecological features of the site. It is largely based on information given in the explanatory notes which accompany the Natura 2000 form (compiled in 1996). Additional information, obtained since these notes were written may also have been used to make the assessment.

Turlough

This 'riverine' turlough is in excellent ecological condition both from a structural and functional viewpoint. Water movements, which depend on the flows in the tributaries of the 'Coole' River, are entirely natural and though there is an old channel from the floor of the lake to the swallow hole it has no real affect.

The extreme water fluctuations allow a good zonation of vegetation to develop and provides many niches for specialists plants, particularly at the lower levels. A number of plant species are rare, for example, Mudwort and Fen Violet.

Whooper Swan

The maximum count for this species is 78, although larger numbers are probably sometimes present, making it a regionally important site. The wet grassy areas that remain un-flooded or are covered by shallow water are used on occasions by feeding Swans. The open water provides a safe roosting site. It is one of a number of sites in the area (known collectively as the Lough Coy-Blackrock-Bullaunagh-Ballylee complex) that is used by a nationally important population of Swans.

OBJECTIVES, STRATEGIES AND ZONING

Conservation Objectives

The nature conservation objectives for this site are:

- Objective 1:** To maintain and where possible, enhance the ecological value of the priority habitat , Turlough (42% of the site)
- Objective 2:** To maintain and where possible enhance the ecological value of all other habitats, Lowland dry grassland (2%), Scrub and woodland (10%), Improved/semi-improved grassland (45%), Hedges and stonewalls (<1%).
- Objective 3:** To maintain, and where possible, increase the population of Annexed bird species Whooper Swan and other notable bird species using the site.
- Objective 4:** To initiate and maintain effective liaison with landowners, Local Authority and other interested parties.

Management Issues

Note: The main issues that may impact on the conservation of the site are outlined below. The constraints that these may pose and the management potential for the site are discussed.

- **Grazing pressure**
- **Nutrient enrichment**
- **Gravel and sand extraction**
- **South Galway Flood relief scheme**

Grazing

Cattle gain access to the site from fields outside the site through areas of the scrub and this has encouraged browsing of the scrub and poaching of the ground underneath resulting in a lack of ground flora. Cattle grazing the lakeshore can cause poaching and in mid-summer, when water levels are low they poach trails across the mud to drink at the waters edge. This is generally not a problem and is not known to have occurred at this site.

A full assessment of the grazing regimes within the turlough basin is required in order to ascertain optimum levels of grazing for the site. Farming, in particular grazing practices, is essential in maintaining the conservation value of this habitat type.

Nutrient enrichment

Some of the edges of the site and most of the land within 50m of the high water mark are receiving fertilisers that could lead to nutrient enrichment of the turlough. Many of the former boundaries between the site and surrounding fields have been removed. This makes it difficult to control the amount of stock that might be grazing the site at any one time and increases the risk of overgrazing, especially in warm weather, as stock will tend to linger in the vicinity of the water.

The catchment area of the turlough includes improved and intensively farmed land and run-off and pollution may also occur through the flow of water into the turlough from the swallow hole.

Gravel and sand extraction

Gravel and sand has been extracted from areas that are within the flood zone of the turlough and this activity will cause localised damage to vegetation. However, no gravel extraction appears to have taken place within the turlough recently, as the areas of the pits are grassed over for the most part, with the exception of the pit at the north above the turlough, for which permission has been given.

South Galway Flood relief scheme

Works that may be carried out as part of the South Galway Flood Relief Scheme, particularly the Kilchreest Area Flood Relief Measure, may alter the flow of ground water in the catchment area and therefore affect the hydrology of the turlough itself.

Any flood relief measures which may be carried out in the turlough's catchment area will be subject to an Environmental Impact Assessment, including a full assessment of the impact on the flora and fauna of Lough Coy.

General Strategies

Specific strategies that relate to the above objectives are outlined below. However, there are a number of strategies that relate to the site as a whole. These are as follows:

Implement plan

DEHLG will seek to ensure that the aims of this conservation plan are achieved through:

- liaison with the landowners, relevant authorities and interested parties;
- implementation of REPS or DEHLG farm plans, which will use this document as a guideline for prescribing management on a farm by farm basis, and also will ensure that the agreed prescriptions for the relevant habitats are adhered to
- enforcement of Regulations under the Habitats/Birds Directives and the Wildlife Act.
- enforcement of other relevant legislation such as the Water Framework Directive

Establish a monitoring regime

The monitoring regime for the site will comprise:

Water quality monitoring

Water quality is monitored at regular intervals by Galway Co. Council. NPW staff liaise with the Council, and will collate and review this information on a regular basis. NPW will also liaise with relevant bodies (n.b. the EPA and local authority) in relation to compliance with the EU Water Framework. In particular:

- To establish reference conditions necessary for monitoring the status of the qualifying habitat.
- To ensure that the sampling regime is adequate to detect changes in the conservation status of the designated area.

NPW will liaise with the local authority and other relevant agencies in ensuring that the full ecological importance and sensitivity of the site is taken into account during the production of the River Basin District Management plan. In addition, NPW will liaise with the Local Authorities in ensuring that sewerage disposal systems for all new (and existing) dwellings within the catchment area are of appropriate standards.

Scientific monitoring

Monitoring of the favourable conservation status of the turlough will be done by, or on behalf of, the staff of the Monitoring Section of the NPW or staff working to NPW in accordance with the procedures laid down by that section. The work, if any, to be done on this site in that respect will be prescribed by that section.

Site surveillance

Patrolling of the site by the Conservation Ranger, with special attention to the turlough will identify any major changes, damaging operations, or threats should they arise.

Bird counts

As part of the I-WeBS project, bird counts are carried out using standard methodology. These will be continued.

Enforce notifiable actions

Certain activities may be restricted in SACs. Notifiable Actions for particular habitats are listed in Appendix IV of this plan. Permission from the Minister is required before these actions may be carried out within the designated area. For example drainage and scrub removal are notifiable actions for turloughs

Specific Strategies

Objective 1.

To maintain and where possible, enhance the ecological value of the priority habitat , Turlough (42% of the site)

Strategies:

- | | |
|--|--|
| 1.1. Maintain suitable grazing regimes | The current grazing regime will be assessed (stocking levels, and species/breeds used, period of grazing etc.) and the traditional grazing practices investigated, as the latter should be practiced in the long run. The grazing period is naturally regulated by the flooding regime, and the current grazing practices are not thought to be problematic. |
| 1.2 Prevent potentially damaging activities | As already outlined under general strategies, potentially damaging activities such as drainage, fertilisation or re-seeding, the removal of sand and gravel, and the control of scrub, are notifiable actions under the SAC regulations. In addition, no drainage works should be carried out and the existing springs and channel should not be modified or interfered with, without prior consultation with NPW. NPW will continue to sit on the steering committee for Flood Relief in the area to ensure any measures are fully assessed for impact on the turlough. |
| 1.3 Monitor nutrient levels | NPW will carry out soil sampling using standard Teagasc protocol to determine nutrient levels within the site. This will be accompanied by standard vegetation surveys. Liaison with landowners will occur beforehand. |

Objective 2.

To maintain and where possible enhance the ecological value of all other habitats, Lowland dry grassland (2%), Scrub and woodland (10%), Improved/semi-improved grassland (45%), Hedges and stonewalls (<1%).

Strategies:

- | | |
|---|--|
| 2.1. Maintain suitable grazing /mowing regimes | As with the turlough, grazing regimes in areas outside the turlough basin will also be investigated (see strategy 1.1). Mowing may also occur.

Browsing of scrub by stock may continue and should be encouraged in the areas in the southeast of the site where it is encroaching onto grassland. However, the woodland areas within the site should be monitored and, if possible some areas should be fenced off from stock to encourage the growth of ground flora. NPW will encourage appropriate fencing of woodland/scrub through the REPS or DEHLG farm plans. |
| 2.2. Control fertilisation/ re-seeding | Fertilisation within 50m of the normal flood level of the turlough and above may continue at current levels. NPW will only intervene if such applications are increased and cause significant damage. No grassland should be re-seeded within this area. |
| 2.3. Prevent woodland clearance | Fertilisation within 50m of the normal flood level of the turlough may continue at current levels. NPW will only intervene if such applications are increased and cause significant damage. No grassland should be seeded within this area. |

Objective 3.

To maintain, and where possible, increase the population of Annexed bird species Whooper Swan and other notable bird species using the site

Strategies:

- 3.1. Maintain habitat** The strategies listed above that are designed to protect the habitats within the site will also safeguard the feeding and roosting grounds of Whooper Swan and other over-wintering species. Regular winter counts will be undertaken by the local Conservation Ranger (see general strategies). The primary objective is to improve water quality but birds feeding on site may decrease on site as a result. NPW will take steps to ensure that other factors within their control do not negatively impact on the birds using this site.

Objective 4.

To initiate and maintain effective liaison with landowners, Local Authority and other interested parties.

Strategies:

- 4.1. Liaise with interested parties** NPW will strive to initiate and maintain effective liaison with landowners (particularly through the Liaison Committee), relevant authorities and interested parties on achieving the objectives for conservation of the site.
- 4.2. Monitor development applications** NPW will continue to monitor applications, including current applications, for planning permission and licenses for lands within and adjacent to the site. Appropriate bodies will be notified if developments are thought to conflict with conservation objectives.
- 4.3. Liaise with REPS planners** REPS planners are required to consult with NPW staff when they are developing plans for land within the site.
- 4.4. Liaise with OPW** NPW will maintain liaison with the Office of Public Works and the South Galway Flood Alleviation Steering Committee in relation to matters arising from the South Galway Flood Study.

Zoning

Note: Zoning is the division of a nature conservation site and neighbouring lands into a number of sub-units. There are four types of zones identified (not necessarily all occurring within a site): A, B and C within the site and D outside the site but impacting on it. The relevant strategies are listed for each site.

Zone A: A Natural Zone

Areas of high conservation value, which require no or little intervention.

1A: NON-INTERVENTION AREAS

1A1: Permanent water, ditches & streams

These aquatic habitats and the bird populations using them will be monitored (as per general strategies) and potentially damaging activities will be controlled through notifiable actions (strategy 1.2).

2A: MAINTENANCE AREAS WITH LIMITED INTERVENTION

2A1: Flat mud, turlough grassland, flooded scrub, scrub and woodland.

Most of the above habitats will be managed by grazing at an appropriate level (1.1, 2.1) and by controlling fertilisation and other potentially damaging activities (1.2.). No woodland areas should be cleared (2.3).

2A2: Grassland outside the turlough basin

Current levels of fertilisation can continue (2.2), subject to results of soil sampling (1.4). Appropriate levels of grazing also apply (2.1)

Zone C: Intensive use Zone

Intensively used areas/infrastructure which form an integral part of a nature conservation site.

C1: Road

Alterations to the roads running through the site should not be undertaken without prior consultation with NPW

C2: Sand pit

The sand pit is currently unused at present, though consent is outstanding for sand and gravel removal. It should not be re-opened without prior consultation with NPW.

APPENDIX I: GLOSSARY

ACIDIC - When applied to soils, refers to soils which are of a low pH i.e. below 7. The term is often used in relation to the plant communities that an acid soil may support e.g. acidic grassland.

ALGAE - Simple plants that are not differentiated into roots, stems and leaves and have no true vascular system. They can be microscopic, or very large and are capable of photosynthesis. They can be found in most habitats but the majority occurs in freshwater or marine environments.

ALKALINE - When applied to soils it refers to soils of a calcareous nature and of a high pH, i.e. above 7. The term is often used to describe plant communities associated with such soils e.g. Alkaline Fens.

ANNEX I - of the EU Birds Directive, lists birds that are strictly protected so that they cannot be killed, captured, disturbed or traded.

ANNEX I - of the EU Habitats Directive, lists habitats including priority habitats for which SACs have to be designated.

ANNEX II - of the EU Birds Directive lists birds which may be hunted.

ANNEX II - of the EU Habitats Directive is a list of species for which SACs have to be designated.

ANNEX III - of the EU Habitats Directive gives the criteria for selecting sites to be designated as SACs.

ANNEX IV - of the EU Habitats Directive lists animal and plant species of Community interest in need of strict protection.

ANNEX V - of the EU Habitats Directive lists animal and plant species of Community interest whose taking in the wild and exploitation may be subject to management measures.

ANNUALS - Plants which complete their lifecycle in one year, germinating in Autumn or spring, flowering fruiting and dying by the following Autumn.

AQUIFER –A body of permeable rock that is capable of storing significant volumes of water, that is underlain by impermeable material and through which groundwater moves.

ASIs - Areas of Scientific Interest. Areas that were identified in the 1970s as being of conservation interest. The NHA designation developed from ASIs.

BASEFLOW – The flow of water in a river or stream derived from groundwater or through-flow into the surface watercourse.

BASIN - A depressed area of the Earth's surface, in which sediments accumulate.

BIODIVERSITY – A general term used to describe all aspects of biological diversity, including: the number of species present in a given environment; the genetic diversity present within a species; the number of different ecosystems present within a given environment.

BIRDS DIRECTIVE (Council Directive 79/ 409/ 2nd April 1979) - Under this Directive Ireland is required to conserve the habitats of two categories of wild birds: 1) Listed rare and vulnerable species and 2) Regularly occurring migratory species. The Directive also obliges Ireland to conserve wetlands, especially those of international importance and regulates the hunting and trading of wildbirds. It was transposed into Irish legislation by the EU (Natural Habitats) Regulations, 1997.

BRYOPHYTES - A group of simple non-vascular spore-bearing green plants comprising the mosses, liverworts and hornworts.

CALCAREOUS - Made of or containing calcium carbonate (CaCO₃) and therefore alkaline. limestone for example

CATCHMENT - An area of land draining to a defined point. The term river catchment refers to the area of land that drains into a particular river system.

CENSUS - An official periodic count of a population.

CLINTS - Regular blocks of limestone pavement with loose flags separated by a network of vertical fissures known as grykes.

COLEOPTERA - Beetles.

CORINE - An information and mapping system, developed within the context of the Commission of the European Communities biotope project, which is used as a tool for the description of sites of importance for nature conservation in Europe. It catalogues recognisable communities of flora and fauna. The primary objective of this catalogue is to identify all major communities whose presence contributes to the conservation significance of a site. Included in this list of communities are interesting but rare natural or near-natural communities as well as the more widespread semi-natural ones.

DEHLG - Department of Environment, Heritage and Local Government

DEVELOPMENT PLANS - Local Authorities (Co. Councils & Corporations) are obliged under statute to produce a document which sets out the planned development of their areas for a given number of years. In the future Local Authorities will be asked to incorporate designated NHAs, SACs and SPAs classifications into their development plans.

DIVERSITY - see biodiversity.

DRAINAGE DITCHES - An NPW habitat classification which refers to water channel systems with moving or stagnant water bodies, artificial in origin. Most ditches are cleared cyclically, although this category also includes ditches that are overgrown with wetland plants.

DRY, BROAD-LEAVED SEMI-NATURAL WOODLAND – An NPW habitat classification which refers to woodland which reaches a height more than 5 m in most places. If the cover of exotic trees within a block is more than 10%, the woodland should be classified as mixed woodland. Also see wet broad-leaved semi-natural woodland.

ECOLOGY - The study of the interactions between organisms, and their physical, chemical and biological environment.

ENCROACHMENT - The invasion of a species (usually plants) into areas previously uncolonised. This term is often used when an undesirable species advances at the expense of a desirable species or habitat.

ENVIRONMENT – The biological and physical conditions in which an organism lives.

EPA – Environmental Protection Agency

EROSION - The processes whereby the materials of the Earth's crust are dissolved, or worn away and simultaneously moved from one place to another by natural agencies which include weathering, solution, corrosion and transportation.

EUROPEAN BIRDS DIRECTIVE (79/ 409/ 2nd April 1979) - See Birds Directive.

EUTROPHICATION - The nutrient enrichment of aquatic ecosystems usually by phosphates and nitrates. It may occur naturally but can also be the result of human activity (fertiliser run-off/ sewage discharge/ seepage from silage etc.).

EVAPOTRANSPIRATION - Water loss to the atmosphere from soil (evaporation) and vegetation (transpiration). The potential evapotranspiration may be calculated from physical features of the environment such as wind speed and temperature. The actual evapotranspiration will commonly fall below the potential depending on the availability of water from precipitation and soil storage.

EXOTIC SPECIES - Are those species which are considered to be non native.

EXPOSED ROCK – An NPW habitat classification describing bedrock surfaces, including inland cliffs and crags. These may support a variety of different plants on soil accumulations, but greater than 50% of the rock surface is without vascular plant cover.

FACILITATOR - A person who, in consultation with others, assists NPW staff in the production of a conservation or management plan.

FAUNA - Animal life.

FAVOURABLE CONSERVATION STATUS - The conservation status of a natural habitat will be taken as “favourable” when: its natural range and areas it covers within that range are stable or increasing, and the specific structure and functions which are necessary for its long term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable.

FLORA - plant life.

FLORA PROTECTION ORDER - under the 1976 Wildlife Act, particular plants can be protected under a Flora Protection Order. Under such an order it becomes an offence to cut, uproot or damage these plants unless under licence from the Minister. The same order prohibits damage to the habitats of these species.

FORMATION – A geological term for a body of rocks having easily recognised boundaries that can be traced in the field, and large enough to be represented on a geological map as a practical and convenient unit for mapping and description.

FRESHWATER MARSHES – An NPW habitat classification are intermediate between swamps and wet grassland, and often occupy a zone between these habitats. They may have some prominent tall swamp species, but are not overwhelmingly dominated by them. They are distinguished from fens and flushes by a lower calcium status and are usually richer in nutrients. This habitat is characterised by a species-rich mixture of Sedges, small Grasses Reeds and other Reed like Grasses, wetland Herbs, as well as other Herbs and Grasses more typical of dryer ground.

GEOMORPHOLOGY – The study of the form and structure of the landscape, which is shaped by the underlying geology.

GLACIOFLUVIAL - Deposits laid down by glacial meltwater.

GRYKES - A term used for describing limestone pavement. The term gryke is used to refer to the vertical fissures which form a network separating loose flags of limestone blocks known as clints. The grykes provide a cold humid microclimate where shade tolerant vascular plants occur.

HABITAT - Refers to the environment defined by specific abiotic and biotic factors, in which a species lives at any stage of its biological cycle. In general terms it is a species home. In the Habitats Directive this term is used more loosely to mean plant communities and areas to be given protection.

HABITATS DIRECTIVE - (Council Directive 92/43/EEC). The Directive on the conservation of Natural Habitats and of Wild Flora and Fauna. This Directive seeks to legally protect wildlife and its habitats. . It was transposed into Irish legislation by the EU (Natural Habitats) Regulations, 1997.

- HYDROCHEMICAL MONITORING** - Observing the chemical composition of water over a period of time usually carried out for detailed studies of raised bogs.
- HYDROLOGY** - The movement of water through a catchment area including freshwater and seawater inputs, water level changes and drainage mechanisms which are all influenced by the underlying geology.
- I-WeBS** - Irish Wetland Bird Survey, published by Birdwatch Ireland, summarises winter waterfowl counts from 923 sites in the Republic of Ireland.
- IMPEDED DRAINAGE** - A limited through flow of water.
- IMPERMEABLE** - Does not allow the passage of water.
- IMPROVED GRASSLAND** – An NPW habitat classification describing species poor grassland, distinctive by its even appearance and bright colour, usually heavily fertilised and re-seeded with fast growing grasses.
- INVERTEBRATES** - Animals without backbones.
- KARSTIC LANDSCAPE** – A landscape formed by a combination of glacial activity and the continual dissolving of limestone bedrock by water. Rainwater drains rapidly away through the permeable limestone and most of the rivers are underground.
- LAKES AND PONDS** - An NPW habitat classification describing enclosed bodies of fresh water, or semi-enclosed bays of larger bodies of fresh water. Only the open water body itself is included, so areas of standing with tall emergent vegetation are not included here but should be assigned to reedbeds and other swamps.
- LATITUDE** – The angular distance measured in degrees north or south of the equator.
- LIAISON COMMITTEE** - This is a special group set up to discuss the contents of a conservation management plan and the implementation of the plan. The committee will include representation of landowners, right-holders and other interest groups. It shall be the function of the committee to advise NPW managers on the interaction between site conservation management and local interests. The Liaison Committee will nominate a member to the official Appeals Board which will consider appeals against site designation and other issues. The Liaison Committee will be independent from the NPW.
- LICHENS** – An organism that consists of a fungus growing in close association (symbiosis) with an alga.
- LIMESTONE** - Sedimentary rock composed predominantly of calcium carbonate, often containing fossils.
- LIMESTONE PAVEMENT** - An NPW habitat classification describing level or gently sloping exposures of limestone which are usually fissured along natural rock joints and may be shattered, with much loose rock present. Often there is very little soil associated with the pavement and a wide variety of plants grow precariously in the fissures, as is normally the case in the classic pavements of the Burren, Co. Clare. There may, however, be much interstitial soil obscuring the fissures, which can support a limestone grassland flora.
- LOCAL** – A term used in ecology which is applied to distribution of species when assessed on a national grid reference system. The assessment is made on the basis of the number of occupied 10 km National Grid squares. Local applies to 26-75, 10 km squares in this context.
- LOWLAND DRY GRASSLAND** - An NPW habitat classification describing grasslands which normally are below the 100m contour, on well drained soils and characteristically with a fairly complete cover of grasses.
- LOWLAND WET GRASSLAND** - An NPW habitat classification which refers to grasslands which normally below the 100m contour, with a vegetation characteristic of waterlogged soil. This category also includes rushy fields.

MANAGEMENT - a) Controlling processes within a site (this can be actively carrying out work or can be doing nothing), preferably in accordance with a conservation plan. - b) The practical implementation of the management plan. - c) Undertaking any task or project identified in the management plan, including the identification of new opportunities.

MANAGEMENT AGREEMENTS - The Wildlife Act, 1976, enables DEHLG to enter into voluntary management agreements with private landowners. Under these agreements landowners will manage their lands to ensure that desirable wildlife habitats and species are protected. Payment for such responsible management may be agreed. However, the number and type of such agreements will vary depending on the resources available to the National Parks and Wildlife at the time.

MARGINAL VEGETATION - At or near the margin or border, often used to describe the vegetation at the edge of a lake or river.

MIXED WOODLAND - An NPW habitat classification that describes woodland that is structurally similar to dry (& wet) broad-leaved semi-natural woodland, i.e. the canopy in most places must achieve a height of 5 m. In mixed woodland however, the cover of exotic species within a block exceeds 10%.

MONITORING – A repeat or repeats of a survey using the same methodology. Designed to look for or measure specific changes and the rate or extent of change. Used to check the “health” quantity or quality of a habitat or species.

MOSAIC - Used to describe habitats that occur together and cannot easily be mapped separately.

NATIONAL PARKS AND WILDLIFE (NPW) – the section of the Environment Infrastructure and Services division of the Department of Environment and Local Government with responsibility for nature conservation and implementation of Government conservation policy as enunciated by the Minister for the Environment and Local Government.

NATURA 2000 - A network of sites across the European Community, selected for the purpose of conserving natural habitats and species of plants and animals which are rare, endangered or vulnerable in the European Community. SACs and SPAs form the Natura 2000 network.

NGOs - Non- Governmental Organisations.

NHAs - Proposed Natural Heritage Areas. These are areas that are important for wildlife conservation. Some of these sites are small, such as roosting areas for rare bats; others can be large such as a blanket bog or a sand dune system.

NO SHOOTING AREAS - These areas are also referred to as Wildfowl Sanctuaries and are areas that have been excluded from the “Open Season Order” so that game birds can rest and feed undisturbed. Shooting of game birds is not allowed in these areas.

NOTABLE SPECIES - Plants or animals which are worthy of mentioning either because they are particularly typical of a habitat, or because they are rare/ scarce/ atypical.

NOTIFIABLE ACTIONS - Actions specified under the cSAC regulations and are listed in the appendices of a conservation plan. These are actions which could cause damage to the site, and for which prior approval is required before they can be carried out.

NPW - National Parks and Wildlife

OLIGO – Prefix denoting few or little

OLIGOTROPHIC - Applied to waters that are relatively low in nutrients, as in lakes which are low

ORGANISM - Any living thing.

OS – Ordnance Survey

PATROL MONITORING - Regular monitoring of a site usually carried out by the Conservation Ranger to check for damaging activities and to carry out other activities such as to assess the vegetation, to assess the effectiveness of the management regime on the condition of the site, etc.

PERENNIAL - Referring to plants that live for two years at least.

PERMEABILITY - The capacity of a rock to transmit fluid.

pH - A quantitative expression for the acidity or alkalinity of a solution or soil. The scale ranges from 0-14: pH 7 is neutral, less than 7 is acidic and greater than 7 is alkaline.

POACHING - Damage caused to the vegetation by excessive numbers of large grazers.

PRECIPITATION - Water moving from the atmosphere to the ground in the form of rain, fog, mist, snow or hail.

PRIORITY HABITAT - A subset of the habitats listed in Annex I of the EU Habitats Directive. These are habitats which are in danger of disappearance and whose natural range mainly falls within the territory of the European Union. These habitats are of the highest conservation status and require measures to ensure that their favourable conservation status is maintained.

RARE - An ecological term applied to distribution of species when assessed on a national grid reference system. The assessment is made on the basis of the number of occupied 10 km National Grid squares. A species is described as rare if has been recorded in to 3-10, 10 km squares.

RECHARGE - The downward movement of water from the soil to the water table.

RECLAIMED LAND - this is applied to lands which have been modified from their natural state by intervention in the form of: a) drainage, b) bulldozed, c) clearance of scrub, d) infilling of wetland, e) ploughed and reseeded.

RED DATA BOOK – A register of threatened species that includes definitions of degrees of threat.

RED DATA BOOK (lower plants) - This Red Data Book deals with Stoneworts which are recognised as a separate class, Characea, of the Green Algae Chlorophyta). Many of these species are threatened by loss of habitat or pollution.

RED DATA BOOK 1 (vascular plants) This Red Data Book deals with rare and threatened flowering plants and ferns of Ireland with an account of their present distributions and conservation status.

RED DATA BOOK 2 (mammals, birds, amphibians and fish) - identifies those species threatened in Ireland or those species whose populations are considered to be of international importance, though not necessarily threatened in Ireland. It details the current state of Irish vertebrates and provides a concise summary of the various legislation for each species.

REEDBEDS AND OTHER SWAMPS - An NPW habitat classification. This habitat comprises tall, species poor, usually emergent vegetation, often found in a narrow fringe at the edge of open water or occupying more extensive areas in shallow basins which may become dry in Summer. The vegetation is species poor and overwhelmingly dominated by a single species, typically Common Reed (*Phragmites australis*).

REPS - Rural Environmental Protection Scheme. This is an Agri-Environmental programme which seeks to draw up agreements with farmers, according to the type of farming, landscape and features on the land. The overall objectives of REPS are to achieve: the use of farming practices which reduce the polluting effects of agriculture by minimising nutrient loss- an environmentally favourable extensification of crop farming, and sheep farming and cattle farming; - ways of using agricultural land which are compatible with protection and improvement of the environment, the countryside, the landscape, natural resources the soil and genetic diversity; - long-term set-aside of agricultural land for reasons connected with the environment; - land management for public access;- education and training for farmers in types of farming compatible with the requirements of environmental protection and upkeep of the countryside.

REPTILES - Cold-blooded vertebrates, most of which are terrestrial, having dry horny skin with scales or plates. Most reptiles lay eggs that have a leathery skin, although some are ovoviviparous.

RIVERS AND STREAMS - An NPW habitat classification describing linear channels of moving water. These are natural features that distinguish them from ditches and drainage channels.

RUDERAL VEGETATION - Refers to plants of waste places usually associated with human disturbance. They are only distinguished from weeds by the definition that weeds are a nuisance to human activities - the ruderal is not necessarily a nuisance.

SACs - Special Areas of Conservation have been selected from the prime examples of wildlife conservation areas in Ireland. Their legal basis from which selection is derived is The Habitats Directive (92/43/EEC of the 21st May 1992). SAC's have also been known as cSAC's which stands for "candidate Special Areas of Conservation", and pcSAC's which stands for "proposed candidate Special Areas of Conservation."

SCARCE - This is an ecological term, which is applied to distribution of species when assessed on a national grid reference system. The assessment is made on the basis of the number of occupied 10 km National Grid squares. Scarce applies to 11-25, 10 km squares in this context.

SCIENTIFIC MONITORING - this is carried out by the monitoring section of the NPW, whose function here is to ensure that the favourable conservation status of the site is maintained and where possible improved.

SCRUB – An NPW habitat classification which comprises areas with more than 50% cover of shrubs or small trees. There may be scattered standard trees, but in general the canopy height is 5 m or less. This category does not apply to stands of young trees which will eventually grow to a height of more than 5 m.

SEDIMENT - Solid particles that can originate by the weathering and erosion of pre-existing rock, by chemical precipitation from water, or by the breakdown of organisms.

SEDIMENTARY - Formed by the deposition of sediment, i.e. rock particles or chemical precipitate, or pertaining to the process of sedimentation.

SEMI-IMPROVED GRASSLAND - An NPW habitat classification which refers to grasslands which have been lightly fertilised but not re-seeded. These grasslands may still support a rich assemblage of grasses and herbs.

SEVERELY HANDICAPPED AREA - An EU designation which allows farmers within these areas to avail of extra headage payments and premium payments.

SHALE - Fine-grained sedimentary rock, like mudstone but with an irregular parting.

SHINGLE BEACHES - An NPW habitat classification which refers to areas above the spring low water mark which are predominantly of sediments coarser than sand, often with a high proportion of shell fragments, but not rocky.

SLUGGARA - A term used for swallow holes in some areas.

SPAs - Special Protection Areas for Birds are areas which have been designated to ensure the conservation of certain categories of birds. Ireland is required to conserve the habitats of two categories of wild birds under the European Birds Directive (Council Directive 79/ 409/ 2nd April 1979). The NPW is responsible for ensuring that such areas are protected from significant damage.

SPECIES - the lowest unit of classification normally used for plants and animals.

STRATEGY - A course of action or a broad approach towards achieving an objective . It is the general thrust of management towards achieving an objective. It is a description of how the objective is to be achieved.

STRATIFICATION - Arrangement in layers: differentiation of horizontal layers in soils.

SUPPLEMENTARY FEEDING - The practice of providing livestock with additional food, usually carried out in winter. This term is most often used when hay, silage or other foods are brought into a site to supply Cattle or Sheep with food during times when growing conditions are poor.

SURVEY - a) Study/visit to produce an inventory of what is present / record a situation.- b) Establishing a baseline (study).

SUSTAINABLE - The highest rate at which a renewable resource can be used without reducing its supply (without causing damage to the resource).

SWALLOW HOLES - These are holes in a karstic landscape which allow water to drain from the surrounding land when groundwater levels are low, or conversely release water to the surrounding lands when the water table is high. They are often found in association with Turloughs. In some areas they are referred to as Sluggaras.

SWARD - Refers to the vegetation cover of low growing plants communities, such as grasslands.

TAXON – Any grouping within the classification of organisms (plural = taxa)

TERRESTRIAL - A term used to refer to living on land. The opposite of aquatic.

TILL - Unconsolidated, unsorted glacial deposits.

TOMBOLO - a sand or gravel bar or barrier that connects an island with the mainland or another island.

TOPOGRAPHY - the study or detailed description of the surface features of a region.

TRADITIONAL MANAGEMENT PRACTICES Land management practices which were carried out prior to the 1950s. These practices were often less intensified than today's management practices. In REPS prescriptions traditional means an activity which has been carried out for a specified number of years on a site (usually 10 years).

TROPHIC STATUS - The nutrient status (i.e. a measure of the availability of nutrients).

TURLOUGHES - An NPW habitat classification and a priority habitat listed in Annex I of the Habitat Directive describing temporary lakes in limestone areas which fill and empty through underground passages. Usually filling during the Winter and drying out in the Summer, but often with more rapid fluctuations in response to local rainfall. They are mainly found in counties Clare, Galway and Roscommon. The vegetation of their basins is a mixture of aquatic, terrestrial and especially amphibious plants, usually forming a distinct and characteristic concentric zonation pattern.

TYPICALITY - Assessment of whether a site is typical of the habitat it represents.

VASCULAR - Consisting of, or containing vessels adapted for the carriage or circulation of fluid, in plants refers to xylem and phloem.

VERTEBRATES - Animals with backbones.

VERY RARE - an ecological term which is applied to distribution of species when assessed on a national grid reference system. The assessment is made on the basis of the number of occupied 10 km National Grid squares. Very Rare applies to 1-2, 10 km squares in this context.

WEATHERING - The process by which rocks are broken down and decomposed by the action of wind, rain temperature changes, plants and bacteria. See also chemical and mechanical weathering.

WETLAND - An area habitually saturated with water, and which may be partially or wholly covered permanently, occasionally, or periodically by fresh or salt water up to a depth of 6 m, and which includes bogs, fens, marsh, shallow ponds, river estuaries, and intertidal mud flats.

ZONING - The division of a nature conservation site (& neighbouring lands) into a number of sub-units. Within each zone the management prescriptions will be reasonably uniform and will differ in type or intensity from the other zones in the plan.

APPENDIX II: REFERENCES

Map References:

- O.S. 1/2 inch (1:126,720) map: 14
O.S. Discovery (1:50,000) map: 52
O.S. 6 inch (1: 10,560) map: GA 114

Data Bases :

NHA database, NPW, Department of Environment, Heritage and Local Government, 7 Ely Place, Dublin 2.

Natura 2000 database, NPW, Department of Environment, Heritage and Local Government, 7 Ely Place, Dublin 2.

I-WeBs Database, BirdWatch Ireland, Rutledge House, 8 Longford Place, Monkstown, Co.Dublin

Photographic Coverage:

G.S.I. M429 April 1973

Relevant Legislation:

S.I. No. 94/1997: European Communities (Natural Habitats) Regulations, 1997.

Local Government (Planning and Development) Regulations, 2000.

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APPENDIX III: CLIMATE DATA

SHANNON AIRPORT													
monthly and annual mean and extreme values													
1961-1990													
TEMPERATURE (degrees Celsius)	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	year
mean daily max.	8.2	8.5	10.5	12.7	15.3	17.9	19.4	19.2	17.2	14.2	10.4	8.9	13.5
mean daily min.	2.6	2.7	3.6	4.8	7.3	10.1	12	11.7	10.1	8	4.5	3.6	6.8
mean	5.4	5.6	7	8.8	11.3	14	15.7	15.5	13.6	11.1	7.5	6.3	10.1
absolute max.	14	14.8	20.2	22.2	25.6	31.6	30.6	28.7	25.5	21.8	18.2	15.2	31.6
absolute min.	-11.2	-9.8	-7.8	-4.1	-0.9	1.5	5.2	2.9	1.3	-1.4	-6.1	-8.3	-11.2
mean no. of days with air frost	6.5	5.4	3.2	1.6	0	0	0	0	0	0.3	3.5	5	25.4
mean no. of days with ground frost	13.2	11	9.5	8.2	2.5	0.4	0	0	0.6	2.7	9.6	11	68.6
RELATIVE HUMIDITY (%)													
mean at 0900UTC	88	87	85	81	77	79	81	83	85	88	88	89	84
mean at 1500UTC	82	75	70	65	64	67	68	69	71	77	81	84	73
SUNSHINE (hours)													
mean daily duration	1.58	2.34	3.34	4.93	5.77	5.13	4.59	4.44	3.69	2.65	1.93	1.42	3.48
greatest daily duration	7.8	9.5	11.6	13.6	15.3	15.8	15.7	14.8	11.6	9.9	8.8	7.1	15.8
mean no. of days with no sun	10	7	5	3	2	2	2	2	3	6	8	11	62
RAINFALL (mm)													
mean monthly total	97.2	72.1	71.8	55.5	60.1	62.4	57.1	82.3	81.8	92.4	94.7	99.6	926.8
greatest daily total	29	33.5	28.5	29.6	27	29.7	42.5	35.9	35.5	33	33	50.4	50.4
mean no. of days with >= 0.2mm	20	16	19	16	17	16	15	18	18	20	19	20	214
mean no. of days with >= 1.0mm	16	12	14	11	13	11	10	13	13	15	15	16	160
mean no. of days with >= 5.0mm	7	5	5	4	4	4	4	5	6	6	7	7	66
WIND (knots)													
mean monthly speed	10.9	11.1	11	9.5	9.5	8.9	8.7	8.6	9.6	10	9.6	10.5	9.8
max. gust	82	80	65	62	61	57	52	55	93	84	64	81	93
max. mean 10-minute speed	55	53	44	41	39	42	33	39	60	57	45	51	60
mean no. of days with gales	2.1	1.2	1.4	0.5	0.5	0.1	0	0.1	0.6	0.9	1	1.5	9.8
WEATHER (mean no. of days with...)													
snow or sleet	3.4	3.2	1.8	0.6	0.1	0	0	0	0	0.1	0.3	1.5	10.9
snow lying at 0900UTC	0.8	0.7	0.1	0	0	0	0	0	0	0	0.1	0.3	2
hail	3.7	3.1	4.3	2.5	1.7	0.2	0.1	0.2	0.3	1.1	1.8	2.7	21.7
thunder	0.9	0.5	0.4	0.3	0.4	0.8	0.8	0.5	0.4	0.4	0.4	0.4	6.3
fog	4.1	2	1.8	2.2	1.7	1.8	1.7	3.1	3	3.3	3.4	3.6	31.8

APPENDIX IV: NOTIFIABLE ACTIONS

The notifiable actions relating to the habitats that occur within the site are listed below:

- Notifiable Action 2.2
- Notifiable Action 2.5
- Notifiable Action 5.2
- Notifiable Action 7.1

HABITAT TYPE 2.2

DRY LOWLAND GRASSLANDS

Under STATUTORY INSTRUMENT 94 of 1997, made under the EUROPEAN COMMUNITIES ACT 1972 and in accordance with the obligations inherent in the COUNCIL DIRECTIVE 92/43/EEC of 21 May 1992 (the Habitats Directive) on the conservation of the natural habitats and species of wild fauna and flora, all persons must obtain the written consent, (in circumstances prescribed at section A and B below) of the Minister for The Environment and Local Government before performing any of the operations on, or affecting, the following habitats where they occur on lands / waters within the candidate Special Area of Conservation.

Please note that where a landowner has a current approved plan under the Rural Environmental Protection Scheme or any scheme which the Minister considers to be equivalent s/he need only notify the Minister of activities not covered in the plan.

<u>SECTION A</u>	<u>SECTION B</u>
<p>Please note that the activities listed in <i>Section A overleaf</i> are required to be notified to the Minister for The Environment and Local Government and should not be undertaken before consent.</p>	<p>Please note that the activities listed in <i>Section B overleaf</i> may, and in most cases do, require a Minister for the Marine and Natural license or consent from another statutory authority (e.g. the local planning authority, the Resources, or the Minister for Agriculture and Food).</p> <p>If so, these notifiable actions do not apply.</p> <p>However, if such activities are not regulated by another statutory authority, the said activities are required to be notified to the Minister for The Environment and Local Government.</p>

HABITAT TYPE 2.2

DRY LOWLAND GRASSLANDS

<u>Section A</u>	<u>Section B</u>
<p>THE MINISTER FOR THE ENVIRONMENT AND LOCAL GOVERNMENT IS REQUIRED TO BE NOTIFIED IN RELATION TO THE FOLLOWING ACTIVITIES AND SUCH ACTIVITIES SHOULD NOT PROCEED WITHOUT PRIOR CONSENT</p> <p>grazing of livestock above a sustainable density (as defined in approved farm plans)/grazing by livestock treated within the previous week with a pesticide which leaves persistent residues in the dung</p> <p>changing of traditional use from hay meadow (to either grazing or silage making), or from grazing to silage cutting</p> <p>adding lime/adding fertiliser of any sort to areas not previously fertilised/ applying fertiliser which would increase the level of nitrogen in the soil/applying fertiliser which would increase the level of phosphorous in the soil/ applying phosphorous to soils which already have in excess of the REPS index 2 levels mowing grass before the 30th June (<i>Note; if you have been notified that your lands hold breeding corncrakes, or certain rare meadows, special provisions will apply</i>)</p> <p>burning of vegetation /ploughing or cultivation of lands which have not been so managed for the last 20 years</p> <p>reclamation, infilling, or land drainage/ reseeding, planting of trees or any other species use of any pesticide or herbicide</p> <p>dumping, burning or storing any materials</p> <p>alteration of the banks, bed or low of watercourses</p> <p>operation of commercial recreation facilities (e.g. pony trekking)/introduction (or re-introduction) into the wild of plants or animals of species not currently found in the area</p> <p>any other activity of which notice may be given by the Minister from time to time</p>	<p>(NO REQUIREMENT TO NOTIFY IF ALREADY LICENSED BY ANOTHER MINISTER/BODY)</p> <p>developing leisure facilities including golf courses, sports pitches, caravan or camping facilities.</p> <p>removal of soil, mud, gravel, sand or minerals</p> <p>developing roads or car parks</p> <p>construction of fences, buildings or embankments</p> <p>afforestation</p>

In a very limited number of cases it may be necessary for the Minister for The Environment and Local Government to restrict existing activities. In these cases compensation will be payable for actual losses arising out of any such restriction. In the event of restrictions being imposed by the Minister for The Environment and Local Government, an appropriate appeals procedure will be put in place.

HABITAT TYPE 2.5

TURLOUGHS

Under STATUTORY INSTRUMENT 94 of 1997, made under the EUROPEAN COMMUNITIES ACT 1972 and in accordance with the obligations inherent in the COUNCIL DIRECTIVE 92/43/EEC of 21 May 1992 (the Habitats Directive) on the conservation of the natural habitats and species of wild fauna and flora, all persons must obtain the written consent, (in circumstances prescribed at section A and B below) of the Minister for The Environment and Local Government before performing any of the operations on, or affecting, the following habitats where they occur on lands / waters within the candidate Special Area of Conservation.

Please note that where a landowner has a current approved plan under the Rural Environmental Protection Scheme or any scheme which the Minister considers to be equivalent s/he need only notify the Minister of activities not covered in the plan.

<p><u>SECTION A</u></p> <p>Please note that the activities listed in <i>Section A overleaf</i> are required to be notified to the Minister for The Environment and Local Government and should not be undertaken before consent.</p>	<p><u>SECTION B</u></p> <p>Please note that the activities listed in <i>Section B overleaf</i> may, and in most cases do, require a license or consent from another statutory authority (e.g. the local planning authority, the Minister for the Marine and Natural Resources, or the Minister for Agriculture and Food).</p> <p>If so, these notifiable actions do not apply.</p> <p>However, if such activities are not regulated by another statutory authority, the said activities are required to be notified to the Minister for The Environment and Local Government.</p>
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HABITAT TYPE 2.5

TURLOUGHS

<u>Section A</u>	<u>Section B</u>
<p>THE MINISTER FOR THE ENVIRONMENT AND LOCAL GOVERNMENT IS REQUIRED TO BE NOTIFIED IN RELATION TO THE FOLLOWING ACTIVITIES AND SUCH ACTIVITIES SHOULD NOT PROCEED WITHOUT PRIOR CONSENT</p> <p>grazing of livestock above a sustainable density (as defined in approved farm plans)/grazing by livestock treated within the previous week with a pesticide which leaves persistent residues in the dung</p> <p>changing of traditional use from hay meadow (to either grazing or silage making), or from grazing to silage cutting/adding lime within 50m of the normal high flood level of the turlough</p> <p>adding fertiliser of any sort within 50m of the normal high flood level of the turlough</p> <p>mowing grass before the 30th June (Note; if you have been notified that your lands hold breeding corncrakes, or certain rare meadows, special provisions will apply)</p> <p>supplementary feeding of stock/operation of boat angling or shore angling business/ restocking with fish.</p> <p>reclamation, infilling, ploughing or land drainage within 50m of the normal high flood level of the turlough</p> <p>reseeding, planting of trees or any other species within 50m of the normal high flood level of the turlough</p> <p>use of any pesticide or herbicide within 50m of the normal high flood level of the turlough</p> <p>dumping, burning or storing any materials within 50m of the normal high flood level of the turlough</p> <p>alteration of the banks, bed or flow of watercourses, including the blocking of swallow holes</p> <p>operation of commercial recreation facilities (e.g. sailing schools, jet ski hire)</p> <p>introduction (or re-introduction) into the wild of plants or animals of species not currently found in the area</p> <p>any other activity of which notice may be given by the Minister from time to time</p>	<p>(NO REQUIREMENT TO NOTIFY IF ALREADY LICENSED BY ANOTHER MINISTER/BODY)</p> <p>developing leisure facilities including golf courses, sports pitches, caravan or camping facilities.</p> <p>removal of soil, mud, gravel, sand or minerals</p> <p>developing roads or car parks</p> <p>construction of fences, buildings or embankments</p> <p>afforestation</p>

In a very limited number of cases it may be necessary for the Minister for The Environment and Local Government to restrict existing activities. In these cases compensation will be payable for actual losses arising out of any such restriction. In the event of restrictions being imposed by the

Minister for The Environment and Local Government, an appropriate appeals procedure will be put in place.

HABITAT TYPE 5.2

SCRUB

Under STATUTORY INSTRUMENT 94 of 1997, made under the EUROPEAN COMMUNITIES ACT 1972 and in accordance with the obligations inherent in the COUNCIL DIRECTIVE 92/43/EEC of 21 May 1992 (the Habitats Directive) on the conservation of the natural habitats and species of wild fauna and flora, all persons must obtain the written consent, (in circumstances prescribed at section A and B below) of the Minister for The Environment and Local Government before performing any of the operations on, or affecting, the following habitats where they occur on lands / waters within the candidate Special Area of Conservation.

Please note that where a landowner has a current approved plan under the Rural Environmental Protection Scheme or any scheme which the Minister considers to be equivalent s/he need only notify the Minister of activities not covered in the plan.

<u>SECTION A</u>	<u>SECTION B</u>
<p>Please note that the activities listed in Section A overleaf are required to be notified to the Minister for The Environment and Local Government and should not be undertaken before consent.</p>	<p>Please note that the activities listed in <i>Section B</i> overleaf may, and in most cases do, require a license or consent from another statutory authority (e.g. the local planning authority, the Minister for the Marine and Natural Resources, or the Minister for Agriculture and Food).</p> <p>If so, these notifiable actions do not apply.</p> <p>However, if such activities are not regulated by another statutory authority, the said activities are required to be notified to the Minister for The Environment and Local Government.</p>

HABITAT TYPE 5.2

SCRUB

<u>Section A</u>	<u>Section B</u>
<p>THE MINISTER FOR THE ENVIRONMENT AND LOCAL GOVERNMENT IS REQUIRED TO BE NOTIFIED IN RELATION TO THE FOLLOWING ACTIVITIES AND SUCH ACTIVITIES SHOULD NOT PROCEED WITHOUT PRIOR CONSENT</p> <p>grazing of livestock above a sustainable density (as defined in approved farm plans)/grazing by livestock treated within the previous week with a pesticide which leaves persistent residues in the dung</p> <p>supplementary feeding of stock (as defined in approved farm plans)</p> <p>adding lime /adding fertiliser of any sort</p> <p>reclaiming land covered by scrub; if scrub is cut it must be allowed to regrow</p> <p>reclamation, infilling, ploughing or land drainage</p> <p>reseeding, planting of trees or any other species</p> <p>felling of trees, removal of timber</p> <p>removal of foliage, moss or other materials</p> <p>killing ivy</p> <p>use of any pesticide or herbicide /dumping, burning or storing any Materials</p> <p>alteration of the banks, bed or flow of watercourses</p> <p>operation of commercial recreation facilities (e.g. walking tours)</p> <p>introduction (or re-introduction) into the wild of plants or animals of species not currently found in the area</p> <p>any other activity of which notice may be given by the Minister from time to time</p>	<p>(NO REQUIREMENT TO NOTIFY IF ALREADY LICENSED BY ANOTHER MINISTER/BODY)</p> <p>developing leisure facilities including golf courses, sports pitches, caravan or camping facilities.</p> <p>any activity which may cause pollution of the site</p> <p>removal of soil, mud, gravel, sand or minerals</p> <p>developing roads or car parks</p> <p>construction of fences, buildings or embankments</p> <p>felling trees or reafforestation</p>

HABITAT TYPE 7.1

DITCHES, HEDGES, CEREALS AND INTENSIVE GRASSLANDS, WALLS, BUILDINGS, WASTE GROUND, BARE SOIL, PARKLAND GRASSLAND, BRACKEN, CAVES, OR QUARRIES

Under STATUTORY INSTRUMENT 94 of 1997, made under the EUROPEAN COMMUNITIES ACT 1972 and in accordance with the obligations inherent in the COUNCIL DIRECTIVE 92/43/EEC of 21 May 1992 (the Habitats Directive) on the conservation of the natural habitats and species of wild fauna and flora, all persons must obtain the written consent, (in circumstances prescribed at section A and B below) of the Minister for The Environment and Local Government before performing any of the operations on, or affecting, the following habitats where they occur on lands / waters within the candidate Special Area of Conservation.

Please note that where a landowner has a current approved plan under the Rural Environmental Protection Scheme or any scheme which the Minister considers to be equivalent s/he need only notify the Minister of activities not covered in the plan.

<u>SECTION A</u>	<u>SECTION B</u>
<p>Please note that the activities listed in Section A overleaf are required to be notified to the Minister for The Environment and Local Government and should not be undertaken before consent.</p>	<p>Please note that the activities listed in Section B overleaf may, and in most cases do, require a licence or consent from another statutory authority (e.g. the local planning authority, the Minister for the Marine and Natural Resources, or the Minister for Agriculture and Food).</p> <p>If so, these notifiable actions do not apply.</p> <p>However, if such activities are not regulated by another statutory authority, the said activities are required to be notified to the Minister for The Environment and Local Government.</p>

HABITAT TYPE 7.1

DITCHES, HEDGES, CEREALS AND INTENSIVE GRASSLANDS, WALLS, BUILDINGS, WASTE GROUND, BARE SOIL, PARKLAND GRASSLAND, BRACKEN, CAVES, OR QUARRIES

<u>Section A</u>	<u>Section B</u>
<p>THE MINISTER FOR THE ENVIRONMENT AND LOCAL GOVERNMENT IS REQUIRED TO BE NOTIFIED IN RELATION TO THE FOLLOWING ACTIVITIES AND SUCH ACTIVITIES SHOULD NOT PROCEED WITHOUT PRIOR CONSENT</p> <p>disturbance of bats</p> <p>operation of commercial recreation facilities (e.g. bird watching tours)</p> <p>introduction (or re-introduction) into the wild of plants or animals of species not currently found in the area</p> <p>any other activity of which notice may be given by the Minister from time to time</p>	<p>(NO REQUIREMENT TO NOTIFY IF ALREADY LICENSED BY ANOTHER MINISTER/BODY)</p> <p>developing leisure facilities including sports pitches, caravan or camping facilities.</p> <p>developing roads or car parks</p> <p>construction of fences, buildings and embankments</p> <p>afforestation</p>

In a very limited number of cases it may be necessary for the Minister for The Environment and Local Government to restrict existing activities. In these cases compensation will be payable for actual losses arising out of any such restriction. In the event of restrictions being imposed by the Minister for The Environment and Local Government, an appropriate appeals procedure will be put in place.

APPENDIX V: COMPENSATION AND APPEALS PROCEDURES

Compensation

The Government is committed, as part of the social partnership process, to the payment of a fair and proper level of compensation to landowners who have lands proposed as part of an SAC or SPA and to other users who have a legal entitlement in the site.

A landowner or user with a legal entitlement may seek compensation for actual losses incurred due to restrictions imposed as a result of designation. Eligible persons should submit to NPWS details of the losses incurred as a result of the inclusion of lands in an SAC/SPA and outlining the basis for the calculations. Documentary evidence of past earnings and the activities that produced these should be included with the claim. Should the applicant be dissatisfied with a compensation offer, the case may be referred to an independent arbitrator who will review the matter and make a final decision.

Where a landowner or user with a legal entitlement is restricted in carrying out an activity on their land or licensed area, the compensation due will exclude any payments that have been attracted under grant schemes.

For farmers, there are two options available for receiving compensation for possible restrictions to their farming practices. Farmers may also receive payments for carrying out actions that enhance a nature conservation area.

Rural Environment Protection Scheme (REPS)

Lands within SACs, SPAs, NHAs or commonages are defined as 'Target Areas' under this scheme. A REPS plan usually covers an entire farm, but a farmer with land in a target area receives a higher payment for that area. Farmers with small areas of land in a designated area can get REPS payments for that part of their farm. In either case, the farmer is subject to certain conditions regarding farming and land use practices, set out in the REPS plan for the farm. REPS is administered by the Department of Agriculture, Food and Forestry.

NPWS Farm Plan Scheme

Where a farmer chooses not to participate in REPS, and NPWS seeks to change the farm operation in some way or to restrict a particular activity, NPWS will pay for preparation of a farm plan. This scheme also applies to land within SACs, SPAs, NHAs and commonages.

An NPWS farm plan will normally be confined just to the designated land and will address the conservation requirements, as well as any costs arising. Payment may also be made for work carried out that enhances the nature conservation value of the designated area. The farmer will have a substantial input into the plan.

A list of trained and approved farm planners is available for farmers to choose from. For further information, contact NPWS.

Appeals Procedure

Objection or appeal can be made against the inclusion of a piece of land in a cSAC or SPA. A person can only make objections if they have a legal interest in the site (i.e. an owner or legal user). They must be made on scientific grounds, e.g. a landowner would show that the relevant habitats/species/geological features were not present in such a condition as to warrant designation. Appeals can also be made for the inclusion of lands. Appeals should be accompanied by a map of the area of concern and be as informative as possible. There are two stages to the appeals process:

Internal Appeals are initially dealt with by regional staff. If necessary, they may refer the case to other NPWS staff. If there is no agreement following the internal appeal, the case becomes an external appeal.

The option of an **External Appeal** is available only where an internal appeal is unsuccessful. If so, the appellant may have the case referred to an Appeals Advisory Board, which is independent of NPWS. A grant to defray the cost of an expert scientific report is available to the appellant. The Board is comprised of equal representation of landowners/users and conservationists, with an independent chairperson. The Board makes a recommendation on each appeal to the Minister who then decides on the outcome of the appeal.

APPENDIX VI: NATIONAL PARKS AND WILDLIFE MANAGEMENT STAFF

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