



# **Natura Impact Statement**

**Proposed Residential Development at Drumlark, Cavan, Co.  
Cavan**

**Report For:**

**Drumlark Investments Ltd.**

**Prepared By:**

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**Date:**

**22<sup>nd</sup> February 2024**

**Project No. 15300**

**Report No. 15300-04 REV.B**



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## 1.0 INTRODUCTION

### 1.1 Project Background

It is understood that Drumlark Investments Ltd. intend to apply to Cavan County Council for planning permission for a new residential development at a site at Drumlark, Cavan, Co. Cavan. Accordingly, Hydrec Environmental Consulting were engaged by Michael Fitzpatrick Architects on behalf of the applicant to carry out an Appropriate Assessment to determine the appropriateness of the proposed development in the context of the conservation objectives set out in any nearby Natura 2000 sites.

### 1.2 Statement of Competence

Patrick McCabe is a graduate of University College Dublin with a BSc in Applied Environmental Science. Additionally, Patrick has graduated from Dundalk Institute of Technology (Centre for Freshwater Studies) with a MSc focusing on freshwater ecology and catchment science / hydrology. He has over 10 years' experience in environmental consultancy, acting as project manager on a range of ecological and hydrological assessments within the agricultural, industrial, residential and waste sectors. Patrick has also spoke on such topics at a number of national conferences (e.g. International Association of Hydrogeologists (IAH), Irish Group, Annual Conference 2021) and given guest lectures on the subject to third level education institutions (e.g. NUI Galway - MSc Programme in "Marine and Freshwater Resources: Management, 2022, 2023).

### 1.3 Legislative Context

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, better known as the "Habitats Directive", provides legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. These are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/ECC) as codified by Directive 2009/147/EC.

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect Natura 2000 sites. Article 6(3) establishes the requirement for Appropriate Assessment (AA):

*Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination*

*with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.*

Article 6(4) states:

*If, in spite of a negative assessment of the implications for the [Natura 2000] site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.*

*Where the site concerned hosts a priority natural habitat type and/or a priority species the only considerations which may be raised are those relating to: human health or public safety; beneficial consequences of primary importance for the environment; or, further to an opinion from the Commission, other imperative reasons of overriding public interest.*

These articles mean that where the implementation of the proposed development has potential to have a significant effect on a Natura 2000 site, the relevant Competent Authority must ensure that an appropriate assessment is carried out in view of that site's conservation objectives. The proposed development can only be approved by the relevant Competent Authority if it has been ascertained that it will not adversely affect the integrity of the Natura 2000 site(s) concerned, or in the case of a negative assessment and where there are no alternative solutions, the scheme can only be approved for reasons of overriding public interest.

#### **1.4 Stages of Appropriate Assessment**

There are up to 4 stages in the Appropriate Assessment process as outlined in the European Commission Guidance document (EC, 2001). The following is a summary of these stages (each of which is dependent on the outcome of the previous):

- Stage 1 - Screening: This stage examines the likely effects of a project either alone or in combination with other projects upon a Natura 2000 Site and considers whether it can be objectively concluded that these effects will not be significant.

- Stage 2 - Appropriate Assessment: In this stage, the impact of the project on the integrity of a Natura 2000 site is considered with respect to the conservation objectives of the site and to its structure and function.
- Stage 3 - Assessment of Alternative Solutions: Should the Appropriate Assessment determine that adverse impacts are likely upon a Natura 2000 site, this stage examines alternative ways of implementing the project that, where possible, avoid these adverse impacts.
- Stage 4 - Assessment where no alternative solutions exist and where adverse impacts remain: Where imperative reasons of overriding public interest (IROPI) exist, an assessment to consider whether compensatory measures will or will not effectively offset the damage to the Natura 2000 site will be necessary.

### 1.5 Identification of Relevant Natura 2000 Sites

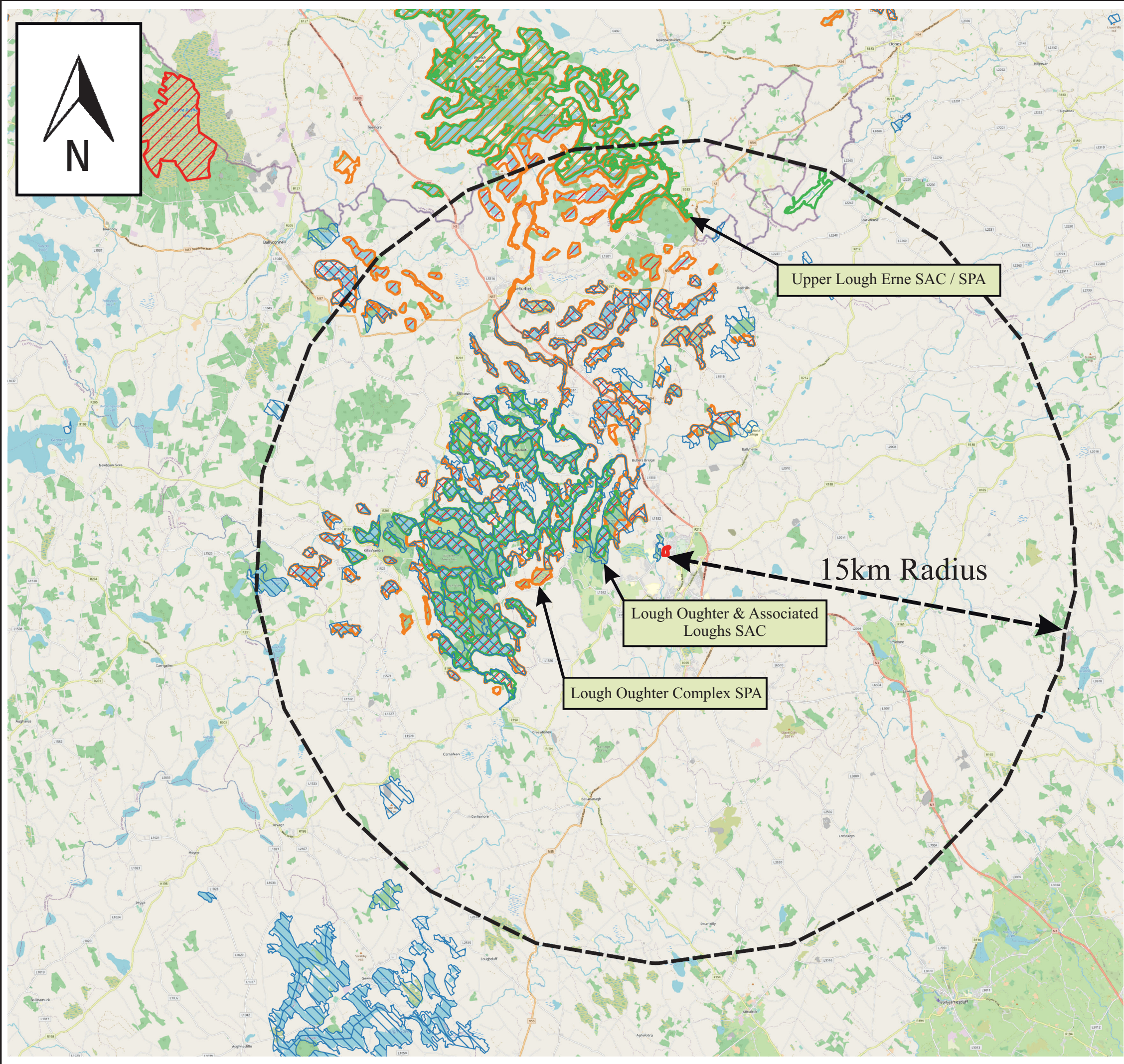
The EU Habitats Directive contains a list of habitats (Annex I) and species (Annex II) for which SACs must be established by Member States. Similarly, the EU Birds Directive contains lists of important bird species (Annex I) and other migratory bird species for which SPAs must be established. Those that are known to occur at a site are referred to as ‘qualifying interests’ and are listed in the Natura 2000 forms which are lodged with the EU Commission by each Member State. A ‘qualifying interest’ is one of the factors (such as the species or habitat that is present) for which the site merits designation. The National Parks and Wildlife Service (NPWS) are responsible for the designation of SACs and SPAs in Ireland.

Figure 1. illustrates all Natura 2000 sites situated within 15km of the proposed development. The use of a 15km radius from the proposed site is in line with current best practice and guidance (DEHLG, 2010). As can be seen from Figure 1. there are four Natura 2000 sites located within a 15km radius of the site.




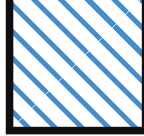
**Table 1. Distance of Natura 2000 Sites from the Proposed Development**

Natura 2000 Sites	Distance
Lough Oughter & Associated Loughs SAC	1.3km
Lough Oughter Complex SPA	2.1km
Upper Lough Erne SAC	11.9km
Upper Lough Erne SPA	11.9km





# LEGEND

-  Special Area of Conservation
-  Special Protection Area
-  National Heritage Area
-  proposed National Heritage Area



**PROJECT:**  
 Natura Impact Statement -  
 Drumlark Investments Ltd.

**TITLE:**  
 Identification of Natura 2000 Sites within  
 a 15km Radius of the Proposed Development

**SCALE:**  
 1:140,000

**DRAWN BY:**  
 PMcC

**DRAWING NO:**  
 Figure 1.

**REV.**  
 A



While Natural Heritage Areas (NHA) and proposed Natural Heritage Areas (pNHA) do not form part of the Natura 2000 network, they can provide an important supporting function, particularly to fauna species that are not confined within the boundaries of an attributed SPA / SAC (e.g. certain bird species). Therefore, in order to protect the European network, it may also be a requirement to protect a designated NHA / pNHA. In addition, Article 10 of the Habitat’s Directive places a high level of importance on such sites that connect the Natura 2000 network. Table 2 below identifies the closest NHA / pNHA’s to the proposed development site. It is noted that the Drumkeen House Woodland pNHA is situated c. 65m to the west of the site’s boundary, whilst Lough Oughter & Associated Loughs are also designated as a pNHA.

**Table 2. Distance of NHA & pNHA Sites from the Proposed Development**

Natural Heritage Areas	Distance
Drumkeen House Woodland (pNHA – 000980)	65m
Lough Oughter & Associated Loughs (pNHA – 000007)	1.3km

### 1.6 Conclusion of Stage 1 – Screening Assessment

Given the proximity of the Poles Stream to the eastern boundary of the site (i.e. headwater tributary of Cavan River), it was concluded that potential impacts arising from the development on the aforementioned Natura 2000 Sites could not be discounted at the screening stage (see Table 3). Consequently, it was determined that Appropriate Assessment (AA) – Stage 2 for the project was required.

## 2.0 METHODOLOGY

### 2.1 Legislation & Guidance Documents

Both EU and national guidance exists in relation to Member States fulfilling their requirements under the EU Habitats Directive, with particular reference to Article 6(3) and 6(4) of that Directive. The methodology followed in relation to this AA has had regard to the following guidance:

- Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Department of Environment, Heritage and Local Government;
- Managing Natura 2000 Sites: the provisions of Article 6 of the Habitats Directive 92/43/EEC, referred to as MN2000, European Commission 2018;

### Table 3. Summary of Appropriate Assessment Screening Conclusions

Site Code	Site Name	Distance	Qualifying Features	Potential Impact	Requirement for N.I.S
:000007	Lough Oughter & Associated Loughs SAC	1.3km	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150] Bog woodland [91D0] Lutra lutra (Otter) [1355]	Given the close proximity of the site boundary to the Poles Stream which a headwater tributary of the Cavan River which in turn discharges into the SAC, negative direct/indirect impacts cannot be ruled out at this juncture. Therefore, the assessment should progress to the next stage.	<b>Yes</b>
:004049	Lough Oughter SPA	2.1km	Great Crested Grebe (Podiceps cristatus) [A005] Whooper Swan (Cygnus cygnus) [A038] Wigeon (Anas penelope) [A050] Wetland and Waterbirds [A999]	Given the close proximity of the site boundary to the Poles Stream which a headwater tributary of the Cavan River which in turn discharges into the SPA negative direct/indirect impacts cannot be ruled out at this juncture. Therefore, the assessment should progress to the next stage.	<b>Yes</b>
UK0016614	Upper Lough Erne SAC	11.9km	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion alvae) Otter (Lutra lutra) Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation Old sessile oak woods with Ilex and Blechnum in the British Isles Bog Woodland Alkaline fen Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinia caerulea) Atlantic salmon (Salmo salar)	Given the close proximity of the site boundary to the Poles Stream which a headwater tributary of the Cavan River which in turn discharges into the Erne, negative direct/indirect impacts cannot be ruled out at this juncture. Therefore, the assessment should progress to the next stage.	<b>Yes</b>
UK9020071	Upper Lough Erne SPA	11.9km	Whooper Swan (Cygnus cygnus) [A038]	Given the close proximity of the site boundary to the Poles Stream which a headwater tributary of the Cavan River which in turn discharges into the Erne, negative direct/indirect impacts cannot be ruled out at this juncture. Therefore, the assessment should progress to the next stage.	<b>Yes</b>

- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats;
- Directive 92/43/EEC, referred to as the “EC Article 6 Guidance Document (EC2000); and
- Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission.
- Fossitt, J. (2000) A Guide to Habitats in Ireland;
- Smith et. al. (2011) Best practice guidance for habitat survey and mapping; and
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. September 2018;

## 2.2 Field Surveys / Investigation

### 2.2.1 On-site Habitat Survey

The site was surveyed on the 07<sup>th</sup> of July 2023 under bright, dry conditions. The primary aim of the visit was to establish a baseline of the ecological conditions onsite and to describe the habitats, dominant species, indicator species, invasive species and species of conservation where present. The timing of the survey was suitable to complete the floral aspect of the investigation.

### 2.2.2 Otter Survey

An Otter survey (*Lutra lutra*) which included a search for otter holts and other evidence of otter activity / habitat along the riparian margins of the Poles Stream was also completed on the 06<sup>th</sup> July 2023. The survey extent covered a c. 300m stretch.

## 2.3 Limitations

No significant limitations were encountered when carrying out the habitat/otter survey (i.e. completed in autumn, under dry and bright conditions). The timing of the survey would also allow for the identification of any high impact floral invasive species (if present) before their winter die back.



### 3.0 DESCRIPTION OF PROJECT

#### 3.1 Site Description & Proposed Works

As mentioned previously Drumlark Investments Ltd. intend to apply to Cavan County Council for planning permission for a new residential development at a site at Drumlark, Cavan, Co. Cavan. The development will consist of 2 – 4 bedroom houses, in addition to a number of apartment and terrace blocks. In total, 145 units will be constructed on a 4.98ha site at a housing density of 32 units/Ha. A public open space area of 0.7ha is also provided for. A new foul water network will be constructed across the site and will be connected to an existing combined sewer located to the east of the site. Stormwaters will be attenuated through a series of tree pits, bioretention areas, swales and Stormtech attenuation tanks with the outflow to the Poles Stream limited to the greenfield runoff rate. The site will be accessed via a new site entrance which opens out onto the L1532 – Local Road.

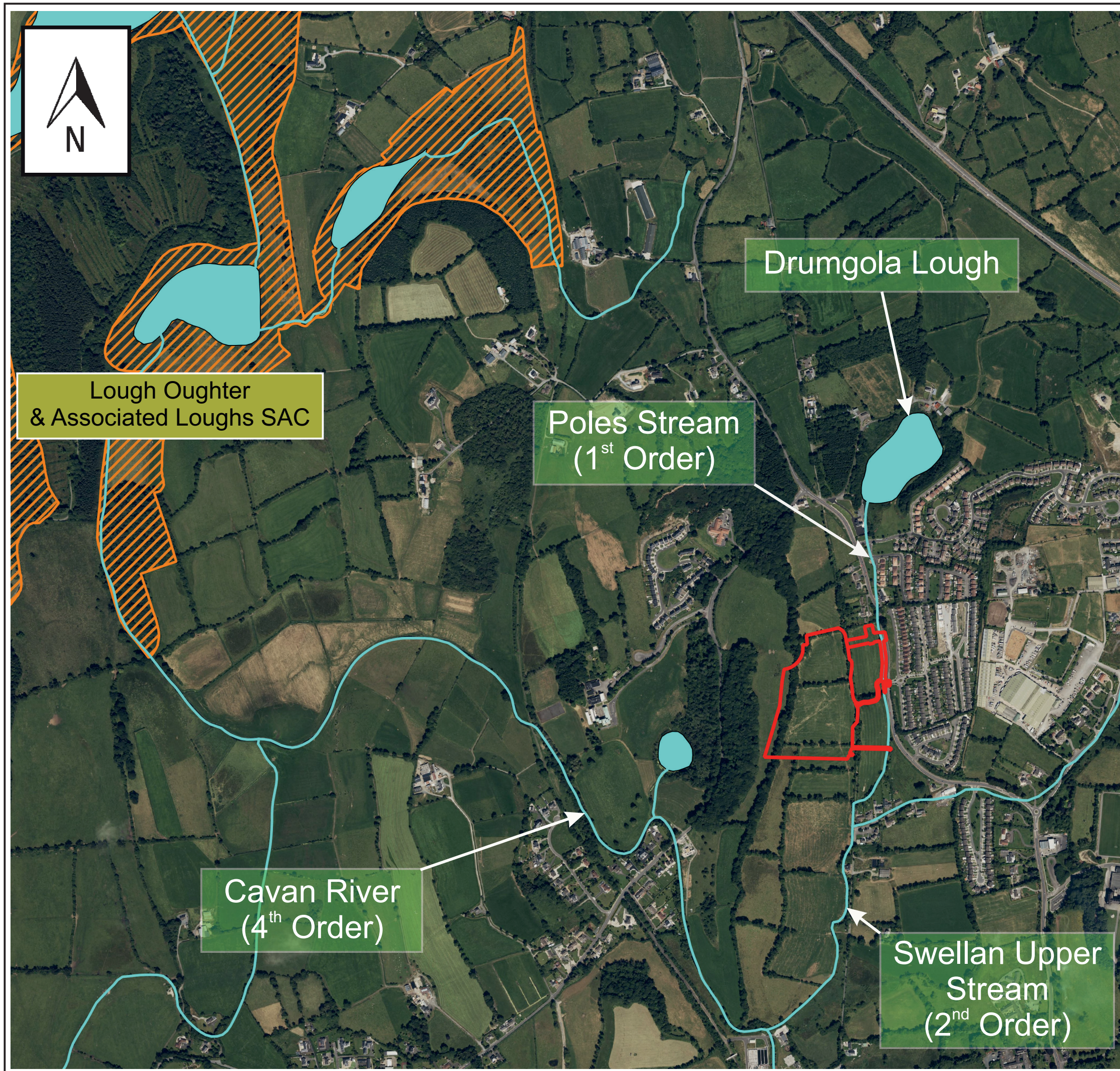
#### 3.2 Hydrology

With the publication of Ireland's second River Basin Management Plan (RBMP), the RBMP 2018 – 2021 defines the entirety of the island of Ireland as a single River Basin District (RBD). This single RBD has been broken down into 46 catchment management units. These units are mainly based on the hydrometric areas in use by the local authorities. Each of the 46 catchment management units have been further broken down into 583 sub-catchments. The proposed development site is located within the Erne Hydrometric Area WFD Catchment. Additionally, the site is located within the Cavan\_SC\_010 WFD Sub-catchment.





The Poles Stream (1<sup>st</sup> Order) which flows adjacent to the site's eastern boundary is the closest watercourse to the proposed development (see Figure 2). This stream rises in Drumgola Lough (c. 320m to the north), flows in a general southern orientation where it merges with the Swellan Upper Stream (1<sup>st</sup> Order) c. 240m downstream to form the Swellan Upper Stream (2<sup>nd</sup> Order). Thereafter, the Swellan Upper Stream discharges into the Cavan River a further 580m downstream.

As part of the Catchment Flood Risk Assessment and Management (CFRAM) project, the Poles Stream was modelled as part of the Cavan hydraulic model. As can be seen from Plate 1. flooding of the proposed development area and site entrance was not predicated to occur under either the 1 in 100-year or 1 in 1000-year flood events.





## LEGEND

-  Site Boundary
-  Stream / River
-  Lake
-  SAC



### PROJECT:

Natura Impact Statement -  
Drumlark Investments Ltd

### TITLE:

Hydrological features in the vicinity of  
the site

### SCALE:

1:10,000@A3

### DRAWN BY:

PMcC

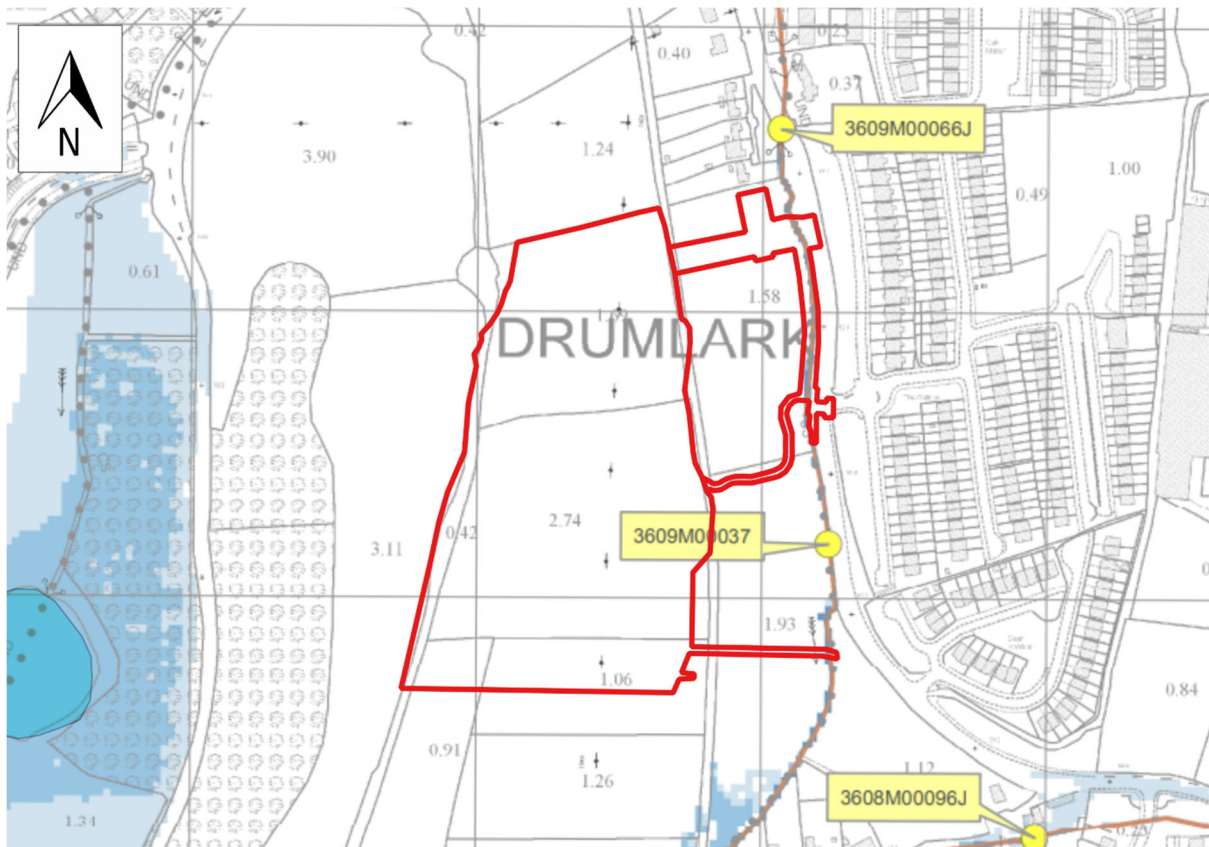
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Figure 2.

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**Plate 1. Extract from Cavan Model CFRAM Mapping**

### 3.3 Soils & Geology

According to the Teagasc and EPA soils map, AminPD - Acid Deep Poorly Drained Mineral soils belonging to the Surface Water Gley / Groundwater Gley soil group are found within the entirety of the site.

In Ireland, the parent material underlying the majority of the country is comprised of quaternary sediments with the remainder composed of bedrock outcrop. These quaternary sediments have resulted from glacial movement, melting and deposition. The Teagasc and EPA subsoil maps identify that TLPSsS – Sandstone and shale till subsoil of predominately clayey texture are found to underly the poorly draining soils.

Based on the GSI’s 1:100k bedrock formation mapping, the entirety of the site is underlain by the Cooldaragh Formation which comprises of pale brown-grey siltstones and mudstones and muddy siltstones. Bedrock outcrops are not found within the curtilage of the site, with the closest identified c. 600m to the north. Similarly, and according to the National Karst Database, no karst features are present within the site’s boundary or locality.

### 3.4 Hydrogeology

The Geological Survey of Ireland (GSI) have reviewed the 1,200 geological Formations and Members defined within the Republic of Ireland and reduced them into 27 'Rock Unit Groups' (RUGs) based on their hydrogeological properties and significance. Based on the GSI's generalised bedrock RUG mapping, the *Dinantian (early) Sandstones, Shales and Limestones* RUG exists within the entirety of the site. A LI – Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones is associated with this RUG and underlies the site.

Groundwater Vulnerability is a term used to represent the intrinsic geological and hydro-geological characteristics that determine the ease with which groundwater may be contaminated by human activities. Groundwater vulnerability maps are based on the type and thicknesses of subsoils (sands, gravels, glacial tills (or boulder clays), peat, lake and alluvial silts and clays), and the presence of certain karst features. Groundwater is most at risk where the subsoils are absent or thin and, in areas of karstic limestone, where surface streams sink underground at swallow holes. The northern / western portion of the development site is classified as '*L – Low*' vulnerability. The north-eastern, central and southern areas are classified as '*M – Moderate*' vulnerability, whilst the south-eastern corner has a '*H – High*' vulnerability assigned. The groundwater underneath the site is within the Killashandra Groundwater Body (GWB) and is classified as being of 'Good' status.

### 3.5 Local Aquatic Ecology

Macroinvertebrate sampling has not historically been conducted on the Poles Stream. However, kick sample has been completed on the downstream Cavan River at different monitoring locations since the 1970's. The closest active WFD operational monitoring station to the site (i.e. Bridge South East of Drumkeen House – RS36C020300), is located c. 1.6km downstream.

A Q-value rating of Q3 was recorded in 2019. This Q-value score represents a 'Poor' ecological status, which has been consistently recorded at this monitoring point since 1989 with the exception of 2010 and 2013, when a Q1-2 / Q2 'Bad' status was recorded.

### 3.6 Local Flora & Fauna

A search of the National Parks and Wildlife Services (NPWS) and National Biodiversity Data Centre's (NBDC) online data records was undertaken to determine if any protected species associated with the Natura 2000 sites assessed have been recorded within the site footprint. This search was expanded to a 1km radius from the site. Based on these records, no species of note were recorded within this zone. Thus, no Natura 2000 designated species have been recorded to occur within 1km of the proposed development site.

## 4.0 STAGE 2 – APPROPRIATE ASSESSMENT

### 4.1 Description of Identified Natura 2000 Site(s) Within Zone of Influence

#### 4.1.1 Lough Oughter & Associated Loughs SAC (Site Code: 000007)

Lough Oughter and its associated loughs occupy much of the lowland drumlin belt in north and central Cavan between Upper Lough Erne, Killeshandra and Cavan town. The site is a maze of waterways, islands, small lakes and peninsulas including some 90 inter-drumlin lakes and 14 basins in the course of the Erne River. The area lies on Silurian and Ordovician strata with Carboniferous limestone immediately surrounding. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (\* = priority; numbers in brackets are Natura 2000 codes):

- [3150] Natural Eutrophic Lakes
- [91D0] Bog Woodland\*
- [1355] Otter (*Lutra lutra*)

Drainage within the area is inefficient and the water levels are prone to natural fluctuation as a result. The regularly flooded areas still accommodate a variety of specialist plant species such as Amphibious Bistort (*Polygonum amphibium*) and Marsh Foxtail (*Alopecurus geniculatus*), as well as rarer species such as Needle Spike-rush (*Eleocharis acicularis*) and Lesser Marshwort (*Apium inundatum*). The lakes and basins are shallow, and the water well mixed and nutrient rich (eutrophic). The aquatic community includes species of limited distribution in Ireland such as the Duckweed species *Lemna gibba* and *Spirodela polyrhiza*.

The Lough Oughter area contains important examples of two habitats listed on Annex I of the E.U. Habitats Directive and supports a population of the Annex II species, Otter. The site as a whole is the best inland example of a flooded drumlin landscape in Ireland and has many rich and varied biological communities. Nowhere else in the country does such an intimate mixture of land and water occur over a comparable area, and many of the species of wetland plants, some considered quite commonplace in Lough Oughter and its associated loughs, are infrequent elsewhere. A copy of the Lough Oughter & Associated Loughs SAC Conservation Objectives are included in Appendix 1.

#### 4.1.2 Lough Oughter Complex SPA (Site Code: 004049)

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Great Crested Grebe (of which the site supports >10% of the estimated national breeding total), Whooper Swan, and Wigeon. 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. A copy of the Lough Oughter Complex SPA Conservation Objectives are included in Appendix 2.

#### 4.1.3 Upper Lough Erne SAC (Site Code: UK0016614)

The habitats and/or species for which the Upper Lough Erne has been designated as a SAC are listed below:

- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion alvae*)
- Otter (*Lutra lutra*)
- Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation
- Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles
- Bog Woodland
- Alkaline fen
- Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinia caerulea*)
- Atlantic salmon (*Salmo salar*)

#### 4.1.4 Upper Lough Erne SPA (Site Code: UK9020071)

Upper Lough Erne Lough is situated in Co. Fermanagh in the west of Northern Ireland. It is a very large and complex freshwater system. A series of flooded drumlins in the course of the River Erne give rise to a complex of islands, bays and many lakes bordered by damp pastures, fens, reedswamp and alder/willow carr and oak woodland. The open waters of the main lough and smaller satellite loughs contain a variety of aquatic communities typical of natural eutrophic lakes. In addition, the shallow sheltered shores support extensive swamp, fen and marsh communities. Behind the open grazed foreshore is species-rich grassland, which occasionally extends back into the old adjacent field systems. Alluvial woodland is found where the shoreline is ungrazed or only very lightly grazed, while occasionally the dryer soils of the drumlins behind support a natural Oak woodland; this is particularly well developed within the Crom Estate to the south and the small island to the north of the Lough. Wintering Whooper Swan generally utilise the improved or semi-improved grassland close to the water bodies for roosting. Foraging in flooded fields and within the emergent vegetation in shallower lakes is common. Consequently, the site qualifies under Article 4.1 of EC Directive 79/409 on the Conservation of Wild Birds by regularly supporting internationally important numbers of wintering Whooper Swan *Cygnus cygnus* (the five year peak mean for the period 1991/92 to

1995/96 was 352 which comprises 2 % of the international Icelandic population). Upper Lough Erne provides a core protected area for Whooper Swans in the region of Northern Ireland, there being interchange between the swans using protected areas and those ranging more widely on surrounding farmland. A copy of the Upper Lough Erne SPA Conservation Objectives are included in Appendix 4.

## 4.2 Ecological Field Investigation

### 4.2.1 Habitat Assessment

On the 07<sup>th</sup> of July 2023, Patrick McCabe of Hydrec Environmental Consulting conducted a walkover study of the site to assess its ecological condition and identify the habitats within.

‘GA1 – Improved Agricultural Grassland’ habitat was the dominant habitat type found throughout the site. Within said habitat grasses including Perennial Ryegrass (*Lolium perenne*) dominated. Rush spp. (*Juncaceae spp*), Docks (*Rumex spp.*), Meadow Buttercup (*Ranunculus acris*) and White Clover (*Trifolium repens*) were occasional to frequent.

On the northern periphery of the site, a FW4 – Drainage Ditch habitat is flanked by a WL1 – Hedgerow habitat containing Ash (*Fraxinus excelsior*), Hawthorn (*Crataegus monogyna*), Bramble (*Rubus fruticosus*), Cleavers (*Galium aparine*) and Herb Robert (*Geranium robertianum*). The western boundary of the site comprises of a WL2 – Treeline habitat consisting predominately of Beech (*Fagus spp*) and Oak (*Quercus spp*) whereas the southern boundary of the site is made up by a broken WL1 – Hedgerow habitat containing Ash (*Fraxinus excelsior*), Hawthorn (*Crataegus monogyna*) and occasional Sycamore trees (*Acer pseudoplatanus*). A number of further adult and juvenile Sycamore trees (*Acer pseudoplatanus*) are found along the eastern boundary of the site. Numerous Spoil Heaps (ED2) were recorded which are believed to be related to the cleaning / dredging of the drainage ditches bordering the site. Where areas of ED3 – Recolonising Bare Ground are found in close proximity to the drains, plant species such as Bull Thistle (*Cirsium vulgare*), Creeping Thistle (*Cirsium arvense*), Ragweed (*Jacobaea vulgaris*) and Nettle (*Urtica dioica*) were noted.

### 4.2.2 Otter Survey Results

No otter holts were recorded on the periphery of the stream. Given the width of the stream (c. <1.5m) it is not envisaged that watercourse would be considered a suitable otter feeding site. Given that the water level within the stream was <20cm during the site investigation, optimal conditions for the identification of otter holts was present.

### 4.3 Impact Prediction

#### 4.3.1 Potential for Direct Impacts on NATURA 2000 Sites

The proposed development works are not situated within any SAC or SPA, therefore no direct impacts will occur through land take / habitat loss or fragmentation of habitats (see Figures 1 & 2). No habitat types protected under the NATURA 2000 sites assessed were found onsite. Hence, no loss of bog woodland, oak woodland, alluvial forest, alkaline fen, Molinia meadows or area of eutrophic lough will occur. An aquatic macrophyte survey of the Poles Stream completed as part of the Ecological Impact Assessment (EcIA), confirmed that no Magnopotamion or Hydrocharition vegetation were found growing within the watercourse channel. Additionally, the proposed development will not impinge upon any NHA or pNHA. Furthermore, the Drumkeen House Woodland is not proposed as an NHA for ornithological reasons (i.e. no Great Crested Grebe, Whooper Swan or Wigeon have previously been recorded at the site). Table 4. outlines the distance from the site to the closest designated habitats.

**Table 4. Distance of Protected Habitats within NATURA 2000 Sites from the Proposed Development**

Protected Habitats	Distance
Natural Eutrophic Lakes	1.6km
Bog Woodland	6.1km
Alluvial Forests	6.1km
Old Sessile Oak Woods	>12km
Alkaline Fen	>12km
Molinia Meadows	>12km

#### 4.3.2 Potential for Indirect & Secondary Impacts on NATURA 2000 Sites

Indirect impacts can occur where there is a viable pathway between the source (i.e. the proposed development site) and the receptor (i.e. the habitats and species for which a Natura 2000 site has been designated). Common pathways for impacts include surface water and groundwater contamination, air (e.g. airborne dust or noise) and land (e.g. overland flow or vibration).

Given the distance to the nearest NATURA 2000 site of ornithological importance (i.e. Lough Oughter Complex SPA – 2.1km), it is not envisaged that any air, noise or vibration emissions resulting from the construction phase of the project will impact on the species present (i.e. Great Crested Grebe, Whooper Swan, and Wigeon). Similarly, air or noise emissions are not anticipated to negatively impact upon the Otter populations associated with the Lough Oughter & Associated



Loughs SAC, given its distance from the proposed development site (i.e. 1.3km). Furthermore, an otter survey completed as part of the (EcIA) for the development did not record any otter holts along the Poles Stream banks.

During the construction phase of the development, it is understood that a new site entrance will be constructed to traverse the Poles Stream. A series of measures are described in Section 4.4 to ensure that no impacts occur downstream from the site (i.e. via the Poles Stream – Swellan Upper Stream – Cavan River – Lough Oughter & Associated Loughs SAC).

Upon completion, all waste waters generated from the housing units will be disposed of via a connection to the existing combined sewer network. Consequently, no deleterious material will be disposed to the Poles Stream. Thus, a downgradient deterioration in feeding conditions for the otter will not occur. Similarly, fouling growths as a consequence of nutrient enrichment will not impact on salmonid spawning habitat. It should also be noted, the Poles Stream to the east of the site was found to be in an impacted state during the Small Stream Risk Score Assessment completed for the project. Hence, this watercourse itself was not found to be a suitable Salmonid spawning site. All storm waters will also be disposed via a new stormwater attenuation system. This will serve to ensure that rainfall generated during extreme weather events does not pond onsite and create overland flow pathways to the stream channel to the east of the site.

Thus, no hydrological Source-Pathway-Receptor (S-P-R) linkages will exist. Consequently, the development will not directly / indirectly affect the water quality of the Lough Oughter & Associated Loughs SAC and additional downstream NATURA 2000 sites (i.e. Lough Oughter Complex SPA and Upper Lough Erne SAC / SPA).

#### *4.3.3 Cumulative Effects*

It is a requirement of the Appropriate Assessment process that the combined effects of the proposed development together with other plans or projects be assessed. Accordingly, a number of other projects have been considered in order to determine if ‘In-Combination’ impacts exist. A search of all planning applications submitted to Cavan County Council within the last two years and within the townland of Drumlark was completed. It was determined that development density in the area was relatively low and that planning permission was granted to three projects in this timeframe. These included planning applications:

- 22261 – is sought to erect 15 no. dwellings (1 no. 3 bedroom detached dwelling, 6 no. 3 bedroom semi-detached dwellings and 8 no. 2 bedroom terraced dwellings), access

via existing service road, connect to public foul and storm water sewers, public watermains and all ancillary site works;

- 21586 – to erect fully serviced part two story part single storey dwelling with detached garage, install sewerage treatment unit, percolation area, form access of existing laneway, carry out alterations to existing entrance and all associated works; and
- 21548 – Permission to erect 2 no. 4-bed detached two storey dwellings, one on existing foundations of previously approved planning reference 01/1850, revised site layouts, connection to existing services, landscaping and all associated & ancillary site works.

Like the proposed development each of the aforementioned projects are located outside the boundaries of any NATURA 2000 site. Additionally, each of the developments have made provision for the disposal of foul waters to either a private domestic wastewater treatment system or via the town's foul sewer network. Cumulative noise or dust emissions from the construction of the proposed development and those not yet constructed, (i.e. should they all proceed in tandem), will not have an impact on the floral, bird species or other populations associated with the Designated Sites (i.e. given that the closest development to the Lough Oughter & Associated Loughs SAC is >1.3km). Furthermore, the larger impending development (Ref: 22261) is situated c. 360m to the north-east of the applicant's site (i.e. a further 360m from the boundary of the closest NATURA 2000 site).

It was therefore concluded that no cumulative impacts are predicated with any in-combination impacts associated with neighbouring developments deemed to be negligible and insignificant.

#### **4.4 Mitigation Measures**

The following mitigation measures as set out in the accompanying Outline Construction Environmental Management Plan (OCEMP) should be adhered too, in order to ensure that any direct or indirect impacts on the NATURA 2000 network or local ecology are abated;

##### Surface Water Management

- All existing surface water drainage elements (including adjacent watercourses) will be maintained free from waste materials generated during the construction of the proposed development, including the initial site clearance and excavation. Routine visual inspections by the contractor shall reduce any risk of excess construction materials causing obstructions to surface water drainage and any potential flooding occurring;

- A maintenance schedule and operational schedule must be established by the contractor for silt and pollution control measures during the construction period. This should be undertaken in consultation with the relevant statutory authorities;
- Run-off from the working site or any areas of exposed soil shall be channelled and intercepted at regular intervals for discharge to silt traps or lagoons. A temporary positive drainage system shall be installed prior to the commencement of the construction works, to collect surface water runoff from the site during construction;
- A series of geotextile-lined cascading, high level outfall settling basins will be installed upstream of an agreed discharge point, the location of which is to be determined by the contractor as part of their detailed Construction and Environmental Management Plan and approved by Cavan County Council. This temporary surface water management facility will throttle runoff and allow suspended solids to be settled out and removed before being discharged in a controlled manner to the agreed outfall;
- All inlets to the cascading settling basins will be riprapped to prevent scour and erosion in the vicinity of the inlet;
- Pouring of concrete shall be carried out in the dry and allowed to cure. Mixer washings and excess concrete shall not be discharged to surface water;
- Oil storage tank(s) and the associated filling area and distribution pipe work shall be separated by at least 10m from surface watercourses. Storage tanks shall have secondary containment provided by means of an above ground bund to capture any oil leakage, irrespective of whether it arises from leakage of the tank itself or from associated equipment (such as filling and off-take points, sighting gauges, etc.), all of which should be located within the bund. The bund specification should conform to the current best practice for oil storage (Enterprise Ireland BPGC5005);
- Weather conditions and seasonal weather variations shall also be taken account of when planning stripping of topsoil and excavations, with an objective of minimising soil erosion; and
- Hazardous construction materials shall be stored appropriately to prevent contamination of watercourses or groundwater. Spill kits shall be kept in designated areas for re-fuelling of construction machinery.

### Noise

- Avoid unnecessary revving of engines and switch off equipment when not required.
- Minimise drop height of materials;
- Start-up plant sequentially rather than all together;

- Loading and unloading will occur within designated loading areas as far from noise receptors as possible;
- Equipment will be fitted with appropriate silencers where possible;
- Regular and effective maintenance by trained personnel is carried out to reduce noise and / or vibration from plant and machinery;
- Hours are limited during which site activities likely to create high levels of noise and vibration are carried out – no noisy activities will be carried out outside of the permitted construction hours;
- A site representative responsible for matters relating to noise and vibration will be appointed prior to construction on site. This individual will be responsible for engagement with local residents, advance notice for noisy activities and the maintenance of a complaints register/record; and
- A noise and vibration monitoring specialist will be appointed to carry out independent monitoring of noise and vibration during critical periods at sensitive locations.

### Dust

- The contractor will continuously monitor dust over the variation of weather and material disposal to ensure the limits are not breached throughout the project. It should be noted that there are currently no national or European Union standards of air quality with which levels of dust deposition can be compared. Thus, the minimum criteria to be maintained will be in accordance with the German Standard Method for determination of dust deposition rate (VDI 2119), which is a maximum deposition of 350mg/m<sup>2</sup>/day as measured using Bergerhoff type dust deposit gauges;
- Ensuring construction vehicles have a clean surface to travel on within the site (i.e., haul road);
- Providing a “Full-Body Self Contained” wheel wash, constructed and located within the site confines; and
- Ensuring an appropriate wheel or road washing facility is provided as and when required throughout the various stages of construction on site. If conditions require it then a manned power washer will be put in place to assist the wheel wash system.

### Harmful Materials

- If any contaminated material is encountered, it will need to be segregated from clean/inert material, tested and classified as either non-hazardous or hazardous in accordance with the EPA publication entitled 'Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous' using the HazWasteOnline application (or similar approved classification method). The material will then need to be classified as clean, inert, nonhazardous or hazardous in accordance with the EC Council Decision 2003/33/EC, which establishes the criteria for the acceptance of waste at landfills; and
- Paints, glues, adhesives and other known hazardous substances will be stored in designated areas away from watercourses. They will generally be present in small volumes only and associated waste volumes generated will be kept to a minimum. Wastes will be stored in appropriate receptacles pending collection by an authorised waste contractor. In addition, WEEE (containing Construction and Demolition Waste Management Plan 11 hazardous components), printer toner/cartridges, batteries (Lead, Ni-Cd or Mercury) and/or fluorescent tubes and other mercury containing waste may be generated during construction activities. These wastes (if encountered) will be stored in appropriate receptacles in designated areas of the site pending collection by an authorised waste contractor.

### Adjacent Watercourse

- It will not be permitted to discharge into any newly constructed storm water systems or watercourse without adhering to the conditions of the discharge licence and agreeing the same with the Design Team, Site Manager and Local Authority Area Engineer;
- Only approved storage system for oil / diesel within the site will be permitted, (i.e., all oil / diesel storage to be located within a designated area placed furthest away from adjacent watercourses and contained within constructed bunded areas e.g., placed on 150mm concrete slab with the perimeter constructed with 225mm solid blockwork rendered internally). The bunded area will accommodate the relevant oil / diesel storage capacity in case of accidental spillage. Any accidental spillages will be dealt with immediately on site however minor by containment/removal from site. Re-fuelling will be contained within a designated area adjacent to the storage area;
- The washing out of concrete trucks on site will not be permitted as they are a potential source of high alkalinity in watercourses. Consequently, it is a requirement that all concrete truck washout takes place back in the ready-mix depot; and
- The Site Management Team will maintain a record of all receipts for the removal of toilet or interceptor waste off site to insure its disposal in a traceable manner.

### Further Ecological Protection Measures

- The construction of the site entrance, scheduled to traverse the Poles Stream should be constructed in accordance with Inland Fisheries Ireland (IFI) and Office of Public Works (OPW) guidance. For instance, a silt curtain will be placed downstream of the works to mitigate against excessive siltation, as per “Environmental Guidance: Drainage Maintenance & Construction” handbook EP 15

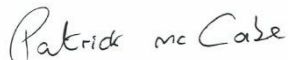
In light of adherence to the mitigation measures set out previously, adverse residual impacts are anticipated to be negligible. Thus, residual impacts will not result in any significant effects on the important ecological features / receptors within the Zone of Influence of the project or the wider Natura 2000 network.

## 5.0 CONCLUSIONS

This Natura Impact Statement (NIS) has identified the particular types of effect that have potential for adverse impact on the integrity of any European Designated Site. This statement identifies mitigation measures that will ensure avoidance of these effects; so that the structure and functions of the Natura 2000 Network and local ecology / biodiversity are not affected.

Following a comprehensive evaluation of the potential direct, indirect and residual impacts, it is considered that the proposed works either independently or in combination with other plans, does not have the potential to significantly affect the conservation objectives of and National or European Designated Site. A checklist of Natura 2000 site integrity is included in Table 5, which states that the designated sites, will not be affected by the proposed development works.

Signed:

A handwritten signature in black ink that reads "Patrick McCabe".

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Patrick McCabe B.Sc., M.Sc.

(P.I insurance available on request)

This document has been prepared as a Natura Impact Statement for Drumlark Investments Ltd. Hydrec Environmental Consulting accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.





## **APPENDIX 1**

### **CONSERVATION OBJECTIVES FOR LOUGH OUGHTER & ASSOCIATED LOUGHS SAC**



# National Parks and Wildlife Service

## *Conservation Objectives Series*

### Lough Oughter and Associated Loughs SAC 000007



An Roinn Tithíochta,  
Rialtais Áitiúil agus Oidhreachta  
Department of Housing,  
Local Government and Heritage

**National Parks and Wildlife Service,  
Department of Housing, Local Government and Heritage,  
90 King Street North, Dublin 7, D07 N7CV, Ireland.  
Web: [www.npws.ie](http://www.npws.ie)  
E-mail: [natureconservation@housing.gov.ie](mailto:natureconservation@housing.gov.ie)**

**Citation:**

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SAC 000007. Version 1. National Parks and Wildlife Service, Department of  
Housing, Local Government and Heritage.**

**Series Editors: Rebecca Jeffrey and Christina Campbell  
ISSN 2009-4086**

## Introduction

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area 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.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

### Notes/Guidelines:

1. The targets given in these conservation objectives are based on best available information at the time of writing. As more information becomes available, targets for attributes may change. These will be updated periodically, as necessary.
2. An appropriate assessment based on these conservation objectives will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out. It is essential that the date and version are included when objectives are cited.
3. Assessments cannot consider an attribute in isolation from the others listed for that habitat or species, or for other habitats and species listed for that site. A plan or project with an apparently small impact on one attribute may have a significant impact on another.
4. Please note that the maps included in this document do not necessarily show the entire extent of the habitats and species for which the site is listed. This should be borne in mind when appropriate assessments are being carried out.
5. When using these objectives, it is essential that the relevant backing/supporting documents are consulted, particularly where instructed in the targets or notes for a particular attribute.

## Qualifying Interests

*\* indicates a priority habitat under the Habitats Directive*

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000007	Lough Oughter and Associated Loughs SAC
1355	Otter <i>Lutra lutra</i>
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation
91D0	Bog woodland*

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**Please note that this SAC overlaps with Lough Oughter SPA (004049). See map 2. The conservation objectives for this site should be used in conjunction with those for the overlapping site as appropriate.**

## Supporting documents, relevant reports & publications

Supporting documents, NPWS reports and publications are available for download from: [www.npws.ie/Publications](http://www.npws.ie/Publications)

### NPWS Documents

<b>Year :</b>	1984
<b>Title :</b>	The vegetation of Irish lakes
<b>Author :</b>	Heuff, H.
<b>Series :</b>	Unpublished report to NPWS
<b>Year :</b>	2006
<b>Title :</b>	Otter survey of Ireland 2004/2005
<b>Author :</b>	Bailey, M.; Rochford, J.
<b>Series :</b>	Irish Wildlife Manuals, No. 23
<b>Year :</b>	2007
<b>Title :</b>	Supporting documentation for the Habitats Directive Conservation Status Assessment - backing documents. Article 17 forms and supporting maps
<b>Author :</b>	NPWS
<b>Series :</b>	Unpublished report to NPWS
<b>Year :</b>	2008
<b>Title :</b>	National survey of native woodlands 2003-2008
<b>Author :</b>	Perrin, P.M.; Martin, J.; Barron, S.; O'Neill, F.H.; McNutt, K.E.; Delaney, A.
<b>Series :</b>	Unpublished report to NPWS
<b>Year :</b>	2010
<b>Title :</b>	A provisional inventory of ancient and long-established woodland in Ireland
<b>Author :</b>	Perrin, P.M.; Daly, O.H.
<b>Series :</b>	Irish Wildlife Manuals, No. 46
<b>Year :</b>	2013
<b>Title :</b>	National otter survey of Ireland 2010/12
<b>Author :</b>	Reid, N.; Hayden, B.; Lundy, M.G.; Pietravalle, S.; McDonald, R.A.; Montgomery, W.I.
<b>Series :</b>	Irish Wildlife Manuals, No. 76
<b>Year :</b>	2013
<b>Title :</b>	Results of a monitoring survey of bog woodland
<b>Author :</b>	Cross, J.; Lynn, D.
<b>Series :</b>	Irish Wildlife Manuals, No. 69
<b>Year :</b>	2013
<b>Title :</b>	The status of EU protected habitats and species in Ireland. Volume 2. Habitats assessments
<b>Author :</b>	NPWS
<b>Series :</b>	Conservation assessments
<b>Year :</b>	2015
<b>Title :</b>	Habitats Directive Annex I lake habitats: a working interpretation for the purposes of site-specific conservation objectives and Article 17 reporting
<b>Author :</b>	O Connor, Á.
<b>Series :</b>	Unpublished document by NPWS
<b>Year :</b>	2019
<b>Title :</b>	The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments
<b>Author :</b>	NPWS
<b>Series :</b>	Conservation assessments

**Year :** in prep.  
**Title :** The monitoring and assessment of four EU Habitats Directive Annex I woodland habitats  
**Author :** Daly, O.H.; O'Neill, F.H.; Barron, S.J.  
**Series :** Irish Wildlife Manuals

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## Other References

**Year :** 1975  
**Title :** A preliminary survey of Irish lakes  
**Author :** Flanagan, P.J.; Toner P.F.  
**Series :** An Foras Forbartha

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**Year :** 1982  
**Title :** Otter survey of Ireland  
**Author :** Chapman, P.J.; Chapman, L.L.  
**Series :** Unpublished report to Vincent Wildlife Trust

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**Year :** 1982  
**Title :** Eutrophication of waters. Monitoring assessment and control  
**Author :** OECD  
**Series :** OECD, Paris

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**Year :** 1991  
**Title :** The spatial organization of otters (*Lutra lutra*) in Shetland  
**Author :** Kruuk, H.; Moorhouse, A.  
**Series :** Journal of Zoology, 224: 41-57

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**Year :** 1999  
**Title :** Bog Woodland Survey in the Lough Oughter Proposed Special Area of Conservation  
**Author :** Nairn, R.; Duff, K.  
**Series :** Unpublished report submitted to Cavan County Council

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**Year :** 2000  
**Title :** Colour in Irish lakes  
**Author :** Free, G.; Allott, N.; Mills, P.; Kennelly, C.; Day, S.  
**Series :** Verhandlungen Internationale Vereinigung für theoretische und angewandte Limnologie, 27: 2620-2623

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**Year :** 2002  
**Title :** Reversing the habitat fragmentation of British woodlands  
**Author :** Peterken, G.  
**Series :** WWF-UK, London

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**Year :** 2006  
**Title :** Otters - ecology, behaviour and conservation  
**Author :** Kruuk, H.  
**Series :** Oxford University Press

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**Year :** 2006  
**Title :** A reference-based typology and ecological assessment system for Irish lakes. Preliminary investigations. Final report. Project 2000-FS-1-M1 Ecological assessment of lakes pilot study to establish monitoring methodologies EU (WFD)  
**Author :** Free, G.; Little, R.; Tierney, D.; Donnelly, K.; Coroni, R.  
**Series :** Environmental Protection Agency, Wexford

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<b>Year :</b>	2009
<b>Title :</b>	Water Quality in Ireland 2007-2008. Key Indicators of the Aquatic Environment
<b>Author :</b>	Lucey, J.
<b>Series :</b>	Environmental Protection Agency, Wexford
<b>Year :</b>	2010
<b>Title :</b>	Otter tracking study of Roaringwater Bay
<b>Author :</b>	De Jongh, A.; O'Neill, L.
<b>Series :</b>	Unpublished draft report to NPWS
<b>Year :</b>	2010
<b>Title :</b>	Water Quality in Ireland 2007-2009
<b>Author :</b>	McGarrigle, M.; Lucey, J.; Ó Cinnéide, M.
<b>Series :</b>	Environmental Protection Agency, Wexford
<b>Year :</b>	2015
<b>Title :</b>	Water Quality in Ireland 2010-2012
<b>Author :</b>	Bradley, C.; Byrne, C.; Craig, M.; Free, G.; Gallagher, T.; Kennedy, B.; Little, R.; Lucey, J.; Mannix, A.; McCreesh, P.; McDermott, G.; McGarrigle, M.; Ní Longphuirt, S.; O'Boyle, S.; Plant, C.; Tierney, D.; Trodd, W.; Webster, P.; Wilkes, R.; Wynne, C.
<b>Series :</b>	Environmental Protection Agency, Wexford
<b>Year :</b>	2016
<b>Title :</b>	Irish Vegetation Classification: Technical Progress Report No. 2
<b>Author :</b>	Perrin, P.
<b>Series :</b>	Report submitted to National Biodiversity Data Centre

## Spatial data sources

<b>Year :</b>	2008
<b>Title :</b>	OSi 1:5000 IG vector dataset
<b>GIS Operations :</b>	WaterPolygons feature class clipped to the SAC boundary. Expert opinion used to identify Annex I habitat and to resolve any issues arising
<b>Used For :</b>	3150 (map 3)
<hr/>	
<b>Year :</b>	Revision 2010
<b>Title :</b>	National Survey of Native Woodlands 2003-2008. Version 1
<b>GIS Operations :</b>	QIs selected; clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
<b>Used For :</b>	91D0 (map 4)
<hr/>	
<b>Year :</b>	2018
<b>Title :</b>	Woodland Monitoring Survey 2017-2018
<b>GIS Operations :</b>	QIs selected; clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
<b>Used For :</b>	91D0 (map 4)
<hr/>	

## Conservation Objectives for : Lough Oughter and Associated Loughs SAC [000007]

### 3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation

To restore the favourable conservation condition of Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation in Lough Oughter and Associated Loughs SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes	Little is known about the characteristics or ecology of lake habitat 3150 in Ireland. It is associated with base-rich lakes, with circumneutral or higher pH, in low-lying, large, naturally more productive catchments, and is characterised by high abundance and diversity of pondweeds ( <i>Potamogeton</i> spp.) and mesotrophic values for total phosphorus and chlorophyll. It is considered likely to occur in Lough Oughter and the <i>circa</i> 90 other inter-drumlin lakes in Lough Oughter and Associated Loughs SAC (see map 3). Two measures of extent can be used: 1. the area of the lake itself and; 2. the extent of the vegetation communities/zones that typify the habitat. Further information relating to all attributes is provided in the lake habitats supporting document for the purposes of site-specific conservation objectives and Article 17 reporting (O Connor, 2015)
Habitat distribution	Occurrence	Restore, subject to natural processes	As noted above, habitat 3150 is considered to occur in many or all of the lakes in this SAC (see map 3). Eutrophication has increased the trophic status of these lakes, however. Lough Oughter is known to be impacted by nutrients/organic matter since the 1970s (Flanagan and Toner, 1975; Lucey, 2009; McGarrigle et al., 2010; Bradley et al., 2015). It is likely, therefore, that the habitat is in unfavourable condition, or has been lost, in impacted lakes. Furthermore, it is possible that at least some of the lakes naturally contained a less productive habitat, such as Annex I habitats 3140 (Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.) or 3130 (Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea)
Vegetation composition: typical species	Occurrence	Typical species present, in good condition, and demonstrating typical abundances and distribution	For lists of typical plant species, see the Article 17 habitat assessments for 3150 (NPWS, 2013, 2019) and O Connor (2015). The aquatic flora of the SAC is varied with several pondweeds such as <i>Potamogeton obtusifolius</i> , <i>P. lucens</i> , <i>P. natans</i> , <i>P. alpinus</i> and <i>P. gramineus</i> . <i>Nuphar lutea</i> , <i>Hippuris vulgaris</i> , <i>Myriophyllum spicatum</i> , <i>Veronica beccabunga</i> and <i>Callitriche</i> sp. are common. Duckweed species also occur. Heuff (1984) reports on a 1977 survey of Round Lough, which was fringed with <i>Phragmites australis</i> and had abundant <i>Lemna trisulca</i> , <i>Elodea canadensis</i> and <i>Stratiotes aloides</i> . <i>Chara rudis</i> , <i>Nuphar lutea</i> , <i>Littorella uniflora</i> and <i>Cladophora</i> also occurred. The macrophytes in some of the lakes in the SAC, including Annagh, Ardan, Bawn, Corglass, Cullinaghan, Derrybrick, Farnharn, Mill and Oughter, are monitored on a three-year cycle by the Environmental Protection Agency (EPA)
Vegetation composition: characteristic zonation	Occurrence	All characteristic zones should be present, correctly distributed and in good condition	Further work is necessary to describe the characteristic zonation and other spatial patterns in lake habitat 3150 (see O Connor, 2015)

Vegetation distribution: maximum depth	Metres	Maintain maximum depth of vegetation, subject to natural processes	The maximum depth of vegetation is likely to be specific to the lake shoreline in question. Further work is necessary to develop indicative targets for lake habitat 3150. The maximum depth of vegetation in Round Lough was 5m in 1977 (Heuff, 1984). Maximum vegetation depth is likely to have declined in lakes in the SAC as a result of eutrophication
Hydrological regime: water level fluctuations	Metres	Maintain appropriate hydrological regime necessary to support the habitat	Fluctuations in lake water level are typical in Ireland, but can be amplified by activities such as abstraction and drainage. Increased water level fluctuations can increase wave action, up-root vegetation, increase turbidity, alter the substratum and lead to release of nutrients from the sediment. The hydrological regime must be maintained so that the area, distribution and depth of the lake habitat and its constituent/characteristic vegetation zones and communities are not reduced
Lake substratum quality	Various	Maintain appropriate substratum type, extent and chemistry to support the vegetation	Research is required to further characterise the substratum types (particle size and origin) and substratum quality (notably pH, calcium, iron and nutrient concentrations) favoured by each of the five Annex I lake habitats in Ireland. It is likely that soft muddy substrata dominate habitat 3150. Substratum particle size is likely to vary with depth and along the shoreline within a single lake. Heuff (1984) noted a substratum of soft, black mud at Round Lough
Transparency	Metres	Maintain/restore appropriate Secchi transparency. There should be no decline in Secchi depth/transparency	Transparency relates to light penetration and, hence, to the depth of colonisation of vegetation. It can be affected by phytoplankton blooms, water colour and turbidity. Specific targets have yet to be established for lake habitat 3150 (O Connor, 2015). Habitat 3150 is associated with lower transparency than the other lake habitats. The OECD fixed boundary system set transparency targets for mesotrophic lakes of 6-3m annual mean Secchi disk depth, and 3-1.5m annual minimum Secchi disk depth. Heuff (1984) noted transparency of 4m at Round Lough in 1977. Eutrophication is likely to have led to reduced transparency in lakes in the SAC
Nutrients	µg/l P; mg/l N	Restore the concentration of nutrients in the water column to sufficiently low levels to support the habitat and its typical species	As a relatively productive habitat, mesotrophic and Water Framework Directive (WFD) 'good' status targets apply. Where a lake has nutrient concentrations that are lower than these targets, there should be no decline within class, i.e. no upward trend in nutrient concentrations. For lake habitat 3150, annual average total phosphorus (TP) concentration should be ≤25µg/l TP, average annual total ammonia concentration should be ≤0.065mg/l N and annual 95th percentile for total ammonia should be ≤0.140mg/l N. See also The European Communities Environmental Objectives (Surface Waters) (Amendment) Regulations 2019. The WFD monitoring lakes in the SAC include Annagh, Ardan, Bawn, Corglass, Cullinaghan, Derrybrick, Farnham, Mill and Oughter
Phytoplankton biomass	µg/l chlorophyll <i>a</i>	Restore appropriate water quality to support the habitat, including good chlorophyll <i>a</i> status	Mesotrophic and WFD 'good' status targets apply to habitat 3150. Where a lake has a chlorophyll <i>a</i> concentration that is lower than this target, there should be no decline within class, i.e. no upward trend in phytoplankton biomass. The average growing season (March-October) chlorophyll <i>a</i> concentration should be <10µg/l. The annual average chlorophyll <i>a</i> concentration should be 2.5-8.0µg/l and the annual peak chlorophyll <i>a</i> concentration should be 8.0-25.0µg/l (OECD, 1982). See also The European Communities Environmental Objectives (Surface Waters) (Amendment) Regulations 2019

Phytoplankton composition	EPA phytoplankton composition metric	Restore appropriate water quality to support the habitat, including good phytoplankton composition status	The EPA has developed a phytoplankton composition metric for nutrient enrichment of Irish lakes. As for other water quality indicators, habitat 3150 requires WFD good status
Attached algal biomass	Algal cover	Maintain/restore trace/absent attached algal biomass (<5% cover)	Nutrient enrichment can favour epiphytic and epipelagic algae that can out-compete the submerged vegetation. The cover abundance of attached algae in habitat 3150 should, ideally therefore, be trace/absent (<5% cover). Heuff (1984) noted <i>Cladophora</i> and other filamentous algae at Round Lake in 1977
Water quality: macrophyte status	EPA macrophyte metric (The Free Index)	Restore good macrophyte status	Nutrient enrichment can favour more competitive submerged macrophyte species that out-compete the typical and characteristic species for the lake habitat. The EPA monitors macrophyte status for Water Framework Directive purposes using the 'Free Index'. The target for lake habitat 3150 is good status or an Ecological Quality Ratio (EQR) for lake macrophytes of $\geq 0.68$ , as defined in Schedule Five of The European Communities Environmental Objectives (Surface Waters) Regulations 2009 and the amendment Regulations (Statutory Instrument 77 of 2019). Most lakes monitored in the SAC have less than good macrophyte status
Acidification status	pH units, mg/l	Maintain appropriate water and sediment pH, alkalinity and cation concentrations to support the habitat, subject to natural processes	The specific requirements of habitat 3150, in terms of water and sediment pH, alkalinity and cation concentration, have not been fully determined. Acidification is not considered a threat to habitat 3150; however, eutrophication can lead to at least temporary increases in pH to toxic levels (>9/9.5 pH units). Maximum pH should be <9.0 pH units. See The European Communities Environmental Objectives (Surface Water Objectives) Regulations 2009 and The European Communities Environmental Objectives (Surface Waters) (Amendment) Regulations 2019
Water colour	mg/l PtCo	Maintain/restore appropriate water colour to support the habitat	Increased water colour and turbidity decrease light penetration and can reduce the area of available habitat for lake macrophytes, particularly at the lower euphotic depths. The primary source of increased water colour in Ireland is disturbance to peatland. No habitat-specific or national standards for water colour currently exist. Studies have shown median colour concentrations in Irish lakes of 38mg/l PtCo (Free et al., 2000) and 33mg/l PtCo (Free et al., 2006). It is likely that the water colour in all Irish lake habitats would naturally be <50mg/l PtCo
Dissolved organic carbon (DOC)	mg/l	Maintain/restore appropriate organic carbon levels to support the habitat	Dissolved (and particulate) organic carbon (OC) in the water column is linked to water colour and acidification (organic acids). Increasing DOC in water has been documented across the Northern Hemisphere, including afforested peatland catchments in Ireland. Damage and degradation of peatland, leading to decomposition of peat is likely to be the predominant source of OC in Ireland. OC in water promotes decomposition by fungi and bacteria that, in turn, releases dissolved nutrients. The increased biomass of decomposers can also impact directly on the characteristic lake communities through shading, competition, etc.

Turbidity	Nephelometric turbidity units/ mg/l SS/ other appropriate units	Maintain/restore appropriate turbidity to support the habitat	Turbidity can significantly affect the quantity and quality of light reaching rooted and attached vegetation and can, therefore, impact on lake habitats. The settlement of higher loads of inorganic or organic material on lake vegetation communities may also have impacts on sensitive, delicate species. Turbidity can increase as a result of re-suspension of material within the lake, higher loads entering the lake, or eutrophication. Turbidity measurement and interpretation is challenging. As a result, it is likely to be difficult to set habitat-specific targets for turbidity in lakes
Fringing habitat: area and condition	Hectares	Maintain/restore the area and condition of fringing habitats necessary to support the natural structure and functioning of lake habitat 3150	3150 lakes typically have well-developed reedswamp, fen and/or marsh communities along their shoreline and would, historically have been surrounded by woodland. These fringing habitats intergrade with and support the structure and functions of the lake. Equally, fringing habitats depend on the lake, particularly its water levels, and support wetland communities and species of conservation concern. Many fringing wetland habitats support higher invertebrate and plant species richness than the lake habitats themselves. See Mainstone et al. (2016). Many lakes in the SAC have well-developed swamp, marsh and wet grassland, which include less widespread species such as <i>Eleocharis acicularis</i> , <i>Epipactis palustris</i> , <i>Rumex hydrolapathum</i> , <i>Sium latifolium</i> , <i>Cicuta virosa</i> , <i>Carex elata</i> , <i>Stratiotes aloides</i> , <i>Sagittaria sagittifolia</i> , <i>Butomus umbellatus</i> and <i>Ranunculus lingua</i> . Wet and dry deciduous woodland has re-established behind the reedbeds, with willows, alder and downy birch common

## Conservation Objectives for : Lough Oughter and Associated Loughs SAC [000007]

### 91D0 Bog woodland\*

**To maintain the favourable conservation condition of Bog woodland\* in Lough Oughter and Associated Loughs SAC, which is defined by the following list of attributes and targets:**

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes	Bog woodland is present within Lough Oughter and Associated Loughs SAC. As part of the National Survey of Native Woodlands (NSNW), the sub-site Annagh Wood West (NSNW site code 465) was surveyed by Perrin et al. (2008). Annagh (code 465) was also included in a national monitoring survey (Cross and Lynn, 2013; Daly et al., in prep.). Map 4 shows the minimum area of bog woodland within the SAC, which is estimated to be 2.77ha (Daly et al., in prep.). However, Nairn and Duff (1999) recorded 108ha of birch woodland on peat within the SAC, terming this "potential bog woodland", which suggests that further areas of 91D0 habitat are likely to be present within the SAC
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 4 for the habitat extent recorded by Daly et al. (in prep.)	Distribution based on Daly et al. (in prep.). It is important to note that further areas of the habitat are likely to be present within the SAC
Woodland size	Hectares	Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size	The target areas for individual woodlands aim to reduce habitat fragmentation and benefit those species requiring 'deep' woodland conditions (Peterken, 2002). The artificial expansion of new bog woodland is likely to be difficult, although creation of the right hydrological conditions may shift vegetation in the direction of bog woodland. As part of a LIFE Project (LIFE05 NAT/IRL/000182), felling of adjacent conifers at Annagh has resulted in bog woodland developing in the former plantation (Cross and Lynn, 2013)
Woodland structure: canopy cover and height	Percentage cover; metres	Total canopy cover at least 30%; downy birch ( <i>Betula pubescens</i> ) comprises at least 50% of canopy cover; median canopy height at least 4m	Attribute and target based on Daly et al. (in prep.) and Cross and Lynn (2013)
Woodland structure: community diversity and extent	Hectares	Maintain diversity and extent of community types	Described in Perrin et al. (2008). See also the Irish Vegetation Classification (Perrin, 2016; <a href="http://www.biodiversityireland.ie/projects/ivc-classification-explorer">www.biodiversityireland.ie/projects/ivc-classification-explorer</a> )
Woodland structure: tree size classes	Occurrence	Downy birch ( <i>Betula pubescens</i> ) present in each tree size class	Attribute and target based on Daly et al. (in prep.) and Cross and Lynn (2013). The presence of all size classes indicates that a woodland has good structural diversity with trees of varying ages
Woodland structure: regeneration	Occurrence	At least one downy birch ( <i>Betula pubescens</i> ) sapling of at least 1m tall present within each monitoring stop	Attribute and target based on Daly et al. (in prep.) and Cross and Lynn (2013)
Woodland structure: senescent and dead wood	Occurrence	Senescent or dead wood present	Mature and veteran trees and dead wood are important for bryophytes, lichens, saproxylic organisms and some bird species. Their retention within a woodland is important to ensure continuity of habitats/niches and propagule sources. However, as downy birch trees seldom exceed 30cm in diameter in this habitat and fallen dead wood rots quickly and is engulfed by bog mosses, dead wood may be less frequent in bog woodland than in other woodland types (Cross and Lynn, 2013)

Woodland structure: indicators of local distinctiveness	Occurrence; population size	No decline in distribution and, in the case of red listed and other rare or localised species, population size	Includes ancient or long-established woodlands (see Perrin and Daly, 2010), archaeological and geological features as well as red listed and other rare or localised species
Woodland structure: indicators of overgrazing	Occurrence	All four indicators of overgrazing absent	There are four indicators of overgrazing within 91D0*: topiary effect on shrubs and young trees, browse line on mature trees, abundant dung, and severe recent bark stripping (Daly et al., in prep.)
Woodland structure: dwarf shrub cover	Percentage cover at a representative number of monitoring stops	Native dwarf shrub layer cover less than 50%; ling ( <i>Calluna vulgaris</i> ) cover less than 40%	Attribute and target based on Daly et al. (in prep.) and Cross and Lynn (2013)
Woodland structure: bryophyte cover	Percentage cover at a representative number of monitoring stops	Bryophyte cover at least 50%; bog moss ( <i>Sphagnum</i> spp.) cover at least 25%	Attribute and target based on Daly et al. (in prep.) and Cross and Lynn (2013)
Vegetation composition: positive indicator species	Occurrence within monitoring stops	Downy birch ( <i>Betula pubescens</i> ), bog moss ( <i>Sphagnum</i> spp.) and at least five other positive indicator species present	Bog woodland is typically species-poor but with a characteristic and distinctive flora. Positive indicator species for 91D0* are listed in Daly et al. (in prep.) and Cross and Lynn (2013)
Vegetation composition: negative indicator species	Percentage cover within monitoring stops	Both native and non-native invasive species absent or under control. Total cover should be less than 10%	Negative indicator species include bracken ( <i>Pteridium aquilinum</i> ), bramble ( <i>Rubus fruticosus</i> agg.) and any non-native species, including herbaceous species. In general, Rhododendron ( <i>Rhododendron ponticum</i> ) and non-native conifers are the most common non-native species in bog woodland (Daly et al., in prep.). As part of a LIFE Project (LIFE05 NAT/IRL/000182), clearance of adjacent non-native conifers at Annagh c. 2008 had a positive impact on the 91D0* habitat by increasing light levels and providing potential for expansion (Cross and Lynn, 2013)

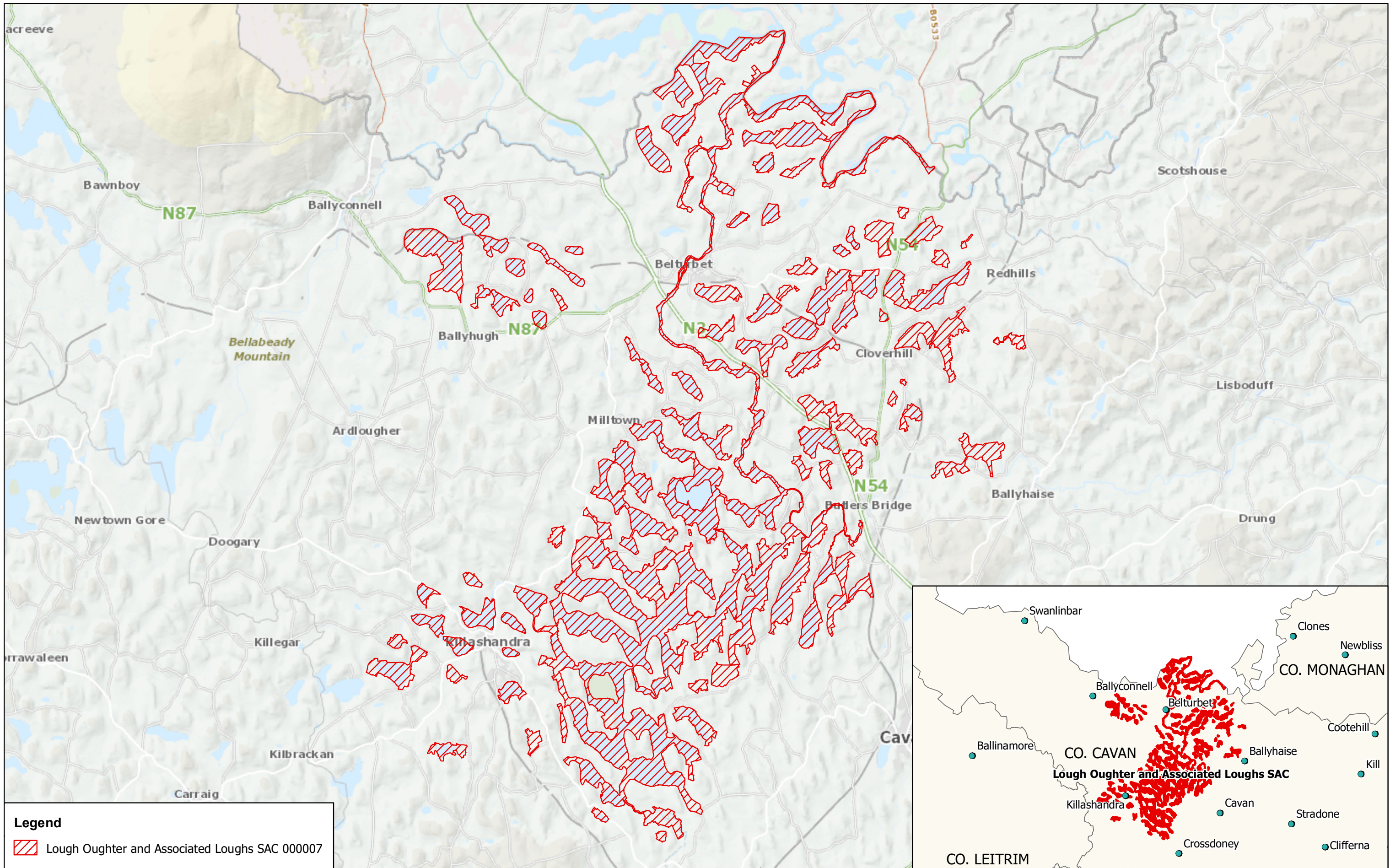


**Conservation Objectives for : Lough Oughter and Associated Loughs SAC [000007]****1355 Otter *Lutra lutra***


**To maintain the favourable conservation condition of Otter (*Lutra lutra*) in Lough Oughter and Associated Loughs SAC, which is defined by the following list of attributes and targets:**

<b>Attribute</b>	<b>Measure</b>	<b>Target</b>	<b>Notes</b>
Distribution	Percentage positive survey sites	No significant decline	Measure based on standard otter survey technique. Favourable Conservation Status (FCS) target, based on 1980/81 survey findings, is 88% in SACs. Current range is estimated at 93.6% (Reid et al., 2013)
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 364.4ha along river banks/ lake shoreline/around ponds	No field survey. Areas mapped to include 10m terrestrial buffer, identified as critical for otters (NPWS, 2007), along rivers and around water bodies
Extent of freshwater (river) habitat	Kilometres	No significant decline. Length mapped and calculated as 71.3km	No field survey. River length calculated on the basis that otters will utilise freshwater habitats from estuary to headwaters (Chapman and Chapman, 1982)
Extent of freshwater (lake) habitat	Hectares	No significant decline. Area mapped and calculated as 1,730.6ha	No field survey. Area mapped based on evidence that otters tend to forage within 80m of the shoreline (NPWS, 2007)
Couching sites and holts	Number	No significant decline	Otters need lying up areas throughout their territory where they are secure from disturbance (Kruuk and Moorhouse, 1991; Kruuk, 2006)
Fish biomass available	Kilograms	No significant decline	Broad diet that varies locally and seasonally, but dominated by fish, in particular salmonids, eels and sticklebacks in freshwater (Bailey and Rochford, 2006; Reid et al., 2013)
Barriers to connectivity	Number	No significant increase	Otters will regularly commute across stretches of open water up to 500m e.g. between the mainland and an island; between two islands; across an estuary (De Jongh and O'Neill, 2010). It is important that such commuting routes are not obstructed





**Legend**

 Lough Oughter and Associated Loughs SAC 000007




**An Roinn Tithíochta,  
Rialtais Áitiúil agus Oidhreachta**  
Department of Housing,  
Local Government and Heritage

**MAP 1:  
LOUGH OUGHTER AND ASSOCIATED LOUGHS SAC  
CONSERVATION OBJECTIVES  
SAC DESIGNATION**

Map to be read in conjunction with the NPWS Conservation Objectives Document


**SITE CODE:  
SAC 000007; version 3.01. CO. CAVAN**

0 1 2 4 Kilometres



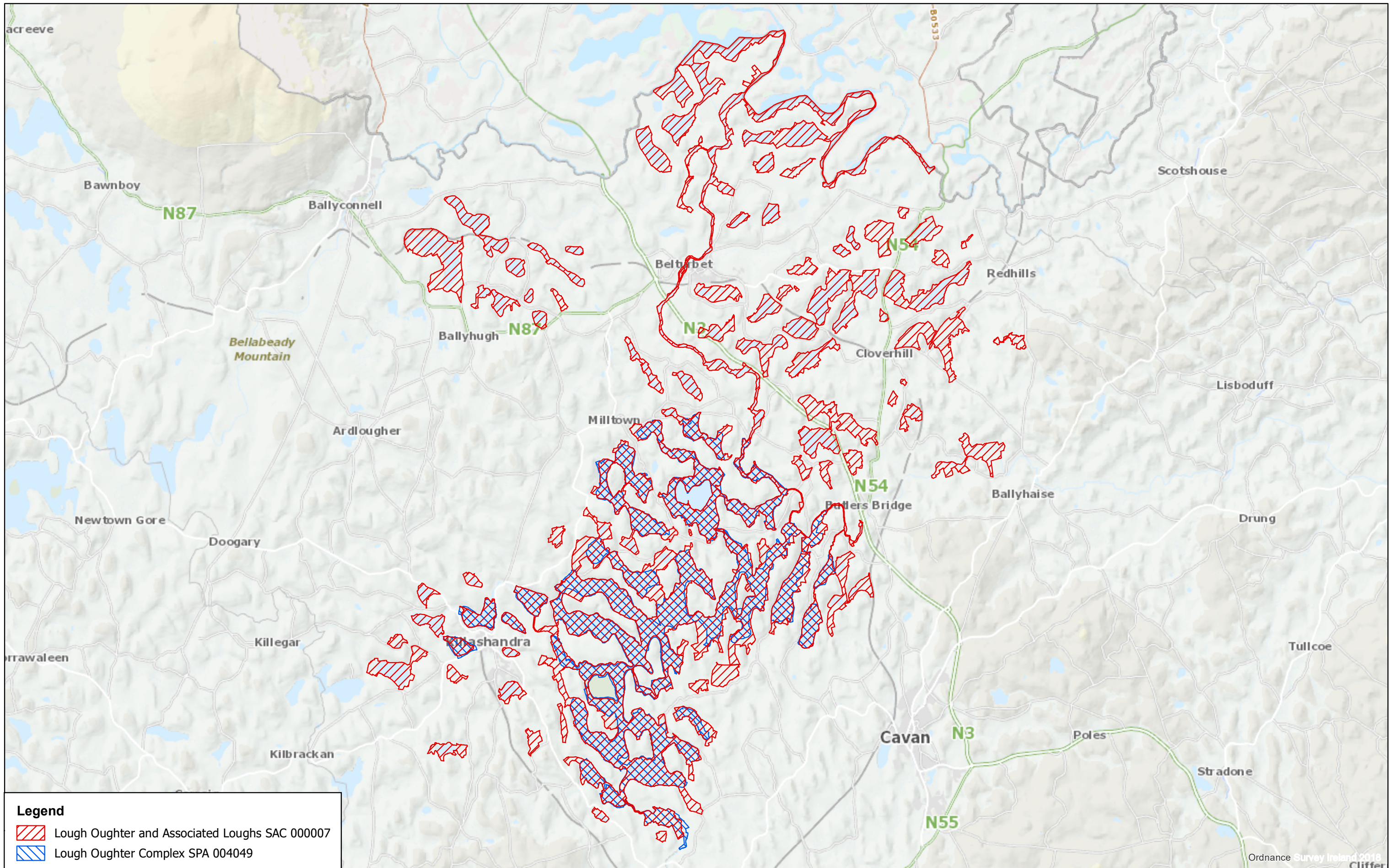
The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision.  
Ordnance Survey of Ireland Licence No OSI-NMA-014. © Ordnance Survey of Ireland Government of Ireland

Níl sna teorainneacha ar na léarscáileanna ach nod garshuíomhach ginearálta. Féadfar athbhreithnithe a déanamh ar theorainneacha na gceantar comharthaíthe. Suirbhéaracha Ordoanáis na hÉireann Ceadúnas Uimh OSI-NMA-014. © Suirbhéaracha Ordoanáis na hÉireann Rialtas na hÉireann





**Date: December 2020**

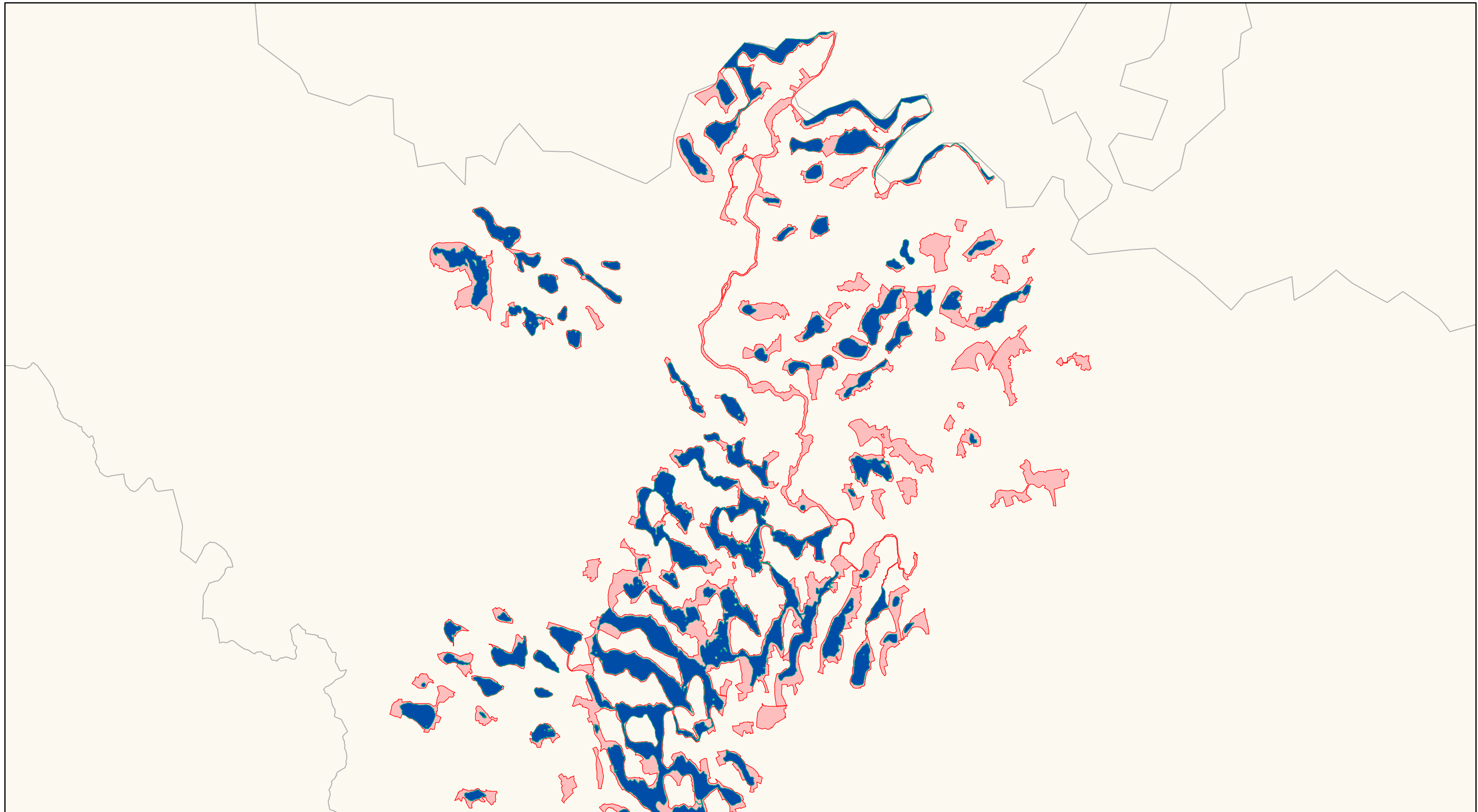




**Legend**

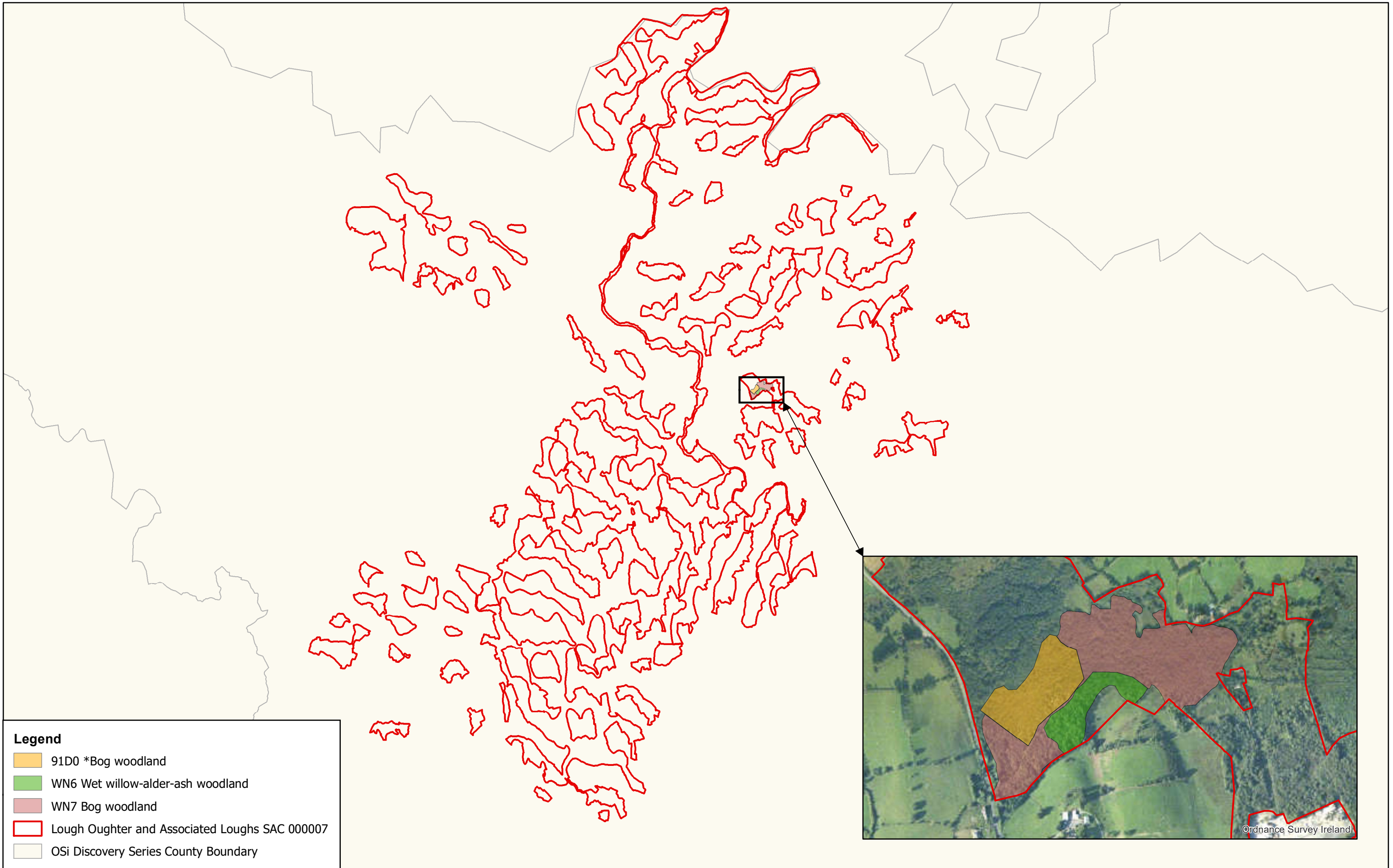
-  Lough Oughter and Associated Loughs SAC 000007
-  Lough Oughter Complex SPA 004049





**Legend**

- 3150 Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* - type vegetation
- Lough Oughter and Associated Lagoons SAC 000007
- OSi Discovery Series County Boundary



**Legend**

- 91D0 \*Bog woodland
- WN6 Wet willow-alder-ash woodland
- WN7 Bog woodland
- Lough Oughter and Associated Loughs SAC 000007
- OSi Discovery Series County Boundary





## **APPENDIX 2**

### **CONSERVATION OBJECTIVES FOR LOUGH OUGHTER COMPLEX SPA**







## **Conservation objectives for Lough Oughter Complex SPA [004049]**

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area 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.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Objective: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

<b>Bird Code</b>	<b>Common Name</b>	<b>Scientific Name</b>
A005	Great Crested Grebe	<i>Podiceps cristatus</i>
A038	Whooper Swan	<i>Cygnus cygnus</i>
A050	Wigeon	<i>Anas penelope</i>

To acknowledge the importance of Ireland's wetlands to wintering waterbirds, "Wetland and Waterbirds" may be included as a Special Conservation Interest for some SPAs that have been designated for wintering waterbirds and that contain a wetland site of significant importance to one



or more of the species of Special Conservation Interest. Thus, a second objective is included as follows:

**Objective:** To maintain or restore the favourable conservation condition of the wetland habitat at Lough Oughter Complex SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

**Citation:** *NPWS (2022) Conservation objectives for Lough Oughter Complex SPA [004049]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.*

*This First Order Site-specific Conservation Objectives Version 1.0 document replaces the Generic Conservation Objectives Version 9.0 document.*

## **APPENDIX 3**

### **CONSERVATION OBJECTIVES FOR UPPER LOUGH ERNE SAC**



UPPER LOUGH ERNE SAC  
UK0016614

# CONSERVATION OBJECTIVES

## Document Details

Title	<i>Upper Lough Erne SAC Conservation Objectives</i>
Prepared By	<i>R. McKeown</i>
Approved By	<i>P. Corbett</i>
Date Effective From	<i>01/04/2015</i>
Version Number	<i>V2</i>
Next Review Date	<i>Nov 2020</i>
Contact	<a href="mailto:cdp@doeni.gov.uk">cdp@doeni.gov.uk</a>

## Revision History:

Version	Date	Summary of Changes	Initials
V1	June 2013	Internal working document	PC
V2	January 2015	Complete review	RMK

## Site relationships

To fully understand the conservation requirements of this site, it is necessary to also refer to the Conservation Objectives for Upper Lough Erne SPA and Cladagh (Swanlinbar) River SAC.

Upper Lough Erne SAC boundary overlaps with the boundary for Upper Lough Erne SPA and adjoins Cladagh (Swanlinbar) River SAC.

## 1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives<sup>1</sup> to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

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<sup>1</sup> 92/43/EEC and 2009/147/EC (codified version of Directive 79/409/EEC as amended)

## 2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition
- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.
- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

## 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. 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 as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

### 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as “**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site**”.

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

### 4. SITE INFORMATION

**COUNTY:** FERMANAGH

**GRID REFERENCE:** IH 330280

**AREA:** 5787ha

### 5. SUMMARY SITE DESCRIPTION

The open waters of the main lough and smaller satellite loughs contain a variety of aquatic communities typical of natural eutrophic lakes. In addition, the shallow sheltered shores support extensive swamp, fen and marsh communities. Behind the open grazed foreshore is species-rich grassland, which occasionally extends back into the old adjacent field systems. Alluvial woodland is found where the shoreline is ungrazed or only very lightly grazed, while occasionally the dryer soils of the drumlins behind support a natural Oak woodland; this is particularly well developed within the Crom Estate to the south and the small island to the north of the Lough. Such diversity of good habitats and communities is reflected in the very large number of rare and notable plants and insects flourishing here: the woods being particularly important for breeding passerines and home for some notable mammals.

The site regularly supports large numbers of over-wintering and breeding birds important in an all-Ireland context in addition to internationally important numbers of wintering Whooper Swan *Cygnus cygnus*, which has been recognised by its SPA designation.

Further details of the site are contained in the ASSI Citation and Views About Management statement, which are available on the NIEA website ([www.doeni.gov.uk/niea](http://www.doeni.gov.uk/niea)).



## 5.1 BOUNDARY RATIONALE

The boundary has been drawn to include the open water of the lough, its islands and adjacent semi-natural habitats such as woodland, species-rich grassland and natural transition vegetation such as scrub or heath. The SAC boundary includes the composite boundaries of 9 ASSIs; Mill Lough, Corraslough Point, Belleisle, Inishroosk, Trannish, Dernish Island, Crom, Killymackan Lough and Galloon. The site boundary utilised permanent man-made boundary features when ever possible, however along some stretches of the foreshore such boundaries were absent and recognisable topographical or physical features such as break in slopes, scrub line, etc were used. In exceptional cases when there was no recognisable feature on the ground, the Rivers Agency's ownership folio line was used.

## 6. SAC SELECTION FEATURES

Feature type	Feature	Global Status	Size/ extent/ pop~
Habitat	Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation	A	3844.9ha*
Habitat	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles	B	275ha
Habitat	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion alvae</i> )	B	130ha
Species	Otter <i>Lutra lutra</i>	B	
Habitat	Bog woodland	D	
Habitat	Alkaline fen	D	
Habitat	Molinia meadows on calcareous, peaty or clayey-silt-laden soils ( <i>Molinia caerulea</i> )	D	
Species	Atlantic salmon <i>Salmo salar</i>	D	

Table 1. List of SAC selection features. Those with global status A-C will be referred to in ANNEX I.

The global status is an expert judgement of the overall value of the site for the conservation of the relevant Annex I habitat. Sites have been graded A, B or C - in the UK these gradings have been interpreted as follows:

**A** - Sites holding outstanding examples of the habitat in a European context.

**B** - Sites holding excellent stands of the habitat, significantly above the threshold for SSSI/ASSI notification but of somewhat lower value than grade A sites.

**C** - Examples of the habitat which are of at least national interest (i.e. usually above the threshold for SSSI/ASSI notification on terrestrial sites) but not significantly above this. These habitats are not the primary reason for SACs being selected.

**D** - Habitat present but not of sufficient extent or quality to merit listing as SAC feature.

There is therefore a distinction between the principal features for which sites have been selected (those graded A or B) and those which are only of secondary interest (those graded C). This is a useful distinction but it is important to note that all three grades are qualifying SAC interest features.

Click [here](#) to go to the Natura 2000 Standard Data Form for Upper Lough Erne SAC.

## 6.1 ASSI SELECTION FEATURES

### Upper Lough Erne ASSI

Feature Type	Feature	Size/ extent/ pop~
Habitat	Eutrophic Standing Waters	3844.9 ha
Habitat	Oakwood	275 ha
Habitat	Wet Woodland	130 ha
Habitat	Fens	
Habitat	Purple Moor-grass & Rush Pasture	
Habitat	Reedbeds & Swamps	
Habitat	Wood Pasture & Parkland	
Habitat	Lowland Meadow	
Species	Otter <i>Lutra lutra</i>	
Species	Higher Plant Assemblage <i>Myriophyllum verticillatum</i> (1), <i>Potamogeton filiformis</i> (2), <i>P. pusillus</i> (2), <i>Zannichellia palustris</i> (1), <i>Ranunculus circinatus</i> (2), <i>Lemna polyrhiza</i> (2), <i>Lemna gibba</i> (2), <i>Hydrocharis morsus - ranae</i> (2), <i>Cicuta virosa</i> (2), <i>Sium latifolium</i> (2), <i>Butomus umbellatus</i> (1), <i>Lathyrus palustris</i> (5), <i>Stellaria palustris</i> (2), <i>Viola persicifolia</i> (5), <i>Eleocharis acicularis</i> (2), <i>Alisma Lanceolatum</i> (3), <i>Thelypteris palustris</i> (2), <i>Carex pseudocyperus</i> (3), <i>C. elongata</i> (5), <i>C. strigosa</i> (2), <i>Rhamnus cathartica</i> (1), <i>Scirpus sylvaticus</i> (2), <i>Neottia nudus - avis</i> (1), <i>Lathraea squamaria</i> (2), <i>Prunus padus</i> (2), <i>Equisetum hyemale</i> (2), <i>Sisyrinchium bermudiana</i> (3) and <i>Spiranthes romanzoffiana</i> (5)	ABCD score 66
Species	Internationally important over wintering waterfowl assemblage	
Species	Nationally important breeding wader assemblage	
Species	Invertebrate Asemblage - Notable water beetle, aquatic bug and dragonfly assemblages and 20 individual notable species: <i>Limnoporus rufoscutellatus</i> , <i>Micronecta powers</i> , <i>Saldula opacula</i> , <i>Xanthandrus comtus</i> , <i>Xylota abiens</i> , <i>Carabus clatratus</i> , <i>Pelophila borealis</i> , <i>Coelambus impressopunctatus</i> , <i>Noterus crassicornis</i> , <i>Hygrotus quinquelineatus</i> , <i>Dytiscus circumcinctus</i> , <i>Gyrinus natator</i> G. <i>distinctus</i> , G. <i>paykulli</i> , <i>Brachytron pratense</i> , <i>Drymonia ruficornis</i> , <i>Odontosia carmelita</i> , <i>Sesia bembeciformis</i> , <i>Quercusia quercus</i> and	

	<i>Gonepteryx rhamni</i>	
<b>Species</b>	Notable mammal assemblages including colonies of three bat species Daubenton's, Leisler's and Brown Long – eared Bat, and healthy populations of Pine Martin and Red Squirrel.	
<b>Species</b>	Fungi Assemblage	

Table 2. List of ASSI features.

## 7. CONSERVATION OBJECTIVES

The *Conservation Objective* for this site is:

*To maintain (or restore where appropriate) the*

- *Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation*
- *Old sessile oak woods with Ilex and Blechnum in the British Isles*
- *Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion alvae)*
- *Otter Lutra lutra*

*to favourable condition.*

For each SAC feature, there are a number of component objectives which are outlined in the table below. These include a series of attributes, measures and targets which form the basis of *Condition Assessment*. The results of this will determine whether the feature is in favourable condition or not. The feature attributes and measures are found in the attached annex.

## 8. SAC SELECTION FEATURE OBJECTIVE REQUIREMENTS

Feature	Global Status	Objective
Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation	A	Maintain and enhance water quality.
		Maintain a natural hydrological regime
		Maintain the extent of existing characteristic aquatic and emergent community types.
		Maintain and enhance species diversity within each community including populations of rare and endangered species.

		Maintain purity of the natural and characteristic species composition.
		Minimal sediment load
		Substrate should be natural & characteristic of lake type.
		Minimal environmental disturbance i.e. minimal negative impact from recreation and artificial structures and no fish farming
		Instigate cross border monitoring mechanism between the relevant authorities to monitor water quality.
<p><b>Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles.</b></p>	<p><b>B</b></p>	Maintain and expand the extent of existing oak woodland but not at the expense of other SAC (ABC) features. (There are areas of degraded heath, wetland and damp grassland which have the potential to develop into oak woodland)
		Maintain and enhance Oak woodland species diversity including the presence of notable or rare species.
		Maintain and enhance Oak woodland structure
		Maintain the diversity and quality of habitats associated with the Oak woodland, e.g. fen meadow, grasslands, wet heath, wet woodland and scrub, especially where these exhibit natural transition to Oak woodland
		Seek nature conservation management over adjacent forested areas outside the SAC where there may be potential for woodland rehabilitation.
		Seek nature conservation management over suitable areas immediately outside the SAC where there may be potential for woodland expansion.
<p><b>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion alvae</i>)</b></p>	<p><b>B</b></p>	Maintain and <u>expand</u> the extent of existing Alluvial forests but not at the expense of other SAC (ABC) features. (There are areas of wetland and damp grassland which have the potential to develop into Alluvial woodland)
		Maintain and enhance Alluvial forests species diversity including the presence of notable or rare species.



		Maintain and enhance Alluvial forests structure
		Maintain the diversity and quality of habitats associated with the Alluvial forests, e.g. fen meadow, grasslands, wet heath, wet woodland and scrub, especially where these exhibit natural transition to Alluvial forests
		Seek nature conservation management over adjacent forested areas outside the SAC where there may be potential for woodland rehabilitation.
		Seek nature conservation management over suitable areas immediately outside the SAC where there may be potential for woodland expansion.
<b>Otter <i>Lutra lutra</i></b>	<b>B</b>	Population numbers and distribution to be maintained and if possible, expanded.
		Maintain the extent and quality of suitable Otter habitat, in particular the chemical and biological quality of the water, and all associated wetland habitats

## 9. ASSI FEATURE OBJECTIVE REQUIREMENTS

<b>Feature</b>	<b>Component Objective</b>
Eutrophic Standing Waters	See SAC Selection Feature Objective Requirements table.
Oakwood	See SAC Selection Feature Objective Requirements table.
Wet Woodland	See SAC Selection Feature Objective Requirements table.
Inundation and wet grassland, species-rich grassland and fen meadow	Maintain and expand the extent of these existing semi-natural grassland but not at the expense of other SAC (ABC) features.
	Maintain and enhance species diversity.
	Maintain and enhance grassland structure
	Maintain the diversity and quality of habitats associated with these semi-natural grassland, e.g. fen, marsh, swamp, especially where these exhibit natural transition.

	Seek nature conservation management over suitable areas immediately outside the SAC where there may be potential for restoring these semi-natural grassland types.
Swamp, fen and marsh vegetation ( <i>Alkaline fens are a component</i> )	Maintain and expand the extent of these existing vegetation types but not at the expense of other SAC (ABC) features.
	Maintain and enhance species diversity.
	Maintain and enhance structure
	Maintain the diversity and quality of habitats associated with these vegetation types, e.g. wet grassland, alluvial woodland, especially where these exhibit natural transition
	Seek nature conservation management over suitable areas immediately outside the SAC where there may be potential for restoring.
Parkland Woodland	Maintain the extent of the existing tree cover.
	Maintain and enhance lichen diversity.
Otter <i>Lutra lutra</i>	See SAC Selection Feature Objective Requirements table.
Higher Plant Assemblage	Map location of rare species scoring 3 or more
	Maintain abundance and distribution and if feasible enhance population.
	Establish the status of these species and if appropriate draw up further conservation priorities for this species.
Internationally important over wintering waterfowl	See SPA conservation objectives for this site
Nationally important breeding waders	Breeding numbers stable or increasing
	Chick mortality due to trampling by livestock to be minimised
	Disturbance of nesting pairs minimised
	A suitable nest site available for each summer resident pair of adult or sub-adult plovers.
Invertebrate Assemblage	To be finalised.
Mammal Assemblage	To be finalised.
Fungi Assemblage	To be finalised.

## 10. MANAGEMENT CONSIDERATIONS

### Ownership

All the open water body and a narrow slice of the fringing foreshore of the lough is owned by DARD Rivers Agency. In total, there are 415 individuals or organisations with ownership or other rights associated with the site.

The greatest proportion of the semi-natural woodland is included within the Crom ASSI and is either managed by National Trust or NIEA, while the numerous smaller woodland units are privately owned. Significant proportions of the smaller woodland units are fenced under ESA agreement, but a large number are not.

### Adjoining Land Use

Main adjoining land use is one of semi-intensive farming including crop and silage production as well as stock grazing. Past management of the woods through planting and selective felling has partially altered the woodland's composition from their natural state, particularly in relation to tree composition. Due to the present policy of minimum interference the woodlands will revert to their natural state, which may be most evident by the replacement of Oak by Ash as the dominant tree component.

## 11. MAIN THREATS, PRESSURES AND ACTIVITIES WITH IMPACTS ON THE SITE

Both on-site and off-site activities can potentially affect SAC/ASSI features. The list below is not exhaustive, but deals with the most likely factors that are either affecting Upper Lough Erne, or could affect it in the future.

Although *Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation, Old sessile oak woods with Ilex and Blechnum in the British Isles, Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion alvae) and Otter Lutra lutra* are the qualifying SAC features, factors affecting ASSI features are also considered.

**NOTE - Carrying out any of the Notifiable Operations listed in the ASSI schedule could affect the site.**

### Lake Impacts

#### *Siltation*

There is a tendency for naturally eutrophic lakes to silt up, both from sediment input through streams and rivers and from organic production. There may therefore be some loss of open water with time, though the rate should be relatively slow.

**ACTION: Reduce the rate of catchment sedimentation by encouraging landowners to leave adequate vegetation buffer strips between ploughed fields and adjacent drains and streams that may drain into the lough.**

#### ***Nutrient enrichment***

The natural eutrophic status of the loughs is threatened by further eutrophication, as a result of increased nutrient loading from agricultural run-off (slurry, silage effluent and artificial fertilisers), discharge of effluent from pleasure boats, and general domestic sewage from shoreline housing and other developments, leading to deterioration of water quality. If the water becomes too nutrient-rich there may be a total loss of macrophytes and only blooms of algae present.

**ACTION: Continued monitoring of water quality should identify increases in the eutrophic status of the lough. Current recommendations to reduce further eutrophication of the lough include the reduction of slurry spreading in high-risk areas; the provision of grants to farmers for improved storage of slurry, controls on agricultural pollution events, restrictions on the use of fertilisers and stricter controls on effluent disposal.**

#### ***Changes in water level***

The Electricity Supply Board in the Republic of Ireland controls the water level in Upper Lough Erne, as a requirement of the hydroelectric power station at Ballyshannon. High levels of discharge at Ballyshannon can significantly lower the level of the Lough. A set of sluices at Portora near Enniskillen can be lowered during times of low flow to maintain the water level in Upper Lough Erne. However, controls ensure the levels remain above the statutory minimum.

Both surface and groundwater's are abstracted for potable and non-potable use throughout Upper and Lower Lough Erne. Over-abstraction of water could have significant effects on both habitats and species alike.

**ACTION: Through monitoring assess the possible impacts of water extraction, if any, on the conservation interest features.**

#### ***Recreational Pressure***

Although disturbance is minimal in most areas of Upper Lough Erne and the satellite loughs, it is possible that the popularity of this area for angling, camping and boating holidays will increase considerably.

**ACTION: Monitor for any adverse impacts from increasing recreational pressure.**

#### ***Alien Species***

Only a few exotic plant species have been recorded for Upper Lough Erne, the most common being the Canadian Pondweed *Elodea canadensis*. This species although having a very high frequency of occurrence is not having a notable ecological impact.

Recent monitoring has indicated that Zebra Mussel (*Dreissina polymorpha*) is widespread and increasing in densities within Upper Lough Erne. Impacts on the ecology of Upper Lough Erne are difficult to predict. Zebra Mussels are able to attach to and form large colonies on any submerged hard surface. Fouling growths can swamp the spawning grounds of lake spawning salmonids and smother the shell of Swam Mussels. They are very effective filter feeders and can virtually strip the water column of zooplankton and phytoplankton leading to improved water clarity, although this does not result in a net loss of nutrients from the system. While water clarification may appear to be a benefit this may not always be the case. Mussel plankton grazing may (1) remove food from larval fish, (2) give sight feeding predatory fish an increased competitive edge over their prey, (3) shift the bulk of biological systems from pelagic to benthic systems associated with mussel beds, (4) clarify water to the point where algal populations change and where species formerly at a disadvantage are favoured and (5) increase macrophyte growth around lake margins (including nuisance carpeting growths of attached algae such as *Cladophora* spp.)

**ACTION: Continue monitoring for any adverse impacts from alien species such as Zebra Mussels.**

## Woodland Impacts

### ***Grazing/Poaching/Tree barking and Browsing***

Free access to woodland by domestic stock, feral goats and deer is causing direct damage to the ground flora community by poaching and trampling, grazing, barking and browsing, so preventing natural regeneration. This suppression of regeneration will increasingly cause a detrimental change in the woodland structure and composition, with time.

Information on current grazing levels of domestic stock within privately owned woodland is not readily available. No information of the current population of goats or deer is available.

**ACTION: Investigate the current activity relating to the practice of grazing woods by domestic stock. Reduce stocking pressure in woods to sustainable level or exclude stock by fencing off woodland under management agreement. Undertake census on the current population levels of feral goats and deer and if necessary, initiate control measures to reduce numbers to acceptable levels.**

### ***Woodland Clearance***

There is some *ad hoc* removal of wood. Removal of woodland would lead to a reduction in diversity.

**ACTION: Ensure there is no removal of woodland from the site.**

### ***Dead Wood Removal***

Dead wood should be left *in situ* if safe or practical to do so. This provides valuable habitat for fungi, invertebrates etc. Removal of wood or fire-wood should be discouraged.



**ACTION:** Ensure there is no removal of dead wood from the site.

### ***Invasion by exotics***

Exotic species recorded for the wood include Sycamore *Acer pseudoplatanus* and occasional small areas of Indian Balsam *Impatiens glandulifera*, Rhododendron *Rhododendron ponticum*, Red Currant *Ribes rubrum*, Gooseberry *Ribes uva-crispa* and Snowberry *Symphoricarpos albus*. These are not posing a threat at present but they should be monitored and in the long-term removed.

**ACTION:** Monitor invasive /exotic species and control when necessary.

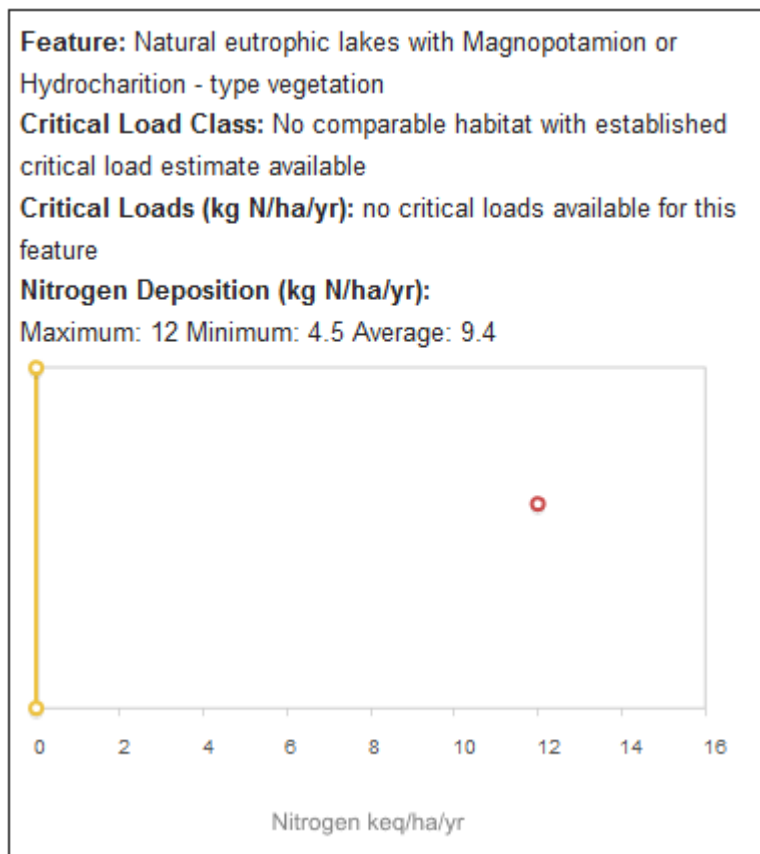
### ***Dumping***

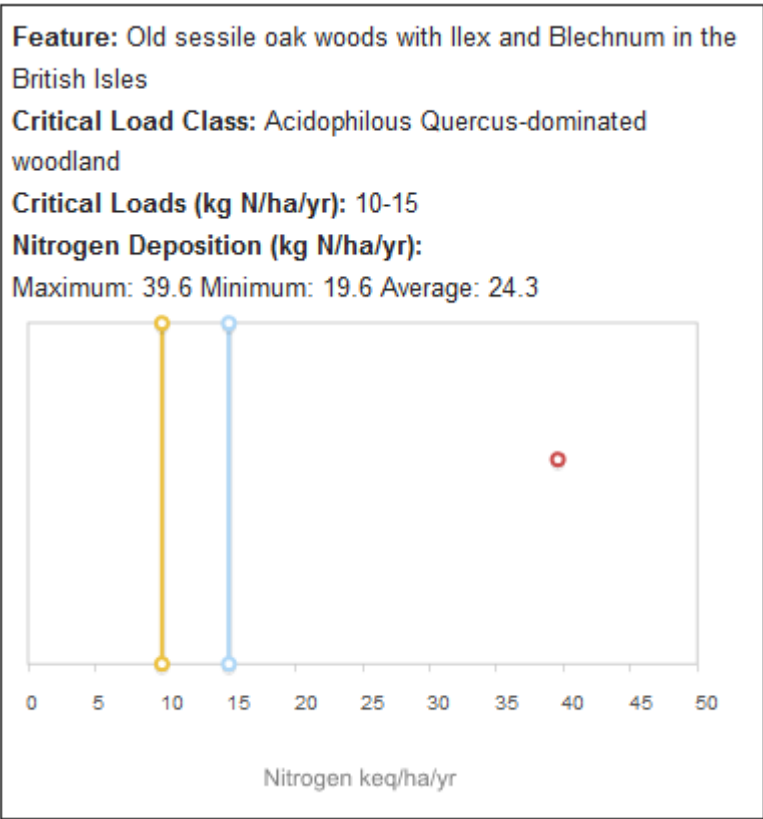
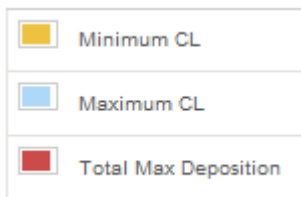
Fly tipping is not a major problem but does occur sporadically.

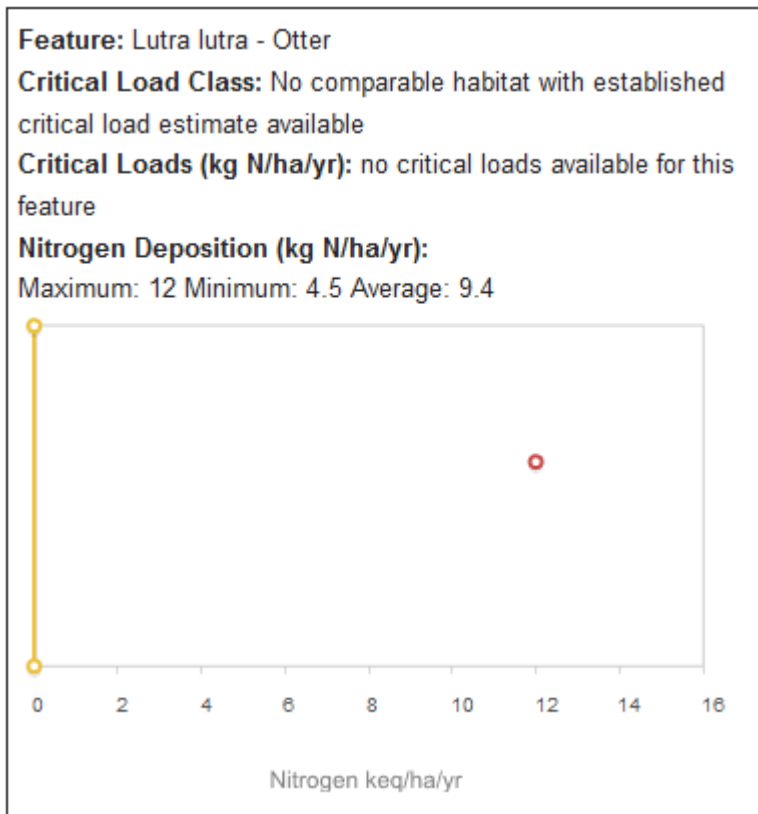
**ACTION:** Removal of dumped material from the woods when practical, to prevent the build-up of debris and to discourage further tipping. Fence off woodland adjacent to roads to discourage further tipping.

### ***Nitrogen Deposition***

Excess nitrogen deposition can favour the growth of competitive plants and lead to changes in ecosystem structure or function and to a reduction in biodiversity. National scale studies show the potential adverse effects of excess nitrogen on natural and semi-natural habitats to be widespread across the UK. Lower and upper critical loads have been calculated for Upper Lough Erne SAC.







**N.B.** Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion alvae*) – Designated feature/feature habitat not sensitive to eutrophication.

(Source: Air Pollution Information System (APIS) website- [www.apis.ac.uk](http://www.apis.ac.uk))

**ACTION:** Seek to maintain or where necessary, restore concentrations and deposition of air pollutants to at or below the site-relevant critical load.

#### **Changes to surrounding land use**

Any changes in local land-use e.g. agricultural intensification, drainage works and development) may be detrimental to the SAC.

**ACTION:** Reduce the risk of surrounding agricultural intensification by encouraging the adjacent owner/occupiers to enter into agri-environment schemes. Use Habitats Regulations Assessments (HRAs), through the planning process, to minimise any development risks adjacent to the SAC.

### ***Climate Change***

Northern Ireland faces changes to its climate over the next century. Indications are that we will face hotter, drier summers, warmer winters and more frequent extreme weather events.

**ACTION: When developing SAC management plans, the likely future impacts of climate change should be considered and appropriate changes made.**

## **12. MONITORING**

Monitoring of SACs takes place using two monitoring techniques.

**Site Integrity Monitoring (SIM)** is carried out to ensure compliance with the ASSI/ SAC Schedule. The most likely processes of change will either be picked up by SIM (e.g. dumping, burning, turf cutting, grazing etc.) or will be comparatively slow (e.g. gradual degradation of the habitat).

These longer-term changes will be picked up by monitoring of the feature via **Site Condition Assessment** - this is carried out on a rolling basis to pick up subtle changes in the condition of the feature.

The method for Site Condition Assessment was agreed by the relevant JNCC-led Lead Co-ordination Network although the methodology has been modified to reflect individual site attributes in Northern Ireland.

### **12.1 MONITORING SUMMARY**

#### **1. *Monitor the integrity of the site (SIM or Compliance Monitoring)***

Check on maintenance of fences, disturbance to habitats, winter grazing, etc. This SIM should be carried out once a year.

#### **2. *Monitor the condition of the site (Condition Assessment)***

Monitor the key attributes for each of the SAC selection features. This will detect if the features are in favourable condition or not. See Annex I.

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any Habitats Regulations Assessment (HRA) that may be needed. It should be noted that completion of a HRA is a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

### 13. REFERENCES

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## ANNEX I

### Feature 1 (SAC) – Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation (Status A)

(\* = primary attribute. One failure among primary attribute = unfavourable condition)

Attribute	Measure	Targets	Comments
Water quality	TP load of the significant inflowing rivers in Northern Ireland.	No increasing trend in TP concentration	ASRD already conduct fortnightly samples at all NI river mouths  A Water Quality Management strategy for the Erne Catchment was produced in 1998
	TP as measured in the lake outflow	<65µg/l	May need to arrange for ASRD to sample at e.g. Killyhevlin
	TP load of water inflowing from the Republic of Ireland	No increasing trend in TP concentration	ASRD include analyses of the mixed input from the Republic of Ireland at Derryvore.  There should be no need to examine the Republic's data on individual rivers unless the target is not met
	Abundance weighted Trophic Ranking Score in any of the sample areas	No increase in the mean of all sample areas of > 5%, and no increase in any individual sample area of > 10%	



	Pollutant levels: Heavy metals, pesticides, hydrocarbons, phenols, detergents	No increasing trend in pollutant levels	Measured annually at Kilyhevin by Water Service
*Hydrology	Cm (staff gauge) Belleisle, Portora and Rosscor viaduct (Belleek) are measured daily (Rivers Agency)	A stable regime to include high winter water levels	Lake water level is controlled by the Portora sluices and by The Turbines at Catherines Falls on Assaroe lake.
Siltation	Depth measurements in selected bays	Stable or natural accretion rates	Rivers Agency have data for the last 30 years
*Aquatic flora	Blanketweed abundance in any of the sample areas (PIV value)	No more than 3 (frequent)	
	Broad-leaved <i>Potamogeton</i> (Section <i>Potamogeton</i> , plus <i>P. obtusifolius</i> ) presence and abundance	No decline in species presence, or overall decrease in the abundance ratio between broad and fine-leaved species	
	Depth penetration of broad- leaved <i>Potamogeton</i> species (cm)	No decrease	Must be compared to water level at time of survey.

Swamp extent	Distance from a fixed point to a) the edge of the dominant emergent zone and b) to the furthest pioneer emergent (m) at least one point on each sub-sample	Mean increase over the reporting cycle of < 5cm per year	Note that Alkaline fens are also a D status SAC feature habitat and swamps and fens generally an ASSI feature
Environmental disturbance	Number of pleasure cruiser trips. The number of boat movements through the Shannon Erne water way and the numbers of boat licences on the Erne are recorded by Rivers Agency (Jeffrey Irwin)	Acceptable levels of usage / acceptable distribution of intensive boat movements i.e. leaving some parts relatively undisturbed (to be determined)	Ideally need to monitor boat movements in different parts of the lake
Invasive alien species	Status of Zebra mussel <i>Dreissena polymorpha</i>	Continued monitoring and evaluation of effects.	There is as yet no basis upon which to define condition criteria

**Feature 2 (SAC) - Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles (Status B)**

\* = primary attribute. One failure among primary attribute = unfavourable condition

Attribute	Targets	Method of Assessment	Comments
* Area of Oakwood	Maintain the extent of Oakwood.	Visual estimate in 10x10m plots <u>and</u> across the extent of the woodland using a combination of aerial photographs, SIM and Condition Assessment structured walk.	Loss due to natural processes (e.g. wind-throw during extreme storm) is acceptable.
Oakwood community diversity	Maintain presence of woodland communities, W11, W17, W9 & W7 as established at base line survey.	Visual estimate in 10x10m plots	
Presence of associated features and semi-natural habitats	Maintain existing associated features and semi-natural habitats (wet/bog woodland, wet heath, semi-natural grasslands etc.)	Visual estimate in 10x10m plots <u>and</u> across the extent of the ASSI using a combination of aerial photographs, SIM and Condition	Repeat monitoring of plots using GPS should indicate whether mosaics and associated habitats have changed or been lost. Note: Loss of associated habitats to Oakwood may be desirable in some instances.

		Assessment structured walk.	
* Structural variation (% cover)	Mean canopy cover greater than 70%	Estimate within the visual vicinity of the monitoring plots.	A well structured wood should have a well developed canopy and shrub layer.
	Mean shrub cover should be maintained between 20 - 50%	Estimate within the visual vicinity of the monitoring plots.	
	Maintain current levels of standard variation within reasonable limits for field, herb and moss cover.  Where present assess cover of <i>Luzula sylvatica</i> .	Visual estimate in 10x10m plots.	At least the current level of structural diversity should be maintained for field cover, herb cover and moss cover. Limits to be set for each site after the baseline survey.  Note: <i>L. sylvatica</i> may be dominant in many W11 oakwood communities. The percentage cover of this species may affect Oak regeneration, but more information is required before that assumption can be made.
		Visual estimate in 10x10m plots.	
		Visual estimate in 10x10m plots.	
	Visual estimate in 10x10m plots.		
Mean cover of bare ground should be less than 5%.  Bare ground does not include boulders or rocks.	Visual estimate in 10x10m plots.		
* Age-class variation (DAFOR)	Young trees (5- 20cm diameter) at least occasional in 25% of plots	Estimate within the visual vicinity of the monitoring plots.	Age-class structure should be appropriate to the site, its history and management; however, in general, there should be a spread of different age-classes present, including young and over-mature trees. However, on very steep sided
	Mature trees (20 - 75cm	Estimate within the	

	diameter) at least frequent in 75% of plots	visual vicinity of the monitoring plots.	slopes with shallow soils, over-mature trees are unlikely to occur as larger trees are likely to fall over before becoming over – mature. Note, that in many cases achieving the set targets is a long term aim. However, providing the correct management practices are in place, this attribute may be recorded as Unfavourable - recovering.
	Over-mature trees (>75cm diameter) at least present in 10% of plots	Estimate within the visual vicinity of the monitoring plots.	
* Presence of standing and fallen dead wood (DAFOR)	Standing dead wood at least occasional in 70% of plots and at least frequent in 30% of plots.	Visual estimate in 10x10m plots.	
	Fallen dead wood at least occasional in 70% of plots and at least frequent in 30% of plots.	Visual estimate in 10x10m plots.	
* Presence of epiphytes and climbers (DAFOR)	Epiphytes and climbers at least occasional in 70% of plots and at least frequent in 30% of plots.	Visual estimate in 10x10m plots.	Epiphytes and climbers are an important component in all woodlands. However, in the extreme south east of Northern Ireland, where the climate is much warmer and drier, the generic limits may be set too high and may need amended for individual sites.
* Presence of epiphytic bryophytes and lichens (DAFOR)	Epiphytic bryophytes and lichens at least occasional in 70% of plots and frequent in	Visual estimate in 10x10m plots.	Epiphytic bryophytes and lichens are an important component in all woodlands. However, in the extreme south east of Northern

	30% of plots.		Ireland, where the climate is much warmer and drier, the generic limits may be set too high and may need amended for individual sites.
* Regeneration potential (DAFOR)	Regeneration of Oak seedlings.	Visual estimate in 10x10m plots.	The general aim is for the successful establishment of young stems (i.e. seedlings growing through to saplings to young trees) in gaps or on the edge of a stand at sufficient density to maintain canopy density over a 10 year period.  Regeneration of Oak in particular is likely to be slow and sporadic; in some stands, there may currently not be sufficient and/or extensive enough gaps in the canopy for oak to regenerate. This does not necessarily indicate unfavourable condition.
Maintain current levels of native tree regeneration within reasonable limits for the current structure of the Oak woodland.	Regeneration of Oak saplings	Visual estimate in 10x10m plots.	
	Regeneration of other native seedlings.	Visual estimate in 10x10m plots.	
	Regeneration of other native saplings.	Visual estimate in 10x10m plots.	
* Cover of non-native species (all layers) (presence/absence)	Non-native invasive canopy species should be present in less than 20% of plots, but never frequent.	Visual estimate in 10x10m plots.	The canopy of the Oak woodland should be largely comprised of Oak trees. Non-native species are undesirable in the canopy, particularly invasive species such as Sycamore.  In addition, non-native invasive species in any one layer is un-desirable. Note that non-invasive species are not viewed as a significant threat, and a low level of occurrence may be acceptable.
	Non-native invasive shrub species should be present in less than 20% of plots, but never frequent.	Visual estimate in 10x10m plots.	
	Non-native invasive canopy species seedlings/saplings should be present in less than	Visual estimate in 10x10m plots.	

	20% of plots, but never frequent.		
	Non-native invasive ground flora species should be present in less than 20% of plots, but never frequent.	Visual estimate in 10x10m plots.	
*Frequency and cover of eutrophication indicators: (DAFOR)	No one negative species no more than occasional throughout the wood and/or singly or together comprising more than 5% cover. <i>Galium aparine</i> , <i>Urtica dioica</i> , <i>Heracleum spp</i> , <i>Epilobium spp</i> , <i>Rumex obtusifolius</i> .  No more than occasional is equivalent to less than 40% occurrence in recorded plots.	Visual estimate in 10x10m plots.	
* Cover of <i>Pteridium</i> (% cover)	The mean cover of <i>Pteridium</i> for the wood should be less than 10%.	Visual estimate in 10x10m plots.	
* Cover of grasses (non-woodland species) (% cover)	The mean cover of grass for the wood should be less than 10%.	Visual estimate in 10x10m plots.	A high cover of grasses indicates past and/or present grazing. Where heavy grazing has been a past management practice, the natural woodland ground flora will take a considerable time to re-establish (time limits for restoration currently unknown). However,



			providing the grazing pressure has been addressed, and there is evidence that woodland flora is beginning to re-appear, this attribute may be recorded as unfavourable, recovering.
Management /Disturbance			
* Grazing (DAFOR)	Grazing should be recorded as no more than occasional over 80% of plots.	Estimate within the visual vicinity of the monitoring plots.	Grazing by domestic stock, where it occurs should be light resulting in minimal damage to the ground flora through poaching and damage to seedlings and saplings.
* Poaching by cattle (DAFOR)	Poaching should be absent, or recorded in less than 20% of plots and frequent in less than 10% of plots.	Visual estimate in 10x10m plots.	
*Frequency of recent goat damage (1-2 years) (DAFOR)	Recent goat damage should be absent, or recorded in less than 20% of plots.	Visual estimate in 10x10m plots.	
*Frequency of damage to seedlings/saplings (DAFOR)	Damage to seedling/saplings should be absent, or recorded in less than 20% of plots.	Visual estimate in 10x10m plots.	
Frequency of felling/coppicing (within 6 year monitoring cycle) (DAFOR)	There should be no felling or coppicing of native trees or shrubs.	Visual estimate in 10x10m plots <u>and</u> across the extent of the ASSI using a combination of aerial photographs, SIM	Felling non-native species as part of management for conservation is acceptable.

		and Condition Assessment structured walk.	
Maintain the diversity of woodland species throughout the wood.	Record the % of plots with each of the acid woodland indicators (W11 & W17 communities) listed below:- <i>Vaccinium myrtillus</i> , <i>Blechnum spicant</i> , <i>Dicranum spp.</i> , <i>Luzula pilosa</i> , <i>Rhytidiadelphus loreus</i>	Visual estimate in 10x10m plots.	Within any Oak woodland, there may be pockets of base-rich woodland and or flushed woodland within the boundaries of the SAC. The diversity of these woodland communities should be maintained. However, the W11 & W17 communities should dominate the woodland.
Maintain the diversity of woodland species throughout the wood.	Record the % of plots with each of the base-rich woodland indicators (W9 community) listed below:- <i>Sanicla europea</i> , <i>Geum urbanum</i> , <i>Polystichum setiferum</i> , <i>Aneomne nemorosa</i> , <i>Primula vulgaris</i> .	Visual estimate in 10x10m plots.	Within any Oak woodland, there may be pockets of base-rich woodland and or flushed woodland within the boundaries of the SAC. The diversity of these woodland communities should be maintained.
Maintain the diversity of woodland species throughout the wood.	Record the % of plots with each of the flushed woodland indicators (W7 community) listed below:- <i>Carex remota</i> , <i>Ranunculus repens</i> ,	Visual estimate in 10x10m plots.	Within any Oak woodland, there may be pockets of base-rich woodland and or flushed woodland within the boundaries of the SAC. The diversity of these woodland communities should be maintained.

	<i>Chrysosplenium oppositifolium</i> , <i>Filipendula ulmaria</i> , <i>Lysimachia nemorum</i> .		
Presence of rare or scarce species specific to the site.	Maintain current levels of standard variation within reasonable limits for rare and notable species.  If these species are not recorded on any one visit, it does not automatically make the site unfavourable.	Name the species at least present along the length of the Condition Assessment structured walk.	

Frequency -

1-20% = Rare

21-40% = Occasional

41- 60% = Frequent

> 60% = Constant

**Feature 3 (SAC) – Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion Alnion incanae*, *Salicion alvae*) (Status B)**

\* = primary attribute. One failure among primary attribute = unfavourable condition

Attribute	Targets	Method of Assessment	Comments
* Area of Wet woodland	Maintain the extent Wet woodland at 130ha.	Visual estimate in 10x10m plots <u>and</u> across the extent of the woodland using a combination of aerial photographs, SIM and Condition Assessment structured walk.	Loss due to natural processes (e.g. wind-throw during extreme storm) is acceptable
Alder woodland community diversity	Maintain presence of the woodland community, W5 as established at base line survey.	Visual estimate in 10x10m plots	
Presence of associated features and semi-natural habitats	Maintain existing associated features and semi-natural habitats.	Visual estimate in 10x10m plots <u>and</u> across the extent of the ASSI using a combination of aerial photographs, SIM and Condition Assessment	Repeat monitoring of plots using GPS should indicate whether mosaics and associated habitats have changed or been lost. Note: Loss of associated habitats to Wet woodland may be desirable in some instances.

		structured walk.	
* Structural variation (% cover)	Mean canopy cover greater than 50%	Estimate within the visual vicinity of the monitoring plots.	A well structured wood should have a well developed canopy and shrub layer. However, many Wet woodlands do not support a tall canopy or very mature trees.
	Mean shrub cover should be maintained between 15-50%	Estimate within the visual vicinity of the monitoring plots.	
	Maintain current levels of standard variation within reasonable limits for field, herb and moss cover.	Visual estimate in 10x10m plots.	At least the current level of structural diversity should be maintained for field cover, herb cover and moss cover. Limits to be set for each site after the baseline survey. The ground flora may appear sparse, particularly where periodic flooding leaves areas of bare mud etc. Its composition may be variable. Hydrology is difficult to assess given vagaries of climate. The regime should be allowed to revert to a natural one. Negative changes will be picked up in vegetation changes over time but more detailed recording may be necessary
		Visual estimate in 10x10m plots.	
Visual estimate in 10x10m plots.			
Water-filled pools and ditches (or mud) should be at least present in 50% of plots.	Visual estimate in 10x10m plots.		
* Age-class variation (DAFOR)	Young trees (5- 20cm diameter) at least occasional in 25% of plots.	Visual estimate in 10x10m plots.	Age-class structure should be appropriate to the site, its history and management; however, in general, there should be a spread of different age-classes present, including young and over-mature trees. Note, that in many cases achieving the set targets is a long term aim. However, providing the correct management practices are in place, this attribute may
	Mature trees (20 - 75cm diameter) at least frequent in 75% of plots.	Visual estimate in 10x10m plots.	

	Over-mature trees (>75cm diameter) at least present in 10% of plots.	Visual estimate in 10x10m plots.	be recorded as Unfavourable -recovering.
* Presence of standing and fallen dead wood (DAFOR)	Standing dead wood at least occasional in 50% of plots.	Visual estimate in 10x10m plots.	Dead wood is often abundant but because there tend to be fewer big trees in wet woodland the size of the fallen wood is often small. Flooding may lead to local accumulations with other areas totally lacking fallen wood.
	Fallen dead wood at least occasional in 50% of plots.	Visual estimate in 10x10m plots.	
* Presence of epiphytes and climbers (DAFOR)	Epiphytes and climbers at least occasional in 50% of plots and at least frequent in 10% of plots.	Visual estimate in 10x10m plots.	Epiphytes and climbers are an important component in all woodlands. However, in Wet woodlands, their occurrence is much more sporadic than in other woodland types.
* Presence of Epiphytic bryophytes and lichens (DAFOR)	Epiphytic bryophytes and lichens at least occasional in 70% of plots and frequent in 30% of plots.	Visual estimate in 10x10m plots.	Epiphytic bryophytes and lichens are an important component in all woodlands. However, in the extreme south east of Northern Ireland, where the climate is much warmer and drier, the generic limits may be set too high and may need amended for individual sites.
* Regeneration potential (DAFOR)  Maintain current levels of native tree regeneration within reasonable limits for	Regeneration of native seedlings.	Visual estimate in 10x10m plots.	The general aim is for the successful establishment of young stems (i.e. seedlings growing through to saplings to young trees) in gaps or on the edge of a stand at sufficient density to maintain canopy density over a 10 year period.  Regeneration of some native species is likely to be slow and sporadic; in some stands, there may currently not be sufficient and/or extensive enough gaps for young
	Regeneration of native saplings.	Visual estimate in 10x10m plots.	

the current structure of the Wet Woodland.			trees to regenerate. This does not necessarily indicate unfavourable condition.
* Cover of non-native species (all layers) (presence/absence)	Non-native invasive canopy species should be present in less than 20% of plots, but never frequent.	Visual estimate in 10x10m plots.	The canopy of the Wet Woodland should be largely comprised of Alder and Willow trees with associated native species. Non-native species are undesirable in the canopy, particularly invasive species such as Sycamore.  In addition, non-native invasive species in any one layer is un-desirable.  Note that non-invasive species are not viewed as a significant threat, and a low level of occurrence may be acceptable.
	Non-native invasive shrub species should be present in less than 20% of plots, but never frequent.	Visual estimate in 10x10m plots.	
	Non-native invasive canopy species seedlings/saplings should be present in less than 20% of plots, but never frequent.	Visual estimate in 10x10m plots.	
	Non-native invasive ground flora species should be present in less than 20% of plots, but never frequent.	Visual estimate in 10x10m plots.	
* Frequency and cover of eutrophication indicators: (DAFOR)	No one negative species no more than occasional throughout the wood and/or singly or together comprising more than 5% cover. <i>Galium aparine</i> , <i>Urtica dioica</i> , <i>Heracleum spp</i> , <i>Epilobium spp</i> . <i>Rumex obtusifolius</i>	Visual estimate in 10x10m plots.	



	No more than occasional is equivalent to less than 40% occurrence in recorded plots.		
* Cover of grasses (non-woodland species) (% cover)	The mean cover of grass for the wood should be less than 10%.	Visual estimate in 10x10m plots.	A high cover of grasses indicates past and/or present grazing. Where heavy grazing has been a past management practice, the natural woodland ground flora will take a considerable time to re-establish (time limits for restoration currently unknown). However, providing the grazing pressure has been addressed, and there is evidence that woodland flora is beginning to re-appear, this attribute may be recorded as unfavourable, recovering.
* Grazing (DAFOR)	Grazing should be recorded as no more than occasional over 80% of plots.	Estimate within the visual vicinity of the monitoring plots.	Grazing by domestic stock, where it occurs should be light resulting in minimal damage to the ground flora through poaching and damage to seedlings and saplings.
* Poaching by cattle (DAFOR)	Poaching should be absent, or recorded in less than 20% of plots and frequent or more in less than 10 % of plots.	Visual estimate in 10x10m plots.	
* Frequency of recent goat damage (1-2 years) (DAFOR)	Recent goat damage should be absent, or recorded in less than 20% of plots.	Visual estimate in 10x10m plots.	
* Frequency of damage to seedlings/saplings	Damage to seedling/saplings should be absent, or recorded in less than 20% of plots.	Visual estimate in 10x10m plots.	

(DAFOR)			
Frequency of felling/coppicing (within 6 year monitoring cycle) (DAFOR)	There should be no felling or coppicing of native trees or shrubs.	Visual estimate in 10x10m plots <u>and</u> across the extent of the ASSI using a combination of aerial photographs, SIM and Condition Assessment structured walk.	Felling non-native species as part of management for conservation is acceptable.
Maintain the diversity of woodland species throughout the wood.	Record the % of plots with each of the wet woodland indicators (W5 community) listed below:- <i>Filipendula ulmaria,</i> <i>Galium palustris,</i> <i>Caltha palustris,</i> <i>Cardamine pratensis,</i> <i>Lysimachia. nummularia,</i> <i>Ranunculus repens,</i> <i>Mentha aquatica,</i> <i>Angelica sylvestris,</i> <i>Potentilla palustris,</i> <i>Lythrum salicaria,</i> <i>Myosotis scorpioides,</i> <i>Oenanthe crocata,</i> <i>Lycopus europaeus,</i> <i>Angelica sylvestris,</i>	Visual estimate in 10x10m plots.	

	<i>Scutellata,</i> <i>Solanum dulcamara,</i> <i>Valeriana officinalis</i> <i>Iris pseudacorus,</i> <i>Equisetum fluviatile,</i> <i>Phragmites australis,</i> <i>Carex rostrata,</i> <i>C. paniculata,</i> <i>C. remota,</i> <i>C. vesicaria.</i>		
Indicators of Local Distinctiveness			
Presence of rare or scarce species specific to the site.	Maintain current levels of standard variation within reasonable limits for rare and notable species. If these species are not recorded on any one visit, it does not automatically make the site unfavourable.	Name the species at least present along the length of the Condition Assessment structured walk.	

Frequency -

1-20% = Rare

21-40% = Occasional

41- 60% = Frequent

> 60% = Constant

**Feature 4 (SAC) – Otter *Lutra lutra* (Status B)**

Attribute	Measure	Target	Notes
Presence of otters	Presence of one or more of the following signs within the site: Positive identification of otter spraint, footprints, tracks, paths, lying-up sites or feeding signs.	Signs of otters found at least once per year	Use data from other surveys or Ulster Museum, if available
	Sightings of otters.		
	Positive identification of holt(s).		
Bankside/Waterside cover	Presence of cover: Mature trees, woodland, scrub, other tall bankside vegetation, reed and sedge beds.	No overall permanent decrease	Some change acceptable as long as it is appropriately mitigated
Water quality	EP water quality scale	Water quality should be at least category A or B, according to EP guidelines, with no pollution incidents	Refer to Environment Protection for data
Food Sources	Assessment of fish stocks and other food sources (e.g. amphibians)	Fish stocks appropriate to the nutrient status of the river, with no significant decline in fish biomass or species diversity	Refer to appropriate Agency for sample data if available (This information may need to be inferred from the water quality category).

Attribute	Measure	Target	Notes
Disturbance	Extent of public access to river	No significant change to river or bankside usage; no significant development	
Flow rate	Mean annual flow rate	No reduction attributable to increased abstraction.	Refer to data from Rivers Agency if available
Site integrity	Total area	No reduction or fragmentation of area	



## **APPENDIX 4**

### **CONSERVATION OBJECTIVES FOR UPPER LOUGH ERNE SPA**





# UPPER LOUGH ERNE- SPECIAL PROTECTION AREA (SPA)

## CONSERVATION OBJECTIVES

UK9020071

### Document Details

Title	Upper Lough Erne SPA Conservation Objectives
Prepared By	<i>Ian Enlander</i>
Approved By	<i>Mark Wright</i>
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Next Review Date	January 2020
Contact	<a href="mailto:cdp@doeni.gov.uk">cdp@doeni.gov.uk</a>

### Revision History:

Version	Date	Summary of Changes	Initials	Changes Marked
V1	04/03/1997	Internal working document	IE	
V1.1	August 2013	Review	IE	
V2.0	February 2015	Draft	IE	Complete review

### Site relationship

To fully understand the site conservation requirements for this site it may be necessary to also refer to other site Conservation Objectives

This SPA overlaps with Upper Lough Erne SAC

The SPA also includes the Upper Lough Erne Ramsar site.

See also Boundary Rationale

The SPA is also close to, or adjoins, European designations in the Republic of Ireland. These are Lough Oughter and Associated Lake SAC and Lough Oughter SPA.

## **1. INTRODUCTION**

EU Member States have a clear responsibility under the Habitats and Birds Directives<sup>1</sup> to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, terrestrial/inter-tidal Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended).

## **2. ROLE OF CONSERVATION OBJECTIVES**

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition
- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.
- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

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<sup>1</sup> 92/43/EEC and 2009/147/EC (codified version of Directive 79/409/EEC as amended)

### 3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. 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 as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

#### 3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as “**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site**”.

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

### 4 GENERAL INFORMATION

COUNTY: Fermanagh

G.R. H330 280

AREA: 5787 ha.

### 5 SUMMARY SITE DESCRIPTION

The open waters of the main lough and smaller satellite loughs contain a variety of aquatic communities typical of natural eutrophic lakes. In addition the shallow sheltered shores support extensive swamp, fen and marsh communities. Behind the open grazed foreshore is species-rich grassland, which occasionally extends back into the old adjacent field systems. Alluvial woodland is found where the shoreline is ungrazed or only very lightly grazed, while occasionally the dryer soils of the drumlins behind support a natural Oak woodland; this is particularly well developed within the

Crom Estate to the south and the small island to the north of the Lough. Wintering Whooper Swan generally utilise improved or semi-improved grassland close to water bodies used for roosting. Foraging in flooded fields and of emergent vegetation in shallower lakes is common.

## 5.1 BOUNDARY RATIONALE

The boundary has been drawn to include the open water of the lough, its islands and adjacent semi-natural habitats such as woodland, species-rich grassland and natural transition vegetation such as scrub or heath. The SPA boundary includes the composite boundaries of 9 ASSIs; Mill Lough, Corraslough Point, Belleisle, Inishroosk, Trannish, Dernish Island, Crom, Killymackan Lough and Galloon. The site boundary utilised permanent man-made boundary features when ever possible, however along some stretches of the foreshore such boundaries were absent and recognisable topographical or physical features such as break in slopes, scrub line, etc were used. In exceptional cases when there was no recognisable feature on the ground the Rivers Agency's ownership folio line was used. Agriculturally improved areas utilised by swans have not been included but their importance must not be underestimated.

## 6 SPA SELECTION FEATURES

Feature Type (i.e. habitat or species)	Feature	Designation Population	Population at time of designation (ASSI)	Population at time of designation (SPA)	SPA Review population
Species	Whooper Swan wintering population <sup>a</sup>	495 (five year running mean of maximum annual WeBS counts - 1991/92-95/96) <sup>1</sup>		352	352
Habitat <sup>2</sup>	Habitat extent				

Table 1. List of SPA selection features.

<sup>1</sup>The SPA Citation states the designation population to be 352. However there was an error in the calculation of this figure and therefore the revised figure of 495 should be used.

<sup>2</sup>Habitat is not a selection feature but is a factor and is more easily treated as if it were a feature.

### Notes on SPA features – may not be applicable to all SPAs

The above table lists all relevant qualifying species for this site. As the identification of SPA features has and continues to evolve, species may have different status but all should be considered in the context of any HRA process. Ultimately all SPAs will be renotified to formalise species features.

<sup>a</sup> – species cited in current SPA citation and listed on current N2K dataform

<sup>b</sup> – species selected post SPA designation through UK SPA Review 2001

<sup>c</sup> – species highlighted as additional qualifying features through the UK SPA Review 2015 or the UK marine SPA programmes.

### 6.1 ADDITIONAL ASSI SELECTION FEATURES -

Feature Type (i.e. habitat, species or earth science)	Feature	Size/ extent/ pop'
See SAC conservation objectives for ASSI feature details		

Table 2. List of ASSI features, additional to those that form all or part of SPA selection features. These will be referred to in ANNEX II.

## 7. CONSERVATION OBJECTIVES

The Conservation Objectives for this site are:

To maintain each feature in favourable condition.

For each feature there are a number of component objectives, which are outlined in the tables below. Component objectives for Additional ASSI Selection Features are not yet complete. For each feature there are a series of attributes and measures, which form the basis of Condition Assessment. The results of this will determine whether a feature is in favourable condition, or not. The feature attributes and measures are found in the attached annexes.

## 8 UPPER LOUGH ERNE SPA CONDITION ASSESSMENT 2014

Species	2008	2009	2010	2011	2012	CSM	5 yr mean	% CSM	Status
Whooper Swan	483	504	415	560	484	432	489.20	<b>113.24</b>	Favourable

## 9 SPA SELECTION FEATURE OBJECTIVES

To maintain or enhance the population of the qualifying species

To maintain or enhance the range of habitats utilised by the qualifying species

To ensure that the integrity of the site is maintained;

To ensure there is no significant disturbance of the species and

To ensure that the following are maintained in the long term:

- Population of the species as a viable component of the site
- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species

Feature	Component Objective
Whooper Swan wintering population	No significant decrease in population against national trends
Habitat	Maintain the extent of main habitat components used by or potentially usable by the feature species subject to natural processes

Table 3. List of SPA Selection Feature Component Objectives

### 9.1 ADDITIONAL ASSI SELECTION FEATURE OBJECTIVES

Feature	Component Objective
See SAC conservation objectives for ASSI feature details	

Table 4. List of Additional ASSI Selection Feature Objectives

## 10. MANAGEMENT CONSIDERATIONS

**See also Views About Management for relevant ASSIs**

**Owner/Occupier's** – Land ownership within Upper Lough Erne SPA/cSAC is complex, and reflects the size and geography of the site. As of October 1995 there were over 340 landowners, the largest of which were The National Trust (which owns and manages the Crom Estate) and DANI (which owns the beds of the loughs). In addition, Reilly & Gole Woods NR is owned by DoE(NI) NIEA.

#### 11. MAIN THREATS, PRESSURES, ACTIVITIES WITH IMPACTS ON THE SITE OR SITE FEATURES

*Notifiable Operations* - Carrying out any of the Notifiable Operations listed in the schedule could affect the site. The list below is not exhaustive, but deals with the most likely factors that are either affecting Upper Lough Erne SPA, or could affect it in the future. Although, features 1, 2, 3, 4 etc, are the qualifying SPA features, factors affecting ASSI features are also considered.

#### Site/feature management issues

No	Issue	Threat/comments	Local considerations	Action
1	Adjoining habitat	Particularly important for swans. Significant changes in land management and disturbance are key considerations. Such areas lie without the site making effective management of developments other than those for which planning permission is required, difficult.	Considerable ad hoc local field drainage activities none presently identified on swan fields.	Assess planning applications. Identify key areas and promote site management schemes. Review use of Wildfowl Refuges. Consider the collective impact.
7	Boating activity – recreational	Disturbance and potential for impact especially from jet skis. Generally relevant to particularly sensitive areas within site.	Very limited activity in winter.	Liaise with appropriate authority with codes of good practice, zoning and use of by-laws as necessary. Consider the collective impact.
8	Shoreline protection schemes	Where there is no history of this, it impacts on natural beach systems with loss of habitat.	Not a notable problem with only limited impacts.	Liaise with Planning Service and other parties with an involvement in shoreline management.
11	Drainage	Potential impact on water flooding regime. Potentially significant in relation to adjoining habitat if it leads to reduction in traditional areas of flooding.	Nature of the lough makes capital scheme unlikely. Ongoing individual operations outside site.	Identify key areas and promote site management schemes to protect and enhance site features. Consider the collective impact.
14	Fishing – commercial or recreational	Minimal disturbance consideration.	Disturbance not thought to be significant.	Liaise with DARD and fishing authority as required. Liaise with angling clubs as required.
16	Habitat extent – open water	Loss likely to be limited but expansion of marina facilities can impact on key localities.	Not a significant issue	Assess planning applications. Consider the collective impact.
18	Habitat quality	Alteration of habitat quality through	The lough is	Assess planning

No	Issue	Threat/comments	Local considerations	Action
	– open water	diminution of water quality or invasive species.	naturally enriched. Establishment of Zebra Mussel is likely to alter the water environment significantly.	applications. Deal with invasive alien species by preventing their spread or reducing their impact. Liaise with Environmental Protection. Consider the collective impact.
21	Introduced species	Range of threats from loss of habitat, feeding competition, disease, hosting species presenting a threat outside of the site.	Zebra Mussel issue.	Liaise with appropriate authority. Consider feasibility of elimination. Participate in national/international initiatives.
22	Power cables	Specifically a problem in relation to swans. Threat is through impact. Need to consider flight lines, as well as feeding and loafing areas, which ideally should be avoided.	Impact not considered to be widespread.	Liaise with NIE. Minimum need is for line marking based on best current practice. Consider the collective impact.
24	Recreational activities.	Disturbance is the main consideration.	Most traditional swan areas are relatively remote. Land-based activities are minimal concern while winter boating is limited.	Liaise with local authorities and other managing parties.
25	Research activities.	Census and ringing activities especially have the potential to impact on bird populations, particularly at breeding sites.	Routine winter WeBS counts.	Census and ringing activities to be undertaken by competent individuals, appropriately trained. In case of ringers, appropriate license must be held.
28	System dynamics	Cuts across many other issues. Dynamic systems, especially coastal, can be affected by many factors especially engineered structures and significant changes in dominant wind direction or storm frequency. Many systems may indeed still be undergoing responses to historical developments e.g. partial reclamation, seawall construction. Changes may include alteration in sediment grade, shifts in patterns of erosion and deposition, etc. Consequences for habitat and species utilisation of the site can be profound.	Historical lowering of the lough level reduced considerably the area subject to flooding but also would have had implications for shore and nearshore morphology, particularly the dynamics of sand bar and river mouth shoal complexes and for habitat dynamics.	Human induced change should be minimised. Assess planning applications and liaise with other relevant authorities. Ad hoc dumping and removal of natural materials should be managed. Major natural shifts in system behaviour may be identified through analysis of aerial photographs and site monitoring. Major and consistent changes to patterns of habitat distribution and bird utilisation of the site should be noted.

No	Issue	Threat/comments	Local considerations	Action
30	Water level control	Impacts on natural fluctuation of water body. Potentially significant in relation to adjoining habitat if it leads to reduction in traditional areas of flooding.	Water level influenced by Ballyshannon hydro-electric scheme. Not thought to be a problem.	Liaise with relevant authorities.
31	Wildfowling	Has indirect effect through wider disturbance issue. Issue of regulated (through recognised shooting clubs) and ad hoc shooters. Lead shot on grazing lands.	Erne Wildfowling liaise with NIEA.	Liaise with relevant shooting bodies to define areas for wildfowling, the development of Wildfowling Codes of Good Practice and encourage bag returns. Support pressure to stop use of lead shot. Review use of Wildfowl Refuges. Consider the collective impact.

Table 3. List of site/feature management issues

## 12. MONITORING

Monitoring of our Special Protection Areas takes place at a number of levels, using a variety of methods. Methods for both Site Integrity Monitoring and Condition Assessment can be found in the Monitoring Handbook (To be written).

In addition, detailed quality monitoring or verification monitoring may be carried out from time to time to check whether condition assessment is adequate to detect long-term changes that could affect the site. This type of quality monitoring may involve assessment of aerial photographs to determine site morphological changes. Methodology for this is being developed.

### 12.1 MONITORING SUMMARY

**1. Monitor the integrity of the site (Site Integrity Monitoring or SIM)** – to ensure compliance with the SPA/ASSI schedule and identify likely processes of change (e.g. water level change, changes to trophic state). This SIM should be carried out once a year.

**2. Monitor the condition of the site (Condition Assessment)** - Monitor the key attributes for each selection feature (species, assemblage, habitat, etc). This will detect if the features are in favourable condition or not. See Annexes I and II for SPA and Additional ASSI Features respectively.

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans



and projects, but it does provide a basis to inform the scope and nature of any appropriate assessment that may be needed. It should be noted that appropriate assessments are a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

## **12.2 ADDITIONAL MONITORING ACTIONS UNDERTAKEN FOR SITES IN UNFAVOURABLE CONDITION**

Monitoring actions set out in section 6 and Annex 1 will use, amongst other attributes, bird population data to determine site condition. In the event of a significant population decline being detected, a series of subsequent actions will be initiated. The following list is not exhaustive, actions will be site dependant, but the order of these points IS hierarchical i.e. consider point 1, then 2, etc.

1. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, world. Refer to BTO ALERT limits etc. Liaise with other competent bodies to meaningfully assess wider pattern. No site action if site decline mirrors regional pattern the cause of which is not related to the site. Action may be required at regional or larger scale. If the cause of the regional population decline (e.g. eutrophication) is found at the site then action may be necessary, but this may need to form part of a network of strategic species action. Further research may be required.
2. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, Europe, world. Determine if site losses are balanced by gains elsewhere e.g. breeding terns. Review site condition to determine if losses are due to site deterioration. Determine if possible whether population has relocated within SPA series (national, biogeographical, European). Note that the reasons for such locational changes may not be readily identifiable. Further research may be required.
3. For passage/wintering species assess breeding information. No site action if site decline is due to breeding ground failure, unless breeding ground failure is related to poor adult condition resulting from factors affecting wintering / passage birds.
4. Determine whether a major incident has affected the site e.g. toxic impact on prey items, predation event or geographical shift in available prey. Ability to respond to impacts may be limited.
5. Assess condition of principal site habitats e.g. vegetational composition and structure, change in habitat balance e.g. mudflats reduced by encroaching mussel beds.
6. Assess prey availability. Issues to consider are both within site e.g. water quality, broad site management, and without site e.g. climatically driven factors.
7. Assess whether there have been any changes in any other site features or management practices (see Table 3) that may have affected populations of site selection features.
8. Long-term site value must be considered even when it is found to be in unfavourable condition for a number of reporting cycles. This is particularly important for breeding seabird and wader sites where ongoing appropriate management may ultimately encourage re-establishment of a favourable population.

### 13. SELECTION FEATURE POPULATION TRENDS

A summary statement of site population trends, together with wider geographical trends. Date of completion is given as well as information sources used. Site trends are reported as % increase/decline from designation population (1995/96) using running 5 year means of annual maximum count (WEBS data). Other trends are generally limited to terms such as 'consistent increase/decline', 'variable with overall increase/decline', 'no discernable trend'.

<b>SPECIES</b>	<b>SITE TREND</b>	<b>NI TREND</b>	<b>IRISH TREND</b>	<b>UK TREND</b>	<b>COMMENTS</b>
Wintering Whooper Swan	+11% (1999-2000)	Variable with overall decline 1990/91-1999/2000 (WeBS)	I-WeBS data unavailable	Variable with overall increase 1990/91-1999/2000 (WeBS)	

## ANNEX I

### Feature (SPA) – Wintering waterfowl

\* = primary attribute. One failure among primary attribute = unfavourable condition

# = optional factors – these can be in unfavourable condition without the site being in unfavourable condition

<b>Attribute</b>	<b>Measure</b>	<b>Targets</b>	<b>Comments</b>
*Whooper Swan wintering population	Bird numbers	No significant decrease in population against national trends	Five year running averages will be used to monitor population trends through WeBs data. A lower limit of 50% decline over a five year period may indicate unfavourable condition of the site.

### Non-Avian Factors - habitat

<b>Attribute</b>	<b>Measure</b>	<b>Targets</b>	<b>Comments</b>
Habitat	Area of natural and semi-natural habitat	Maintain the extent of main habitat components subject to natural processes	

## ANNEX II

### Feature (ASSI)

<b>Attribute</b>	<b>Measure</b>	<b>Targets</b>	<b>Comments</b>
See SAC conservation objectives for ASSI feature details			