

County Leitrim Wetland Survey 2019

Report prepared for Leitrim County Council

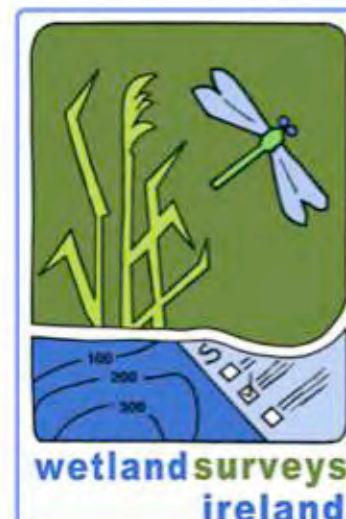
by P. Foss, B. Kirwan, M.C. Gallagher & P. Crushell

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Comhairle Chontae Liatroma
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An Action of the County Leitrim Heritage Plan 2020-2025

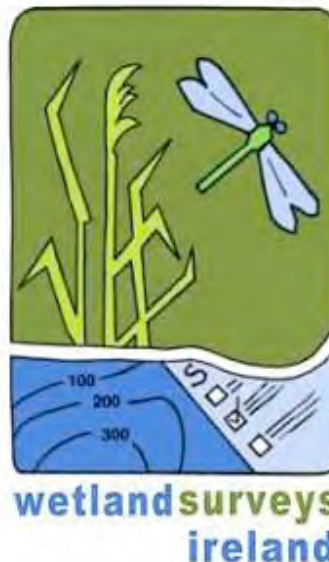
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County Leitrim Wetland Survey 2019

This partnership project created a digital GIS wetland map and Site database of known and potential wetland sites in County Leitrim. The wetland habitats recorded include lakes, ponds, watercourses, springs, swamps, wet grassland, marsh, bogs, fens, bog woodland, riparian woodland, wet woodland and coastal habitats. In all, 38 wetland habitat types were researched and mapped.

The 2019 project involved two main elements:

- *a desktop literature review aimed at identifying all previously reported wetlands in County Leitrim and gather background data on those sites identified; and*
- *a desktop analysis of aerial photography and other GIS datasets to identify and compile a map of potential wetlands which had not been previously reported.*

The resulting data-set from the project provides a useful tool for future heritage conservation planning in the county, will assist in the development of sustainable planning programmes, and will allow for the design of future targeted wetland surveys and research programmes in County Leitrim.

An Action of the County Leitrim Heritage Plan 2003-2008

Acknowledgements

The County Leitrim Wetland Survey 2019 (LEWS2019) project was a joint project initiative of the Heritage Office of Leitrim County Council and Wetland Surveys Ireland.

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Executive Summary

1. County Leitrim is known to contain a wide variety of wetlands, which support many flora and fauna species of high conservation concern. Due to the varying topography, geology, hydrology, climate, and soils present, Leitrim has wetland habitats ranging from raised bogs, turloughs, fens, marshes, rivers and associated floodplains, lakes, springs, wet woodlands, and a limited number of coastal habitats.
2. The aim of the County Leitrim Wetland Survey 2019 (LEWS2019) was to prepare a database of all freshwater wetland sites in the county. The project involved two distinct elements:
 - a desktop literature review to identify all known wetlands in County Leitrim and gather background data on these sites; and
 - an analysis of aerial photography and other GIS datasets to identify and map potential wetlands which had not been previously reported.
3. The current study focused on the identification of 38 wetland habitat types (26 of which may correspond with habitats listed on Annex I of the EU Habitats Directive) in County Leitrim.
4. The information gathered during the study is stored in a **Site database** and associated **GIS dataset**, the LEWS (Leitrim Wetland Survey). Together these datasets form, for the first time, a preliminary inventory of the wetland resource in the county. This resource should prove useful for, amongst other things, the future spatial planning in the county.
5. A variety of data sources (reports, publications, databases and inventory lists, and local interest groups) were consulted during the project (see Appendix 1).
6. Information on 388 potential wetland sites and sub-sites held in the *LEWS Site database* and mapped in the *LEWS GIS dataset*. These sites were identified during a literature review of the county and during the GIS analysis of aerial photography and other datasets.
7. The sub-soils map of Ireland was used as a primary source in identifying areas of potential wetland within the county. Based on analysis of the sub-soil types that indicate wetland areas, the total area of wetland within Leitrim is estimated to cover 621km² or 39% of the county. While an indication of the original extent of wetlands, this calculation is certainly an over estimate as it does not take account of changes due to land management or drainage.
8. Preliminary site boundaries have been mapped for main wetland sites identified during the LEWS2019, providing an estimate of the extent of wetlands within the county. Sub-sites occur within the main site areas. The area of wetland sites mapped in Leitrim covered an area of 375km² (23.5% of land area).
9. Of the wetland sites identified in Leitrim, 33 lie within areas designated for nature conservation while the remaining 337 are outside of designated areas. A significant proportion of these undesignated sites, most of which have not been subject to ecological survey, are likely to support habitats and species of conservation importance.
10. Our incomplete knowledge of 269 of the wetland areas in County Leitrim, which have not been subject to any detailed ecological survey, suggests that a targeted wetland survey should be a

key priority to gain a better understanding of the wetland resource within the county and to ensure that those sites of highest importance are protected.

11. Sites to be prioritised for survey should include those that have not been surveyed in detail in the past and those that are likely to contain wetland habitats of high conservation importance. Based on this, the following groups of sites should be prioritised:

- Sites identified by analysis of aerial photography and other GIS datasets for which we have no ecological data;
- Sites that are likely to contain wetland habitats that are listed on Annex I of the EU Habitats Directive (raised bog including regenerating cutover, turloughs, alkaline fen, transition mire, and calcareous springs); and
- County Council owned properties that contain areas of potential wetland.

12. Other recommendations from the study include:

- The datasets developed during the current study should be updated as new information becomes available.
- Extra resources should be put towards enforcing regulations aimed at protecting wetland sites throughout County Leitrim.
- A public awareness campaign should be run to inform and raise awareness on the diverse wetland resource of the country and the value of this resource through the provision of important ecosystem services.

1 Introduction

1.1 Background

Following discussions with the Heritage Officer of Leitrim County Council, Wetland Surveys Ireland agreed to partner with the County Council in the production of a map and associated database holding information on all freshwater wetlands in County Leitrim.

Prior to this project no complete inventory of wetland areas existed for the county. The wetlands in Leitrim are not only important from the perspective of biodiversity, and for their economic value (i.e. tourism and recreation use), but they also provide many other important ecosystem services such as flood prevention, provision of clean water, and carbon storage.

The lack of county wetland inventories has resulted in an incomplete picture of the distribution and extent of wetlands in County Leitrim. The lack of data on wetlands, their distribution and extent in combination with the threats faced by these habitats from various land-uses including peat extraction, afforestation, infilling, and drainage may lead to the future loss of sites which have a county, national or even international value for biodiversity protection, and makes the development of wetland conservation programmes at a county level difficult. The outputs of this project contribute to fulfilling three of the seven objectives of the published National Biodiversity Action Plan (NPWS 2017) by providing baseline information on biodiversity that can be used to inform management, decision making, and public awareness initiatives.

1.2 Project aims

To overcome the information deficit on the distribution of wetlands within the county, the main aim of the LEWS2019 was to prepare a Geographic Information System (GIS) dataset and associated site database of all wetland areas in the county.

The wetland habitats to be mapped included lakes and ponds, watercourses, springs, freshwater swamps, wet grassland, freshwater marsh, peat bogs, fens and flushes, semi-natural wet woodlands and coastal wetlands.

The LEWS2019 partnership project aimed to consolidate all known third party information on wetlands in County Leitrim, based on GIS and published information held by Government and State agencies, non-governmental organisations and private individuals, and information documented in published and unpublished reports.

In addition to previously reported sites, a desktop survey of other potential wetland sites was undertaken using digital aerial photography and other GIS datasets (such as sub-soils, six inch mapping, Corine land-cover, geology, and soils, etc.).

Based on the results of this study, recommendations on priorities for future surveys are made based on critical or endangered habitats and geographical areas within the county where data is particularly lacking.

The methodologies employed in the survey are documented in this report, together with a description of the importance of wetlands, the main wetland habitats present in County Leitrim, and key findings from the current study.

2 Introduction to Wetlands

2.1 Definition

Wetland is a collective term for ecosystems (habitats and their associated species) whose formation has been dominated by water, and whose processes and characteristics are largely controlled by water. A wetland is a place that has been wet enough for a long enough time to develop specially adapted vegetation and other organisms (Maltby 1986).

They occur where the water table is at or near the surface of the land, or where the land is covered by a layer of shallow water, for some or all of the year.

The 1971 Ramsar Convention on Wetlands of International Importance defines wetland as:

“areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters”.

The Planning and Development (Amendment) (No. 2) Regulations 2011 has a similar definition to that presented above:

“Wetlands” means natural or artificial areas where biogeochemical functions depend notably on constant or periodic shallow inundation, or saturation, by standing or flowing fresh, brackish or saline water.”

In addition, for the purpose of protecting coherent sites, Article 2.1 of the Ramsar Convention, to which Ireland is a signatory, provides that wetland sites:

“may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water not deeper than six meters at low tide lying within the wetlands”.

Five major wetland types are generally recognized:

- **marine** (coastal wetlands including coastal lagoons, rocky shores, and coral reefs);
- **estuarine** (including deltas, tidal marshes, and mangrove swamps);
- **lacustrine** (wetlands associated with lakes);
- **riverine** (wetlands along rivers and streams); and
- **palustrine** (meaning “marshy” – wet grassland, marshes, swamps and bogs).

In addition to naturally occurring wetlands produced as a result of natural environmental processes, there are artificial wetlands such as fish ponds, farm ponds, irrigated agricultural land, reservoirs, gravel pits, sewage treatment facilities, and drainage ditches.

Even in certain, so called “natural” wetland systems, humans have played a major factor in wetland formation since pre-historic times. In Ireland, forest clearance in the uplands helped trigger soil and vegetation changes, which altered the hydrology and led in some places to bog formation. In contrast to some other habitat types (e.g. woodlands), wetlands are therefore often young and

dynamic ecosystems, changing in a relatively short period of time as vegetation changes, sediments are laid down, and local hydrological conditions are altered.

One other concept that should be borne in mind when considering wetlands is that a specific wetland area is often composed of many different habitat types, which form a mosaic. For example, a cutover bog wetland may contain small areas of regenerating fen and bog communities, pools, drainage ditches, and even shallow lakes.

On a global scale, wetlands occur everywhere, from the tundra to the tropics. The area of the earth's surface currently covered by wetlands is unknown. However, the UNEP - World Conservation Monitoring Centre has suggested an estimate of about 570 million hectares (5.7 million km²) of wetland – roughly 6% of the Earth's land surface – of which 2% are lakes, 30% bogs, 26% fens, 20% swamps, and 15% floodplains.

In the context of the LEWS, analysis of sub-soil data suggests that wetlands once covered an area of 621 km², equivalent to approximately 39% of the land area of Leitrim. Provisional wetland site boundaries drawn during LEWS indicate that wetland sites in county Leitrim currently cover an area of 375 km² (23.5% of land area). The exact extent of wetlands will only be determined when field surveys of wetland sites have been completed.

2.2 Importance of wetlands

As with many other natural environments humanity has generally looked on wetlands as an economic resource to be used for short term economic gain, and has often not recognised the long term benefits (both economic and non-economic) of functioning wetlands (DEHLG 2008). Three examples of such actions in Ireland include:

- national and local drainage schemes, or the embankment of rivers which can result in catastrophic floods during high rainfall periods when the drained land results in rapid surface water run-off;
- past forestry schemes on bogs, which often did not produce the timber crop envisaged at the time of afforestation; and
- overgrazing of blanket bog which continues to have a detrimental effect on the national peatland resource.

The multiple roles of wetland ecosystems and their value to humanity have been increasingly understood and documented in recent years (NPWS 2017, DEHLG 2008). Internationally, this has led to large expenditures to restore the lost or degraded hydrological and biological functions of wetlands.

Functional wetlands are among the world's most productive environments. They are a haven of biological diversity, providing the water and primary productivity upon which a great range of plants and animals depend. They support high concentrations and diversity of birds, mammals, reptiles, amphibians, fish, and especially invertebrates.

Wetlands provide many economic benefits including:

- Wetlands improve water quality by removing and sequestering pollutants and sediments in the water;

- Wetlands are of high importance to fisheries. Over two thirds of the world's fish harvest is linked to the health of coastal and inland wetland areas;
- Wetlands may be of high importance to agriculture and timber production, through the maintenance of water tables and nutrient retention in floodplains;
- Wetlands store floodwaters, acting like natural sponges and slowing down the force of flood and storm waters as they travel downstream. Far from posing a flood threat, wetlands should be viewed as buffers, to protect areas where people live (DEHLG 2008);
- Wetlands may provide important energy resources, such as peat and plant matter;
- Wetlands may be of value to transport, recreation, and tourism;
- Wetlands offer habitat for wildlife. Many migratory birds and other wildlife depend on the ecological setting of wetlands for their survival;
- Wetlands support biodiversity. The variety of living organisms found in wetlands contributes to the health of our planet and our own lives possible by ensuring our food supply, regulating the atmosphere and providing raw materials for industry and medicine;
- Wetlands provide valuable open space and create wonderful recreational opportunities. Hiking, fishing, boating and bird watching are just a few of the activities people can enjoy in wetland areas. The scenic vistas of wetlands make them an ideal area for nature photographers or painters; and
- Wetlands are vital in preventing further climate change by acting as a store of carbon. Until recently this has not been fully appreciated, and in Ireland it has still not been adequately communicated to the general public. For example, peatlands are known to store 20-30% of the world's soil carbon exceeding by three times the amounts stored in tropical rainforests (Bragg and Lindsay 2003).

In addition, wetlands have special attributes as part of the cultural heritage of humanity: they are related to religious and cosmological beliefs, constitute a source of aesthetic inspiration, provide wildlife sanctuaries, and form the basis of many important local traditions.

These functions, values, and attributes of wetlands can only be maintained if the ecological processes of wetlands are allowed to continue functioning. Unfortunately, and in spite of important progress made in recent decades, wetlands continue to be among the world's most threatened ecosystems, owing mainly to ongoing drainage, conversion (most often to agricultural lands), pollution, and over-exploitation of their resources.

Putting an economic value on something as abstract as the ecological services of a wetland is a difficult idea for most people, but is becoming a more accepted economic tool. More commonly, the open market puts monetary values on society's goods and services. In the case of wetlands, there is no direct market for services such as clean water, maintenance of biodiversity, and flood control. There is, however, a growing recognition that such natural benefits do have real economic value and that these values need to be included in decision-making processes (see Table 2-1).

A study that summarised the global value of ecosystem services estimated that wetlands are worth \$14,785 per ha per year due to their role in gas regulation, disturbance regulation, water supply

and regulation, waste treatment, provision of habitat food and resources, in addition to their recreational and cultural value (Constanza *et al.* 1997).

In a report by the Biodiversity Unit of the Department of the Environment, Heritage and Local Government (DEHLG 2008) the biodiversity value of wetlands in Ireland was estimated to be worth €385 million per year to the Irish economy. In addition, a further proportion of the €330 million assigned by this study to the economic value of the nature and eco-tourism value of all Irish habitats can be assigned to wetlands.

One other stark fact to emerge from this report was that “*it is clear that the benefits of biodiversity far exceed the costs of the current levels of biodiversity protection*” in Ireland, an indication that we still do not value the functions and services provided by wetlands to our well being as a society.

Numerous other reports exist in the literature that gives clear examples of the economic value of wetlands. The UK Environment Agency has a wealth of literature showing the value of intact functioning wetlands in the control and alleviation of flooding episodes (Callan 2008). In addition a number of reports exist which show that intact wetland systems provide excellent value for money in the provision of water services when compared to the costs that would accrue if these services had to be supplied by artificial systems. For example in the USA the State of New York purchased a watershed area at a cost of 1.5 billion dollars, rather than spend 3 to 8 billion dollars it estimated it would cost for artificial waste water treatment facilities to do the same job (Ramsar Bureau 2006).

Unfortunately, to date, society has generally only realised the benefit of wetland services after they have disappeared or been seriously degraded. Problems with flooding, lost recreational opportunities, reduced fish populations and more costly water treatment are examples of costs understood only after a wetland ecosystem has been degraded or destroyed.

The idea behind putting an economic value on some of these wetland benefits before ecosystem-altering decisions are made is to recognise these potential costs up front and thereby put wetland-related decisions on a more economically sound footing.

Table 2-1: Examples of the economic benefits that wetlands provide (modified from Barbier *et al.* 1997).

USE BENEFITS			NON-USE BENEFITS
Direct Use Benefits	Indirect Use Benefits	Option Benefits	Existence Benefits
recreation - boating - birding - wildlife - viewing - walking - angling trapping-hunting commercial harvest - nuts - berries - grains - fisheries - peat - forestry	nutrient retention water filtration flood control shoreline protection groundwater recharge external ecosystem support micro-climate stabilization erosion control associated expenditures, e.g., travel, guides, gear, etc.	potential future uses (as per direct and indirect uses) future value of information, e.g., pharmaceuticals, education	biodiversity culture heritage archaeology non-use bequest value

2.3 Protection of wetlands

The importance of wetlands is recognised in planning legislation and has been strengthened by amendments to the Planning and Development Regulations in 2011. The Planning and Development (Amendment) (No. 2) Regulations 2011 define wetlands as follows:

“Wetlands” means natural or artificial areas where biogeochemical functions depend notably on constant or periodic shallow inundation, or saturation, by standing or flowing fresh, brackish or saline water.”

These regulations bring the drainage and reclamation of Wetlands under Planning Control, making planning permission a requirement for the drainage or infilling of wetland areas 0.1 ha or above, and requiring an Environmental Impact Assessment (EIA) to accompany applications of 2 ha or more. Where a Planning Authority considers that applications for drainage which fall under the above thresholds (i.e. less than 0.1 ha) are likely to have a ‘significant effect on the environment’ an EIA will also be required (Department of the Environment, Community and Local Government 2011).

The Department of Agriculture, Fisheries and Marine (DAFM) have a consent in relation to certain agricultural activities that may affect wetlands. Under the European Communities (EIA) (Agriculture) Regulations 2011 landowners must seek ‘screening’ from the DAFM prior to undertaking certain works, including drainage of agricultural land or infilling of earth (above 15 ha

and 2 ha thresholds respectively), and consent can only be given following a screening process, where it can be shown that wetlands are not affected. Activities below the relevant thresholds which would have a 'significant effect on the environment, a Natura 2000 site (Special Area of Conservation (SAC) or Special Protection Area (SPA)), a Natural Heritage Area (NHA) or a recorded monument' may also not proceed without a positive outcome from screening.

On a county level, wetlands in Leitrim are protected through the scope of the river basin and sub basin management plans associated with the implementation of the EU Water Framework Directive. In addition the Leitrim County Development Plan (2015-2021) states that the County Council is committed to the conservation and preservation of the environment and natural resources. The Leitrim County Development Plan also specifies the importance of preserving peatlands, turloughs, and wetlands, watercourses and fens as these are significant features of the landscape of County Leitrim (Core Strategy, section 1.9 and Strategic Goals, section 1.10 and Section 3.8).

3 Wetlands in County Leitrim

3.1 County Leitrim: an introduction

County Leitrim has an area of 1,876km². It is the 26th largest of the 32 counties by area and has the smallest population. The county is bounded by Counties Cavan and Longford to the east, Roscommon to the south, Sligo to the west and Donegal and Fermanagh to the north (LECC 2015).

Leitrim has a hilly and mountainous landscape in its north-west and is relatively flat in the south-east, each separated from the other by Lough Allen in the middle of the county (Wikipedia 2019). The northern half of the county is characterised by mesa-mountains, expansive lakes and deep glacial valleys radiating from the centre of the land mass to form a spectacularly scenic landscape e.g. Glencar and Glenade. The mountains reach their highest point just over 610m OD near Truskmore on the Leitrim-Sligo border.

The southern half of the county is characterised by a drumlin belt interspersed with small lakes and rolling hillocks. The resultant soil type in the southern half of the county is primarily the product of retreating glacial masses. The drumlins which generally range from 45 to 61m OD at base level to 91 to 122m OD at summit level.

The Shannon is linked to the Erne via the Shannon-Erne Waterway (Figure 3-1). The River Shannon with its associated lake systems forms the County's southwestern boundary with County Roscommon whilst Donegal Bay demarcates the northern extremity of the County.

Leitrim has the shortest coastline of any Irish county, a length of only 4km at Tullaghan.

Lakes, raised bogs, pasture land, and wetland typify Leitrim's generally low-lying landscapes in the southern part of the county, with upland bog, heathland and grassland habitats being more common in the northern half of the county.

Notable lakes of varying sizes are scattered throughout the county, and include: Lough Melvin, Lough Allen, Lough Gill, Belhavel Lough, Lough Scur, and Saint John's Lough, on the Shannon-Erne Waterway. Other lakes include Upper Lough MacNean, Glencar Lough, Glenade Lough, Garadice Lough, Rinn Lough, Lough Scannal, Lough Erril and Lough Machugh.

Ireland is divided into three River Basin Districts, Ireland RBD, North Western RBD, and the Neagh Bann RBD. County Leitrim occurs within the North Western RBD and Ireland RBD. These River Basin Districts are further broken down into 46 catchment management units, three catchment management units occur within the County:

- Upper Shannon;
- Erne; and
- Sligo and Drowse.

The surface water drainage features and river catchments in County Leitrim are shown in Figure 3-2.

Turloughs are temporary lakes occurring in karst regions that are filled and emptied through a swallow hole connected with the underground water table. Leitrim Turloughs is the best known

turlough in County Leitrim.

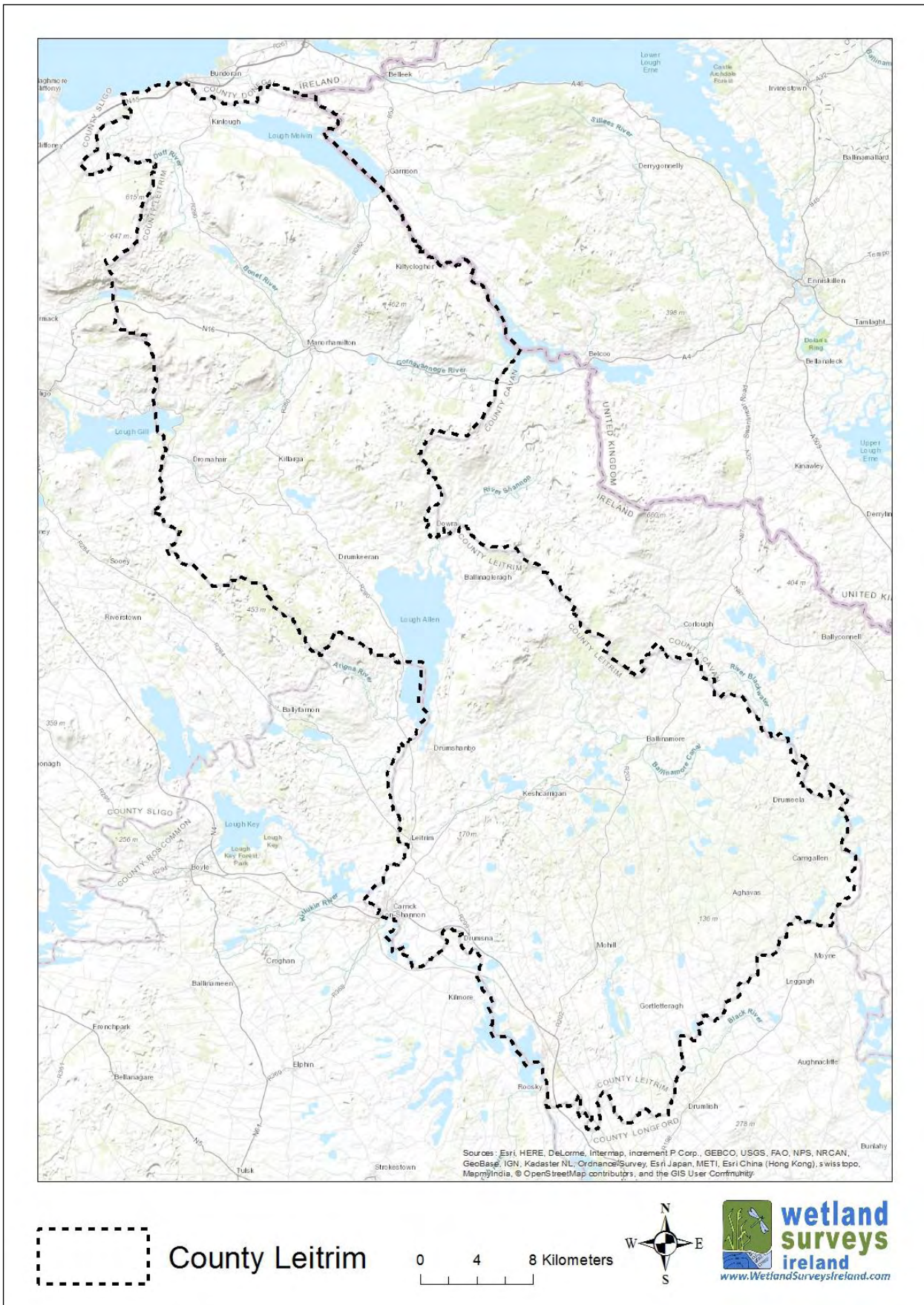


Figure 3-1: Topography and drainage map of County Leitrim.

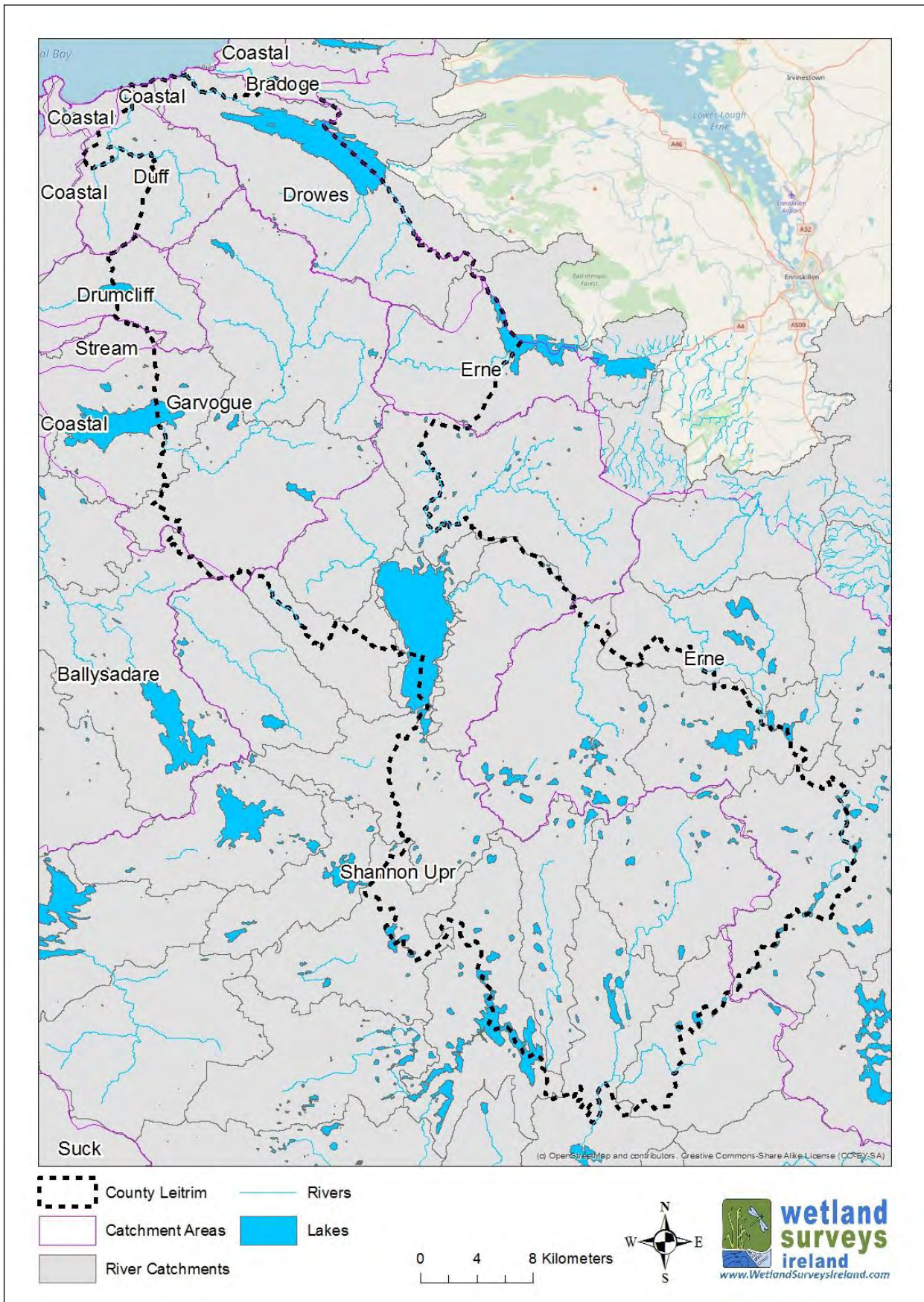


Figure 3-2: Map showing river catchments and surface water features of County Leitrim (drawn using EPA datasets) in relation to potential wetland sites.

3.1.1 Geology

Maps showing the bedrock geology of the County Leitrim is presented as Figure 3-3.

Within the boundaries of Co. Leitrim a wide variety of rocks occur, each associated with a particular type of scenery. Plateau hills of horizontally bedded shales and sandstones, capped by grits, characterise much of the northern part of the county. Long before the glaciations of the last three million years, weathering and erosion had already dissected the youngest rocks present in the county of Namurian (Upper Carboniferous) age. In the northern part of the county west of Manorhamilton such erosion had already exposed the underlying Visean (Lower Carboniferous) limestones. Further north, close to the coast, low scarps of Calp Sandstone are interbedded with the limestones (Gardiner 1973).

Inliers of older rocks emerge through the cover of Carboniferous rocks in a number of zones trending southwest-northeast across the county. The oldest and most northerly of these is a craggy ridge of metamorphic rocks extending from the Co. Sligo boundary near Dromahaire to Benbo mountain near Manorhamilton. The second zone is represented by Devonian conglomerates outcropping near Drumshanbo and the third by highly folded Lower Palaeozoic shales and sandstones capped near Dromod by a jagged outcrop of Old Red Sandstone. These rocks mark the south edge of the Carboniferous basin rising as an undulating plateau from beneath basal Carboniferous limestones and elastics of Tournaisian age.

The geology and soils of County Leitrim are the predominant factors influencing the habitats which development. The underlying geology generates a variety of soil-forming parent materials, which are an important element in governing the distribution of vegetation (Kearney 2011).

The majority of the bedrock is covered by a generous covering of glacial till or boulder clay which was deposited during events in the last Ice Age especially in the southern part of the county. It is believed that the ice age was the most significant force that shaped the form of county Leitrim as it is today. The large sheets of ice that were present for thousands of years eroded the underlying rocks. As these ice sheets dissolved the sediments present in the melt waters formed landforms such as eskers and drumlins.

Since the ice age the exposed limestone has become karstified, meaning it has slowly become dissolved by acidic waters moving through the rock. The process of karstification results in features such as collapses, caves, swallow holes, sinking streams, turloughs (seasonal lakes) and dry valleys. It also results in a unique and dynamic groundwater and surface water flow regime, where drainage is largely underground in solution enlarged fissures and conduits. Raised bogs have developed in the southern low lying areas whereas blanket bog occurs in some of the more upland areas.

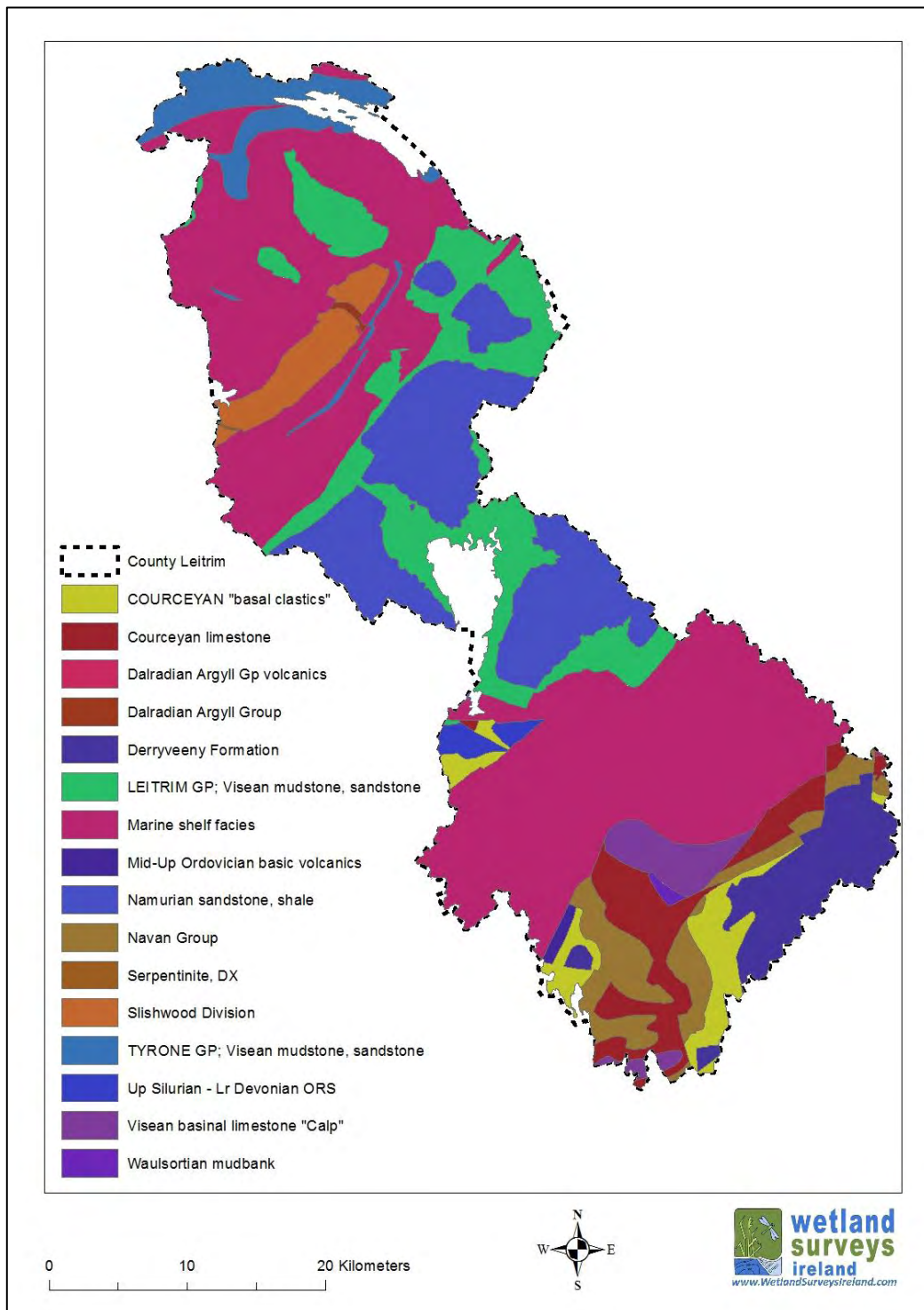


Figure 3-3: Bedrock map of County Leitrim (drawn using Geological Survey of Ireland (GSI) dataset).

3.1.2 Sub-soils

The various sub-soils that were used to indicate potential wetland areas during the GIS analysis of the county's wetland resource are presented in Table 3-1 (as mapped by Meehan 2004). A map showing the full extent of these sub-soil types (full extent of potential wetland) for Leitrim is presented in Figure 3-4.

Table 3-1: The sub-soil types used to identify potential wetlands in County Leitrim (from Teagasc Parent Material map (Meehan 2004)).

Sub-soil type	Code	Likely wetland type (Fossitt)
Mineral alluvium	A	GM1
Cutaway (Basin & Blanket Peats) ¹	Cut	PB1/PB4/FS1/PF2/PF3
Blanket Peat	BktPt	PB3/PB4/HH3
Basin Peat (Fen Peat)	FenPt	PF1/PF2/PF3
Lacustrine	L	GM1/FS1/FS2/FP1/FP2/PF1/PF2
Clayey	Lc	GM1
Marl	Mrl	PB4 / PB1
Lake (including reservoirs)	Water	FL

¹ This category also includes remnant areas of intact raised bog in County Leitrim.

3.2 Wetland Habitats in County Leitrim

County Leitrim contains a wide range of wetlands of international and national importance. Due to the topography, hydrology, climate and soils present it has wetland habitats ranging from raised bogs, fens, marshes, large riverine systems, a variety of lake types, and wet woodlands, but only a limited selection of coastal saltwater habitats.

The LEWS2019 set out to map the distribution and extent of all known and potential wetland areas in County Leitrim. This is the first such inventory of wetland sites in this county. The current study focused on the identification of 38 wetland habitat types (26 of which may correspond with habitats listed on Annex I of the EU Habitats Directive) that could be recorded in County Leitrim (see Table 3-2).

This section provides a brief description and illustration of the main freshwater wetland habitat types likely to occur in Leitrim as defined by the Heritage Council habitat classification system (Fossitt 2000)¹, together with examples of where they have been reported in the county. An indication is also provided of the main threats faced nationally by those wetlands habitats deemed to be of high conservation importance, based mainly on the National Parks and Wildlife Service (NPWS) report entitled 'The Status of EU Protected Habitats and Species in Ireland' (NPWS 2019). Further details on the habitat characteristics together with their relationship to habitats listed on the EU Annex I Habitats Directive habitats are presented in Fossitt (2000).

The Heritage Council Guide to Habitats in Ireland (Fossitt 2000) sets out a standard hierarchical scheme for the identification of habitats in Ireland. It provides a practical tool to allow identification and recording of habitat types. The guide lists the main wetland habitats in Ireland under the main level 1 categories of freshwater, grassland and marsh, heath and dense bracken, peatlands, woodland and scrub, and coastal. Table 3-2 lists the principal wetland habitat types likely to occur in the wetland sites identified during the LEWS2019. The level 1 wetland habitat categories are further divided to level 2 and subsequently level 3 as shown in . These levels provide progressively more detail of the specific wetland habitat(s) recognised.

Recent targeted national surveys commissioned by the NPWS are improving our knowledge of the extent of particular habitats in Leitrim (Perrin *et al.* 2008; Perrin *et al.* 2013; O'Neill *et al.* 2013; O'Neil and Martin 2015; and NPWS 2013). However, to date there has been no systematic survey of many wetland types such as fens and marshes in the county. A pilot study is currently underway with the aim of scoping a national survey of fen habitat in Ireland (M. Eakin *pers. comm.*).

Table 3-2: Wetland habitat types (Fossitt 2000) recorded as part of the County Leitrim Wetland Survey 2019.

Fossitt Level 1 Habitat Code and Name	Fossitt Level 2 Habitat Code and Name	Fossitt Level 3 Habitat Code and Name
F Freshwater	FL Lakes and Ponds	FL1 Dystrophic lakes *
		FL2 Acid oligotrophic lakes *
		FL3 Limestone/marl lakes
		FL4 Mesotrophic lakes
		FL5 Eutrophic lakes *
		FL6 Turloughs **
		FL7 Reservoirs
		FL8 Other artificial lakes and ponds
	FW Watercourses	FW1 Eroding/upland rivers *
		FW2 Depositing/lowland rivers *
		FW3 Canals
		FW4 Drainage ditches
	FP Springs	FP1 Calcareous springs **
		FP2 Non-Calcareous springs
FS Swamps	FS1 Reed and large sedge swamps	
	FS2 Tall herb swamps *	
G Grassland and Marsh	GS Semi-natural grassland	GS4 Wet grassland *
	GM Freshwater marsh	GM1 Marsh *
H Heath & dense bracken	HH Heath	HH3 Wet heath *
P Peatlands	PB Bogs	PB1 Raised bogs **
		PB2 Upland blanket bog **
		PB3 Lowland blanket bog **
		PB4 Cutover bog *
	PF Fens and Flushes	PB5 Eroding blanket bog
		PF1 Rich fen and flush **
		PF2 Poor fen and flush
		PF3 Transition mire and quaking bog *
W Woodland and scrub	WN Semi-natural woodland	WN4 Wet pedunculate oak-ash woodland **
		WN5 Riparian woodland
		WN6 Wet willow-alder-ash woodland
		WN7 Bog woodland **
	WS Scrub/transitional woodland	WS1 Scrub *
C Coastland	CW Brackish waters	CW1 Lagoons and saline lakes **
		CW2 Tidal rivers *
	CM Salt marshes	CM1 Lower salt marsh *
		CM2 Upper salt march *
	CD Sand dune systems	CD5 Dune slacks *
M Marine	MW Marine water body	MW4 Estuaries *

Note: Level 3 Fossitt habitats with an equivalent habitat under Annex I of the EU Habitats Directive are marked with an *, while **priority** habitats under the EU Habitats Directive are marked with **.

FL1 - Dystrophic lakes

Acid oligotrophic lake habitat are an Annex I habitat (3160) under the EU Habitats Directive.

Natural lakes and ponds that are highly acidic (pH range 3.5-5.5), base-poor and low in nutrients, and where the water is brown in colour owing to inputs of humic and other acids from peat.

They are usually associated with blanket bogs, mainly the lowland type, raised bogs, cutover bogs and wet

heathland areas and are characterised by peaty rather than rocky margins and substrata. The transition from bog to open water is often abrupt. These lakes are important habitats for insect life.

The principal threats to natural dystrophic lakes and ponds are peat cutting, overgrazing and afforestation of peatland habitats. Fertilisation of afforested areas can contribute to nutrient enrichment of the habitat.

This habitat is present throughout the bogland areas of the county such as Cuilcagh / Anierin Uplands SAC and Aghnamona Bog NHA, Co. Leitrim (illustrated).

FL 3 - Limestone and marl lakes

Hard-water lake habitat is listed as an Annex I habitat (3140) under the EU Habitats Directive. Hard water lakes and ponds of limestone areas that are base-rich and poor to moderately rich in nutrients (oligo to mesotrophic).

The water is typically clear and the lake sediment usually has a high proportion of marl, a white clay precipitate of calcium carbonate. Marl-forming Stoneworts (*Chara* spp.) are often abundant and may form dense carpets in unpolluted waters.



Various-leaved Pondweed (*Potamogeton gramineus*) is also characteristic. These lakes are frequently fringed by alkaline fen and flush vegetation. These lakes are important habitats for insect and birds.

Hard water lakes are often shallow and have a natural high capacity to buffer the effects of enrichment from phosphorus. However, build up of phosphorus in the sediment of these lakes can lead to rapid shifts in ecosystem quality. There is a continued threat from nutrient enrichment in these lowland lakes arising from intensification of agriculture and urban developments.

This habitat type occurs at Lough Melvin, County Leitrim (illustrated; Source: Google Street View).

FL4 - Mesotrophic lakes



Lakes and ponds that are moderately rich in nutrients, and where the water is sometimes discoloured by algae. Characteristic aquatic plants include White Water-lily (*Nymphaea alba*), Yellow Water-lily (*Nuphar lutea*), and a large number of Pondweeds, Stoneworts (*Chara* spp.) may also be present. The fringing

and aquatic plant communities are typically more lush than those associated with oligotrophic lakes. These lakes are important habitats for insect and birds.

The principal threats to mesotrophic lakes include nutrient enrichment arising from agricultural practices such as overgrazing and excessive fertilisation, as well as afforestation, and waste water from housing developments in rural areas. Lakes may also be negatively affected by the introduction of invasive alien species, and their utilization for an increasing number of sport and leisure activities.

Glenade Lough in County Leitrim is a fine example of a mesotrophic lake (illustrated; Source: Google Street View).

FL5 - Eutrophic lakes

Rich pondweed lake habitats are an Annex I habitat (3150) under the EU Habitats Directive.

Eutrophic lakes and ponds that are high in nutrients and base-rich and the water is usually



discoloured or turbid, often grey to green in colour, from the abundant algae and suspended matter present.

Some water bodies are naturally eutrophic but most Irish lakes are eutrophic as a result of enrichment and high levels of nutrients entering the water.

Characteristic aquatic plants of eutrophic lakes and ponds include Duckweeds (*Lemna* spp.), Pondweeds (*Potamogeton* spp.), and Spiked Water-milfoil (*Myriophyllum spicatum*). Submerged aquatics are usually rare or are restricted to shallow waters owing to poor light penetration. Reed beds on sheltered shores and dense stands of fringing vegetation are characteristic of eutrophic lakes and ponds. The main threat to this lake type is further nutrient enrichment caused by human activities.

Lough Gill in Co. Leitrim (illustrated; Source: Google Street View), is an example of a natural eutrophic lake (NPWS).

FL6 - Turloughs

Turloughs (3180) are a priority habitat under the EU Habitats Directive.

Turloughs are seasonal lakes that occupy basins or depressions in limestone areas, and where



water levels fluctuate markedly during the year. They are virtually unique to Ireland and are present in high numbers in counties Roscommon, Clare and Galway.

The general pattern of turloughs is to flood in winter and dry out in summer, but there may be other sporadic rises in response to periods

of high rainfall. Turloughs normally fill through underground passages and sinkholes in the limestone, but some also have inflowing rivers or streams. Some turlough basins retain standing water in channels, pools or small lakes when flooding subsides. All areas within the normal limit of flooding are considered as part of the turlough habitat. The presence of the distinctive dark moss, *Cinclidotus fontinaloides*, on stone walls or rocks can help to establish the flooding level within a turlough.

Soils of turlough basins can include marls, peat, clays or loams. Large boulders or exposures of bedrock may also be present. Drainage, nutrient enrichment and inappropriate grazing regimes are the main threats to turlough habitats in Ireland.

County Leitrim has two turloughs within the county and together with sites in Galway, Clare and Sligo forms the centre of distribution for this important habitat type in Ireland. The photograph shows Leitrim Turlough (Source: Google Street View).

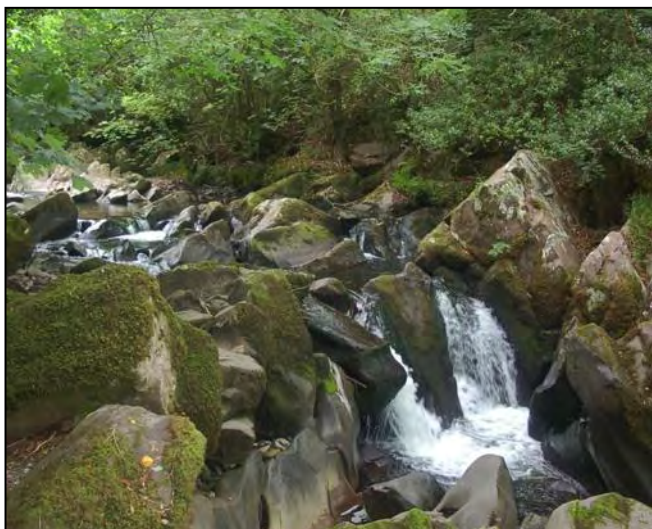
FL8 - Other artificial lakes and ponds

This category includes farm ponds, artificial or ornamental bodies of standing water that may be found in parks, demesnes, gardens or golf courses as well as flooded quarries, tailings ponds and water treatment plants (with open water). The nutrient status of these artificial water bodies is variable and may be high as in the case of hypertrophic lakes in urban parks.

These water bodies are often important habitats for invertebrates and amphibians as they represent a more

'natural' habitat within otherwise highly managed environments. They may also have a high educational value in urban areas as a first contact point for people with a wetland habitat and its wildlife. The main threats faced by such habitats include water pollution, habitat destruction caused by changes in farming practice or abandonment and infill by encroaching vegetation.

An example of this habitat can be seen at the constructed wetland site at Fenagh in Co. Leitrim, used to treat waste water (illustrated; Source: Google Street View).

FW1 - Eroding/upland rivers

The EU Annex I habitats Vegetation of flowing waters (3260) or *Chenopodium rubri* (3270) may correspond with this habitat type.

Natural watercourses, or sections of these, that are actively eroding, unstable and where there is little or no deposition of fine sediment. Eroding conditions are typically associated with the upland parts of river systems where gradients are often steep, and water flow is fast and turbulent. For some rivers on the seaward side of coastal mountains, particularly in the west of Ireland, eroding conditions persist to sea level because of

comparatively steep gradients over short distances, and high rainfall. Small sections of other lowland rivers may also be eroding where there are waterfalls, rapids or weirs. The beds of eroding/upland rivers are characterised by exposed bedrock and loose rock. Pebbles, gravel and coarse sand may accumulate in places, but finer sediments are rarely deposited. These rivers vary in size but are usually smaller and shallower than depositing/lowland rivers.

The unstable rocky channels of eroding/upland rivers usually support little vegetation cover. Submerged rocks and boulders may be colonised by aquatic mosses. Exposed rocks and wet shaded banks may also support extensive cover of lichens and liverworts. Higher plants are generally rare or absent except in places where fine sediments are trapped.

Pressures from eutrophication, overgrazing, excessive fertilisation, afforestation and the introduction of invasive alien species are the main threat to this habitat. Almost two thirds of the rivers assessed by the Environmental Protection Agency (EPA) are at risk of failing to meet their environmental objectives.

This habitat is frequent in the uplands throughout the north-west of County Leitrim.

FW2 - Depositing/lowland rivers



The EU Annex I habitats Vegetation of flowing waters (3260) or *Chenopodium rubri* (3270) may correspond with this habitat type.

Watercourses, or sections of these, where fine sediments are deposited on the river bed. Depositing conditions are typical of lowland areas where gradients are low and water flow is slow and sluggish. These rivers vary in size but are usually larger and deeper than those

above. In a natural state these rivers erode their banks and meander across floodplains.

Plant and animal communities are influenced by numerous factors including substratum type, water force, nutrient status, water quality, channel size, water depth, human impact, disturbance and shade. The substratum of depositing/lowland rivers comprises mainly fine alluvial or peaty sediments. Vegetation may include floating and submerged aquatics, with fringing emergents in shallow water or overgrowing the banks.

Due to their location in lowland areas, where agricultural activities are prevalent and with increased population pressures, most of these rivers have been modified to some extent to control water flow, facilitate navigation or prevent flooding and erosion. Canalised or walled sections of rivers, dredged or deepened sections, and artificial earth banks may occur. These activities all alter the natural river bank and adjacent vegetation occurring along such rivers.

The principal threats to these rivers include nutrient enrichment arising from agricultural practices, human developments along river banks and the introduction of invasive alien species, and utilization for sport and leisure activities.

Numerous examples of this habitat occur in County Leitrim. The River Shannon in Co. Leitrim (illustrated; Source: Google Street View) fits into this category.

FW3 – Canals



Canals are artificial linear bodies of water that were originally constructed for the purpose of navigation. They typically lack strong currents and any significant channel or bank erosion. This means that canals tend to have closer affinities with ponds than rivers. They are readily colonised by aquatic plants and frequently support floating, submerged or emergent vegetation.

Locks that are used to control water levels are considered as part of the canal habitat. Canals are important habitats for fish, insect and bird life.

All canals require management and maintenance to keep them open and operational. Where canals are abandoned they rapidly become choked with aquatic vegetation. An example of this habitat in Co. Leitrim is the Lough Allen Canal (illustrated; Source: Google Street View).

FW4 - Drainage ditches



These are linear water bodies or wet channels that are entirely artificial in origin, and some sections of natural watercourses that have been excavated or modified to enhance drainage and control the flow of water. Drainage ditches may be intimately associated with a range of other wetland types, including wet grassland, and modified marsh, bog and fen habitats.

Drainage ditches are generally not used for navigation and are typically narrower than canals. Drainage ditches either contain water (flowing or stagnant) or are wet enough to support wetland vegetation. Water levels are also likely to undergo seasonal fluctuations.

Drainage ditches must be maintained and cleared in order to keep them open. Those that are overgrown with vegetation are likely to be cleared intermittently.

This is a common habitat type throughout County Leitrim, examples of the habitat can be seen at many wetland sites in the county.

FS1 - Reed and large sedge swamps

Swamps are commonly found around lakes, on slow flowing river banks and estuaries.

They are usually species-poor stands of vegetation that are dominated by reeds and other large grasses or large, tussock-forming sedges. Most reed and large sedge swamps are overwhelmingly dominated by one or a small number of species, as in the case of reed beds. Stands of vegetation can range from very dense to open. Unlike tall-herb swamps below, in reed and large sedge

swamp the broad-leaved herb component is a minor element in the vegetation.

Swamps support a number of EU protected species including Otter, Sedge Warbler, Water Rail, Moorhen and other water fowl.

The principal threats to this habitat include nutrient enrichment and damage arising from agricultural practices (overgrazing, mowing and drainage), human developments around lakes and utilisation of lakes for increased sport and leisure activities.

Examples of this habitat are common on lake shores and lowland rivers throughout County Leitrim. An example of this habitat in Co. Leitrim occurs at Lough Nacarriga (illustrated; Source: Google Street View).

GS4 - Wet grassland

Better examples of the habitat may correspond with *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils are Annex I habitat (6410) under the EU Habitats Directive.

Rushy fields or wet grassland can be found on flat or sloping ground in upland and lowland areas. It occurs on wet or waterlogged mineral or organic soils that are poorly-drained or, in some cases, subjected to seasonal or periodic flooding. On sloping ground, wet grassland is mainly confined to clay-rich gleys and loams, or

peaty soils that are wet but not waterlogged. Wet grassland occurs on areas of poorly-drained farmland that have not recently been improved, seasonally flooded alluvial grasslands such as the River Shannon callows, and wet grasslands of turlough basins.

Agricultural intensification over the past century, drainage, increased fertilisation and more recently, abandonment of pastoral systems, which contributes to rank vegetation and scrub

encroachment, all lead to the loss of some typical flora and to a reduction in the area of the habitat nationally.

This habitat type is common throughout County Leitrim, and can be seen in agricultural areas with impeded drainage.

GM1 - Marsh



May correspond with Annex I habitat 'hydrophilous tall herb swamps (6430)' under the EU Habitats Directive.

Marsh is found on level ground near slow-flowing river banks, lake shores, and in other places where mineral or shallow peaty soils are waterlogged, and where the water table is close to ground level for most of the year.

Unlike swamps, standing water is not a characteristic feature except, perhaps, during very wet periods or in winter months. Marshes tend to be comparatively species-rich especially with herbs. It can be an ideal breeding ground for waders such as Snipe.

The main threats to this habitat include the spread of invasive species, arterial drainage and agricultural improvement at the edge of rivers and lakes.

Marsh areas are often under recorded but are likely to be common throughout County Leitrim. An example of this habitat in Co. Leitrim occurs at Corduff Lough pNHA (illustrated; Source: Google Street View).

HH3 - Wet Heath



Annex I habitat (4010) under the EU Habitats Directive. Wet heaths include vegetation with at least 25% cover of dwarf shrubs such as Ling Heather, on peaty soils and shallow wet peats that typically have an average depth of 15-50 cm (where deeper peat deposits occur the habitat is usually classified as bog). Wet heath can occur in upland and lowland areas and is widespread on the lower slopes of hills and mountains that are either too dry or too steep for deep peat accumulation.

Wet heath can grade into, or form intimate mosaics with upland blanket bog, or lowland

blanket bog with minor changes in slope and topography. Wet heath is typically dominated by Ling Heather (*Calluna vulgaris*) and Cross-leaved Heath (*Erica tetralix*), or by Purple Moor-grass (*Molinia caerulea*) and/or Sedges. Moss and Lichen cover may be high in areas of undamaged wet

heath. Wet heaths and adjacent blanket bog areas support a number of EU protected species including Red Grouse, Curlew, Golden Plover and Hen Harrier.

Reclamation, afforestation, burning, and wind farm development have resulted in extensive loss of wet heath. Overstocking of land with sheep has also degraded large areas of the habitat, especially in western regions, through overgrazing and trampling. This has depleted heather and other plant cover and allowed invasion by non-heath species, or exposure of peat to severe erosion. Additionally, nitrogen depositions from agricultural activity that generate air pollution have recently been recognised as having a negative impact on this habitat. Furthermore, rises in temperature and decreases in precipitation arising from climate change is also acknowledged to be a potential future threat to this habitat type.

This habitat is common on upland areas in the north-western part of County Leitrim.

PB1 - Raised bogs



Priority habitat (7110) and Annex I habitat (7120 & 7150) under the EU Habitats Directive.

Raised bogs are accumulations of deep acid peat (3-12 m) that originated in shallow lake basins or topographic depressions at the end of the last glaciation 10,000 years ago. The name is derived from the elevated surface, or dome, that develops as raised bogs grow upwards from the surface accumulating organic material; the domed effect is often exaggerated when the margins of a bog are damaged by

turf cutting or drainage, and are drying out.

The surface of a relatively intact raised bog is typically wet, acid and deficient in plant nutrients (as bogs receive most of nutrients through rainfall), and supports specialised plant communities that are low in overall diversity. The vegetation is open and colourful *Sphagnum* mosses dominate the ground layer. Raised bogs are most abundant in the lowlands of central and mid-west Ireland.

Intact actively growing raised bog is extremely rare, having decreased in area by over 35% in the last 10 years. Ongoing deterioration of the hydrological conditions of raised bogs at current rates caused by peat cutting, drainage, forestry and burning severely threatens the viability of the habitat at most locations in Ireland. Climate change is also considered to pose a threat to raised bog in the future.

Excellent examples occur on a number of raised bog sites occur Leitrim. The photograph shows active raised bog habitat at Aghnamona Bog, Co. Leitrim.

PB2 - Upland blanket bog

Blanket bog (7130) is listed on Annex I of the EU Habitats Directive. Examples of the habitat that are 'active' (actively accumulating peat) are listed as a priority habitat.

Upland blanket bog occurs on flat or gently sloping ground above 150 m and is widespread on hills and mountains throughout Ireland. The 150 m limit serves to distinguish upland from lowland blanket bog but is loosely applied. Peat depths vary and normally fall in the range of 1-2 m, but can be much deeper in pockets. Upland blanket bog can be extremely wet where it occurs on level terrain and may have surface drainage features that are typical of lowland blanket bog.

Blanket bog areas support a number of EU species including Irish Hare, Red Grouse, Curlew, Golden Plover and Hen Harrier.

Current pressures and threats include overstocking by grazing animals (especially sheep), peat erosion, drainage, burning, infrastructural developments (i.e. wind farms), and agricultural activities causing nitrogen deposition.

This habitat is widespread in upland areas with gentle slopes in the north west of the county, such as in the Cuilcagh / Anierin Uplands SAC (illustrated; Source: Google Street View)

PB3 - Lowland blanket bog

Blanket bog (7130) is listed on Annex I of the EU Habitats Directive. Examples of the habitat that are 'active' (actively accumulating peat) are listed as a priority habitat.



Depressions on peat substrates (7150) (found within blanket bog areas) are also listed as an Annex I habitat.

Lowland blanket bog, also known as Atlantic or oceanic blanket bog, is more restricted in its distribution than the upland type and is largely confined to wetter regions along the western seaboard where the annual rainfall exceeds 1250 mm. Blanket formation started 4,000 years ago as the climate became wetter. Described as a climatic peat type, it occurs on flat or gently sloping ground below 150 m. Peat depths vary considerably (1.5-7 m) depending on the underlying topography, and are usually intermediate between those of raised bog and upland blanket bog. The vegetation of lowland blanket bog is typically 'grassy' in appearance. This habitat includes important breeding grounds for a number of EU Bird Directive species including Merlin, Golden Plover, Hen Harrier and Red Grouse.

Blanket bogs depend to a large degree on maintenance of surface water flow patterns at a landscape scale and hence are dependent on sensitive land management practices. Extensive areas have been destroyed or highly modified (chiefly through reclamation, peat extraction, conifer afforestation but also via erosion and even landslides triggered by human activity). Current pressures include overstocking with grazing animals, peat extraction, drainage, burning, agricultural activities leading to nitrogen deposition, and infrastructural developments, and in the past inappropriate afforestation.

This habitat is frequent on the lower slopes of upland areas and in the coastal plain in the north of the county.

PB4 - Cutover bog

Depressions on peat substrates (found within cutover bog areas) are an Annex I habitat (7150) under the EU Habitats Directive that can occur in areas of cutover bog.

Cutover bog is a variable habitat, or complex of habitats, that can include mosaics of bare peat and re-vegetated areas with woodland, scrub, heath,

fen and flush or grassland communities. It occurs where part or all of the original peat has been removed through turf cutting, by the traditional hand method or mechanically, for either domestic or commercial purposes.

The nature of the recolonising vegetation depends on numerous factors including the frequency and extent of disturbance, hydrology, the depth of peat remaining, and the nature and soil chemistry of the peat and the underlying rock or soil. Standing water is usually present in drains, pools or excavated hollows. Some large areas of cutover bog have been reclaimed as farmland or planted with trees, particularly conifers.

The full extent of cutover may be difficult to establish as it frequently grades into other marginal habitats or farmland.

The habitat is widespread surrounding industrially and traditionally cutover raised bogs in County Leitrim. Examples of the habitat occur Annaghasna Bog, Co. Leitrim (illustrated; Source: Google Street View).

PF1 - Rich fen and flush

Alkaline (rich) fen is an Annex I habitat (7230) under the EU Habitats Directive. Saw sedge (*Cladium mariscus*) fen, a particular type of rich fen, is a priority habitat (7210) under the EU Habitats Directive.

Rich fen and flush are peat forming wetlands that receive mineral nutrients from sources other than rainfall, usually groundwater or flowing surface waters that are at least mildly base-rich or calcareous, and are usually found over

areas of limestone bedrock. The substratum is waterlogged peat and this usually has a high mineral content.

Fens differ from bogs because they are less acidic and have relatively higher mineral levels. They are therefore able to support a much more diverse plant and animal community.

They occur in a variety of situations including valleys or depressions, valley head fens, within transition mire and tall reed beds, on the landward side of hard-water oligotrophic lakeshore communities, calcium-rich flush areas in blanket bogs, dune slack areas, fens adjacent to raised and blanket bogs, in turlough sites, depressions in limestone pavement and wet hollows in machair, and spring fed habitats including cliffs, and even saltmarsh.

Alkaline fen may also occur as a secondary regenerating habitat on mined out bog sites which have been excavated to the fen peat layer.

Vegetation is typically dominated by Black Bog-rush (*Schoenus nigricans*) and/or small to medium Sedges (grass like plants). Rich fen and flush can be important for orchids. A well-developed layer of brown moss is also characteristic. Rich fen are also important habitats insects and for a number of rare snail species.

Like most peatland types in Ireland, fens have declined in extent mostly as a result of activities such as peat mining, land abandonment (and associated succession), agricultural drainage, infilling, and fertiliser pollution and eutrophication. Only limited measures have been introduced to address these damaging activities, which are likely to have increased in severity since the 1990's.

The habitat occurs in County Leitrim often associated with lake, floodplain or cutover bog situations. Rich fen habitats also occur in limestone upland areas such as Arroo Mountain SAC and Ben Bulbin, Gleniff and Glenade Complex SAC.

PF2 - Poor fen and flush



Poor fen and flushes include peat-forming communities that are fed by groundwater or flowing surface waters that are acid. In most cases the substratum is acid peat which has a higher nutrient status than that of surrounding acid bogs. The vegetation of poor fens and flushes is typically dominated by sedges and extensive carpets of mosses, in particular, *Sphagnum* moss.

Poor fens occur in a variety of situations including areas flushed by moving water in upland and lowland blanket bogs, flushed depressions in grassland areas, cutover bogs and wet heath areas. Like most peatland types in Ireland, poor fens have declined in extent mostly as a result of activities such as peat cutting and mining, afforestation, agricultural drainage, infilling, and fertiliser pollution and eutrophication.

The habitat is commonly associated with the wetter areas on cutaway raised bog, blanket and upland bogs in County Leitrim, such as Aghavogil Bog NHA, Co. Leitrim (illustrated; Source: Google Street View).

PF3 - Transition mire & quaking bog

Annex I habitat (7140) under the EU Habitats Directive. Transition mires and quaking bogs are peat-forming communities developed at the surface of waters with little or moderate amounts of nutrients, with characteristics intermediate between rich (alkaline) and poor (acidic) fen types. For this reason, they are considered as a separate habitat but they may occur within, or on the fringes of other peat-forming systems.

They present a large and diverse range of plant communities. In large peaty systems, the most prominent communities are swaying swards, floating carpets or quaking mires formed by medium-sized or small Sedges, associated with Sphagnum or brown mosses.

Transition mires and quaking bogs are usually associated with the wettest parts of a bog or fen and can be found in wet hollows, infilling depressions, or at the transition to areas of open water. The vegetation frequently forms a floating mat or surface scraw over saturated, spongy or quaking peat. Standing water may occur in pools or along seepage zones. The vegetation typically comprises species that are characteristic of bog, fen and open water habitats.

In some cases the mire occupies a physically transitional location between bog and fen vegetation, for example on the margin of a raised bog, or may be associated with valleys or basins.

The main pressures listed for transition mires are afforestation, water pollution, drainage, and hydrological changes. Grazing and agricultural land use are also prominent issues with regards to pressures on this habitat type.

The habitat is occasional in County Leitrim on former cutover bogs and on the margins of small lakes.

WN4 - Wet pedunculate oak-ash woodland

Priority habitat (91E0) under the EU Habitats Directive.

This type of woodland is associated with areas that are flooded or waterlogged in winter but which dry out in summer. It occurs on periodically-flooded alluvial sites that are well above the limits of regular inundation, and on drumlins and other sites with heavy, poorly-drained clay soils that are subject to waterlogging.

The woodland is dominated by Pedunculate Oak (*Quercus robur*) and/or Ash (*Fraxinus excelsior*), with other common components including Alder (*Alnus glutinosa*), Willows (*Salix* spp.) can be locally abundant.

When flooding subsides in alluvial sites, exposed channels and depressions may remain wet or waterlogged.

The area of alluvial forests has declined in Ireland and this, taken together with their fragmented nature, abundance of alien invasive species and sub-optimal grazing regimes and drainage continues to threaten the habitat. This habitat is uncommon in the County Leitrim, but has been reported Keelrin Wet woodland and Mullaghboy Bog and Woodland in Co. Leitrim.

WN5 - Riparian woodland

This can correspond to priority habitat (91E0) under the EU Habitats Directive.

Riparian woodlands are wet woodland habitats of river margins (gallery woodland) and low islands that are subject to frequent flooding, or where water levels fluctuate as a result of tidal movement (in the lower reaches of rivers).

Riparian woodland is dominated by stands of Willows that may include native and non-native species. Alder (*Alnus glutinosa*) is occasional. Stands of Reed Canary-grass (*Phalaris arundinacea*) are common. Indian Balsam (*Impatiens glandulifera*), an introduced species, is locally abundant. These woodlands often reveal an accumulation of river borne debris, including dead vegetation and plastic, when water levels are low. A fine coating of grey mud on vegetation and tree bases that are regularly submerged and immersed is also characteristic.

Their fragmented nature, abundance of alien invasive species and sub-optimal grazing regimes and drainage continues to threaten the habitat.

The habitat is rare in County Leitrim, and is found at Conaghil Wet Woodland on the Bonnet River.

WN6 – Wet willow-alder-ash woodland

Some example of this habitat can correspond with priority habitat (91E0) under the EU Habitats Directive.

Includes woodlands of permanently waterlogged sites that are dominated by willows (*Salix* spp.), Alder (*Alnus glutinosa*) or Ash (*Fraxinus excelsior*), or by various combinations of some or all of these trees.

It includes woodlands of lake shores, stagnant waters and fens, known as carr, in addition to woodlands of spring-fed or flushed sites. Carr occurs on organic soils and fen peats that are subject to seasonal flooding but remain waterlogged even when flood waters recede.

As the area of fen has declined so has the area of wet woodland, mostly as a result of activities such as peat cutting and mining, conifer afforestation, agricultural drainage and reclamation, infilling, and fertiliser pollution from adjacent farmland. Although drainage of fens may in some cases have led to a local short term increase in the cover of wet woodland in some areas.

This is likely to be the most common wet woodland type in County Leitrim. Good examples of this habitat can be seen at many locations on the shores of many lakes and in wet cutover bog depressions. The habitat is recorded from Lough Rinn, Owengar Wood, Lough Nahoo and the shores of many other lakes (Illustrated: Wet woodland fringe at Killylea Lough and Wetland, Co. Leitrim; Source: Google Street View).

WN7 - Bog woodland

Priority habitat (91D0) under the EU Habitats Directive.

Woodlands found on intact ombrotrophic bogs (raised or blanket), bog margins and cutover bog. Bog woodland typically occurs on deep acid peat that is relatively well-drained in the upper layers and is commonly associated with former turf cutting activity or drainage or where internal raised bog drainage patterns allow the development of woodland stands (i.e. soak systems on bogs). It may also occur in areas of cutover bog where

most of the peat has been removed. Downy Birch (*Betula pubescens*) is the usual dominant and may form pure stands. Willows (*Salix* spp.) may also occur.

A characteristic feature is the ground cover of *Sphagnum* moss species which often form deep carpets, usually with *Polytrichum* mosses and occasional Lichens. Bog woodlands are closely associated with raised bogs, occurring either on intact bogs, on cutaway or on transition mires (transition between fen and bog). They are found mostly in the central and north midlands. Their total area is uncertain.

They are threatened by drainage, peat cutting, burning and development; although in the long term it is believed that they will expand as cutaway re-floods.

Drier (non-annex) examples of the habitat are frequent in County Leitrim, around the edges of raised bogs and on cutover bog abandoned for a long period (Illustrated: Killyfea Bog East & West, Co. Leitrim; Source: Google Street View). To date, the Annex I habitat Bog Woodland has not been recorded in Co. Leitrim.

WS1 - Scrub

Scrub dominated by Juniper can correspond to *Juniperus communis* formations on heaths or calcareous grassland are Annex I habitat (5130) under the EU Habitats Directive.

Found on a variety of habitat types, scrub includes areas that are dominated by at least 50% cover of shrubs (e.g. gorse, willow etc.), stunted trees or brambles. The canopy height is generally less than 5 m, or 4 m in the case of wetland areas.

Scrub frequently develops as a precursor to woodland and is often found in inaccessible locations, or on abandoned or marginal farmland. In the absence of grazing and mowing, scrub can expand to replace grassland or heath vegetation. Trees are included as components of scrub if their growth is stunted as a result of exposure, poor soils or water-logging. If tall trees are present, these should have a scattered distribution and should not form a distinct canopy.

This habitat is common on the edges / or invading the centre of many of the wetland sites particularly when impacted by drainage.

CD 5 - Dune slacks



Annex 1 habitat (2170 & 2190) under the EU Habitats Directive.

Dune slacks are nutrient-enriched wet areas that occur in hollows or depressions either behind or between dune ridges, or in blow-outs in sand dunes. The water table is either at, or close to the surface for much of the year and dune slacks may or may not dry out in summer.

Vegetation typically comprises Creeping Willow (*Salix repens*), Common Reed (*Phragmites australis*), Sedges, Rushes and broadleaved wetland herbs. A range of orchids are common found. Dune slacks that remain permanently wet are characterised by Mare's-tail (*Hippuris vulgaris*) and Water Horsetail (*Equisetum fluviatile*).

This habitat is under serious threat from a range of impacts including overgrazing, undergrazing, over-stabilisation of dunes, invasive non-native species, water abstraction and drainage, golf course developments, agricultural intensification and forestry and coastal protection works.

The habitat occurs at only one location in the county, at Bunduff Lough and Machair/Trawalua/Mullaghmore SAC.

3.3 Protection of Wetlands in Leitrim

Due to their recognised ecological importance, a significant number of wetland sites in County Leitrim are offered legislative protection under various site conservation designations. The main nature conservation designations that afford protection to wetland sites in County Leitrim are summarised below.

The distribution of wetland sites in relation to areas designated for nature conservation is presented in Figure 4-3. The number of designated nature conservation areas and associated number of wetland sites are presented in Table 3-3 below.

Table 3-3: Number of wetland sites (main sites and sub-sites) occurring within designated areas.

Conservation Designation	Protected Status	Number of sites and sub-sites located within designated areas
NP - National Park	Protected	0
NHA - Natural Heritage Area	Protected	12
pNHA - proposed Natural Heritage Area	Partially Protected	30
cNHA – candidate Natural Heritage Area	Not Protected	21
SAC - Special Area of Conservation	Protected	17
SPA - Special Protection Area	Protected	1
NNR - National Nature Reserve	Protected	0
Undesignated sites	Not protected	337

Notes: Data on the current number of sites designated as NNR, NHA, SAC and SPA is based on data available from NPWS website dated June 2019.

NP – National Park

National parks are defined as areas where one or several ecosystems are not materially altered by human exploitation and occupation; where plant and animal species, geomorphological sites and habitats are of special scientific, educational and recreational interest or which contain a natural landscape of great beauty (NPWS 2014). There are no National Parks in County Leitrim.

NNR - National Nature Reserve

National Nature Reserves are areas set aside for their conservation value by the Minister for the Department of Environment, Heritage and Local Government. These sites are usually State owned, in cases where these areas are privately owned, land-owners enter into a management agreement with the National Parks and Wildlife Service. There are no Nature Reserves in County Leitrim.

SAC – Special Area of Conservation

Special Areas of Conservation (SACs) have been selected from the prime examples of wildlife conservation areas in Ireland. The legal basis from which selection is derived from the EU Habitats Directive (92/43/EEC of the 21st May 1992) (CEC 1992). SACs that are still undergoing the formal designation process are referred to as “candidate Special Areas of Conservation” or cSACs. Actions that may affect the ecological integrity of sites are not to be permitted except in circumstances of overriding public interest or safety. Land-owners require permission from the Minister of the Environment to carry out certain ‘Activities Requiring Consent (ARCs)’ such as drainage or fertiliser application, depending on the habitats / species in question.

Lough Gill SAC and Boleybrack Mountain SAC are two of 17 wetland sites (main sites and sub-sites) located within areas designated as SACs in County Leitrim (see Appendix 3 for a list of these sites).

SPA - Special Protection Area

Special Protection Areas (SPAs) for Birds are areas which have been designated to ensure the conservation of certain categories of birds. Ireland is required to conserve the habitats of two categories of wild birds under the European Birds Directive (Council Directive 79/409/EEC of the 2nd April 1979) (CEC 1979).

The Sligo/Leitrim Uplands is the only wetland site located within an area designated as SPAs in county Leitrim (see Appendix 3 for a list of these sites).

NHA – Natural Heritage Area

The basic designation for wildlife conservation is the Natural Heritage Area (NHA). This refers to an area considered important in a national context for the habitats present or which holds species of plants and animals whose habitat needs protection. Under the Wildlife Amendment Act (2000), NHAs are legally protected from damage from the date they are formally proposed for designation. The protection afforded to Natural Heritage Areas is similar to that afforded to Special Areas of Conservation as described above. To date only raised bogs and blanket bogs have been designated as NHAs.

Cashel Bog NHA is one of 12 wetland sites (main sites and sub-sites) located within areas designated as NHAs in County Leitrim (see Appendix 3 for a list of these sites).

pNHA - proposed Natural Heritage Areas

Proposed Natural Heritage Areas (pNHA) were published on a **non-statutory** basis in 1995, but have not since been statutorily proposed or designated. These sites are of significance for wildlife and habitats although a resurvey is urgently required to determine their current ecological value.

Nationally pNHAs cover approximately 65,000 ha and NPWS has indicated that designation will proceed on a phased basis over the coming years (NPWS 2014). Prior to statutory designation, pNHAs are subject to limited protection being considered in afforestation grants, REPS and recognition by planning authorities.

Within County Leitrim a total of 30 wetland sites (main sites and sub-sites) are listed as occurring within areas listed as pNHAs (see Appendix 3 for a list of these sites).

cNHA – candidate Natural Heritage Area

Candidate Natural Heritage Areas (cNHAs) is the name given to wildlife sites that are proposed by NPWS and by third parties for consideration as NHAs. Included within this category are the pNHAs described above, together with newly discovered sites recommended for conservation by a variety of third parties. These sites are likely to be of importance for wildlife and habitats. Prior to designation these sites will require further detailed survey and evaluation for their conservation value. If they are considered of national conservation value they may then enter the formal NHA designation process. The cNHA sites have no legal protection until they are taken up into the formal NHA designation process; unless they are also pNHA (see above).

Ardmeenagh Lough and Leitrim Turlough in County Leitrim are two of the 21 wetland sites (main sites and sub-sites) listed as occurring within areas listed as cNHAs (see Appendix 3 for a list of these sites).

4 Leitrim Wetland Survey 2019

4.1 Introduction

The aim of the LEWS2019 project was to determine the location and approximate extent of wetlands in County Leitrim. The process of identifying wetlands involved a two phase approach as follows:

- I. a **desktop literature review** to identify all known wetlands (from published sources and known to groups and individuals) and gather background data on these sites (see Appendix 1); and
- II. a **desktop analysis of Aerial Photography and other GIS datasets** to identify and document potential wetlands which had not been previously reported.

Where data existed and for sites surveyed recently, the sites were ranked in terms of their conservation/ecological importance (see NRA Site Evaluation Criteria in Appendix 4) to assist Leitrim County Council in its obligations to protect the most important wetlands within the county and to inform future conservation policies in relation to the wetland resources in the county.

All survey data recorded during the 2019 project are held in the *LEWS Site database*, and associated *LEWS GIS dataset* which should help guide spatial planning and development management by Leitrim County Council.

4.2 Materials & Methods

As outlined above, the LEWS2019 comprised a comprehensive desktop study aimed at identifying the entire wetland resource of County Leitrim and documenting it in a *Site database* and associated GIS.

4.2.1 Leitrim Wetland Survey 2019 - Desktop Study

The methodology employed during the course of the study is illustrated in Figure below. The main stages involved were: data acquisition; design and set-up of Site database and GIS datasets; site identification and background research; data entry (and mapping) and data transfer between databases; data analysis and result presentation.

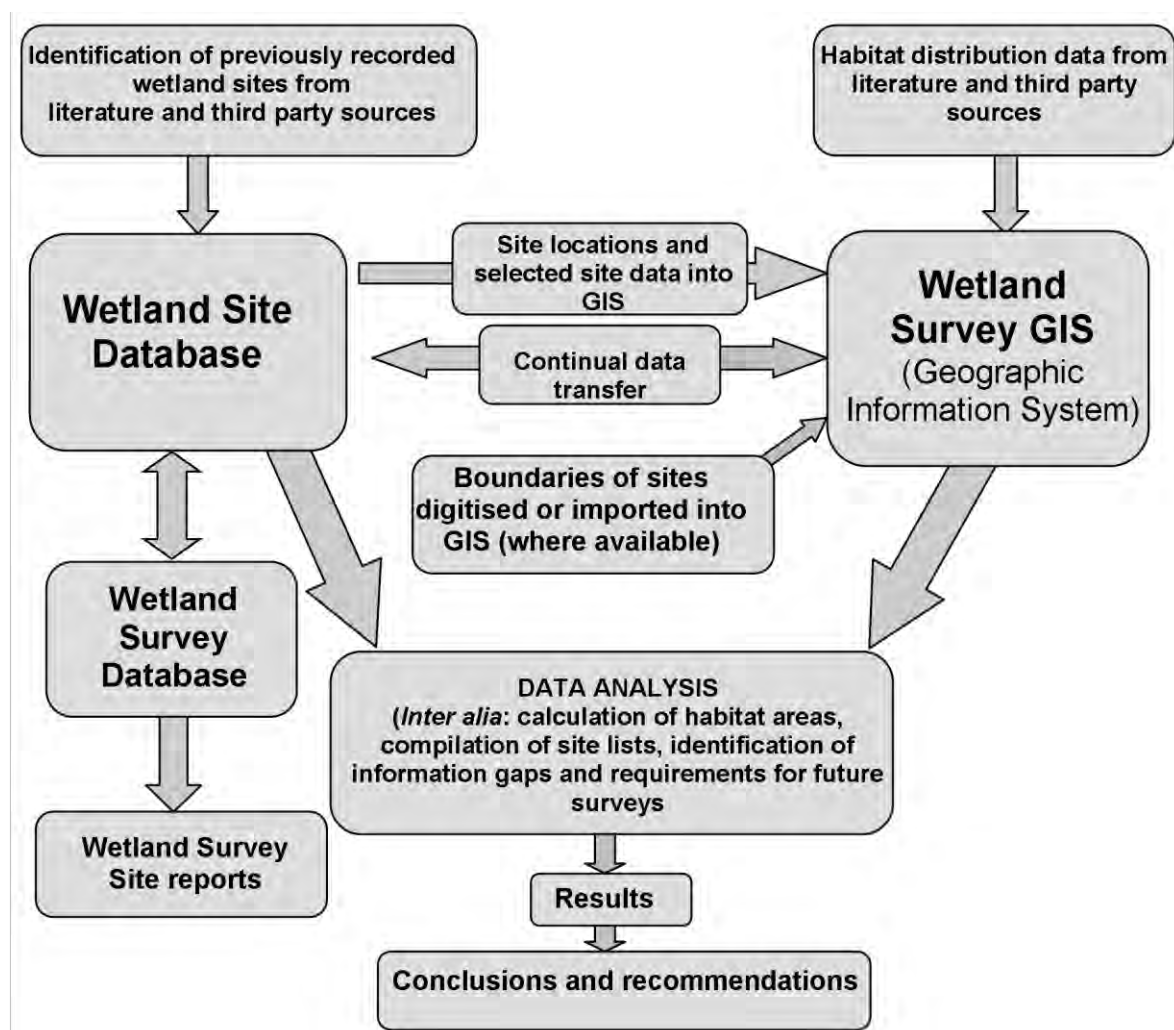


Figure 4-1: Flow chart illustrating the various steps undertaken during the course of the Leitrim Wetland Survey (LEWS) project 2019.

4.2.1.1 Data acquisition

The first stage of the LEWS2019 involved identifying potential wetland site data sources which included published literature, unpublished reports, scientific publications, digital data-sets, and information held by state agencies, and non-governmental organisations. Data sources that were consulted during the project are listed in Appendix 1.

The relevant data was held in a variety of formats including GIS datasets, habitat and site records in databases and spreadsheets, and in published reports, surveys and scientific publications.

4.2.1.2 LEWS Site databases – structure and content

A *Site database* was created at the outset of this project for County Leitrim to hold and manage data on the wetland sites recorded during the study. The database was created in Filemaker Pro Version 12.0 which runs on both PC and Mac platforms. Site information from the database is readily exported to Microsoft Excel format.

In summary, the main core *Site database* holds information including: site name and code, site provenance, size (area in ha), third party site name and code, national grid reference, site conservation designations, habitat information on the specific wetland vegetation type(s) present

(and extent where available), information on rare species of note, a list of published reports holding information on the site and the nature of same, and a site description.

This information is stored in the *Site database* within a series of database fields thus enabling searches, data-examination and creation of site lists during the data analysis stage of the study. An overview of the data fields and database structure used to record information in the *Site database* is provided in Appendix 2.

4.2.1.3 LEWS Literature review – site identification

On project commencement an extensive literature review was carried out with the aim of identifying previously reported wetland sites throughout County Leitrim. During the data and literature review each new site found to contain, or believed to contain one or more of the 38 wetland habitat types being recorded in this study, was added to the *Site database*, or in some cases where a site record already existed additional site information was added. Basic site data (county, grid reference etc.) and data relating to the occurrence and extent of one or more of the wetland types was entered into the database for each new site added.

Where more than one individual site occurred within a larger NHA or SAC complex, a record was created for both the site complex (the main site) and the individual sub-sites within the main site (see Appendix 2 for further details).

Further information on the data recorded in the *Site database* is presented in Appendix 2.

4.2.1.4 LEWS GIS datasets – structure and content

The *GIS Dataset* (created using ESRI ArcView 10.6.1 GIS software package) holds site related information on each polygon, point, or linear feature mapped. A detailed explanation of the various GIS files and associated attribute fields is presented in Appendix 2 and on the 'readme' file in the folder containing the GIS files on the report CD (see Appendix 6).

The shapefiles created during the project were converted into MapInfo format for use by Leitrim County Council. Both ArcGIS and MapInfo versions of the final GIS files are included on the report CD. A summary description of the various files that make up the GIS is presented below.

Two different GIS shapefiles relating to the distribution and extent of freshwater wetland habitats were produced as summarised in Table 4-1 below.

A third party dataset available from the EPA is available to show the distribution of linear watercourses within the county. This dataset could be incorporated into further revisions to the Leitrim Wetland Survey GIS to show the distribution of canals (FW5), upland rivers (FW1), and lowland rivers (FW2).

In addition, there are a range of other third party habitat datasets available that could be incorporated into the GIS to further inform the wetland resource in Leitrim. Examples of these datasets include; Raised Bog Monitoring Project mapping (NPWS), Coillte biodiversity area mapping, National Survey of Native Woodlands, and the National Survey of Semi-natural Grasslands.

Table 4-1: GIS files produced during the LEWS 2019.

File Name	Description
LEWS 2019 Site Locations	This file shows point locations of all wetland sites identified during the 2019 survey.
LEWS 2019 Site Boundaries	This file shows the boundaries of a selection of sites identified during the study. This file requires updating with any future county wetland survey, as boundaries drawn are an estimate of site extent.

4.2.1.5 LEWS GIS - Site Identification

ArcView 10.6.1 GIS software package on a Windows Operating System was used throughout the LEWS2019 for all mapping purposes. During the same period as the site database was being developed, GIS data-sources were incorporated into the county GIS datasets. Following the acquisition of the relevant base-maps and aerial photography from Leitrim County Council, other data-sets were added as they became available (see Appendix 1 for list of all GIS datasets used during the LEWS). See Appendix 2 for further details of methodology employed in compiling the GIS.

The county was systematically surveyed on a 10km x 10km basis using the OS series of 6 Inch Maps in combination with colour aerial photography (Ordnance Survey of Ireland, 2010 series), the subsoils map, and other relevant GIS datasets. As new sites were identified, a new site record was created in the *Site Locations* (point) GIS file. An approximate boundary based on pre-existing designations or interpretation of aerial imagery was drawn for each site. Due to project constraints, habitat polygons were not drawn for wetland sites. Following this a site name was applied (usually the townland where site occurs), and grid co-ordinates recorded. This information was subsequently exported to the *Site database*.

In general, it is relatively straight-forward to identify wetlands from non-wetland habitats based on aerial photography in combination with six inch mapping, the parent material (sub-soil) dataset, and topographical mapping. Digitising was undertaken at a scale of 1:2000 and the feature being digitised either traced an underlying vector or followed the centre of the feature in the underlying raster (usually either aerial photography or Orthos).

It is important to note that analysis of aerial photography is a relatively crude exercise and should not be used for any more than identifying 'potential' wetland types. Habitats can only be assigned (especially to level 3 of Fossitt) by field survey and ground-truthing.

4.2.1.6 Data Transfer and Mapping of sites from the Site database

The sites identified from the literature review were exported from the *Site database* and imported into the GIS as individual points by using the grid co-ordinates reported in the literature. Each of the sites was examined in the GIS and the precise location confirmed.

4.2.2 Study Constraints and Limitations

The main output from this study is the production of a preliminary inventory of wetlands for County Leitrim.

A number of difficulties and limitations with respect to the compilation of the LEWS list of wetland sites were encountered, which the reader should be aware of, before interpretation of the data is

undertaken and to provide an estimate of the level of confidence that can be applied to the data from the current study.

4.2.2.1 *Wetland site identification*

Although every effort was made to compile a complete map of all potential wetland sites in County Leitrim, it is probable that additional smaller wetland sites do occur which have not been mapped within the *GIS* or listed in the *Site database*. Therefore the list of sites presented in the *GIS* and accompanying database should not be regarded as definitive.

4.2.2.2 *Wetland boundary mapping*

The data-sets which contributed to the site boundaries came from a variety of sources (as recorded within *GIS*). This has meant that it is of varying quality. Some of the data originates from detailed field surveys while other data may originate from interpretation of sub-soils, aerial photography, or six inch mapping. Therefore, it must be emphasised that the boundary data should be treated with care and used only as an indicative map of wetland distribution. The methodology and scales used when digitising also varies across datasets.

It is foreseen that the wetland boundaries will be refined following field surveys. Coupled with this, a review of all sites should be undertaken with a view to carrying out field surveys at those sites likely to be of highest ecological importance.

4.3 **Results**

4.3.1 **LEWS 2019 – Desktop Study**

4.3.1.1 *Site Databases*

The *Site database* version 1.0 holds information on 388 wetland sites (370 main sites and 18 sub-sites) in County Leitrim.

The CD accompanying this report includes a copy of the *LEWS Site database* in both Filemaker Pro and Microsoft Excel formats (see Appendix 6).

A list of all the wetland sites recorded in the *LEWS Site databases* are provided in Appendix 3 in this report together with a map book showing their location and extent.

A complete export of information held on the site records in the *LEWS Site databases* are provided in a separate Excel spreadsheet file (LEWS2019_total_site_list.xls) included on the report CD.

4.3.1.2 *GIS Databases*

Point locations of all 388 wetland sites (main sites and sub-sites) in County Leitrim are included in the site location datasets (*LEWS Site Locations*).

Boundaries of all 370 main sites in County Leitrim are included in the site boundary shapefiles (*LEWS Site Boundaries*). Sub-sites occur within these main site areas.

The *LEWS GIS* includes two individual ESRI shape-files and equivalent MapInfo Tab files. These are summarised in 4.2.1.4 above and further details are presented in Appendix 2. Copies of these files can be found on the report CD (see Appendix 4).

4.3.1.3 *Distribution and extent of wetlands in County Leitrim*

As outlined above, a total of 388 wetland sites have been identified in Leitrim. Maps showing the distribution and extent of these sites is presented in Figure 4-2. A map showing the location of these sites in relation to designated sites is presented shown in Figure . From these maps, it can be seen that there is a higher density of wetland sites in the southern part of the county (associated with poorly drained inter-drumlin depressions). The majority of wetland sites lie outside of designated areas.

The sub-soils (or parent material) map of Ireland was used as a primary source in identifying areas of potential wetland within the county. Based on analysis of the sub-soil types that indicate wetland areas, the total area of wetland within Leitrim is estimated to be up to 375km² or 23.5% of the county. While an indication of the original extent of wetlands, this approximation is certainly an over estimate as it does not take account of changes due to land management or drainage.

During the LEWS, preliminary site boundaries were drawn for wetland sites in the county. The boundaries were mapped using information available from third parties and by interpretation of aerial imagery and other datasets. The extent of main wetland sites mapped in County Leitrim was 375km², representing 23.5% of land area (Figure). This includes areas of bog, wet grassland, lakes, swamp, fen and wet woodland. However, there are significant areas of dry-land habitat also present within these site boundaries where they occur in close association with wetland habitats. In order to determine the an accurate estimate of wetland extent in the county field surveys are required.

A preliminary review of available third party habitat datasets suggests that good quality data only exists for a small selection of habitats that have been subject to detailed field survey (such as the larger intact raised bogs, wet woodlands and grasslands). Other habitats such as fens, marshes, and turloughs have not been the subject of systematic survey and therefore data quality is poor. There is a lack of detailed habitat data available for extensive parts of Leitrim, particularly the southern part of the county.

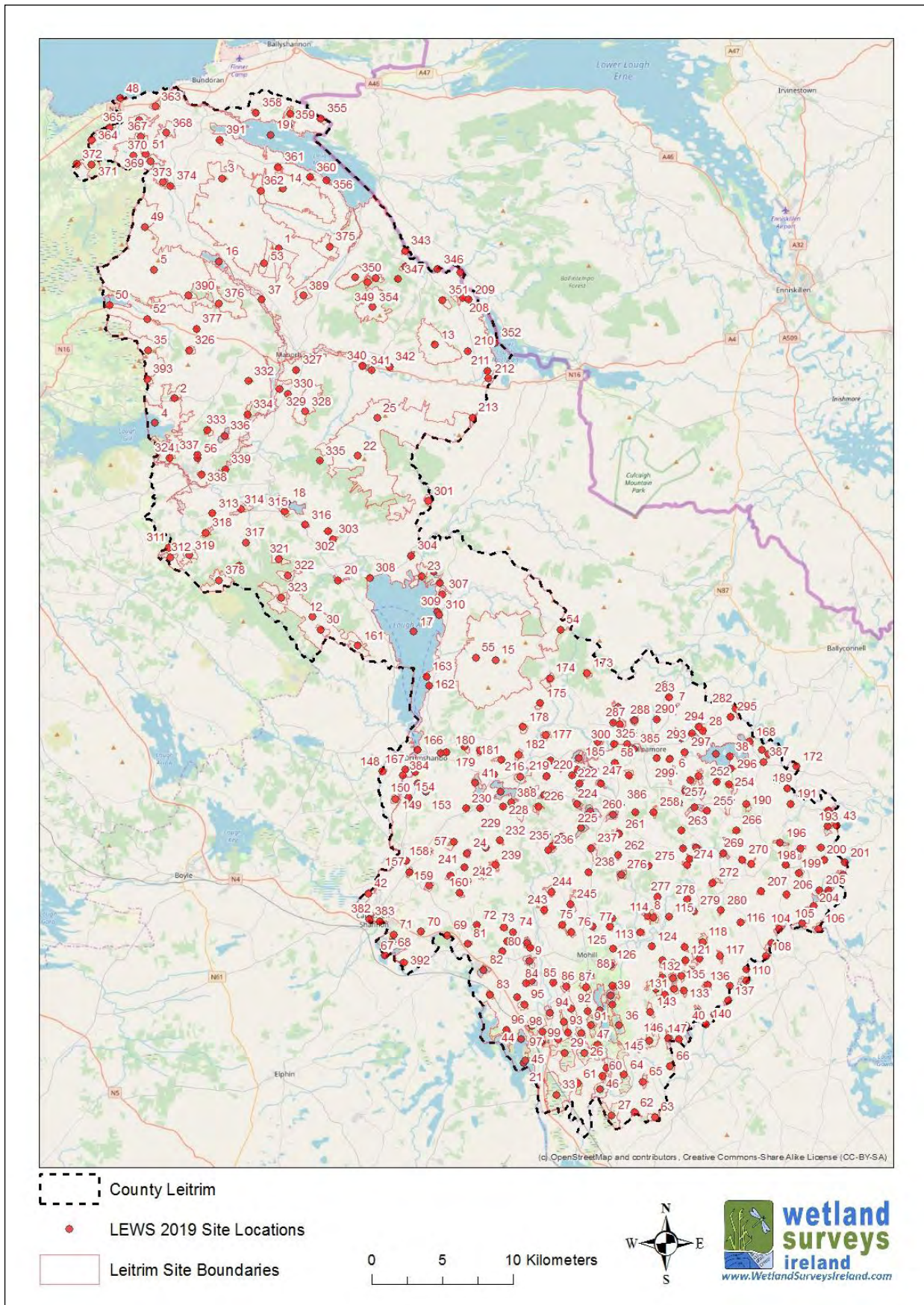


Figure 4-2: Map showing the location and extent of wetland sites in county Leitrim, labelled according to LEWS site code. (see Appendix 3 which presents this map at a larger scale in the form of a map book).

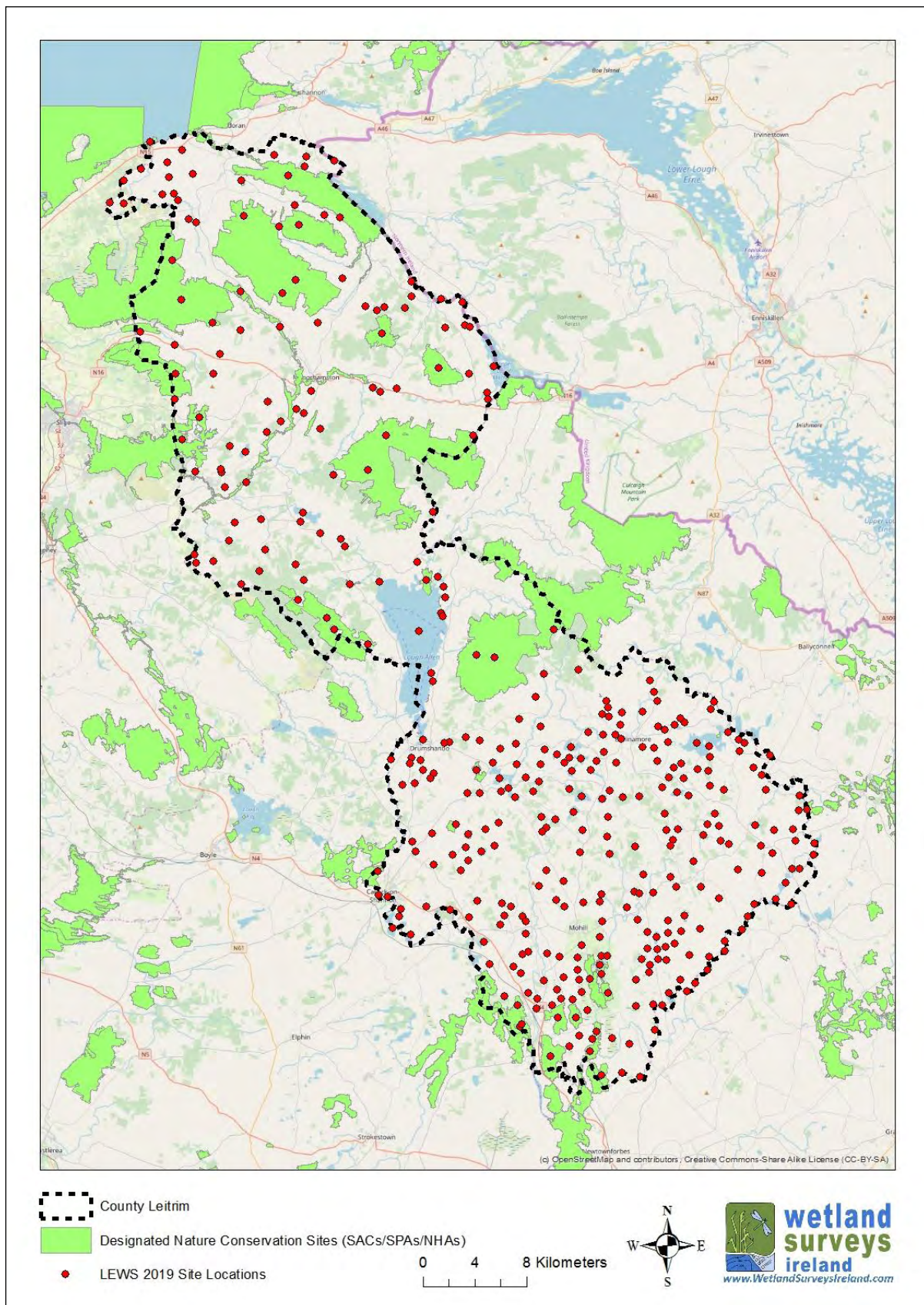


Figure 4-3: Location of identified wetland sites (stored within *Site database & GIS*) in relation to areas designated for nature conservation in County Leitrim.

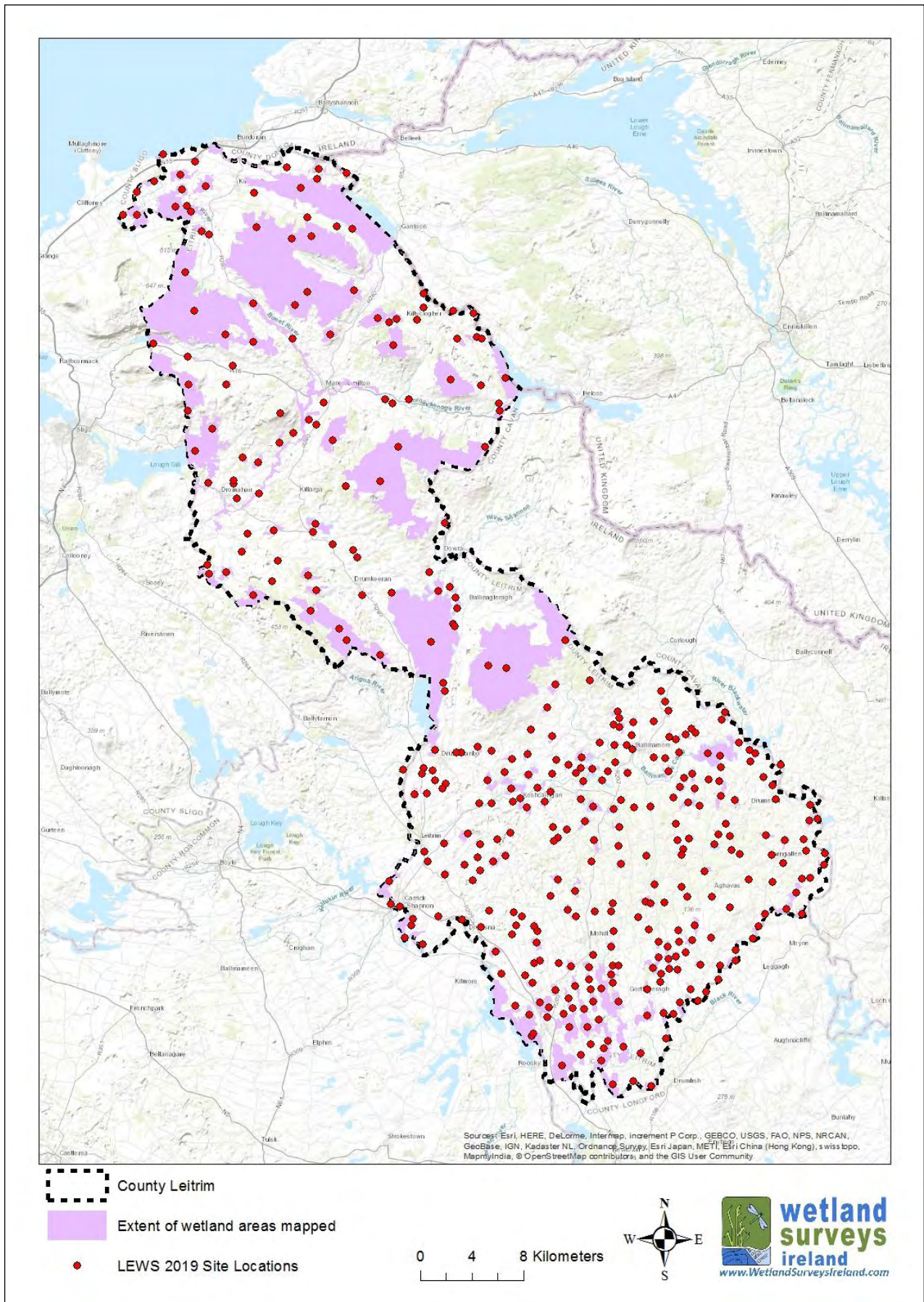


Figure 4-4: Map showing the extent of wetland sites identified in county Leitrim during the current study.

4.3.1.4 Wetland site conservation evaluation

As discussed in Section 3.3 above, few wetland sites in Leitrim are offered legislative protection under either national and / or international site conservation designation schemes. 337 wetland sites identified during the current survey lie outside of areas designated for nature conservation.

Within the *Site database* information on conservation designations or status of sites was recorded in relation to the following conservation categories:

- NHA** - Natural Heritage Area with legal protection
- cNHA** - candidate Natural Heritage Area - no legal protection
- pNHA** - proposed Natural Heritage Area as advertised in 1995 - some legal protection
- SAC** - Special Area of Conservation with legal protection
- cSAC** - candidate Special Area of Conservation open to appeal/ transmitted to EU
- pcSAC** - proposed candidate Special Area of Conservation open to appeal/ not yet transmitted to EU
- SPA** - Special Protection Area with legal protection
- cSPA** - candidate Special Protection Area
- NP - National Park with legal protection
- WHS - World Heritage Site
- NNR - National Nature Reserve with legal protection
- BIO - Unesco Biosphere Reserve
- RAM - Ramsar Site
- ESA - Environmentally Sensitive Area
- EDS - Eurodiploma Site
- ASI - Area of Scientific Interest
- BGR - Berne Convention Biogenetic Reserve
- COR - Corine site
- WS - Wildfowl Sanctuary
- RFF - Refuge for Flora or Fauna
- CBA - Coillte Biodiversity Area
- CFP - Coillte Forest Park
- SGI – Sites of Geological Interest
- LOP – Local Authority Park
- OPW – OPW Managed Park
- PNR – Private Nature Reserve
- Undesignated site - no known designation

The number of sites listed in the *Site database* with a nature conservation designation and the degree of protection offered are summarised in section 3 above. A list of all 388 wetland sites (main sites and sub-sites) recorded in the *Site database* and the specific conservation designations on each site is provided in Appendix 3 of this report (the Excel version of this spreadsheet is included on the report CD). Figure 4-2 above shows the location of all 388 LEWS sites (main sites and sub-sites) in relation to designated sites.

In the LEWS2019 sites were given an indicative conservation ranking based on their conservation/ecological importance as defined by the NRA 2009 scheme (see NRA Site Evaluation Criteria in Appendix 4). Site indicative conservation rankings for wetland sites in Leitrim are presented in Appendix 5.

4.3.1.5 *Damage to wetlands*

The majority of, if not all, Irish wetland sites, and by extension those in County Leitrim, have been subject to some degree of human impact, damage or modification from their natural state in the past, and continue to be threatened and are in decline due to such activities (Foss and Crushell 2007). With forestry cover of 18.9% Leitrim has the highest percentage of forest cover in Ireland. Approximately 536ha of land was afforested in 2017, the highest volume of afforestation in Ireland that year (Department of Agriculture, Food and Marine, 2019). Afforestation is recognised as a significant threat to wetland habitats, including those listed on Annex I of the EU Habitats Directive as described in Section 3.2 above.

Wetlands, (bog and fen areas in particular) have historically been regarded as less productive than adjacent agricultural land and measures have been taken to 'improve' their quality for agriculture. The principal method of land improvement conversion usually involved some form of drainage, creation of barriers to prevent flooding, burning or the addition of nutrients so as to either facilitate the removal of peat, the planting of trees, or the creation of new grazing areas, pasture or farmland.

It is likely that the information recorded in the *Site database* on site activities, impacts and damage represents a minimum, and that additional sites have been negatively affected by human operations which have not been documented in the *Site database*. The *Site database* does however provide a tool for recording such damage on sites in the future, and provides an indication of the types of activities which have affected wetland habitats to date.

Impacts and Activities influencing the conservation status of each site are recorded in the site database according to the EU Natura system. The original list supplied from the EU Commission has been modified slightly for use in Ireland by NPWS (Foss & Crushell 2008; D. Lynn, NPWS *pers comm.*).

The main impacts and activities and the wetland types most likely to be affected by these activities are summarised in Table 4-2. A review of the impacts and damage to wetlands in County Leitrim is outside the scope of the current project but should be considered in any future analysis of the wetland resource in the county.

Table 4-2: Natura 2000 Impacts and Activities recorded on wetland sites as part of the LEWS2019 which are likely to have a negative effect on wetlands and the wetland type most likely to be affected by these activities.

Natura 2000 Impacts and Activities Main Code	Natura 2000 Impacts and Activities Category with brief description	Broad Wetland habitat types most at threat or likely to be affected from Impacts and Activities
A	Agriculture <i>Including cultivation, fertilisation, and over grazing</i>	Fens, Marsh, Bog, Wet heath, Reed Swamp, Lake and Lake margins, Wet grassland, Wet woodland, Bog woodland, Rivers, Coastal wetlands
B	Silviculture, forestry <i>Including fertilisation, planting and re-planting, forestry practices</i>	Fens, Marsh, Bog, Wet heath, Reed Swamp, Lake and Lake margins, Wet grassland, Wet woodland, Bog woodland, Rivers
C	Mining, extraction of materials and energy production <i>Including quarry activities, turbary and peat removal</i>	Bog, Dystrophic lake, Bog woodland
D	Transportation and service corridors <i>Including road construction, power transmission</i>	All wetland types
E	Urbanisation, residential and commercial development <i>Including Urban and industrial development, discharges and waste disposal</i>	Fen, Bog, Marsh, Wet Grassland, Scrub, Coastal wetlands
F	Biological resource use other than agriculture & forestry <i>Including leisure fishing, hunting</i>	Lake, Fen, Marsh, River, Bog, Coastal wetlands
G	Human intrusions and disturbances <i>Including recreational facilities, outdoor leisure activities, littering, trampling overuse</i>	Bog, Fen, Marsh, Reed Swamp, Wet Grassland; Coastal Wetlands
H	Pollution <i>Including surface and groundwater water pollution, air pollution</i>	Oligotrophic Lake, River, Marsh, Fen
I	Invasive, other problematic species and genes <i>Including invasive species, genetic pollution</i>	Oligotrophic Lake, River, Marsh, Fen
J	Natural System modifications <i>Including landfill, drainage, drain maintenance, water abstraction, burning</i>	Fen, Marsh, Bog, Reed Swamp, Lake margins, Wet grassland, River, Coastal Wetlands
K	Natural biotic and abiotic processes (without catastrophes) <i>Including organic material accumulation,</i>	Fen, Marsh, Bog, Wet woodland

5 Conclusions & Recommendations

5.1 *Distribution and extent of the Leitrim wetland resource*

The aim of the LEWS2019 was to establish a preliminary inventory of all wetland areas in the county. Information relating to these areas has been incorporated into a *LEWS Site database Site database* (holding textual information) with associated *GIS datasets* (holding spatial information). Through the inclusion of data on sites and their habitats, provided by other groups, and by using aerial imagery it has been possible to draw preliminary site boundaries for main wetland sites. In total, some 388 sites (main sites and sub-sites) have been identified in Leitrim.

The most valuable outcomes of the LEWS2019 are the databases that have been developed during the course of the study. These contain considerable information on the extent, distribution, previous studies carried out, and characteristics of the known wetland resource in the county. They should prove most useful as information sources for any future investigations into the biodiversity contribution of the wetlands of Leitrim.

5.2 *Knowledge of the Leitrim wetland resource*

From the results of the LEWS2019 it has been possible to produce a comprehensive list of sites that contain wetland habitats. In relation to the sites which have been identified to date, significant gaps exist in relation to our knowledge of this wetland resource. Specifically, the following information deficits have been identified:

- A significant area of wetland across the county remain un-surveyed as indicated by the identification of 269 wetland sites which have not previously been reported in the literature;
- The exact extent of wetland areas within the county remains unclear. The following contributes to this lack of information:
 - Mapping of site areas during this project was done using pre-existing boundaries from third parties or drawn using aerial imagery interpretation. Accurate data on wetland extent can only be drawn using data collected from field surveys;
 - Wetland habitats often occur as a complex mosaic of different types within a single site making it difficult to map individual habitats.
- Improvements in our knowledge of the wetland resource in County Leitrim, will only be achieved when a systematic wetland survey of the county is undertaken. Such a survey should at a minimum:
 - follow a standard accepted survey methodology and utilise appropriate data capture and management systems;
 - prioritise previously un-surveyed areas identified as having a high potential to support biodiversity; and
 - prioritise key habitats that are deemed most threatened and for which information is lacking.

5.3 Wetland Survey Recommendations

From the results of the LEWS2019 the following recommendations in relation to future surveys, additional data acquisition and project development are suggested.

5.3.1 Further Development of Wetland Inventory

It is recommended that countywide surveys of wetlands in County Leitrim are carried out to build on the preliminary inventory of wetlands compiled during the LEWS2019.

Sites to be prioritised for survey should include those that have not been surveyed in detail in the past and those that are likely to contain wetland habitats of high conservation importance. Based on this, the following categories of sites should be prioritised:

- The **337 non-designated main sites identified by analysis of aerial photography** and other GIS datasets for which we have little or no ecological data;
- Sites that are locally rare or are **likely to contain wetlands habitats that are listed on Annex I of the EU Habitats Directive** (raised bog including regenerating cutover, alkaline fen, turlough, transition mire); and
- **County Council owned properties** that contain areas of potential wetland.

Future phases of the LEWS should aim to provide the following information on the wetland sites being surveyed:

- A detailed site description highlighting the wetland habitat types (classified according to Fossitt) present on each site;
- Detailed mapping of the extent of each of the wetland type(s) within each site;
- Accurate mapping of site boundaries to ensure conservation of a hydrologically intact unit;
- Recording of threats to the conservation and future protection of the site; to include restoration suggestions and management priorities and needs; and
- Conservation evaluation of each site based on its importance at a geographic scale (local, county, national, or international).

5.3.2 Planning Control

Based on the broad definition of wetlands that is contained in the Planning and Development Regulations 2011² and guidance on the Drainage and Reclamation of wetlands issued by the Department of the Environment (2011), all those sites listed in the GIS and database that are listed as having a wetland habitat present would conform to the definition.

It is therefore recommended that council planners consult with the LEWS GIS layers, which indicate potential wetlands in the county. Where a development could adversely affect a wetland – through water abstraction, infilling, drainage, etc. a site visit should be conducted by a suitably qualified ecologist to determine if the area supports a wetland of conservation interest.

² <http://www.irishstatutebook.ie/pdf/2011/en.si.2011.0454.pdf>

As outlined in Section 2.3 above, the 2011 regulations require that any proposal to drain or reclaim a wetland area over 0.1 ha necessitate a Planning Application and EIA be undertaken. The outputs of the current study should prove useful to Leitrim County Council in fulfilling its role in relation to this.

It is recommended that those sites listed as being of Local Importance (C) (high value) or higher should be considered for future protection within a network of locally important biodiversity sites. They should also be given due consideration in future development plans adopted by the county.

It is recommended that council staff should be aware of a variety of issues regarding wetlands when assessing development proposals and planning applications. These include:

- The need for an appropriate buffer zone surrounding wetland sites. This relates to the hydrological zone of influence which is different for every site and often extends beyond the extent of wetland (and in many cases designated site boundaries).
- The importance of hydrology in how wetland sites function and how indirect impacts on a wetland system can be caused by activities occurring at some distance from the wetland
- The cumulative effect of seemingly isolated losses of wetland habitats across the county on the county resource.
- The ecological value of wetland habitats adjacent to, and fringing lakes and ponds.
- The ecological value of areas of reed and tall sedge swamps, rivers and river flood plains in controlling and reducing the impacts of flooding events.
- The wetland fauna, some of which are listed on Annex II or IV of the Habitats Directive, found in the county wetlands and the potential impacts on these species as well as their habitats.
- The limited coverage provided in the initial NPWS biodiversity (ASI & NHA) surveys – this was never a comprehensive survey of the entire county – many sites of high nature conservation value **remain undesignated**.
- The potential value of wetland sites which are outside statutory designated areas and the need for adoption of a precautionary approach when assessing developments that may impact on same.
- The role that the wetland resource plays in combating global warming. Large quantities of carbon are stored within the wetland soils (in particular peat) of the county that could be lost due to drainage or other disturbance.

5.3.3 Management of Leitrim Wetland Sites

For further information on best practice management guidelines for many of the wetland habitats listed, the reader is referred to “The Living Farmland – A Guide to Farming for Nature in Clare” (Anonymous 2008) which provides practical advice on habitat maintenance and improvement for landowners and farmers. In addition, the NPWS website (www.npws.ie) provides a range of guidelines to help with the protection, management and wise use of conservation-worthy habitats and protected species. Furthermore the Irish Peatland Conservation Council has published a

Management Handbook for Peatland, which provides practical advice on habitat management and restoration³.

Newly proposed regulations requiring certain agricultural activities to go through the EIA process is a positive development and should aid the protection of wetlands throughout the country.

5.3.4 Enforcement of Fines for Illegal Dumping and Infill

Infilling and reclamation of wetland is an ongoing threat to many wetland resources in Ireland. This practice should be dissuaded through both education on the value of wetlands and the enforcement of suitably deterring fines. Article 10(1)(y) of the EPA Guidance Manual Waste Facility Permit and Registration Regulations requires that an application for a waste facility permit or certificate of registration contain details of the biodiversity of the land and specifically details wetlands within same. The protection of the diverse wetland resource in Leitrim depends on strict enforcement of national conservation legislation by the NPWS, and planning laws by the Local Authorities to ensure any unauthorised damaging activities are prevented.

5.3.5 Control of Invasive Species in Wetlands

It is important that invasive species are controlled and eradicated within wetland sites as they have the potential to cause serious nuisance and can be very costly and difficult to remove once they become established. Typical species affecting wetlands include Rhododendron (*Rhododendron ponticum*), Japanese knotweed (*Fallopia japonica*) and Himalayan balsam (*Impatiens glandulifera*). It is recommended that all records of invasive species found in wetland sites (for example during future wetland surveys) in County Leitrim are submitted to the Invasive Species Ireland database⁴ where advice on control and removal is also available.

5.3.6 Water Framework Directive

As a member of the European Union, Ireland must, as of the 22nd December 2000 implement the Water Framework Directive (2000/60/EC). This directive provides a consolidated, strengthened framework for the protection and improvement of all of our waters - rivers, lakes, marine and ground waters, and of our water-dependent habitats and species. The aim of the Water Framework Directive is to prevent any deterioration in the existing status of our waters, including the protection of good and high status where it exists, and to ensure that all waters are restored to at least good status by 2015. The objectives of the WFD are:

- to protect and enhance the status of aquatic ecosystems (and terrestrial ecosystems and wetlands directly dependent on aquatic ecosystems).
- to promote sustainable water use based on long-term protection of available water resources.
- to provide for sufficient supply of good quality surface water and groundwater as needed for sustainable, balanced and equitable water use.
- to provide for enhanced protection and improvement of the aquatic environment by reducing / phasing out of discharges, emissions etc.
- to contribute to mitigating the effects of floods and droughts.

³ www.ipcc.ie

⁴ <http://www.invasivespeciesireland.com/sighting/>

- to protect territorial and marine waters.
- to establish a register of 'protected areas' e.g. areas designated for protection of habitats or species.

Clearly the identification of wetland habitats in County Leitrim assists in fulfilling not only obligations under the EU Habitats Directive and the National Biodiversity Plan but also in implementing the Water Framework Directive.

5.3.7 Public Information and Interpretation Measures

Public awareness about the importance of wetlands in County Leitrim should be developed through a series of targeted measures. On-going public awareness campaigns should be undertaken to inform the people of Leitrim of the value of the county's wetland resource and the valuable ecosystem services they provide. There are a number of supports available for communities wishing to conserve local wetlands. The Community Wetlands Forum (CWF) was established in September 2013, the community was developed from community groups involved in wetland conservation and work undertaken by Irish Rural Link on behalf of communities affected by the Habitats Directive (92/43/EEC). Membership to the group is open to groups involved in wetland conservation and other organisation and individual stakeholders who support the aims and objectives of the forum. The aim of the CWF is to provide a representative platform for community led wetland conservation groups based on the principles of community development. The Community Foundation for Ireland encourages applicants to apply for grant funding to fund the development of local community biodiversity plans (CBP). Grants are available to support community groups who wish to carry out ecological studies in their local community with a view to developing a CBP. For more information on funding available see <https://www.communityfoundation.ie/grants/types-of-grants/environment-and-nature-fund>.

These could include:

- Information aimed specifically at landowners and farmers to explain the value of wetlands on their land should be developed.
- Specific events county-wide as part of 'Heritage Week' or 'World Wetlands Day'⁵ which take place annually.
- A series of school visits celebrating local wetlands – co-ordinated through the Heritage in Schools Scheme.
- Public display boards and signage at popular wetland sites should be developed to inform the public of their biodiversity value and the ecosystem services such wetlands play.
- A workshop on wetland management for landowners should be held.
- A colour leaflet should be produced to illustrate the beauty and importance of wetland conservation within the county. A similar leaflet was produced in County Monaghan and County Clare.

⁵ http://www.ramsar.org/cda/en/ramsar-activities-wwds/main/ramsar/1-63-78_4000_0

5.3.8 Wetland Restoration

Opportunities exist for significant restoration and enhancement works to re-instate part of the biodiversity resource that has been lost due to peat exploitation and other land-uses over the past century. Local projects aimed at restoring or enhancing the value (biodiversity or educational) of wetlands should be encouraged and supported. A current example of such a project is the EU Life funded project aimed at restoring raised bog habitat within the Network of Irish Raised Bog SACs 2016-2020, also known as the Living Bog Project.

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7 Appendices

In the LEWS2019 report appendices which follow, the PDF layouts (produced from Excel or Word files) have been formatted and reduced to allow printing of tables at A4 page size. The original Excel spreadsheets from which some of these PDFs were produced are included on the CD ROM included with this report (see Appendix 6 for contents of CD ROM).

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Appendix 1

Reports & information sources consulted during the compilation of the County Leitrim Wetland Survey GIS & Site Database

1. Reports and data sources containing information on wetland sites in County Leitrim consulted during the compilation of the LEWS database 2019.

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2. GIS data sources examined in determining wetland sites in County Leitrim

Source title and author	Bibliography Code	Information type	Data Content Comments
GSI National Bedrock Map of Ireland 1:500,000 Scale (GSI)	246	GIS Dataset	Used to determine the underlying solid geology of sites
EPA (2006) Lakes and Ponds Dataset. EPA, Wexford (EPA)	253	GIS Dataset	Used to determine the location of lake, pond and reservoir sites
EPA (2006) Rivers. Streams, Canals, Dataset. EPA, Wexford (EPA).	899	GIS Dataset	Used to determine the location of rivers and canals
EPA (1997) Catchments All Island. EPA, Wexford (EPA)	255	GIS Dataset	Used as base-map in site mapping and wetland site identification.
OSI Color orthophotos (OSI)	258	GIS Dataset	Used as base-map in site mapping and wetland site identification
EPA Corine Land-cover in Ireland (CLC2000) (OSI)	259	GIS Dataset	Used in the production of site maps
OSI 1:5000 OS vector maps (OSI)	898	GIS Dataset	Used as base-map in site mapping and wetland site identification
OSI 6 Inch Map series (OSI)	262	GIS Dataset	Used as base-map in site mapping and wetland site identification
OSI 1:50000 Discovery series (OSI)	331	GIS Dataset	Used as base-map in site mapping and wetland site identification
OSI Townlands (OSI)	332	GIS Dataset	Used as base-map to identify townlands
Teagasc (2006) National Subsoils Data (EPA)	333	GIS Dataset	Identification of subsoil types
NPWS (2015) pNHA Boundaries (NPWS)	711	GIS Dataset	Used in site mapping and wetland site identification
NPWS (2015) NHA Boundaries (NPWS)	710	GIS Dataset	Used in site mapping and wetland site identification
NPWS (2018) SAC Boundaries (NPWS)	712	GIS Dataset	Used in site mapping and wetland site identification
NPWS (2017) SPA Boundaries (NPWS)	713	GIS Dataset	Used in site mapping and wetland site identification
Teagasc (2006) National Soils Data (EPA)	345	GIS Dataset	Identification of soil types
NPWS (2014) Various Digital habitat maps originating from regional and national ecological surveys carried out by NPWS.	1151	GIS Datasets	Used in site mapping and wetland site identification
BirdWatch Ireland I-WeBS Sites (2011)	487	GIS dataset derived from records	Used in determining potential wetland locations

Appendix 2

Meta Data for the LEWS Site Database and GIS datasets (includes descriptions of data fields used)

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1 Introduction

As part of the County Leitrim Wetland Survey 2019 project (LEWS2019) two main database suites were used to hold site information, namely the GIS dataset and the Site database (version 1.0).

The structure of the database suite allows digital recording of field survey data on the iPad and facilitates data transfer and integration of results into the GIS and GIS system used by Leitrim County Council via the export of data in the Site database into Excel and Filemaker formats.

As illustrated in Figure 1 below there are two main databases associated with the LEWS, the **Core Wetland Database (Version 1)** and the **Core Site Survey Database (Version 1)**. The structure of the site database suite developed and used throughout the current project is outlined below.

The relationship of the Core Wetland Database and Core Site Survey Database suites (i.e. the main database elements and the sub-databases that make up the *Leitrim Wetland Database*) is presented in Figure 1 below. The fields held within each database and sub-database, are described in the table presented in Section 2.1 below.

The Core Wetland Database holds all basic site data obtained from an extensive search of various literature sources. This database is linked (via a unique site record number) to the Core Site Survey Database which holds all of the detailed data gathered during field surveys. Therefore by accessing the Core Wetland Database, the user is able to access all data relating to each site contained in the database including detailed survey data (habitat maps, species lists etc.) where the site in question has been the subject to a detailed targeted wetland field survey.

The files associated with the LEWS GIS are described in Section 5 below.

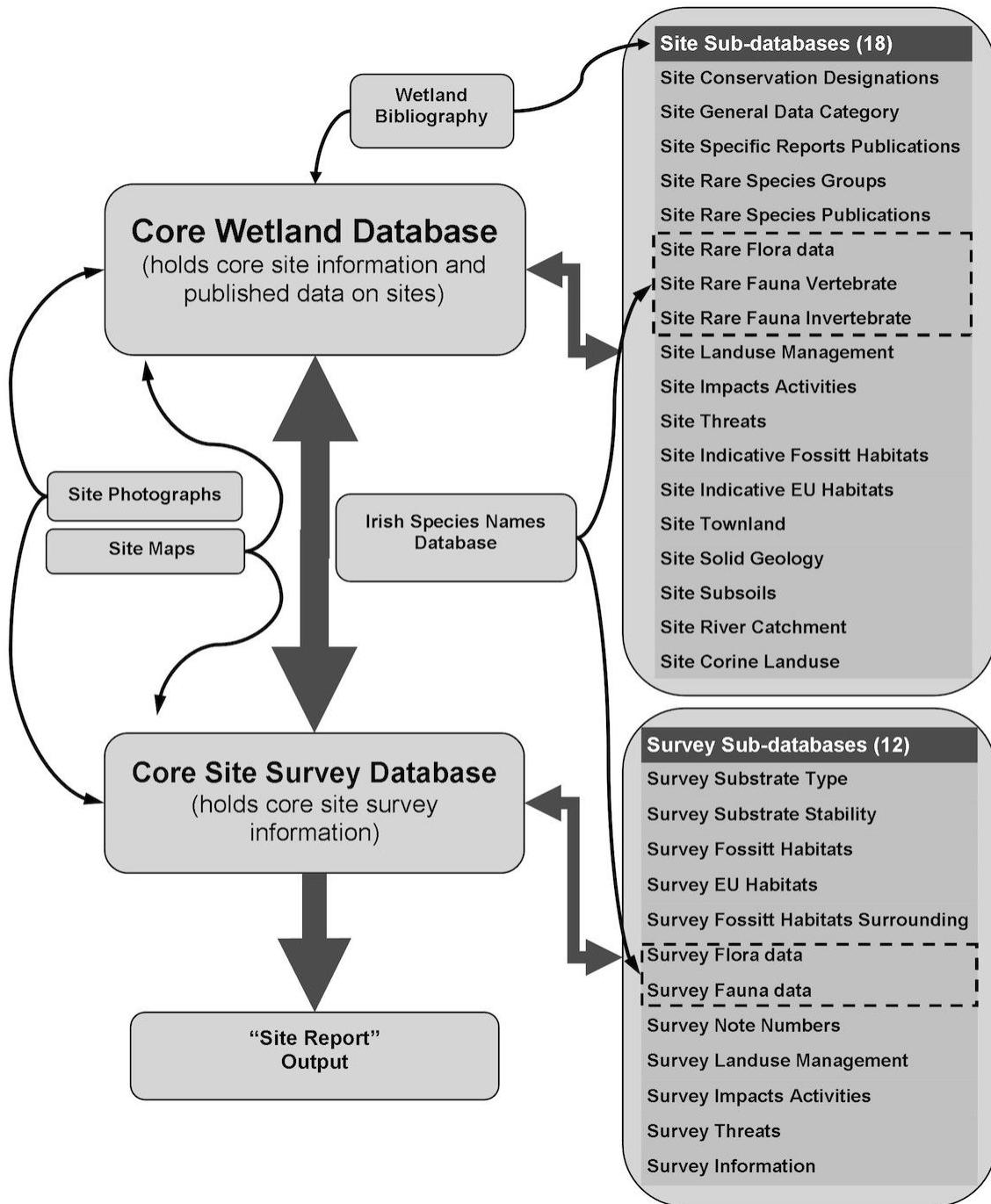


Figure 1. Relationship structure of the *Site Database* and the *Survey Database* and associated sub-databases.

2 Core Wetland Site Database Suite version 1.0

The *Site Database* (Filemaker Pro 12.0 software package) suite holds some of the information in the GIS database, but allows for easier sorting and display of site records, survey report preparation as well as data analysis. In addition this database and the associated sub-databases (18 in total) hold more detailed information on sites than is possible within the GIS for certain data fields (e.g. site descriptions, rare species recorded from the site, survey history etc.), and allows site photographs and maps to be displayed.

The database displays site data via a series of layouts. These layouts are used when adding or reviewing data on a site. These layouts are accessed via the green or yellow link buttons along the top of the database window.

The core Wetland Survey database amalgamates data from a series of 18 sub-databases to compile a complete site description. The sub-databases and the data they contain are detailed below.

2.1 Data fields held in the Site database suite (version 1.0)

An explanation of the data fields used in the database suite is provided below.

Table 2.1 Site database and sub-database files and the record data held within each database for individual sites.

** Name in bold is the name applied to database fields as seen when accessing the database in browse/operating mode; the underlined name is the actual field name assigned within the database (used when exporting data, performing calculations etc.).*

Database name <i>(sub database names are italicised)</i>	Field name *	Comment
Database Fields Common to the Core Wetland Database and all associated sub-databases listed here		
	Site Code (<u>Site Code UACC</u>)	Unique site code for the site as assigned in Core Site database and used by each of the sub-databases to relate site record information. Auto generated.
	Database Record number (<u>Database Record number</u>)	Unique record number for each record entry within each database and sub-database. Auto generated.
	Created by (<u>Created by</u>)	Name of person who created record within each database and sub-database. Auto generated.
	Date Created (<u>Date Created</u>)	Date record was created within each database and sub-database. Auto generated.
	Modified by (<u>Modified by</u>)	Name of person who last modified record within each database and sub-database. Auto generated.
	Date modified (<u>Date modified</u>)	Date record was last modified within each database and sub-database. Auto generated.
	Time modified (<u>Time modified</u>)	Time record was last modified within each database and sub-database. Auto generated.
Core Wetland Database		The main Wetland Site database holding information on all wetlands identified within the county for which there is published/report site information.
	Site Name (<u>Site Name UACC</u>)	The name of the wetland site, based on the most widely used name for site proposed by third party sources and adopted for the project. (see also Other Groups Site Name below). <i>Where a site record occurs as a subsite within a larger site complex, the specific subsite name is followed by the name of the main site preceded by a - (e.g. CLOGHMEEN – ARROO MOUNTAIN SAC, here Cloghmeen, a subsite occurs within Arroo Mountain SAC, the main site).</i>

Database name <i>(sub database names are italicised)</i>	Field name *	Comment
	Designated Site Code (<u>Designated Site Code UACC</u>)	NPWS Site Code number for NHA, SAC and SPA.
	Other Groups Site Name (<u>Other Group Site Name UACC</u>)	Alternative site name applied to site by other reports or publications (for reference). <i>(When trying to locate a site within the database it is essential that this field is also searched in the case where the site cannot be found under the Site Name field above).</i>
	Other Groups Site Code (<u>Other Group Site Code UACC</u>)	Site code applied by other groups (for reference).
	Site area (ha) from literature (<u>Total Site Area (ha) from literature UACC</u>)	
	Site area (ha) from GIS (<u>Total Site area (ha) from GIS UACC</u>)	Calculated site area from GIS dataset.
	Total Site Length (km) from literature (<u>Total Site Length (km) from literature UACC</u>)	
	Total Site Length (km) from GIS (<u>Total Site Length (km) from GIS UACC</u>)	Calculated site length from GIS dataset.
	Easting Centre (<u>Easting Centre UACC</u>)	The grid reference of the E co-ordinate of the site is recorded, where this is given in the new format of a 6 digit number.
	Northing Centre (<u>Northing Centre UACC</u>)	The grid reference of the N co-ordinate of the site is recorded, where this is given in the new format of a 6 digit number.
	Grid Reference (<u>Grid Ref Old UACC</u>)	Grid reference previously reported from literature. The grid reference of the site is recorded, where this is given in the old format of a letter followed by 4 or 6 digit number. <i>(It should be noted that this grid reference, based on information provided in published reports, should be interpreted with care, and in many cases may be found to be inaccurate. In relation to site location the Easting and Northing co-ordinates above are considered the more reliable when locating the site in question).</i>
	Year last reported field Survey (<u>Date of last survey UACC</u>)	4 digit year for the last reported survey of site.
	First Noted in (<u>Site Source UACC</u>)	Reference to where site was first reported in literature source.
	County (<u>County Name UACC and County Name UACC text string</u>)	Two fields to record county; the first a check box selection; the second producing county names in which site occurs as a text string.
	Wetland areas on site (<u>Wetland areas on site UACC</u>)	Check box system to record whether a wetland type occurred on site, was likely to occur or was absent. Check box selection, only 1 choice to be selected. <ul style="list-style-type: none"> • YES • No wetland present • No Data - wetland possible • No Data - wetland unlikely
	Site type (<u>Site type UACC</u>)	Check box allowing a site record to be characterised, i.e. whether the database record is for a discrete site or a subsite, a

Database name <i>(sub database names are italicised)</i>	Field name *	Comment
		<p>smaller part (e.g. lake) within a larger site complex. A subsite record was generally created where specific site data related to the subsite.</p> <p><i>(Example: CLOGHMEEN – ARROO MOUNTAIN SAC) - here Cloghmeen has a unique data record, while the inclusion of the Arroo Mountain SAC in the site name allows the relationship to the larger main site (an SAC) to be maintained and recognised).</i></p> <p>Check box selection, only 1 choice to be selected.</p> <ul style="list-style-type: none"> • Main Site • Sub-site
	Comment Box (<u>Comment Box UACC</u>)	Text field to hold temporary comments on site, queries on site etc. Used during data compilation phase of the project.
	Temporary flag record (<u>Temporary flag record UACC</u>)	Check box allowing the temporary flagging of selected site records. Used during data compilation or data abstraction phase of the project.
	Annex Species Present – EU Birds or Habitats Directive (<u>Species Annex species Present EU Birds Habitats Directive UACC</u>)	Yes No option for the reported occurrence of EU Habitats or Birds Directive Annex species on site.
	Red Data Book Species Present (<u>Species Red Data Book Species Present UACC</u>)	Yes No option for the reported occurrence of Red species on site.
	Comment/Notes on rare species groups (<u>Species comments on rare groups UACC</u>)	Comment box.
	Damaging Operations/ Threats on site comments (<u>Damaging operations comments UACC</u>)	Comment box.
	Site description and source (<u>Previous site description UACC</u>)	Text box holding site description as reported by third party source(s).
	Comment on Previous surveys (<u>Comment box previous surveys UACC</u>)	Comment box.
	Indicative Site Wetland Conservation Ranking (<u>Indicative Site Wetland Conservation Ranking</u>)	<p>Check box system to record overall indicative ranking of site based on designated status or ranking following filed survey:</p> <p>A Rating: Internationally Important B Rating: Nationally Important C+ Rating: County Conservation value C Rating: Local conservation value (high value) D Rating: Local conservation value (moderate value) E Rating: Local conservation value (low value) F Rating: Unknown value - survey required</p>
	Indicative Site Wetland Conservation Ranking Comment (<u>Indicative Site Wetland Conservation Ranking Comment</u>)	Comment box.
	Site Ownership (<u>Site Ownership</u>)	Check box allowing site ownership to be recorded based on published information or field survey observations.
<i>Site Conservation Designations</i>		Sub database holding information on the conservation status of a site.

Database name <i>(sub database names are italicised)</i>	Field name *	Comment
	Site Designation (<u>Site designations</u> <u>MACC</u>)	<p>If the site has or was designated under one of the various conservation initiatives the appropriate designation was recorded.</p> <p>Choose from:</p> <ul style="list-style-type: none"> • NHA - Natural Heritage Area with legal protection • cNHA - candidate Natural Heritage Area no legal protection • pNHA - proposed Natural Heritage Area as advertised in 1995 some legal protection • SAC - Special Area of Conservation with legal protection • cSAC - candidate Special Area of Conservation open to appeal/ transmitted to EU • pcSAC - proposed candidate Special Area of Conservation open to appeal/ not yet transmitted to EU • SPA - Special Protection Area • cSPA - candidate Special Protection Area • NP - National Park with legal protection • WHS - World Heritage Site • NNR - National Nature Reserve with legal protection • BIO - Unesco Biosphere Reserve • RAM - Ramsar Site • ESA - Environmentally Sensitive Area • EDS - Eurodiploma Site • ASI - Area of Scientific Interest • BGR - Berne Convention Biogenetic Reserve • COR - Corine site • WS - Wildfowl Sanctuary • RFF - Refuge for Flora or Fauna • CBA - Coillte Biodiversity Area • CFP - Coillte Forest Park • Undesignated site - no known designation • De-designated NHA – Site previously designated as an NHA but since downgraded by NPWS
<i>Site General Data Category</i>		Sub database holding a list of information categories under which data has been recorded on the site in previous reports or data sources.
	General information available on site (<u>General information available on site</u> <u>MACC</u>)	<p>Choose from:</p> <ul style="list-style-type: none"> • Vegetation Type - relevé data recorded from site • Species Data - recorded for general and/or on rare species • Habitat Data - habitat data in Fossitt format available for all or part of site • Habitat Map - map data of variable quality available (may include GIS habitat map) • Hydrochemical Data - water chemistry data available on site

Database name <i>(sub database names are italicised)</i>	Field name *	Comment
		<ul style="list-style-type: none"> • Site Size - from published source • Ownership Data - owner information available on site • Detailed Site Description - detailed description of available in published report • Site Management - site management recommendations have been made in published report • Conservation Designation - site conservation recommendations have been made in published report • iWeBS Site - site is listed as a location for bird recording as part of the Irish Wetlands Birds Survey Scheme • Visitor & Recreation Facilities - wetland site with visitor and recreational facilities i.e. parking, walks and trails, picnic areas, seating, viewing platforms etc., other than angling facilities • Angling Lake - lake or river is used or managed as a location for angling, with or without angling facilities • EPA Drinking Water Lake - lake or river is used or managed as a drinking water source
<i>Site Specific Reports Publications</i>		Sub database holding a list of reports and publications which refer to site; uses Wetland Bibliography database to get full citation.
	Reference Code (<u>Reference Code</u>)	Unique bibliography reference code.
	Amalgamated Reference (<u>Amalgamated ref</u>)	Full report or publication citation as text string; lookup from Wetland Bibliography database.
<i>Site Rare Species Groups</i>		Sub database holding information as reported from literature on groups recorded on site (e.g. rare plants, animals, EU spp etc.)
	Species rare groups present on site (<u>Species rare groups present on site MACC</u>)	Choose from: <ul style="list-style-type: none"> • Botanical • Higher Plant • Fern • Bryological • Lichen • Algae • Fungi • Zoological • Invertebrates • Invertebrates Mollusc • Invertebrates Insect • Invertebrates Arachnid • Invertebrates Crustacean • Vertebrates • Birds • Mammals • Bats • Amphibian • Fish • Reptile

Database name <i>(sub database names are italicised)</i>	Field name *	Comment
<i>Site Rare Species Publications</i>		Sub database holding a list of reports and publications which refer to rare species on a site; sub database uses Wetland Bibliography database to get full citation.
	Reference Code (<u>Reference Code</u>)	Unique bibliography reference code.
	Amalgamated Reference (<u>Amalgamated ref</u>)	Full report or publication citation; lookup from Wetland Bibliography database.
<i>Site Rare Flora Data</i>		Sub database holding information as reported from literature on rare flora recorded on site.
	Rare flora name Latin (<u>Rare flora Latin site list MACC</u>)	Drop down list of Latin wetland plant species names.
	Rare flora name English (<u>Rare flora name English</u>)	Sub database uses Irish Species database to get related English name.
<i>Site Rare Fauna Vertebrate</i>		Sub database holding information as reported from literature on rare vertebrate fauna recorded on site
	Rare vertebrate fauna English name (<u>Rare vertebrate fauna English site list MACC</u>)	Drop down list of English wetland invertebrate fauna species names.
	Latin Name (<u>Rare vertebrate fauna Latin site list MACC</u>)	Sub database uses Irish Species database to get related Latin name.
<i>Site Rare Fauna Invertebrate</i>		Sub database holding information as reported from literature on rare vertebrate fauna recorded on site.
	Rare invertebrate fauna Latin name (<u>Rare invertebrate fauna site list MACC</u>)	Drop down list of English wetland Invertebrate fauna species names.
	English name (<u>Rare invertebrate fauna English site list MACC</u>)	Sub database holding information as reported from literature on rare invertebrate fauna recorded on site.
<i>Site Landuse Management</i>		Sub database holding a list of landuse management options occurring on site.
	Landuse Management on site (<u>Landuse Management on site MACC</u>)	NPWS list of landuse options. Drop down options list.
	Frequency Landuse Management (<u>Frequency Landuse Management on site MACC</u>)	Drop down options list. Scale: 1 Rare (<5%) 2 Occasional (5-20%) 3 Frequent (21-50%) 4 Dominant (>50%)
<i>Site Impacts Activities</i>		Sub database holding a list of impacts and activities influencing the conservation status of the site and the intensity and impact these are having on the site.
	Impact & Activities Influencing Conservation Status of site (<u>Damaging operations on site MACC</u>)	List of EU Natura 2000 site impacts and activities updated by NPWS in 2009. Drop down options list.
	Intensity (<u>Damage intensity on site MACC</u>)	Drop down options list. Intensity of the influence of an activity is rated as <ul style="list-style-type: none"> • A = high, • B = medium, • C = low influence • D = unknown
	Impact (<u>Damage Impact on site MACC</u>)	Drop down options list. Impact rating scale: Impact is rated as <ul style="list-style-type: none"> • -2 = irreparable negative influence • -1 = reparable negative influence • 0 = neutral • +1= natural positive influence • +2 = strongly managed positive

Database name <i>(sub database names are italicised)</i>	Field name *	Comment
		influence • Unknown
<i>Site Threats</i>		Sub database holding a list of threats to site.
	Threats on site (<u>Threats on site MACC</u>)	List of EU Natura 2000 site impacts and activities updated by NPWS in 2017. Drop down options list.
<i>Site Indicative Fossitt Habitats</i>		Sub database holding a list of Fossitt habitats reported in published sources as occurring on the site.
	Habitats Present on site full Fossitt name (<u>Habitats present on site full Fossitt name MACC</u>)	List of Fossitt (2000) Irish habitat types. Drop down options list.
	Habitats Present on site Fossitt code only (<u>Habitats Present on site Fossitt code only MACC</u>)	Calculation results the Fossitt habitat code entered into data field is based on full Fossitt habitat name entered in field above.
<i>Site Indicative EU Habitats</i>		Sub database holding a list of EU habitats reported in published sources as occurring on the site.
	EU Directive Habitats on site (<u>Habitats EU Directive Habitats on site MACC</u>)	List of EU Habitats Directive habitat types. Drop down options list.
<i>Site Townlands</i>		Sub database holding a list of townlands occurring on the site.
	Site Townland (<u>Site Townlands MACC</u>)	Data imported from GIS. <i>(In the case of a main site (see definition below), all townland(s) recorded within the site polygon mapped are provided. For subsites only the townland directly at the grid reference point location is provided. Similar rules apply to information provided for site Solid Geology, Subsoil Type, River Catchment & Corine Landuse).</i>
<i>Site Solid Geology</i>		Sub database holding a list of rock types occurring on the site.
	Site Solid Geology (<u>Site Solid Geology MACC</u>)	Data imported from GIS.
<i>Site Subsoils</i>		Sub database holding a list of Sub-soil types occurring on the site.
	Site Subsoils (<u>Site Subsoils MACC</u>)	Subsoil (quaternary deposit) underlying the site. Obtained from the GIS. Key to soil types is provided below.
<i>Site River Catchment</i>		Sub database holding a list of River Catchments occurring on the site.
	Site River Catchment (<u>Site River Catchment MACC</u>)	Data imported from GIS.
<i>Site Corine Habitats</i>		Sub database holding information on Corine habitats recording on a site.
	Site Corine Landuse (<u>Site Corine Landuse MACC</u>)	Data imported from GIS.

Table of Subsoil (quaternary deposit) recognised in the present project.

IFS soil abbreviation	Included Great Soil Groups	IFS Soil Description	IFS Code
		Deep well drained mineral	1
AminDW	Acid Brown Earths Brown Podzolics	Derived from mainly non-calcareous parent materials	11
BminDW	Grey Brown Podzolics Brown Earths (medium-high base status)	Derived from mainly calcareous parent materials	12
		Shallow well drained mineral	2
AminSW	Lithosols Regosols	Derived from mainly non-calcareous parent materials	21
BminSW	Renzinas Lithosols	Derived from mainly calcareous parent materials	22
		Deep poorly drained mineral	3
AminPD	Surface water Gleys Ground water Gleys	Derived from mainly non-calcareous parent materials	31
BminPD	Surface water Gleys Ground water Gleys	Derived from mainly calcareous parent materials	32
		Shallow poorly drained mineral	
AminSP	Surface water Gleys (Shallow) Ground water Gleys (Shallow)	Derived from mainly non-calcareous parent materials	33
BminSP	Surface water Gleys (Shallow) Ground water Gleys (Shallow)	Derived from mainly calcareous parent materials	34
		Poorly drained mineral soils with peaty topsoil	4
AminPDPT	Peaty Gleys	Derived from mainly non-calcareous parent materials	41
BminPDPT	Peaty Gleys	Derived from mainly calcareous parent materials	42
AminSPPT	Peaty Gleys (Shallow)	Derived from mainly non-calcareous parent materials	45
BminSPPT	Peaty Gleys (Shallow)	Derived from mainly calcareous parent materials	44
		Shallow, lithosolic-podzolic type soils potentially with peaty topsoil	
AminSRPT	Podzols (Peaty) Lithosols Peats	Predominantly shallow soils derived from non-calcareous rock or gravels with/without peaty surface horizon	43
BminSRPT	Lithosols Peats	Predominantly shallow soils derived from calcareous rock or gravels with/without peaty surface horizon	46
		Alluviums	5
AlluvMIN	Variable	Mineral alluvium	51
AlluvMRL	Variable	Marl type soils	53
Lac	Variable	Lacustrine-type soils	56
		Peats	6
RsPt	Basin Peats	Raised bog	61
BktPt	Blanket Peats	Blanket peat	63
Cut	Basin Peats	Cutaway/cutover peat	65

IFS soil abbreviation	Included Great Soil Groups	IFS Soil Description	IFS Code
	Blanket Peats (some)		
FenPt	Basin Peats	Fen peat	66
		Miscellaneous	7
Scree		Scree	70
AeoUND		Aeolian undifferentiated	71
MarSands		Beach sand and gravels	72
MarSed		Marine/ Estuarine sediments	73
Swamp		Reed Swamp/Marsh	75
Made		Made/Built land	74
Water		Lake (including reservoirs)	76
Unclass		Unclassified	77

3 Wetland Survey - Survey database suite

To hold data for future field surveys of wetland sites in each county the Survey database was designed. This **County Leitrim Wetland Survey – Survey Database** (version 1.0) was linked to the Core Site database via the unique **site record number** assigned to each site.

Details of the data fields (name as it appears in operational mode within various database layouts; and in brackets the field name within database) in the Wetland Survey database are provided below.

Once survey information has been incorporated into the survey database, and by selecting the “Show complete site report” button, a full survey report for the site can be viewed on screen. By selecting the “Create final PDF of complete site report - description, maps and habitat map” button a PDF of the complete site report is created and can be saved to a PDF file.

A series of database layouts, containing site survey information, form the main site database and content of the survey database. These layouts were used when adding or reviewing survey data on a site. These layouts are accessed via the green or yellow link buttons along the top of the survey database window.

An explanation of the data fields used in the survey database is provided below.

3.1 Data fields held in the Survey database suite (version 1.0)

* Name in bold is the name applied to database fields as seen when accessing the database in browse/operating mode; the underlined name is the actual field name assigned within the database (used when exporting data, performing calculations etc.).

Database name <i>(sub database names are italicised)</i>	Field name *	Comment
Database Fields Common to the Core Site Survey Database and all associated sub-databases listed here		
	Site Code (<u>Site Code UACC</u>)	Unique site code for the site as assigned in Core Site database and used by the Core Site Survey database in each of the sub-databases to relate site records.
	Database Record number (<u>Database Record number</u>)	Unique record number for each record entry within each database and sub-database.
	Survey Code Number (<u>Survey Code number</u>)	Unique survey code number as assigned in Core Site database and used by the Core Site Survey database each of the sub-databases to relate site records for a particular survey.
	Created by (<u>Created by</u>)	Name of person who created record within each database and sub-database.
	Date Created (<u>Date Created</u>)	Date record was created within each database and sub-database.
	Modified by (<u>Modified by</u>)	Name of person who last modified record within each database and sub-database.
	Date modified (<u>Date modified</u>)	Date record was last modified within each database and sub-database
	Time modified (<u>Time modified</u>)	Time record was last modified within each database and sub-database.
Core Site Survey Database		Site Survey database holding information on wetlands where a detailed field survey has been undertaken. Only data fields held within the database are described here, lookups of fields from related databases or sub-databases are described elsewhere.
	Site Name (<u>Site Name UACC</u>)	Name as provided in the Core Site database.
	Survey full title (<u>Survey full title UACC</u>)	Full title of survey (with year). Drop down menu selection.
	Survey code (<u>Survey code UACC</u>)	Abbreviated code for field survey (includes the year survey was undertaken). Drop down menu selection.
	Date of wetland survey (<u>Date of Field Survey UACC</u>)	Date detailed field survey undertaken. Format dd/mm/yyyy.
	Name of Wetland Surveyors (<u>Name of Wetland Surveyors UACC</u>)	Name of field surveyors who surveyed site. Drop down menu selection.

Database name <i>(sub database names are italicised)</i>	Field name *	Comment
	Survey photographic no. (<u>Survey Photographic Numbers UACC</u>)	Photographic image code from survey together with initials of photographer.
	Conservation Ranking following Survey (<u>Conservation Ranking after survey UACC</u>)	Conservation ranking for site based on results of field survey and subsequent conservation assessment. One check box option to be selected following survey. <ul style="list-style-type: none"> • A Rating: Internationally Important • B Rating: Nationally Important • C+ Rating: County Conservation value • C Rating: Local conservation value (high value) • D Rating: Local conservation value (moderate value) • E Rating: Local conservation value (low value) • F Rating: Unknown value - survey required
	Altitude (<u>Site altitude mOD UACC</u>)	Altitude of site meters above Ordnance datum.
	Water table (cm) (<u>Water table depth cm UACC</u>)	Water table depth within wetland site. Recorded in cm.
	Substrate depth (cm) (<u>Site substrate depth UACC</u>)	Substrate depth under wetland area recorded in cm.
	Damaging Operations/ Threats on site comments (<u>Damaging operations comments UACC</u>)	Comment box.
	Site location (<u>Report Survey Site location UACC</u>)	In this field include information on the location of the site relative to nearest town etc. Text field with maximum character allowance of 250.
	Survey site description with reference to wetlands present (<u>Report Site description UACC</u>)	In this field include general site description, and/or comment on habitats present, substrate type, stability, depth and water table. Text field with maximum character allowance of 250.
	Comments on potential occurrence of EU habitats on site (<u>Report Survey Site EU habitats comments UACC</u>)	EU Habitats Directive habitats recorded for the site; EU rare species information etc. Text field with maximum character allowance of 250.
	Management recommendations following survey (<u>Report Management recommendations UACC</u>)	Wetland enhancement or management recommendations for site following survey. Text field with maximum character allowance of 250.
	Future survey recommendations (<u>Report Future Survey recommendations UACC</u>)	Additional survey recommendations for site following survey. Text field with maximum character allowance of 250.
	Landowner information comments	Comments provided by landowners

Database name <i>(sub database names are italicised)</i>	Field name *	Comment
	<u>(Report Landowner information comments UACC)</u>	on site history, ownership, management etc. Text field with maximum character allowance of 250.
<i>Survey Substrate Type</i>		Sub database holding a list of soil types on the site observed during survey.
	Site Substrate Type (<u>Site substrate type MACC</u>)	Drop down list options: <ul style="list-style-type: none"> • Mineral Soil • Clay • Silt • Alluvial deposit • Bedrock • Loose Rock • Rocky Till • Peat • Tufa • Made Ground • Other
<i>Survey Substrate Stability</i>		Sub database holding a list of substrate stability options observed during survey.
	Site Substrate Stability (<u>Site substrate stability MACC</u>)	Drop down list options: <ul style="list-style-type: none"> • Very firm • Firm • Some quaking • Quaking • Floating mat
<i>Survey Fossitt Habitats</i>		Sub database holding a list of Fossitt habitats as occurring on the site following survey.
	Habitats Present on site full Fossitt name (<u>Habitats present on site full Fossitt name MACC</u>)	List of Fossitt (2000) Irish habitat types. Drop down menu list.
	Fossitt code (<u>Habitats Present on site Fossitt code only MACC</u>)	Calculation results the Fossitt habitat code entered into data field is based on full Fossitt habitat name entered in field above.
<i>Survey Fossitt Habitats Surrounding</i>		Sub database holding a list of Fossitt habitats as occur surrounding the site following survey.
	Habitats Present surrounding site full Fossitt name (<u>Habitats present surrounding site full Fossitt name MACC</u>)	List of Fossitt (2000) Irish habitat types. Drop down menu list.
	Fossitt code (<u>Habitats Present surrounding site Fossitt code only MACC</u>)	Calculation which results in Fossitt habitat code being entered into data field based on full habitat name.
<i>Survey Flora Data</i>		Sub database holding a list of flora species recorded during the survey.
	Species Flora (Latin name) (<u>Species Flora site list MACC</u>)	List of flora recorded on site. Higher and lower plants, mosses and lichens. Drop down menu list.
	English name (<u>English Flora species name</u>)	Sub database uses Irish Species database to get related English name.

Database name <i>(sub database names are italicised)</i>	Field name *	Comment
	Species temporary survey comment box (<u>Species temporary survey comment box</u>)	Comment box for use on field survey or to allow recording of DAFOR species abundance.
<i>Survey Fauna Data</i>		Sub database holding a list of flora species recorded during the survey.
	Species Fauna site list (<u>Species Fauna English name site list MACC</u>)	List of fauna (vertebrates and invertebrates) recorded on site. Drop down menu list.
	Species Fauna Latin name (<u>Species Fauna Latin name site list MACC</u>)	Sub database uses Irish Species database to get related Latin name.
	Species temporary survey comment box (<u>Species temporary survey comment box</u>)	Comment box for use on field survey or to allow recording of species abundance information.
<i>Survey Note Numbers</i>		Sub database holding survey note number, note type and descriptive data.
	Note Number (<u>Report target notes numbers MACC</u>)	Drop down menu selection. N1, N2 etc.
	Note Category (<u>Report target notes category MACC</u>)	Drop down menu selection: <ul style="list-style-type: none"> • Habitat • Damage • Boundary • Relevé • Hydrology • Flora • Fauna • Ownership • Management • Photograph • General
	Note (<u>Report target notes MACC</u>)	Text field with maximum character allowance of 250.
<i>Survey Landuse Management</i>		Sub database holding a list of landuse management options occurring on site as observed during survey
	Landuse Management on site (<u>Landuse Management on site MACC</u>)	NPWS list of landuse options. Drop down list.
	Frequency Landuse Management (<u>Frequency Landuse Management on site MACC</u>)	Drop down list options. Scale: <ol style="list-style-type: none"> 1 Rare (<5%) 2 Occasional (5-20%) 3 Frequent (21-50%) 4 Dominant (>50%)
<i>Survey Impacts Activities</i>		Sub database holding a list of impacts and activities influencing the conservation status of the site and the intensity and impact these are having on the site, as observed during survey.
	Impact & Activities Influencing Conservation Status of site (<u>Damaging operations on site MACC</u>)	List of EU Natura 2000 site impacts and activities updated by NPWS in 2009. Drop down list.
	Intensity (<u>Damage intensity on site MACC</u>)	Intensity of the influence of an activity is rated as: <ul style="list-style-type: none"> • A = high,

Database name <i>(sub database names are italicised)</i>	Field name *	Comment
		<ul style="list-style-type: none"> • B = medium, • C = low influence • D = unknown
	Impact (<u>Damage Impact on site</u> <u>MACC</u>)	Impact rating scale: <ul style="list-style-type: none"> • -2 = irreparable negative influence • -1 = reparable negative influence • 0 = neutral • +1= natural positive influence • +2 = strongly managed positive influence • Unknown
<i>Survey Threats</i>		Sub database holding a list of threats to site, as observed during the survey.
	Threats on site (<u>Threats on site</u> <u>MACC</u>)	List of EU Natura 2000 site impacts and activities updated by NPWS in 2009. Drop down list.
<i>Survey Information</i>		Sub database holding a list of information categories for the site.
	Site survey information (<u>Site field</u> <u>survey information MACC</u>)	Editable drop down list options: <ul style="list-style-type: none"> • Detailed site survey undertaken • Limited site inspection only • No survey yet undertaken • Additional Survey may be required • NHA Ranger Survey exists • NHA Ecologists Survey exists • Site boundary defined • Releve data collected • Water chemistry samples collected Etc.

4 Other related databases used by the wetland study database suite

In addition to the two main databases (Core and Survey databases) used to hold site related data, a number of secondary databases, holding a list of publications and references, Irish flora and fauna species names, Site Photographs and Site Maps (habitat, aerial photographs etc.) complete the suite of databases used in the preparation of site reports and data storage for the database suites. These are explained in more detail below.

Database name	Comment
Wetland Bibliography	Secondary database containing a list of publication and report citations. Linked to Site Rare Species Publications and Site Specific Reports and Publications sub-database (<i>inter alia</i>) via the unique bibliography code number.
Site Photography	<p>Secondary database containing a maximum of 3 site photographs from the field survey and associated photograph captions. Linked to Core and Survey database via the unique site code number and unique site survey code number.</p> <p>Site Photographs 1, 2 & 3 (<u>Survey Site Photograph 1, 2 & 3</u>) Layout allows 3 site photographs to be imported to represent wetlands on site.</p> <p>Site Photograph Captions 1, 2 & 3 (<u>Survey Site Photograph Caption 1, 2 & 3 UACC</u>). Layout allows 3 site photograph captions to be recorded.</p>
Site Maps and Airphoto	<p>Secondary database containing 3 site maps produced and exported from the GIS dataset after survey was completed (Locations map showing site on OS Discovery Map; Aerial photograph showing site boundary and Habitat Map of the site). Linked to Core and Survey database via the unique site code number and unique site survey code number.</p> <p>Site location Discovery Map (<u>Survey Site locations map image</u>) Layout allows image of wetland site location map based on OS Discovery map to be imported. A caption field for the map is also included (<u>Site Discovery Map Caption UACC</u>).</p> <p>Air photograph site location (<u>Air aerial photograph image</u>) Layout allows image of wetland site location map based on Aerial photograph to be imported. A caption field for the photograph is also included (<u>Site Aerial Photograph Caption UACC</u>).</p> <p>Site Habitat Map (<u>Site habitat map image</u>) Layout allows image of wetland habitat map to be imported. A caption field for the habitat map is also included (<u>Site habitat map image caption UACC</u>).</p> <p>All three of the above can be viewed as enlarged images by selecting the appropriate "Go to enlarged layout" button.</p>
Site Maps Key and Airphoto Copyright	Secondary database with key to habitat maps; OS copyright permission for use of aerial photographs and maps on project and overall site locations map for the survey. Linked to Core and Survey database via the unique site survey code number.
Irish Species Names	Secondary database holding a list of Irish Flora and Fauna names, in English and Latin, used in the compilation of species records from sites and in the compilation of final site reports. Linked to Site Rare Flora , Site Rare Fauna Vertebrate and Site Rare Fauna Invertebrate sub-databases (used by core database) and the Survey Fauna and Survey Flora sub-databases (used by survey database).

5 Wetland Survey 2019 GIS Dataset

The **LEWS GIS Datasets** (ArcView 10.6 GIS software package) hold site related information on each polygon and point feature mapped. Data held in this dataset were converted into MapInfo format at the end of the project period for use by Leitrim County Council.

A detailed explanation of the various GIS files and associated attribute fields is presented in the following sections.

The folder titled '**LEWS 2019 GIS Datasets**' included on the final CD accompanying this report contains the final GIS outputs from the County Leitrim Wetland Survey 2019 (LEWS2019).

Both ArcGIS and MapInfo versions of the final GIS files are included on the CD submitted with the final report. A description of the various files that make up the GIS is presented below along with a description of the various data fields attached to each file.

In general, the methodology used in the preparation of the GIS datasets follows those outlined by Smith *et al.* (2011). See Appendix 1 for information on the various spatial datasets used during the project.

All mapping was carried out using Irish National Grid co-ordinate system on ArcView 10.6.

- All features were attributed with the standard field names for the project.
- Clipping was carried out to ensure that there were no overlapping polygons.
- Expert opinion was used to resolve problem areas.

Most boundary features were obtained from third party datasets (such as subsoil dataset, NPWS survey datasets, and Teagasc habitat mapping etc) and are referenced as such in the relevant attribute field. In many instances digitising of boundaries was carried out by tracing the 1:5000 vector mapping for the county, however where no vector features existed then boundaries followed features on aerial photography at a scale not greater than 1:2000.

5.1 GIS dataset– files and associated data fields

In all, two different GIS shape-files relating to the distribution and extent of freshwater wetland habitats in County Leitrim were produced as summarised in Table 5.1 below. Further details of attributes and data associated with each of the GIS files are presented below.

Table 5.1: LEWS 2019 GIS shapefiles produced during the current study.

GIS File Name	File Description
LEWS 2019 Site Locations	This file shows point locations of all wetland sites identified during the 2019 project.
LEWS 2019 Site Boundaries	This file shows the boundaries of all sites identified during the 2019 project. In some cases where boundaries were not available, provisional boundaries were digitised.

5.1.1 LEWS 2019 Site Locations

This file shows point locations of all LEWS sites identified during the 2019 project. Some of the fields have not been populated but may be of use following any future updates or field surveys. The various attribute fields associated with this file include:

Attribute	Description
Site_Code	A number field containing a unique numeric site code according to that recorded in the site database.
Site_Name	This contains the site name as recorded in the site database.
Site_Type	This is a text field (Main site or Sub-site) indicating whether the record relates to a Main site or Sub-site site. Sub-sites refer to areas that occur within larger main sites and are not indicated by a separate boundary in the site boundary file.
Easting	X coordinate (Easting) of the point location (Irish Transverse Mercator).
Northing	Y coordinate (Northing) of the point location (Irish Transverse Mercator).
Evaluation	Site conservation evaluation according to NRA (2009) guidelines where possible (based on available information).
Site_Descrip	Site description written following the completion of field survey. Not populated.
SurveyMeth	An indication of field data quality or survey method. Coded according to Smith <i>et al.</i> (2011). ¹
SurveyYear	Year field survey was last undertaken.
PhotoRef	Reference to the name of site photograph taken during field survey reports. Not populated.
Designated	NPWS Site Code for the designated site within which a site may occur.
Data_Source	Original data source which first identified the site.

¹ **GIS Data Quality (Survey Method)**

Data quality classification scheme as proposed in the Heritage Council's 2011, Best Practice Guidance for Habitat Survey and Mapping (Smith *et al.* 2011).

- S** = Field data have been collected by *walkover survey* where the habitat has been walked through by the field ecologist, allowing relatively detailed inspection of habitat structure and species composition
- V** = Data have been *field validated* where the habitat has been viewed in the field in less detail, such as a quick look over the hedge or inspection through binoculars from a distance
- DA** = Habitat information is from a *desktop* source that provides *recent* (i.e. within 10-15 years), *high quality* data that permit a confident identification of habitat type and other data, such as a previous survey carried out as part of a research project or EclA or information from a trusted third-party
- DB** = Habitat information is from a *desktop* source that provides *older* (i.e. greater than 10-15 years old), *high quality* data that permit a confident identification of habitat type and other data
- DC** = Habitat information is derived from *desktop* interpretation of *aerial photography* supplemented by additional data sources of good quality, such as those listed in Appendix C
- DD** = Habitat information is derived from *desktop* interpretation of *aerial photography only*.

5.1.2 LEWS 2019 Site Boundaries

This file shows the boundaries of all sites identified during the LEWS2019, where such boundaries were available in digital format or could be drawn with confidence. Some of the fields have not been populated but may be of use following any future updates or field surveys. The various attribute fields associated with this file are as follows:

Attribute	Description
Site_Name	This contains the site name as recorded in the site database.
Site_Code	The site code according to that recorded in the site database.
Shape_Area	A calculation field which automatically calculates the area (square metres) covered by the site polygon.
ConsEvalua	Site conservation evaluation according to NRA (2009) guidelines. Not populated.
SurveyDate	Date on which field survey was undertaken. Not populated.
PolygSourc	This refers to the source dataset of the polygon. In some cases site boundaries were drawn during the LEWS2019 although most polygons originated from third party sources.
SiteDescri	Site description written following the completion of field survey. Mostly not populated.
SurveyYear	Year that field survey was undertaken. Not populated.
Shape_Length	Measure of the length of the sites perimeter.
SiteArea	Area of site in hectares.

Appendix 3

County Leitrim Wetland Survey

Map of potential wetland sites held within the GIS & Site Database and associated site lists

(see Mapbook PDFs of sites in County Leitrim for more detailed map location of sites, on project CD)

County Leitrim Site List

Data presented for each site includes: Site code, Site name, Grid reference (Irish Grid Easting and Northing), Site Type, Designation and Designated Site Code. (An Excel file version of this table is included on the final project disk with this report).

For a complete export of all data held on each site within the LEWS site database see the Excel file (LEWS_Site_List_Summary.xlsx) For an explanation of the data columns in the Excel file see report Appendix 2.

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Designation	Designated Site Code
1	CARROWREVAGH - ARROO MOUNTAIN SAC	187000	347000	Sub-site	SAC, pNHA	001403
2	THE DOONS/DOON LOUGH (N. OF L. GILL) - LOUGH GILL SAC	179600	336400	Sub-site	SAC, pNHA	001976
3	ARROO MOUNTAIN SAC	183000	352000	Main Site	SAC, pNHA	001403 005243
4	LOUGH GILL SAC (LEITRIM)	178237	334653	Main Site	SAC, pNHA	001976
5	BEN BULBEN, GLENIFF AND GLENADE COMPLEX SAC (LEITRIM)	178189	345515	Main Site	SAC, pNHA	000623
6	ARDMEENAN LOUGH cNHA	215000	309800	Main Site	cNHA	002607
7	LOUGH ADORN cNHA	215000	314500	Main Site	cNHA	002609
8	LOUGH ANNAGHMACONWAY cNHA	213200	299700	Main Site	cNHA	002610
9	LOUGH ERRIL cNHA	204800	296500	Main Site	cNHA	002611
10	CLOONFINNAN LOUGH cNHA	205000	295100	Main Site	cNHA	002608
11	LOUGH MACHUGH cNHA	204600	297800	Main Site	cNHA	002612
12	CORRY MOUNTAIN BOG NHA (LEITRIM)	189443	320895	Main Site	NHA	002321
13	DOUGH / THUR MOUNTAINS NHA (EAST)	198107	340191	Main Site	NHA	002384
14	AGHAVOGIL BOG NHA	187300	351300	Main Site	NHA	002430 001401
15	CUILCAGH / ANIERIN UPLANDS SAC (LEITRIM)	202407	317839	Main Site	SAC, pNHA	000584
16	GLENADE LOUGH SAC	182800	346100	Main Site	SAC, pNHA	001919 005284
17	LOUGH ALLEN pNHA (LEITRIM)	196586	319850	Main Site	pNHA	002109
18	BELHAVEL LOUGH cNHA	187594	329002	Main Site	cNHA	002527
19	LOUGH MELVIN SAC (LEITRIM)	186442	355082	Main Site	SAC, pNHA	000428
20	OWENGAR WOOD pNHA	191243	323498	Main Site	pNHA	001419
21	LOUGH BODERG AND LOUGH BOFIN (LEITRIM) pNHA	204378	289277	Main Site	pNHA	001642
22	BOLEYBRACK MOUNTAIN SAC (LEITRIM)	192597	332313	Main Site	SAC, pNHA	002032 005300
23	KILGARRIFF MARSH pNHA	197162	323784	Main Site	pNHA	000426
24	ANNAGEARLY LOUGH pNHA	200389	304159	Main Site	pNHA	001402
25	BOLEYBRACK MOUNTAIN pNHA - BOLEYBRACK MOUNTAIN SAC (LEITRIM)	194000	335000	Sub-site	SAC, pNHA	002032
26	CASHEL BOG (LEITRIM) NHA	208700	290000	Main Site	NHA	001405
27	CLOONAGEEHER BOG (LEITRIM)	210649	285546	Main Site	NHA	001423
28	CORDUFF LOUGH pNHA	217100	312800	Main Site	pNHA	001407
29	CORRACRAMPH BOG	207300	290000	Main Site	NHA	001420
30	CORRY MOUNTAIN NHA (LEITRIM)	190000	320000	Main Site	NHA	002321
32	LOUGH RINN pNHA (LEITRIM)	209807	292994	Main Site	pNHA	001417
33	AGHNAMONA BOG NHA (LEITRIM)	206720	287002	Main Site	NHA	000422
34	RINN RIVER NHA (LEITRIM)	210307	288909	Main Site	NHA	000691
35	CROCKAUNS / KEEOLOGYBOY BOGS NHA (LEITRIM)	177761	339786	Main Site	NHA	002435
36	CLOONCOE WOOD & LOUGH pNHA	211155	291933	Main Site	pNHA	000424
37	BONET RIVER pNHA	185821	343389	Sub-site	pNHA	001404
38	GARADICE LOUGH WOOD pNHA	219000	311000	Main Site	pNHA	001413
39	LOUGH ERREW pNHA	210572	294054	Main Site	pNHA	001807
40	LOUGH SALLAGH SOUTH (LEITRIM)	215911	291896	Main Site	Undesignated Site	
41	CARRICKAPORT LOUGH pNHA	200983	309131	Main Site	pNHA	001920

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Designation	Designated Site Code
42	LOUGH DRUMHARLOW pNHA SPA (LEITRIM)	193358	301296	Main Site	SPA, pNHA	001643 004141
43	GLASSLOUGH LAKE pNHA (LEITRIM)	226595	306096	Main Site	pNHA	000983
44	LOUGH SCANNAL - LOUGH BODERG AND LOUGH BOFIN pNHA (LEITRIM)	204211	290953	Sub-site	pNHA	001642
45	DRUMOD LAKESHORE - LOUGH BODERG AND LOUGH BOFIN pNHA (LEITRIM)	204502	289476	Sub-site	pNHA	001642
46	BELLAGEEHER BOG - RINN RIVER pNHA (LEITRIM)	209810	287399	Sub-site	pNHA	000691
47	LISCLOONADEE BOG	209155	291982	Main Site	Undesignated Site	
48	BUNDUFF LOUGH AND MACHAIR/ TRAWALUA/ MULLAGHMORE SAC	175770	357671	Main Site	SAC, pNHA	000625
49	SLIGO / LEITRIM UPLANDS SPA (LEITRIM)	177509	348549	Main Site	SAC, SPA, pNHA	004187
50	GLENCAR WATERFALL AND LAKE	175000	343000	Main Site	SAC, pNHA	000623
51	URAGH LOUGH	177600	353700	Main Site	Undesignated Site	
52	DRIFFEEN RIVER	177700	342000	Main Site	Undesignated Site	
53	CLOGHMEEN - ARROO MOUNTAIN SAC	186000	346000	Sub-site	SAC, pNHA	001403
54	LEVENAKILLA - CUILCAGH / ANIERIN UPLANDS SAC (LEITRIM)	207000	320000	Sub-site	SAC, pNHA	000584
55	SRADRINAGH - CUILCAGH / ANIERIN UPLANDS SAC (LEITRIM)	201000	318000	Sub-site	SAC, pNHA	000584
56	LOUGH NAHOO cNHA	181280	332140	Sub-site	cNHA	002760
57	LEITRIM TURLOUGH cNHA	197583	304249	Main Site	cNHA	002730
58	EDENTINNY BALLINAMORE	210842	310538	Main Site	Undesignated Site	
59	CLOONEAGH CLOONCARREEN BOG	208952	288621	Main Site	Undesignated Site	
60	CLOONCARREEN BOG AND CUTOVER	209995	288338	Main Site	Undesignated Site	
61	BELLAGEEHER MEELARAGH BOG AND CUTOVER	208225	287798	Main Site	Undesignated Site	
62	CLOONLAUGHIL GUBBADORRIS BOG (LEITRIM)	212241	285755	Main Site	Undesignated Site	
63	GUBBADORRIS BEHY CUTOVER (LEITRIM)	213688	285427	Main Site	Undesignated Site	
64	ROSSBEG TOOMAN BOG	211508	288433	Main Site	Undesignated Site	
65	FEARGLASS SOUTH BEIHY BOG	212863	287962	Main Site	Undesignated Site	
66	DRUMSHANBO SOUTH CUTOVER	214792	289070	Main Site	Undesignated Site	
67	LOUGH CORRY (LEITRIM)	194546	296899	Main Site	Undesignated Site	
68	RINNACURREEN LAKE	195056	297844	Main Site	Undesignated Site	
69	MOUNTCAMPBELL WET WOODLAND	198986	298299	Main Site	Undesignated Site	
70	KILTYCARNEY LAKE	197129	298585	Main Site	Undesignated Site	
71	RINNACURREEN WETLAND	195166	298360	Main Site	Undesignated Site	
72	HEADFORD LOUGH	201098	299039	Main Site	Undesignated Site	
73	DERREEN BUNNY MORE UPPER CUTOVER	203003	298862	Main Site	Undesignated Site	
74	BUNNY BEG	203654	298547	Main Site	Undesignated Site	
75	DRUMCOOLAGAN DRUMHANY SOUTH BOG	207160	299058	Main Site	Undesignated Site	
76	DRUMHANY SOUTH DRUMBOY BOG	207792	298563	Main Site	Undesignated Site	
77	ROSHARRY	209299	298923	Main Site	Undesignated Site	
78	BUNNY BEG WEST CUTOVER	203200	297891	Main Site	Undesignated Site	
79	CARRIGEEN WET WOODLAND - LOUGH MACHUGH	204854	297421	Sub-site	Undesignated Site	
80	MUCKLAGHAN LOUGH	202877	297177	Main Site	Undesignated Site	
81	GORTCONNELLAN OR SPA LOUGH	200423	297740	Main Site	Undesignated Site	
82	DRUMGILRA / GORTINTY LOUGH	201562	295859	Main Site	Undesignated Site	
83	DERRYBRACK CUTOVER	202007	294139	Main Site	Undesignated Site	

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Designation	Designated Site Code
84	ESKER NORTH WET WOODLAND	204594	294914	Main Site	Undesignated Site	
85	BREANROSS GORTNALAMPH CUTOVER	206508	294958	Main Site	Undesignated Site	
86	GORTNALAMPH DRUMARD BOG	207415	294704	Main Site	Undesignated Site	
87	CLOONCAHIR BOG	208839	294628	Main Site	Undesignated Site	
88	CLOONCAHIR NORTH CUTOVER	209140	295569	Main Site	Undesignated Site	
89	DRUMARD (JONES) BOG	208829	293678	Main Site	Undesignated Site	
91	DRUMARD LOUGH	208943	292924	Main Site	Undesignated Site	
92	GORTANURE SOUTH BOG	207774	293133	Main Site	Undesignated Site	
93	ROOSKYNAMONA CLOONBONIAGH BOG	207247	292183	Main Site	Undesignated Site	
94	CLOONBONIAGH LOUGH	206247	292857	Main Site	Undesignated Site	
95	FEARNAGHT NORTH	204472	293426	Main Site	Undesignated Site	
96	KILLYFAD BOG	203146	291624	Main Site	Undesignated Site	
97	BOG LOUGH COMPLEX	204995	291876	Main Site	Undesignated Site	
98	CLOONTURK LOUGH	205715	291484	Main Site	Undesignated Site	
99	CLOONTURK CLOONCORLY	205623	290722	Main Site	Undesignated Site	
100	ROOSKY LOUGH	207551	291431	Main Site	Undesignated Site	
101	GUBAGRAFFY BOG	206850	290971	Main Site	Undesignated Site	
102	ROOSKYNAMONA DERREEN BOG SOUTH	208459	291381	Main Site	Undesignated Site	
103	CASHEL TULCON BOG	209618	290571	Main Site	Undesignated Site	
104	BEAGHMORE LOUGH (LEITRIM)	222520	298772	Main Site	Undesignated Site	
105	GULLADOO LOUGH (LEITRIM) SOUTH	224129	299158	Main Site	Undesignated Site	
106	GULLADOO	225333	298783	Main Site	Undesignated Site	
107	TULLY SOUTH LOUGH (LEITRIM)	221999	297804	Main Site	Undesignated Site	
108	GORTERMONE LOUGH (LEITRIM)	221565	296823	Main Site	Undesignated Site	
109	KILMAKENNY	220210	295937	Main Site	Undesignated Site	
110	DOOGARY LOUGH AND WETLAND (LEITRIM)	220197	295119	Main Site	Undesignated Site	
111	CURRAUN LOUGH	210691	299557	Main Site	Undesignated Site	
112	CARRICK DRUMKEILVY	210537	298951	Main Site	Undesignated Site	
113	ANNAGHMACONWAY GORTNARAH DRUMHALLAGH AND CLOONE LOUGH WETLAND	212651	298527	Main Site	Undesignated Site	
114	ANNAGHMACONWAY GORTNARAH DRUMHALLAGH AND CLOONE LOUGH WETLAND	213609	299594	Main Site	Undesignated Site	
115	ANNAGHMACULLEN LOUGH	214683	299647	Main Site	Undesignated Site	
116	CORRIGA	219778	299234	Main Site	Undesignated Site	
117	RASSAUN CUTOVER	218299	296879	Main Site	Undesignated Site	
118	SUNNAGH MORE EAST BOG	217068	297858	Main Site	Undesignated Site	
119	SUNNAGH MORE CORDUFF SOUTH	216857	296696	Main Site	Undesignated Site	
120	SUNNAGH MORE SOUTH	215796	297472	Main Site	Undesignated Site	
121	LECKNAGH	215843	296572	Main Site	Undesignated Site	
122	KEELDRA LOUGH	214920	296223	Main Site	Undesignated Site	
123	KEELDRA WEST CUTOVER	214216	296583	Main Site	Undesignated Site	
124	DRUMHARKAN CUTOVER	213472	297538	Main Site	Undesignated Site	
125	TULLYORAN POND	210733	297403	Main Site	Undesignated Site	
126	CREENAGH LOUGH	210559	296220	Main Site	Undesignated Site	
127	RINN QUARRY LAKE	210658	294770	Main Site	Undesignated Site	
128	MUCKANAGH DRUMGOWNAGH BOG	213783	294540	Main Site	Undesignated Site	
129	DRUMCONNY BOG	214233	295355	Main Site	Undesignated Site	
130	KEELDRA CATTAN BOG	214984	295268	Main Site	Undesignated Site	
131	DRUMGOWNAGH CATTAN BOG	215061	294524	Main Site	Undesignated Site	
132	DRUMADORN CATTAN BOG	215603	295432	Main Site	Undesignated Site	
133	CATTAN BOG	215727	294421	Main Site	Undesignated Site	

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Designation	Designated Site Code
134	DRUMADORN CORDUFF SOUTH BOG	216325	295744	Main Site	Undesignated Site	
135	CLOONCOSE CUTOVER	217463	294810	Main Site	Undesignated Site	
136	KILMAKENNY WEST	219002	294728	Main Site	Undesignated Site	
137	LOUGH NABELWY (LEITRIM)	218906	293692	Main Site	Undesignated Site	
138	CLOONCOSE LOUGH (LEITRIM)	217921	292689	Main Site	Undesignated Site	
139	FEARGLASS NORTH WETLAND	216751	292900	Main Site	Undesignated Site	
140	FEARGLASS LOUGH (LEITRIM)	217304	292034	Main Site	Undesignated Site	
141	DRUMGOWNAGH WEST BOG	214439	294090	Main Site	Undesignated Site	
142	ANNAGHMORE EAST BOG	214381	293468	Main Site	Undesignated Site	
143	LEAR ANNAGHMORE	213373	292900	Main Site	Undesignated Site	
144	CLOONCOE QUARRY PONDS	210700	293397	Main Site	Undesignated Site	
145	DRUMGILRA DRUMGRANIA BOG COMPLEX	213336	290878	Main Site	Undesignated Site	
146	DRUMSHANBO LOUGH COMPLEX (LEITRIM)	214651	291032	Main Site	Undesignated Site	
147	DRUMHASS BOG (LEITRIM)	215378	290971	Main Site	Undesignated Site	
148	SHANCURRY LOUGH	194384	309947	Main Site	Undesignated Site	
149	DEFFIER	195309	308008	Main Site	Undesignated Site	
150	ACRES LOUGH	196705	309884	Main Site	Undesignated Site	
151	DERRYNAHOO LOUGH	196903	309098	Main Site	Undesignated Site	
152	LUSTIA LOUGH	197716	308871	Main Site	Undesignated Site	
153	DRUMKEELAN LOUGH	197440	308505	Main Site	Undesignated Site	
154	DRUMGORMAN LOUGH	196264	308090	Main Site	Undesignated Site	
155	SHEEMORE WOOD AND LAKE - SHEEMORE WOOD pNHA	199443	304955	Main Site	pNHA	001421
156	COSTRE LOUGH	199189	302561	Main Site	Undesignated Site	
157	BARN LOUGH	196295	302807	Main Site	Undesignated Site	
158	CARRICKEYVY LOUGH	196059	303598	Main Site	Undesignated Site	
159	KILMADDAROE LOUGH	197681	301833	Main Site	Undesignated Site	
160	LISMANNAGH	199828	301366	Main Site	Undesignated Site	
161	KNOCKATEEAN	192648	318859	Main Site	Undesignated Site	
162	CORMONGAN SOUTH WET WOODLAND	197665	316015	Main Site	Undesignated Site	
163	CORMONGAN NORTH WET WOODLAND	197511	316658	Main Site	Undesignated Site	
164	ROSCUNNISH LOUGH	198940	311303	Main Site	Undesignated Site	
165	DERRYHALLAGH LOUGH	198524	311250	Main Site	Undesignated Site	
166	CORRACHUILL	196855	311460	Main Site	Undesignated Site	
167	ARDCOLUM LOUGH	195973	310077	Main Site	Undesignated Site	
168	WOODFORD LOUGHS NORTH AND SOUTH	220445	312036	Main Site	Undesignated Site	
169	DERRYNIGGIN	221749	311198	Main Site	Undesignated Site	
170	WOODFORD DEMESNE CUTOVER	221291	311473	Main Site	Undesignated Site	
171	GARADICE LOUGH	218053	311203	Main Site	Undesignated Site	
172	LUGNAGON (LEITRIM)	223736	310295	Main Site	Undesignated Site	
173	DERNAHELTY MORE NORTH	208888	316901	Main Site	Undesignated Site	
174	GUBNAVEAGH SOUTH	206250	316538	Main Site	Undesignated Site	
175	KNOCKACULLION SOUTH	205566	314777	Main Site	Undesignated Site	
176	MAYO WETLAND	209647	312056	Main Site	Undesignated Site	
177	DERREEN AGLIN	205988	312519	Main Site	Undesignated Site	
178	AGHACASHEL CUTOVER	204345	313083	Main Site	Undesignated Site	
179	AGHAGRANIA	200185	311699	Main Site	Undesignated Site	
180	LISCARBAN EDENAVOW	201281	311432	Main Site	Undesignated Site	
181	ROSCUNNISH	202840	310758	Main Site	Undesignated Site	
182	CRUMMY DRUMINEIGH GLEBE	204050	311142	Main Site	Undesignated Site	

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Designation	Designated Site Code
183	CORRACHOOSAUN LOUGH	206291	310695	Main Site	Undesignated Site	
184	LOUGH NACARRIGA	207221	310322	Main Site	Undesignated Site	
185	ST JOHNS LOUGH NORTH	208295	310904	Main Site	Undesignated Site	
186	ST JOHNS LOUGH MIDDLE	209110	310020	Main Site	Undesignated Site	
187	LOUGH MOODRIKE	208170	310052	Main Site	Undesignated Site	
188	LUGNAGON CLOONCOSE	222408	309338	Main Site	Undesignated Site	
189	CORRACAR	223068	308730	Main Site	Undesignated Site	
190	CLOONBOYGHHER LOUGH AND WETLAND	220164	307604	Main Site	Undesignated Site	
191	DRUMLEEVAN WEST	223359	307630	Main Site	Undesignated Site	
192	LAHEEN LOUGH	226008	307178	Main Site	Undesignated Site	
193	KILNAMAR LOUGH	225954	306031	Main Site	Undesignated Site	
194	DUMB LOUGH	225515	304569	Main Site	Undesignated Site	
195	CLOONCORICK LOUGH	224028	304461	Main Site	Undesignated Site	
196	CALLOUGHS LOUGH	222576	304873	Main Site	Undesignated Site	
197	DRUMINSHIN GLEBE CUTOVER	220516	303397	Main Site	Undesignated Site	
198	CARRIGALLEN LOUGH	222989	303308	Main Site	Undesignated Site	
199	GANGIN AND MOSYS LOUGHS	223894	302720	Main Site	Undesignated Site	
200	AGHAVORE NORTH	225701	303665	Main Site	Undesignated Site	
201	ROCKFIELD LOUGH (LEITRIM)	227169	303469	Main Site	Undesignated Site	
202	DRUMHART LOUGH (LEITRIM) AND WETLAND	227069	302591	Main Site	Undesignated Site	
203	CULLIES LOUGH	226010	301524	Main Site	Undesignated Site	
204	GULLADOO LOUGH (LEITRIM) NORTH	224937	300420	Main Site	Undesignated Site	
205	DRUMBREANLIS	225395	301510	Main Site	Undesignated Site	
206	AGHAWILLIN	223045	301208	Main Site	Undesignated Site	
207	MULLANADARRAGH LOUGH	221233	301441	Main Site	Undesignated Site	
208	LOUGH ARUDDA	200106	343499	Main Site	Undesignated Site	
209	CORRACLOONA LAKE	200503	343389	Main Site	Undesignated Site	
210	LOUGH ADEREEN	200442	339765	Main Site	Undesignated Site	
211	ANNAGH BOG WOODLAND	201826	338333	Main Site	Undesignated Site	
212	ANNAGH BOG	201902	337791	Main Site	Undesignated Site	
213	BROCKAGH UPPER	200774	335017	Main Site	Undesignated Site	
214	LOUGH CAECH OR BLIND LOUGH	202271	309723	Main Site	Undesignated Site	
215	LOUGH SCUR	202779	308506	Main Site	Undesignated Site	
216	DRINY DRUMHUBBRID BOG	204153	309578	Main Site	Undesignated Site	
217	LOUGH MARRAVE AND WETLAND	204835	308572	Main Site	Undesignated Site	
218	CASTLEFORE LOUGH	205875	308249	Main Site	Undesignated Site	
219	KILTYFINNAN LOUGH	205997	309604	Main Site	Undesignated Site	
220	LOUGH MOREOGE	207820	309691	Main Site	Undesignated Site	
221	ST JOHNS LOUGH SOUTH	208373	309078	Main Site	Undesignated Site	
222	LOUGH REANE	209862	309107	Main Site	Undesignated Site	
223	DRUMLAHEEN LOUGH EAST	209140	307096	Main Site	Undesignated Site	
224	DRUMLAHEEN LOUGH WEST	208198	307638	Main Site	Undesignated Site	
225	ROWAN LOUGH	208494	305917	Main Site	Undesignated Site	
226	DRUMINGNA ANNAGHADERG	205415	307449	Main Site	Undesignated Site	
227	KESHARRIGAN LOUGH AND WETLAND	203978	307041	Main Site	Undesignated Site	
228	DOOLOUGHAN LOUGH (KESHARRIGAN)	202925	307478	Main Site	Undesignated Site	
229	DRUMALEAGUE LOUGH	201298	307335	Main Site	Undesignated Site	
230	LOUGH CONWAY	200303	307322	Main Site	Undesignated Site	
231	AGHAKILCONNELL LOUGH	201716	304546	Main Site	Undesignated Site	
232	KILNAGROSS	202716	305052	Main Site	Undesignated Site	

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Designation	Designated Site Code
233	SCARDAUN LOUGH	206036	305475	Main Site	Undesignated Site	
234	DRUMCOLLOP LOUGH	207090	305324	Main Site	Undesignated Site	
235	GARADICE DRUMCOLLOP WETLAND	206423	304657	Main Site	Undesignated Site	
236	FUNSHINAGH LOUGH	206124	304385	Main Site	Undesignated Site	
237	SELTAN LOUGH	209193	304496	Main Site	Undesignated Site	
238	GARVAGH	209002	302792	Main Site	Undesignated Site	
239	ANNAGHASNA	202385	303292	Main Site	Undesignated Site	
240	LOUGHTOWN LOUGH	201402	302825	Main Site	Undesignated Site	
241	EFFRINAGH LOUGH	200179	303141	Main Site	Undesignated Site	
242	EFFRINAGH CORLISHEEN CUTOVER	200361	302112	Main Site	Undesignated Site	
243	STUCK CUTOVER	205873	300141	Main Site	Undesignated Site	
244	TULRUSK	206402	301400	Main Site	Undesignated Site	
245	ANNAGHDRUMCARN BOG AND WOODLAND	207730	300537	Main Site	Undesignated Site	
246	TULLY LOUGH	210323	309818	Main Site	Undesignated Site	
247	MOUGH ARDRUM	211826	309693	Main Site	Undesignated Site	
248	DRUMCOURA LOUGH	215893	308582	Main Site	Undesignated Site	
249	LOUGH AWADDY	216242	309326	Main Site	Undesignated Site	
250	CUILMORE CARRICKMAKEEGAN BOG	216827	309627	Main Site	Undesignated Site	
251	DRUMCOURA BOG	217030	308505	Main Site	Undesignated Site	
252	MULLAGHBOY LOUGH	218102	309195	Main Site	Undesignated Site	
253	CORRAWALEEN MULLAGHBOY BOG AND WOODLAND	219052	307935	Main Site	Undesignated Site	
254	KEELRIN SOUTH WET WOODLAND	218943	309049	Main Site	Undesignated Site	
255	DRUMLEA LOUGH	217395	307152	Main Site	Undesignated Site	
256	KEENHEEN LOUGH	216520	307403	Main Site	Undesignated Site	
257	DRUMCOURA DRUMDIFFER	215401	307771	Main Site	Undesignated Site	
258	GUBS DRUMANY (BEIRNE)	213609	307067	Main Site	Undesignated Site	
259	LISSAGARVAN NORTH	212313	307022	Main Site	Undesignated Site	
260	FENAGH LOUGH	210727	306875	Main Site	Undesignated Site	
261	DRUMROOSK LOUGH	211172	305508	Main Site	Undesignated Site	
262	LOUGH AGUINNEEN	211119	304007	Main Site	Undesignated Site	
263	LITTLE LOUGH	215582	305754	Main Site	Undesignated Site	
264	BLACK LOUGH	215696	304502	Main Site	Undesignated Site	
265	LOUGH DONOGHER	216606	304571	Main Site	Undesignated Site	
266	CORRALA LOUGH	219472	305775	Main Site	Undesignated Site	
267	KILLAMEEN LOUGH	218866	304947	Main Site	Undesignated Site	
268	BLACK LOUGH (CORRALA)	219789	304785	Main Site	Undesignated Site	
269	FORT LOUGH	218580	304132	Main Site	Undesignated Site	
270	AGHADRUMINSHIN CUTOVER	219906	303685	Main Site	Undesignated Site	
272	KILLYFEA BOGS EAST AND WEST	217805	302158	Main Site	Undesignated Site	
273	LOUGH CAM	216178	303748	Main Site	Undesignated Site	
274	CLOONE LOUGH	216006	303311	Main Site	Undesignated Site	
275	SUNNAGHGINNITY LOUGH AND WETLAND	213259	303243	Main Site	Undesignated Site	
276	ADOON LOUGH	211299	302621	Main Site	Undesignated Site	
277	KILLYLEA LOUGH AND WETLAND	213919	301064	Main Site	Undesignated Site	
278	DRUMSHANBO NORTH CUTOVER	216002	300844	Main Site	Undesignated Site	
279	SUNNAGH MORE NORTH BOG	216483	300077	Main Site	Undesignated Site	
280	AGHAVAS SOUTH CUTOVER	218395	300098	Main Site	Undesignated Site	
281	DERRADDA	214410	316059	Main Site	Undesignated Site	
282	GLEBE LOUGH AND BOG (LEITRIM)	219399	314405	Main Site	Undesignated Site	

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283	MULNAVANNOGE	214729	315193	Main Site	Undesignated Site	
284	DERNASMALLAN WETLAND	211069	314481	Main Site	Undesignated Site	
285	DRUMBAD WETLAND	211190	313960	Main Site	Undesignated Site	
286	LISCUILFEA CALLOWHILL WETLAND	211217	313267	Main Site	Undesignated Site	
287	CALLOWHILL LOUGH	210748	313428	Main Site	Undesignated Site	
288	CAMAGH LOUGH	212254	313603	Main Site	Undesignated Site	
289	GEORGES LOUGH	212413	312645	Main Site	Undesignated Site	
290	DROMORE LOUGH	213836	313661	Main Site	Undesignated Site	
291	BOLGANARD LOUGH	215072	312468	Main Site	Undesignated Site	
292	CORGAR LOUGH	215577	312275	Main Site	Undesignated Site	
293	DROMLONAN LOUGHS	216352	312643	Main Site	Undesignated Site	
294	DRUMCULLION CORDUFF WETLAND	216791	313132	Main Site	Undesignated Site	
295	GLEBE SOUTH WETLAND	219105	313804	Main Site	Undesignated Site	
296	KEELRIN NORTH WET WOODLAND	219091	310145	Main Site	Undesignated Site	
297	KILRUSH AGHYOWLA WETLAND	215839	311304	Main Site	Undesignated Site	
298	CLEENAGHOO WETLAND	214753	310838	Main Site	Undesignated Site	
299	WILLOWFIELD LOUGH	213851	310922	Main Site	Undesignated Site	
300	CREEVY GOLF COURSE PONDS	210803	311865	Main Site	Undesignated Site	
301	COOLLEGREANE BOG	197620	329105	Main Site	Undesignated Site	
302	GLASDRUMMAN BEG	190543	326977	Main Site	Undesignated Site	
303	DERRYLUSTIA	190860	326413	Main Site	Undesignated Site	
304	MAHANAGH LOUGH	196436	325239	Main Site	Undesignated Site	
305	KIGARRIFF CUILTIA LAKE - LOUGH ALLEN pNHA	198015	324094	Sub-site	Undesignated Site	
306	FAHY DRUMINALASS LAKE - LOUGH ALLEN pNHA	198449	323300	Sub-site	Undesignated Site	
307	YUGAN LOUGH	198624	322493	Main Site	Undesignated Site	
308	DERRINVONEY AND DRUMMANS LOWER - LOUGH ALLEN pNHA	193487	323668	Sub-site	Undesignated Site	
309	FAHY - LOUGH ALLEN pNHA	198254	321284	Sub-site	Undesignated Site	
310	CLEIGHAN BEG - LOUGH ALLEN pNHA	198389	321035	Sub-site	Undesignated Site	
311	GREAGHNAFARNA WEST CUTOVER (LEITRIM)	179226	325806	Main Site	Undesignated Site	
312	GREAGHNAFARNA SOUTH WEST BOG AND CUTOVER	179340	325118	Main Site	Undesignated Site	
313	CADDAGH GLEBE	182306	328232	Main Site	Undesignated Site	
314	DERRINAHAR DRUMCONOR CUTOVER	184372	328523	Main Site	Undesignated Site	
315	CORRASRA DRUMDUFFY	187424	328351	Main Site	Undesignated Site	
316	SHIVDELAGH	188920	327415	Main Site	Undesignated Site	
317	KILLAVOGGY WET WOODLAND	184703	326179	Main Site	Undesignated Site	
318	CORCLANCEY BOG	181866	326877	Main Site	Undesignated Site	
319	SCACUMMER TULLYNASCREEN COMPLEX	180666	325264	Main Site	Undesignated Site	
320	GARVAGH GLEBE BOG	184242	324537	Main Site	Undesignated Site	
321	LISGAVNEEN LECKAUN BOLEYBAUN CUTOVER COMPLEX	187011	325009	Main Site	Undesignated Site	
322	LETTER KNOCKNACOSKA	187692	323839	Main Site	Undesignated Site	
323	SELTAN	187229	322260	Main Site	Undesignated Site	
324	STONEPARK LOUGH	179298	332188	Main Site	Undesignated Site	
325	BALLINAMORE CANAL	211805	311903	Main Site	Undesignated Site	
326	LEEAN	180672	339788	Main Site	Undesignated Site	
327	ROSS LAKE	188250	338407	Main Site	Undesignated Site	
328	LARKFIELD BOG COMPLEX	188919	335478	Main Site	Undesignated Site	
329	CLOONLOGHER LOUGH AND WETLANDS	187115	337063	Main Site	Undesignated Site	

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Designation	Designated Site Code
330	LARKFIELD LOUGH	187652	336703	Main Site	Undesignated Site	
331	CLOONAQUIN LOUGH	185892	336065	Main Site	Undesignated Site	
332	BLACK LOUGH (GORTNASKEAGH)	184847	337613	Main Site	Undesignated Site	
333	LOUGH ANARRY	181963	334163	Main Site	Undesignated Site	
334	BOIHY	184807	335274	Main Site	Undesignated Site	
335	TULLINLOUGHAN LOUGH	189932	331964	Main Site	Undesignated Site	
336	CARRIGEENCOR LOUGH	183172	333761	Main Site	Undesignated Site	
337	LOUGH NAHOO AND WETLANDS	181249	332382	Main Site	Undesignated Site	
338	KILLALEEN LOUGH	181535	330977	Main Site	Undesignated Site	
339	CONAGHIL WET WOODLAND - LOUGH GILL SAC (LEITRIM)	183220	331366	Sub-site	pNHA, SAC	001976
340	MUNAKILL MORE LOUGH	192995	338694	Main Site	Undesignated Site	
341	MUNAKILL LAKE EAST	193590	338379	Main Site	Undesignated Site	
342	CORNACLOY CUTOVER	194868	338646	Main Site	Undesignated Site	
343	GORTNADERRARY BOG NORTH	195980	346870	Main Site	Undesignated Site	
344	GORTNADERRARY LAKE	195990	345767	Main Site	Undesignated Site	
345	LATTON LOUGH (LEITRIM)	199905	345325	Main Site	Undesignated Site	
346	DEANS LOUGH (LEITRIM)	198302	345547	Main Site	Undesignated Site	
347	LOUGH GILLAGANLEANE	195487	344854	Main Site	Undesignated Site	
348	RAHEELIN COOLDONNELL BOG	193894	344923	Main Site	Undesignated Site	
349	LISDARUSH CUTOVER EAST	193328	344658	Main Site	Undesignated Site	
350	LISDARUSH BOG COMPLEX	192447	344970	Main Site	Undesignated Site	
351	POLLALOUGHAN	198625	343358	Main Site	Undesignated Site	
352	UPPER LOUGH MACNEAN (LEITRIM)	202374	340314	Main Site	Undesignated Site	
354	DOUGH / THUR MOUNTAINS NHA (WEST)	193676	342863	Main Site	NHA	002384
355	DERRYNASEER CUTOVER (LEITRIM)	190001	356236	Main Site	Undesignated Site	
356	ROOSKY ARDAGH WET WOODLAND	190437	351866	Main Site	SAC / pNHA	000428
357	ASKILL BOG	187834	356557	Main Site	Undesignated Site	
358	DERRYHERK BOG	185403	356655	Main Site	Undesignated Site	
359	ASKILL BOG SOUTH	187739	355758	Main Site	Undesignated Site	
360	CLOGHAN WET WOODLAND	189250	352067	Main Site	Undesignated Site	
361	BUCKODE WET WOODLAND	186975	352782	Main Site	Undesignated Site	
362	AGHAVOGHIL CUTOVER	185752	351128	Main Site	Undesignated Site	
363	TAWNYTALLAN	178265	357076	Main Site	Undesignated Site	
364	TAWLY WEST CUTOVER	173749	354729	Main Site	Undesignated Site	
365	TAWLY BOG (LEITRIM)	175053	355610	Main Site	Undesignated Site	
366	WARDHOUSE DERRINLOUGHAN BOG COMPLEX	177130	356094	Main Site	Undesignated Site	
367	DERRINLOUGHAN BOG	177217	354941	Main Site	Undesignated Site	
368	DERRINLOUGHAN AGHAROO URAGH BOG COMPLEX	179069	355210	Main Site	Undesignated Site	
369	CORNAGEEHA BOG COMPLEX	177942	353208	Main Site	Undesignated Site	
370	URAGH TWALY BOG AND LAKE COMPLEX	176712	353631	Main Site	Undesignated Site	
371	CLOONTY BOG COMPLEX	173765	352946	Main Site	Undesignated Site	
372	CLOONTY LOUGH (LEITRIM)	172685	353001	Main Site	Undesignated Site	
373	CARROWNOONA BOG	178786	351726	Main Site	Undesignated Site	
374	LARGYDONNELL LAKE	179350	351443	Main Site	Undesignated Site	
375	AGHNAHAHA GORTNACRIEVE BOG COMPLEX	190623	347144	Main Site	Undesignated Site	
376	TULLY CARRICKGOAN FENAGH CARRICKEENY BOG COMPLEX	182763	343133	Main Site	Undesignated Site	
377	DROMORE WETLAND	181187	341302	Main Site	Undesignated Site	
378	GREAGHNAFARNA CUTOVER	182803	323471	Main Site	Undesignated Site	

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Designation	Designated Site Code
	COMPLEX (LEITRIM)					
381	FINNALAGHTA QUARRY POND	203900	293960	Main Site	Undesignated Site	
382	RIVER SHANNON (LEITRIM)	193388	299558	Main Site	Undesignated Site	
383	RIVER FRONT AMENITY PARK	194170	299325	Main Site	Undesignated Site	
384	LOUGH ALLEN CANAL	195853	309644	Main Site	Undesignated Site	
385	AGHADARK PONDS	212224	311550	Main Site	Undesignated Site	
386	FENAGH CONSTRUCTED WETLAND	211238	307586	Main Site	Undesignated Site	
387	NEWTOWNGORE CONSTRUCTED WETLAND	221329	310615	Main Site	Undesignated Site	
388	KESHCARRIGAN CONSTRUCTED WETLAND	203502	307724	Main Site	Undesignated Site	
389	KILROOSK GRASSLAND	188770	343681	Main Site	Undesignated Site	
390	GUBACREENY GRASSLAND - LOUGH MELVIN SAC	180617	343681	Sub-site	pNHA, SAC	000428
391	KINLOUGH WOOD pNHA	182832	354704	Main Site	pNHA	001415
392	CORNACORROO WETLAND	195864	296416	Main Site	Undesignated Site	
393	CARRICKFAD BOG	177632	337778	Main Site	Undesignated Site	
394	LOUGH SALLAGH pNHA	211071	294763	Main Site	pNHA	001808

Appendix 4

Site Evaluation Criteria

Modified from National Roads Authority (2009). Guidelines for Assessment of Ecological Impacts of National Roads Schemes.

Rating	Importance of Ecological Sites
A	<p>Internationally important</p> <p>Sites designated (or qualifying for designation) as SAC* or SPA* under the EU Habitats or Birds Directives. Undesignated sites containing good examples of Annex I <u>priority</u> habitats under the EU Habitats Directive. Sites designated (or qualifying for designation) as SAC* for salmonids or Annex II species under the EU Habitats Directives. Major salmon river fisheries. Major salmonid (salmon, trout or char) lake fisheries.</p>
B	<p>Nationally important</p> <ul style="list-style-type: none"> • Sites or waters designated or proposed as an NHA* or statutory Nature Reserves. • Undesignated sites containing good examples of Annex I habitats (under EU Habitats Directive). • Undesignated sites containing <u>significant numbers</u> of resident or regularly occurring populations of Annex II species under the EU Habitats Directive or Annex I species under the EU Birds Directive or species protected under the Wildlife (Amendment) Act 2000. • Major trout river fisheries. • Water bodies with major amenity fishery value. • Commercially important coarse fisheries.
C+	<p>County value</p> <p>Area of Special Amenity. Area subject to a Tree Preservation Order. Area of High Amenity, or equivalent, designated under the County Development Plan. Resident or regularly occurring populations (assessed to be important at the County level) of the following:</p> <ul style="list-style-type: none"> • Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; • Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; • Species protected under the Wildlife Acts; and/or • Species listed on the relevant Red Data list. <p>Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance. County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified in the National or Local BAP, if this has been prepared. Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.</p>
C	<p>High value, locally important</p> <p>Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or significant populations of locally rare species. Sites containing any resident or regularly occurring populations of Annex II species under the EU Habitats Directive or Annex I species under the EU Birds Directive. Small water bodies with known salmonid populations or with good potential salmonid habitat. Large water bodies with some coarse fisheries value.</p>
D	<p>Moderate value, locally important</p> <p>Sites containing some semi-natural habitat or locally important for wildlife. Small water bodies with some coarse fisheries value or some potential salmonid habitat. Any water body with unpolluted water (Q-value rating 4-5).</p>
E	<p>Low value, locally important</p> <p>Artificial or highly modified habitats with low species diversity and low wildlife value. Water bodies with no current fisheries value and no significant potential fisheries value.</p>
F	<p>Unknown Value</p> <p>Sites of possible ecological value which require further investigation at the optimum season to establish importance. Sites of possible fisheries value requiring further survey.</p>

* SAC = Special Area of Conservation, SPA = Special Protection Area, NHA = Natural Heritage Area

Appendix 5A

County Leitrim Wetland Survey Site List Summary

For a complete list of all data held on each of the sites within the Site Database see the Excel file (Leitrim All Data Sites.xls) included on the Project CD Rom.

List is presented sorted by site code.

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
LE1	CARROWREVAGH - ARROO MOUNTAIN SAC	187000	347000	Sub-site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	1990	SAC	001403	A Rating: Internationally Important	202.14
LE2	THE DOONS/DOON LOUGH (N. OF L. GILL) - LOUGH GILL SAC	179600	336400	Sub-site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	1990's	pNHA, SAC	001976	A Rating: Internationally Important	15.29
LE3	ARROO MOUNTAIN SAC	183000	352000	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	2013	SAC, ASI, cNHA, pNHA	001403 005243	A Rating: Internationally Important	3967.90
LE4	LOUGH GILL SAC (LEITRIM)	178237	334653	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	2009	SAC, ASI, pNHA, cNHA	001976	A Rating: Internationally Important	1605.82
LE5	BEN BULBEN, GLENIFF AND GLENADE COMPLEX SAC (LEITRIM)	178189	345515	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	2013	SAC, pNHA, cNHA	000623	A Rating: Internationally Important	2829.62
LE6	ARDMEENAN LOUGH cNHA	215000	309800	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	1986	Undesignated site, cNHA	002607	C+ Rating: County Conservation value	38.39
LE7	LOUGH ADORN cNHA	215000	314500	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	1986	Undesignated site, cNHA	002609	C+ Rating: County Conservation value	20.55
LE8	LOUGH ANNAGHMACONWAY cNHA	213200	299700	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	1986	Undesignated site, cNHA	002610	C+ Rating: County Conservation value	23.39
LE9	LOUGH ERRIL cNHA	204800	296500	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	NA	Undesignated site, cNHA	002611	C+ Rating: County Conservation value	53.20
LE10	CLOONFINNAN LOUGH cNHA	205000	295100	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	NA	Undesignated site, cNHA	002608	C+ Rating: County Conservation value	37.99
LE11	LOUGH MACHUGH cNHA	204600	297800	Main Site	NPWS Foss 2007 Study of the extent and conservation	YES	NA	Undesignated site, cNHA	002612	C+ Rating: County	29.33

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
					status of Springs, Fens and Flushes in Ireland					Conservation value	
LE12	CORRY MOUNTAIN BOG NHA (LEITRIM)	189443	320895	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	1990's	NHA	002321	B Rating: Nationally Important	959.15
LE13	DOUGH / THUR MOUNTAINS NHA (EAST)	198107	340191	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	1990's	NHA	002384	B Rating: Nationally Important	548.57
LE14	AGHAVOGIL BOG NHA	187300	351300	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	2009	NHA	002430 001401	B Rating: Nationally Important	961.66
LE15	CUILCAGH / ANIERIN UPLANDS SAC (LEITRIM)	202407	317839	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	2013	SAC, pNHA, cNHA	000584	A Rating: Internationally Important	3582.30
LE16	GLENADE LOUGH SAC	182800	346100	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	2009	SAC, ASI, cNHA, pNHA	001919 005284	A Rating: Internationally Important	115.10
LE17	LOUGH ALLEN pNHA (LEITRIM)	196586	319850	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	2017	pNHA, ASI, cNHA	002109 000426	B Rating: Nationally Important	3020.82
LE18	BELHAVEL LOUGH cNHA	187594	329002	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	2009	Undesignated site, cNHA	002527	C+ Rating: County Conservation value	101.59
LE19	LOUGH MELVIN SAC (LEITRIM)	186442	355082	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	2009	ASI, SAC, pNHA, cNHA	000428	A Rating: Internationally Important	2168.02
LE20	OWENGAR WOOD pNHA	191243	323498	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	1990's	pNHA, ASI	001419	B Rating: Nationally Important	13.01
LE21	LOUGH BODERG AND LOUGH BOFIN (LEITRIM) pNHA	204378	289277	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	2004	pNHA	001642	B Rating: Nationally Important	619.74
LE22	BOLEYBRACK	192597	332313	Main	NPWS Foss 2007 Study of	YES	2009	SAC, cNHA,	002032	A Rating:	3378.93

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
	MOUNTAIN SAC (LEITRIM)			Site	the extent and conservation status of Springs, Fens and Flushes in Ireland			pNHA	005300	Internationally Important	
LE23	KILGARRIFF MARSH pNHA	197162	323784	Main Site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	1990's	pNHA	000426	B Rating: Nationally Important	72.76
LE24	ANNAGEARLY LOUGH pNHA	200389	304159	Main Site	Irish Peatland Conservation Council 2012	YES	1990's	pNHA, ASI	001402	B Rating: Nationally Important	21.74
LE25	BOLEYBRACK MOUNTAIN pNHA - BOLEYBRACK MOUNTAIN SAC (LEITRIM)	194000	335000	Sub-site	NPWS Foss 2007 Study of the extent and conservation status of Springs, Fens and Flushes in Ireland	YES	1990	SAC, pNHA	002032	A Rating: Internationally Important	
LE26	CASHEL BOG (LEITRIM) NHA	208700	290000	Main Site	Irish Peatland Conservation Council 2012	YES	2018	NHA	001405	B Rating: Nationally Important	128.59
LE27	CLOONAGEEHER BOG (LEITRIM)	210649	285546	Main Site	Irish Peatland Conservation Council 2012	YES	1986	NHA , De-designated NHA	001423	B Rating: Nationally Important	136.81
LE28	CORDUFF LOUGH pNHA	217100	312800	Main Site	Irish Peatland Conservation Council 2012	YES	2009	pNHA, ASI	001407	B Rating: Nationally Important	8.64
LE29	CORRACRAMPH BOG	207300	290000	Main Site	Irish Peatland Conservation Council 2012	YES	1986	NHA , ASI, De-designated NHA	001420	B Rating: Nationally Important	222.68
LE30	CORRY MOUNTAIN NHA (LEITRIM)	190000	320000	Main Site	Irish Peatland Conservation Council 2012	YES	1990's	NHA	002321	B Rating: Nationally Important	40.36
LE32	LOUGH RINN pNHA (LEITRIM)	209807	292994	Main Site	Irish Peatland Conservation Council 2012	YES	2009	pNHA, ASI	001417	B Rating: Nationally Important	284.13
LE33	AGHNAMONA BOG NHA (LEITRIM)	206720	287002	Main Site	NPWS Service Conservation Worthy site list (on-line resource)	YES	2018	NHA	000422	B Rating: Nationally Important	349.31
LE34	RINN RIVER NHA (LEITRIM)	210307	288909	Main Site	NPWS Service Conservation Worthy site list (on-line resource)	YES	2009	NHA	000691	B Rating: Nationally Important	169.65
LE35	CROCKAUNS / KEELOGYBOY BOGS NHA (LEITRIM)	177761	339786	Main Site	NPWS Service Conservation Worthy site list (on-line resource)	YES	2009	NHA	002435	B Rating: Nationally Important	567.20

County Leitrim Wetland Survey

Wetland Surveys Ireland 2019

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
LE36	CLOONCOE WOOD & LOUGH pNHA	211155	291933	Main Site	NPWS Service Conservation Worthy site list (on-line resource)	YES	2004	pNHA	000424	B Rating: Nationally Important	89.54
LE37	BONET RIVER pNHA - LOUGH GILL SAC (LEITRIM)	185821	343389	Sub-site	NPWS Service Conservation Worthy site list (on-line resource)	YES	1990's	pNHA, SAC	001404 001976	A Rating: Internationally Important	
LE38	GARADICE LOUGH WOOD pNHA	219000	311000	Main Site	NPWS Service Conservation Worthy site list (on-line resource)	YES	1990's	pNHA, ASI	001413	B Rating: Nationally Important	2.62
LE39	LOUGH ERREW pNHA	210572	294054	Main Site	NPWS Service Conservation Worthy site list (on-line resource)	YES	1990's	pNHA, ASI	001807	B Rating: Nationally Important	55.29
LE40	LOUGH SALLAGH SOUTH (LEITRIM)	215896	291720	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	34.75
LE41	CARRICKAPORT LOUGH pNHA	200983	309131	Main Site	NPWS Service Conservation Worthy site list (on-line resource)	YES	2009	pNHA, cNHA	001920	B Rating: Nationally Important	75.38
LE42	LOUGH DRUMHARLOW pNHA (LEITRIM)	193358	301296	Main Site	NPWS Service Conservation Worthy site list (on-line resource)	YES	2013	pNHA	001643	B Rating: Nationally Important	91.30
LE43	GLASSLOUGH LAKE pNHA (LEITRIM)	226595	306096	Main Site	NPWS Service Conservation Worthy site list (on-line resource)	YES	1990's	pNHA	000983	B Rating: Nationally Important	11.90
LE44	LOUGH SCANNAL - LOUGH BODERG AND LOUGH BOFIN pNHA (LEITRIM)	204211	290953	Sub-site	An Foras Forbartha 1981 National Heritage Inventory. Areas of Scientific Interest in Ireland.	YES	1990's	ASI, pNHA	001642	B Rating: Nationally Important	
LE45	DRUMOD LAKESHORE - LOUGH BODERG AND LOUGH BOFIN pNHA (LEITRIM)	204502	289476	Sub-site	An Foras Forbartha 1981 National Heritage Inventory. Areas of Scientific Interest in Ireland.	YES	1990's	ASI, pNHA	001642	B Rating: Nationally Important	
LE46	BELLAGEEHER BOG - RINN RIVER pNHA (LEITRIM)	209810	287399	Sub-site	NPWS 2014 RB NHA Review	YES	2013	NHA , cNHA	000691	B Rating: Nationally Important	
LE47	LISCLOONADEE BOG	209155	291982	Main Site	NPWS 2014 Raised Bog Management Plan	YES	2013	Undesignated site		C+ Rating: County Conservation value	59.31
LE48	BUNDUFF LOUGH AND MACHAIR/	175770	357671	Main Site	NPWS Service Conservation Worthy site list	YES	2009	SAC, pNHA, ASI, cNHA	000625	A Rating: Internationally	20.49

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
	TRAWALUA/ MULLAGHMORE SAC				(on-line resource)					Important	
LE49	SLIGO / LEITRIM UPLANDS SPA (LEITRIM)	177509	348549	Main Site	NPWS Service Conservation Worthy site list (on-line resource)	YES	1990's	SPA	004187	A Rating: Internationally Important	
LE50	GLENCAR WATERFALL AND LAKE	175000	343000	Main Site	An Foras Forbartha A Preliminary County Report on the Areas of Scientific Interest.	YES	2009	ASI		C+ Rating: County Conservation value	27.49
LE51	URAGH LOUGH	177600	353700	Main Site	An Foras Forbartha A Preliminary County Report on the Areas of Scientific Interest.	YES	NA	ASI		C+ Rating: County Conservation value	24.96
LE52	DRIFFEEN RIVER	177700	342000	Main Site	NPWS Heuff 1987 Irish River Report	YES	NA	Undesignated site		C+ Rating: County Conservation value	7.69
LE53	CLOGHMEEN - ARROO MOUNTAIN SAC	186000	346000	Sub- site	NPWS Conaghan 2000 Blanket Bogs in Ireland Report	YES	1990	SAC	001403	A Rating: Internationally Important	100.17
LE54	LEVENAKILLA - CUILCAGH / ANIERIN UPLANDS SAC (LEITRIM)	207000	320000	Sub- site	NPWS Conaghan 2000 Blanket Bogs in Ireland Report	YES	1990	SAC	000584	A Rating: Internationally Important	
LE55	SRADRINAGH - CUILCAGH / ANIERIN UPLANDS SAC (LEITRIM)	201000	318000	Sub- site	NPWS Conaghan 2000 Blanket Bogs in Ireland Report	YES	1990	SAC	000584	A Rating: Internationally Important	
LE56	LOUGH NAHOO cNHA	181280	332140	Main Site	NPWS Mayes Consolidated Turlough Report	YES	2015	cNHA	002760	C+ Rating: County Conservation value	11.28
LE57	LEITRIM TURLOUGH cNHA	197583	304249	Main Site	NPWS Mayes Consolidated Turlough Report	YES	2009	cNHA	002730	C+ Rating: County Conservation value	22.83
LE58	EDENTINNY BALLINAMORE	210842	310538	Main Site	NPWS Mayes Consolidated Turlough Report	YES	2015	Undesignated site		B Rating: Nationally Important	10.30
LE59	CLOONEAGH CLOONCARREEN BOG	208952	288621	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	8.48

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
LE60	CLOONCARREEN BOG AND CUTOVER	209995	288338	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	17.53
LE61	BELLAGEEHER MEELARAGH BOG AND CUTOVER	208225	287798	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	41.67
LE62	CLOONLAUGHIL GUBBADORRIS BOG (LEITRIM)	212241	285755	Main Site	Aerial Photographic Survey 2015	YES	NA	Aerial Photographic Survey Undesignated site		F Rating: Unknown value - survey required	18.48
LE63	GUBBADORRIS BEHY CUTOVER (LEITRIM)	213688	285427	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	43.84
LE64	ROSSBEG TOOMAN BOG	211508	288433	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	191.47
LE65	FEARGLASS SOUTH BEIHY BOG	212863	287962	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	29.24
LE66	DRUMSHANBO SOUTH CUTOVER	214792	289070	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	20.73
LE67	LOUGH CORRY (LEITRIM)	194546	296899	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	108.65
LE68	RINNACURREEN LAKE	195056	297844	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	2.21
LE69	MOUNTCAMPBELL WET WOODLAND	198986	298299	Main Site	NPWS Native Woodland Survey	YES	2004	Undesignated site		F Rating: Unknown value - survey required	1.92
LE70	KILTYCARNEY LAKE	197129	298585	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey	1.16

County Leitrim Wetland Survey

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LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
										required	
LE71	RINNACURREEN WETLAND	195166	298360	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	13.70
LE72	HEADFORD LOUGH	201098	299039	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	6.78
LE73	DERREEN BUNNY MORE UPPER CUTOVER	203003	298862	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	15.72
LE74	BUNNY BEG	203654	298547	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	2.39
LE75	DRUMCOOLAGAN DRUMHANY SOUTH BOG	207160	299058	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	22.70
LE76	DRUMHANY SOUTH DRUMBOY BOG	207792	298563	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	19.30
LE77	ROSHARRY	209299	298923	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	5.43
LE78	BUNNY BEG WEST CUTOVER	203200	297891	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	8.11
LE79	CARRIGEEN WET WOODLAND - LOUGH MACHUGH	204854	297421	Sub-site	NPWS Native Woodland Survey	YES	2004	Undesignated site		F Rating: Unknown value - survey required	4.80
LE80	MUCKLAGHAN LOUGH	202877	297177	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	14.14
LE81	GORTCONNELLAN OR SPA LOUGH	200423	297740	Main Site	Aerial Photographic Survey 2015	YES	1990's	Undesignated site		F Rating: Unknown	14.11

County Leitrim Wetland Survey

Wetland Surveys Ireland 2019

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
										value - survey required	
LE82	DRUMGILRA / GORTINTY LOUGH	201562	295859	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	45.12
LE83	DERRYBRACK CUTOVER	202007	294139	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	19.73
LE84	ESKER NORTH WET WOODLAND	204594	294914	Main Site	NPWS Native Woodland Survey	YES	2004	Undesignated site		F Rating: Unknown value - survey required	3.23
LE85	BREANROSS GORTNALAMPH CUTOVER	206508	294958	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	9.87
LE86	GORTNALAMPH DRUMARD BOG	207415	294704	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	37.03
LE87	CLOONCAHIR BOG	208839	294628	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	42.11
LE88	CLOONCAHIR NORTH CUTOVER	209140	295569	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	13.03
LE89	DRUMARD (JONES) BOG	208829	293678	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	18.99
LE91	DRUMARD LOUGH	208943	292924	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	6.81
LE92	GORTANURE SOUTH BOG	207774	293133	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	63.22
LE93	ROOSKYNAMONA	207247	292183	Main	Aerial Photographic Survey	YES	NA	Undesignated		F Rating:	40.77

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
	CLOONBONIAGH BOG			Site	2015			site		Unknown value - survey required	
LE94	CLOONBONIAGH LOUGH	206247	292857	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	39.07
LE95	FEARNAGHT NORTH	204472	293426	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	31.26
LE96	KILLYFAD BOG	203146	291624	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	47.34
LE97	BOG LOUGH COMPLEX	204995	291876	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	67.98
LE98	CLOONTURK LOUGH	205715	291484	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	66.47
LE99	CLOONTURK CLOONCORLY	205623	290722	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	23.76
LE100	ROOSKY LOUGH	207551	291431	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	8.69
LE101	GUBAGRAFFY BOG	206850	290971	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	19.72
LE102	ROOSKYNAMONA DERREEN BOG SOUTH	208459	291381	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	44.85
LE103	CASHEL TULCON BOG	209618	290571	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	97.77

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LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
LE104	BEAGHMORE LOUGH (LEITRIM)	222520	298772	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	26.65
LE105	GULLADOO LOUGH (LEITRIM) SOUTH	224129	299158	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	57.42
LE106	GULLADOO	225333	298783	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	32.53
LE107	TULLY SOUTH LOUGH (LEITRIM)	221999	297804	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	24.81
LE108	GORTERMONE LOUGH (LEITRIM)	221565	296823	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	7.68
LE109	KILMAKENNY	220210	295937	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	4.72
LE110	DOOGARY LOUGH AND WETLAND (LEITRIM)	220197	295119	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	28.39
LE111	CURRAUN LOUGH	210691	299557	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	1.43
LE112	CARRICK DRUMKEILVY	210537	298951	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	14.30
LE113	ANNAGHMACONWAY GORTNARAH	212651	298527	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	15.58
LE114	DRUMHALLAGH AND CLOONE LOUGH WETLAND	213609	299594	Main Site	Aerial Photographic Survey 2015 & Native Woodland Survey	YES	2004	Undesignated site		F Rating: Unknown value - survey	39.16

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
										required	
LE115	ANNAGHMACULLEN LOUGH	214683	299647	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	1.33
LE116	CORRIGA	219778	299234	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	10.13
LE117	RASSAUN CUTOVER	218299	296879	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	17.98
LE118	SUNNAGH MORE EAST BOG	217068	297858	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	50.35
LE119	SUNNAGH MORE CORDUFF SOUTH	216857	296696	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	23.52
LE120	SUNNAGH MORE SOUTH	215796	297472	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	13.53
LE121	LECKNAGH	215843	296572	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	11.19
LE122	KEELDRA LOUGH	214920	296223	Main Site	Aerial Photographic Survey 2015	YES	2018	Undesignated site		F Rating: Unknown value - survey required	32.42
LE123	KEELDRA WEST CUTOVER	214216	296583	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	13.05
LE124	DRUMHARKAN CUTOVER	213472	297538	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	6.69
LE125	TULLYORAN POND	210733	297403	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown	5.15

County Leitrim Wetland Survey

Wetland Surveys Ireland 2019

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
										value - survey required	
LE126	GREENAGH LOUGH	210559	296220	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	38.76
LE127	RINN QUARRY LAKE	210658	294770	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	6.79
LE128	MUCKANAGH DRUMGOWNAGH BOG	213783	294540	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	68.87
LE129	DRUMCONNY BOG	214233	295355	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	23.00
LE130	KEELDRA CATTAN BOG	214984	295268	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	29.45
LE131	DRUMGOWNAGH CATTAN BOG	215061	294524	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	27.62
LE132	DRUMADORN CATTAN BOG	215603	295432	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	27.20
LE133	CATTAN BOG	215727	294421	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	17.14
LE134	DRUMADORN CORDUFF SOUTH BOG	216325	295744	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	18.47
LE135	CLOONCOSE CUTOVER	217463	294810	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	20.80
LE136	KILMAKENNY WEST	219002	294728	Main	Aerial Photographic Survey	YES	NA	Undesignated		F Rating:	2.92

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
				Site	2015			site		Unknown value - survey required	
LE137	LOUGH NABELWY (LEITRIM)	218906	293692	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	14.59
LE138	CLOONCOSE LOUGH (LEITRIM)	217921	292689	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	6.74
LE139	FEARGLASS NORTH WETLAND	216751	292900	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	21.89
LE140	FEARGLASS LOUGH (LEITRIM)	217304	292034	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	5.08
LE141	DRUMGOWNAGH WEST BOG	214439	294090	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	7.74
LE142	ANNAGHMORE EAST BOG	214381	293468	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	5.59
LE143	LEAR ANNAGHMORE	213373	292900	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	27.25
LE144	CLOONCOE QUARRY PONDS	210700	293397	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	1.07
LE145	DRUMGILRA DRUMGRANIA BOG COMPLEX	213336	290878	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	146.26
LE146	DRUMSHANBO LOUGH COMPLEX (LEITRIM)	214651	291032	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	42.98

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LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
LE147	DRUMHASS BOG (LEITRIM)	215378	290971	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	9.48
LE148	SHANCURRY LOUGH	194384	309947	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	12.86
LE149	DEFFIER	195309	308008	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	37.99
LE150	ACRES LOUGH	196705	309884	Main Site	Aerial Photographic Survey 2015	YES	2018	Undesignated site		C Rating: Local conservation value (high value)	6.92
LE151	DERRYNAHOO LOUGH	196903	309098	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	11.87
LE152	LUSTIA LOUGH	197716	308871	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	2.34
LE153	DRUMKEELAN LOUGH	197440	308505	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	6.37
LE154	DRUMGORMAN LOUGH	196264	308090	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	5.23
LE155	SHEEMORE WOOD AND LAKE - SHEEMORE WOOD pNHA	199443	304955	Main Site	NPWS Service Conservation Worthy site list (on-line resource)	YES	2009	pNHA	001421	B Rating: Nationally Important	46.25
LE156	COSTRE LOUGH	199189	302561	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	18.40
LE157	BARN LOUGH	196295	302807	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown	15.77

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
										value - survey required	
LE158	CARRICKEY LOUGH	196059	303598	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	8.42
LE159	KILMADDAROE LOUGH	197681	301833	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	33.02
LE160	LISMANNAGH	199828	301366	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	12.23
LE161	KNOCKATEEAN	192648	318859	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	82.36
LE162	CORMONGAN SOUTH WET WOODLAND	197665	316015	Main Site	NPWS Native Woodland Survey	YES	2004	Undesignated site		F Rating: Unknown value - survey required	1.30
LE163	CORMONGAN NORTH WET WOODLAND	197511	316658	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	7.17
LE164	ROSCUNNISH LOUGH	198940	311303	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	5.53
LE165	DERRYHALLAGH LOUGH	198524	311250	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	4.47
LE166	CORRACHUILL	196855	311460	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	10.15
LE167	ARDCOLUM LOUGH	195973	310077	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	5.49
LE168	WOODFORD	220445	312036	Main	Aerial Photographic Survey	YES	NA	Undesignated		F Rating:	7.16

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	LOUGHS NORTH AND SOUTH			Site	2015			site		Unknown value - survey required	
LE169	DERRYNIGGIN	221749	311198	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	21.62
LE170	WOODFORD DEMESNE CUTOVER	221291	311473	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	9.21
LE171	GARADICE LOUGH	218053	311203	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	389.18
LE172	LUGNAGON (LEITRIM)	223736	310295	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	11.78
LE173	DERNAHELTY MORE NORTH	208888	316901	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	24.02
LE174	GUBNAVEAGH SOUTH	206250	316538	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	52.92
LE175	KNOCKACULLION SOUTH	205566	314777	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	19.33
LE176	MAYO WETLAND	209647	312056	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	18.10
LE177	DERREEN AGHLIN	205988	312519	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	36.65
LE178	AGHACASHEL CUTOVER	204345	313083	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	30.45

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
LE179	AGHAGRANIA	200185	311699	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	20.88
LE180	LISCARBAN EDENAVOW	201281	311432	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	18.64
LE181	ROSCUNNISH	202840	310758	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	20.37
LE182	CRUMMY DRUMINEIGH GLEBE	204050	311142	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	33.25
LE183	CORRACHOOSAUN LOUGH	206291	310695	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	13.83
LE184	LOUGH NACARRIGA	207221	310322	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	23.78
LE185	ST JOHNS LOUGH NORTH	208295	310904	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	76.26
LE186	ST JOHNS LOUGH MIDDLE	209110	310020	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	45.47
LE187	LOUGH MOODRIKE	208170	310052	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	4.28
LE188	LUGNAGON CLOONCOSE	222408	309338	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	8.48
LE189	CORRACAR	223068	308730	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey	9.12

County Leitrim Wetland Survey

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										required	
LE190	CLOONBOYGHER LOUGH AND WETLAND	220164	307604	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	15.56
LE191	DRUMLEEVAN WEST	223359	307630	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	5.22
LE192	LAHEEN LOUGH	226008	307178	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	20.35
LE193	KILNAMAR LOUGH	225954	306031	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	32.01
LE194	DUMB LOUGH	225515	304569	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	8.80
LE195	CLOONCORICK LOUGH	224028	304461	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	29.50
LE196	CALLOUGHS LOUGH	222576	304873	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	23.83
LE197	DRUMINSHIN GLEBE CUTOVER	220516	303397	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	16.75
LE198	CARRIGALLEN LOUGH	222989	303308	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	7.62
LE199	GANGIN AND MOSYS LOUGHS	223894	302720	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	19.56
LE200	AGHAVORE NORTH	225701	303665	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown	8.28

County Leitrim Wetland Survey

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LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
										value - survey required	
LE201	ROCKFIELD LOUGH (LEITRIM)	227169	303469	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	10.92
LE202	DRUMHART LOUGH (LEITRIM) AND WETLAND	227069	302591	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	19.08
LE203	CULLIES LOUGH	226010	301524	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	16.48
LE204	GULLADOO LOUGH (LEITRIM) NORTH	224937	300420	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	56.95
LE205	DRUMBREANLIS	225395	301510	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	5.40
LE206	AGHAWILLIN	223045	301208	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	9.55
LE207	MULLANADARRAGH LOUGH	221233	301441	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	16.95
LE208	LOUGH ARUDDA	200106	343499	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	27.84
LE209	CORRACLOONA LAKE	200503	343389	Main Site	Aerial Photographic Survey 2015	YES	2015	Undesignated site		F Rating: Unknown value - survey required	2.54
LE210	LOUGH ADEREEN	200442	339765	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	1.51
LE211	ANNAGH BOG	201826	338333	Main	NPWS Native Woodland	YES	2009	Undesignated		F Rating:	5.52

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
	WOODLAND			Site	Survey			site		Unknown value - survey required	
LE212	ANNAGH BOG	201902	337791	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	50.00
LE213	BROCKAGH UPPER	200774	335017	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	20.87
LE214	LOUGH CAECH OR BLIND LOUGH	202271	309723	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	15.66
LE215	LOUGH SCUR	202779	308506	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	121.82
LE216	DRINY DRUMHUBBRID BOG	204153	309578	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	68.39
LE217	LOUGH MARRAVE AND WETLAND	204835	308572	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	33.78
LE218	CASTLEFORE LOUGH	205875	308249	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	22.21
LE219	KILTYFINNAN LOUGH	205997	309604	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	13.74
LE220	LOUGH MOREOGE	207820	309691	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	2.32
LE221	ST JOHNS LOUGH SOUTH	208373	309078	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	24.56

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
LE222	LOUGH REANE	209862	309107	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	21.25
LE223	DRUMLAHEEN LOUGH EAST	209140	307096	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	73.75
LE224	DRUMLAHEEN LOUGH WEST	208198	307638	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	29.17
LE225	ROWAN LOUGH	208494	305917	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	48.19
LE226	DRUMINGNA ANNAGHADERG	205415	307449	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	26.68
LE227	KESHCARRIGAN LOUGH AND WETLAND	203978	307041	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	59.17
LE228	DOOLOUGHAN LOUGH (KESHCARRIGAN)	202925	307478	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		C+ Rating: County Conservation value	3.59
LE229	DRUMALEAGUE LOUGH	201298	307335	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	3.07
LE230	LOUGH CONWAY	200303	307322	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	6.91
LE231	AGHAKILCONNELL LOUGH	201716	304546	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	5.10
LE232	KILNAGROSS	202716	305052	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey	8.13

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										required	
LE233	SCARDAUN LOUGH	206036	305475	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	10.10
LE234	DRUMCOLLOP LOUGH	207090	305324	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	23.05
LE235	GARADICE DRUMCOLLOP WETLAND	206423	304657	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	17.18
LE236	FUNSHINAGH LOUGH	206124	304385	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	7.40
LE237	SELTAN LOUGH	209193	304496	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	44.24
LE238	GARVAGH	209002	302792	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	8.10
LE239	ANNAGHASNA	202385	303292	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	23.54
LE240	LOUGHTOWN LOUGH	201402	302825	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	53.76
LE241	EFFRINAGH LOUGH	200179	303141	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	6.82
LE242	EFFRINAGH CORLISHEEN CUTOVER	200361	302112	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	21.78
LE243	STUCK CUTOVER	205873	300141	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown	12.42

County Leitrim Wetland Survey

Wetland Surveys Ireland 2019

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
										value - survey required	
LE244	TULRUSK	206402	301400	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	32.54
LE245	ANNAGHDRUMCARN BOG AND WOODLAND	207730	300537	Main Site	Aerial Photographic Survey 2015 & Native Woodland Survey	YES	2004	Undesignated site		F Rating: Unknown value - survey required	36.72
LE246	TULLY LOUGH	210323	309818	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	2.06
LE247	MOUGH ARDRUM	211826	309693	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	23.05
LE248	DRUMCOURA LOUGH	215893	308582	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	31.33
LE249	LOUGH AWADDY	216242	309326	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	18.12
LE250	CUILMORE CARRICKMAKEEGAN BOG	216827	309627	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	33.81
LE251	DRUMCOURA BOG	217030	308505	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	18.47
LE252	MULLAGHBOY LOUGH	218102	309195	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	6.88
LE253	CORRAWALEEN MULLAGHBOY BOG AND WOODLAND	219052	307935	Main Site	Aerial Photographic Survey 2015 & Native Woodland Survey	YES	2004	Undesignated site		F Rating: Unknown value - survey required	65.97
LE254	KEELRIN SOUTH	218943	309049	Main	NPWS Native Woodland	YES	2004	Undesignated		F Rating:	4.79

County Leitrim Wetland Survey

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LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
	WET WOODLAND			Site	Survey			site		Unknown value - survey required	
LE255	DRUMLEA LOUGH	217395	307152	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	12.07
LE256	KEENHEEN LOUGH	216520	307403	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	43.71
LE257	DRUMCOURA DRUMDIFFER	215401	307771	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	9.97
LE258	GUBS DRUMANY (BEIRNE)	213609	307067	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	13.96
LE259	LISSAGARVAN NORTH	212313	307022	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	3.84
LE260	FENAGH LOUGH	210727	306875	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	41.64
LE261	DRUMROOSK LOUGH	211172	305508	Main Site	Aerial Photographic Survey 2015	YES	2015	Undesignated site		F Rating: Unknown value - survey required	23.52
LE262	LOUGH AGUINNEEN	211119	304007	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	3.75
LE263	LITTLE LOUGH	215582	305754	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	6.39
LE264	BLACK LOUGH	215696	304502	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	5.28

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
LE265	LOUGH DONOGHER	216606	304571	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	20.47
LE266	CORRALA LOUGH	219472	305775	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	9.50
LE267	KILLAMEEN LOUGH	218866	304947	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	19.14
LE268	BLACK LOUGH (CORRALA)	219789	304785	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	2.40
LE269	FORT LOUGH	218580	304132	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	19.90
LE270	AGHADRUMINSHIN CUTOVER	219906	303685	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	12.60
LE272	KILLYFEA BOGS EAST AND WEST	217761	302066	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	22.92
LE273	LOUGH CAM	216178	303748	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	8.36
LE274	CLOONE LOUGH	216006	303311	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	16.58
LE275	SUNNAGHGINNITY LOUGH AND WETLAND	213259	303243	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	6.11
LE276	ADOON LOUGH	211299	302621	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey	38.06

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LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
										required	
LE277	KILLYLEA LOUGH AND WETLAND	213919	301064	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	20.39
LE278	DRUMSHANBO NORTH CUTOVER	216002	300844	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	17.85
LE279	SUNNAGH MORE NORTH BOG	216483	300077	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	15.13
LE280	AGHAVAS SOUTH CUTOVER	218395	300098	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	5.55
LE281	DERRADDA	214410	316059	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	9.10
LE282	GLEBE LOUGH AND BOG (LEITRIM)	219399	314405	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	19.21
LE283	MULNAVANNOGE	214729	315193	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	10.57
LE284	DERNASMALLAN WETLAND	211069	314481	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	17.62
LE285	DRUMBAD WETLAND	211190	313960	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	39.90
LE286	LISCUILFEA CALLOWHILL WETLAND	211217	313267	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	10.70
LE287	CALLOWHILL LOUGH	210748	313428	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown	4.06

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										value - survey required	
LE288	CAMAGH LOUGH	212254	313603	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	28.64
LE289	GEORGES LOUGH	212104	312648	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	16.54
LE290	DROMORE LOUGH	213836	313661	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	4.80
LE291	BOLGANARD LOUGH	215072	312468	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	14.54
LE292	CORGAR LOUGH	215577	312275	Main Site	Aerial Photographic Survey 2015	YES	2015	Undesignated site		F Rating: Unknown value - survey required	10.29
LE293	DROMLONAN LOUGHS	216352	312643	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	18.76
LE294	DRUMCULLION CORDUFF WETLAND	216791	313132	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	17.74
LE295	GLEBE SOUTH WETLAND	219105	313804	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	10.45
LE296	KEELRIN NORTH WET WOODLAND	219091	310145	Main Site	NPWS Native Woodland Survey	YES	2004	Undesignated site		F Rating: Unknown value - survey required	4.48
LE297	KILRUSH AGHYOWLA WETLAND	215839	311304	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	14.16
LE298	CLEENAGHOO	214753	310838	Main	Aerial Photographic Survey	YES	NA	Undesignated		F Rating:	11.52

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
	WETLAND			Site	2015			site		Unknown value - survey required	
LE299	WILLOWFIELD LOUGH	213851	310922	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	9.40
LE300	CREEVY GOLF COURSE PONDS	210803	311865	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	0.09
LE301	COOLLEGREANE BOG	197620	329105	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	32.61
LE302	GLASDRUMMAN BEG	190543	326977	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	8.68
LE303	DERRYLUSTIA	190860	326413	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	17.69
LE304	MAHANAGH LOUGH	196436	325239	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	10.13
LE305	KIGARRIFF CUILTIA LAKE - LOUGH ALLEN pNHA	198015	324094	Sub-site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		B Rating: Nationally Important	
LE306	FAHY DRUMINALASS LAKE - LOUGH ALLEN pNHA	198449	323300	Sub-site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		B Rating: Nationally Important	
LE307	YUGAN LOUGH	198624	322493	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	32.40
LE308	DERRINVONEY AND DRUMMANS LOWER - LOUGH ALLEN pNHA	193487	323668	Sub-site	Aerial Photographic Survey 2015	YES	1990's	Undesignated site		B Rating: Nationally Important	
LE309	FAHY - LOUGH ALLEN pNHA	198254	321284	Sub-site	Aerial Photographic Survey 2015	YES	1990's	Undesignated site		B Rating: Nationally	

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										Important	
LE310	CLEIGHRAN BEG - LOUGH ALLEN pNHA	198389	321035	Sub-site	Aerial Photographic Survey 2015	YES	1990's	Undesignated site		B Rating: Nationally Important	
LE311	GREAGHNAFARNA WEST CUTOVER (LEITRIM)	179226	325806	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	27.07
LE312	GREAGHNAFARNA SOUTH WEST BOG AND CUTOVER	179340	325118	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	91.43
LE313	CADDAGH GLEBE	182306	328232	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	7.12
LE314	DERRINAHER DRUMCONOR CUTOVER	184372	328523	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	50.92
LE315	CORRASRA DRUMDUFFY	187424	328351	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	25.08
LE316	SHIVDELAGH	188920	327415	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	11.93
LE317	KILLAVOGGY WET WOODLAND	184703	326179	Main Site	NPWS Native Woodland Survey	YES	2004	Undesignated site		F Rating: Unknown value - survey required	3.20
LE318	CORCLANCEY BOG	181866	326877	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	29.92
LE319	SCACUMMER TULLYNASCREEN COMPLEX	180666	325264	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	74.92
LE320	GARVAGH GLEBE BOG	184242	324537	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey	15.57

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										required	
LE321	LISGAVNEEN LECKAUN BOLEYBAUN CUTOVER COMPLEX	187011	325009	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	73.15
LE322	LETTER KNOCKNACOSKA	187692	323839	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	70.84
LE323	SELTAN	187229	322260	Main Site	Aerial Photographic Survey 2015	No Data - wetland possible	NA	Undesignated site		F Rating: Unknown value - survey required	46.84
LE324	STONEPARK LOUGH	179298	332188	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	15.18
LE325	BALLINAMORE CANAL	211709	311889	Main Site	Aerial Photographic Survey 2015 & previously reported in literature	YES	2009	Undesignated site		C+ Rating: County Conservation value	11.95
LE326	LEEAN	180672	339788	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	27.34
LE327	ROSS LAKE	188250	338407	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	3.92
LE328	LARKFIELD BOG COMPLEX	188919	335478	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	312.39
LE329	CLOONLOGHER LOUGH AND WETLANDS	187115	337063	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	45.49
LE330	LARKFIELD LOUGH	187652	336703	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	0.37
LE331	CLOONAQUIN LOUGH	185892	336065	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown	20.94

County Leitrim Wetland Survey

Wetland Surveys Ireland 2019

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
										value - survey required	
LE332	BLACK LOUGH (GORTNASKEAGH)	184847	337613	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	0.23
LE333	LOUGH ANARRY	181963	334163	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	22.80
LE334	BOIHY	184807	335274	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	34.71
LE335	TULLINLOUGHAN LOUGH	189932	331964	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	2.05
LE336	CARRIGEENCOR LOUGH	183172	333761	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	43.60
LE337	LOUGH NAHOO AND WETLANDS	181249	332382	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	6.23
LE338	KILLALEEN LOUGH	181535	330977	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	16.72
LE339	CONAGHIL WET WOODLAND - LOUGH GILL SAC (LEITRIM)	183220	331366	Sub-site	NPWS Native Woodland Survey	YES	2004	SAC	001976	A Rating: Internationally Important	
LE340	MUNAKILL MORE LOUGH	192995	338694	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	21.89
LE341	MUNAKILL LAKE EAST	193590	338379	Main Site	Aerial Photographic Survey 2015	YES	2009	Undesignated site		F Rating: Unknown value - survey required	0.63
LE342	CORNACLOY CUTOVER	194868	338646	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown	15.05

County Leitrim Wetland Survey

Wetland Surveys Ireland 2019

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
										value - survey required	
LE343	GORTNADERRARY BOG NORTH	195980	346870	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	14.63
LE344	GORTNADERRARY LAKE	195990	345767	Main Site	Aerial Photographic Survey 2015	YES	2015	Undesignated site		F Rating: Unknown value - survey required	18.02
LE345	LATTONE LOUGH (LEITRIM)	199905	345325	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	23.28
LE346	DEANS LOUGH (LEITRIM)	198302	345547	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	1.87
LE347	LOUGH GILLAGANLEANE	195487	344854	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	5.43
LE348	RAHEELIN COOLDONNELL BOG	193894	344923	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	56.36
LE349	LISDARUSH CUTOVER EAST	193328	344658	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	30.35
LE350	LISDARUSH BOG COMPLEX	192447	344970	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	202.62
LE351	POLLALOUGHAN	198625	343358	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	34.90
LE352	UPPER LOUGH MACNEAN (LEITRIM)	202374	340314	Main Site	Aerial Photographic Survey 2015 & Native Woodland Survey	YES	NA	Undesignated site		F Rating: Unknown value - survey required	310.62
LE354	DOUGH / THUR	193676	342863	Main	NPWS Foss 2007 Study of	YES	2008	NHA	002384	B Rating:	348.25

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
	MOUNTAINS NHA (WEST)			Site	the extent and conservation status of Springs, Fens and Flushes in Ireland					Nationally Important	
LE355	DERRYNASEER CUTOVER (LEITRIM)	190001	356236	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	26.56
LE356	ROOSKY ARDAGH WET WOODLAND	190437	351866	Main Site	NPWS Native Woodland Survey	YES	2004	Undesignated site		F Rating: Unknown value - survey required	5.83
LE357	ASKILL BOG	187834	356557	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	39.32
LE358	DERRYHERK BOG	185403	356655	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	10.84
LE359	ASKILL BOG SOUTH	187739	355758	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	29.82
LE360	CLOGHAN WET WOODLAND	189250	352067	Main Site	NPWS Native Woodland Survey	YES	2004	Undesignated site		F Rating: Unknown value - survey required	6.73
LE361	BUCKODE WET WOODLAND	186975	352782	Main Site	NPWS Native Woodland Survey	YES	2004	Undesignated site		F Rating: Unknown value - survey required	16.92
LE362	AGHAVOGHIL CUTOVER	185752	351128	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	99.16
LE363	TAWNYTALLAN	178265	357076	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	33.18
LE364	TAWLY WEST CUTOVER	173749	354729	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	30.04

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
LE365	TAWLY BOG (LEITRIM)	175053	355610	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	34.77
LE366	WARDHOUSE DERRINLOUGHAN BOG COMPLEX	177130	356094	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	118.72
LE367	DERRINLOUGHAN BOG	177217	354941	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	72.35
LE368	DERRINLOUGHAN AGHAROO URAGH BOG COMPLEX	179069	355210	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	128.37
LE369	CORNAGEEHA BOG COMPLEX	177942	353208	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	84.10
LE370	URAGH TWALY BOG AND LAKE COMPLEX	176712	353631	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	320.57
LE371	CLOONTY BOG COMPLEX	173765	352946	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	151.99
LE372	CLOONTY LOUGH (LEITRIM)	172685	353001	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	13.19
LE373	CARROWNOONA BOG	178786	351726	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	54.04
LE374	LARGYDONNELL LAKE	179350	351443	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	5.93
LE375	AGHNAHAHA GORTNACRIEVE BOG COMPLEX	190623	347144	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey	181.37

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
										required	
LE376	TULLY CARRICKGOOAN FENAGH CARRICKEENY BOG COMPLEX	182763	343133	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	574.86
LE377	DROMORE WETLAND	181187	341302	Main Site	Aerial Photographic Survey 2015	YES	NA	Undesignated site		F Rating: Unknown value - survey required	5.85
LE378	GREAGHNAFARNA CUTOVER COMPLEX (LEITRIM)	182803	323471	Main Site	Aerial Photographic Survey 2017	YES	NA	Undesignated site		F Rating: Unknown value - survey required	186.15
LE381	FINNALAGHTA QUARRY POND	203900	293960	Main Site	LEWS 2019 Review of aerial photography	YES	NA	Undesignated site		F Rating: Unknown value - survey required	4.90
LE382	RIVER SHANNON (LEITRIM)	193414	299503	Main Site	LEWS 2019 Review of aerial photography	YES	2009	Undesignated site		C Rating: Local conservation value (high value)	15.53
LE383	RIVER FRONT AMENITY PARK	194170	299325	Main Site	LEWS 2019 Review of aerial photography	YES	NA	Undesignated site		C Rating: Local conservation value (high value)	10.40
LE384	LOUGH ALLEN CANAL	195853	309644	Main Site	LEWS 2019 Review of aerial photography	YES	2015	Undesignated site		C Rating: Local conservation value (high value)	41.91
LE385	AGHADARK PONDS	212224	311550	Main Site	LEWS 2019 Review of aerial photography	YES	NA	Undesignated site		F Rating: Unknown value - survey required	3.54
LE386	FENAGH CONSTRUCTED WETLAND	211238	307581	Main Site	Constructed Wetlands Database	YES	2015	Undesignated site		E Rating: Local conservation value (low value)	0.23

LEWS Site Code	LEWS Site Name	Centre Easting	Centre Northing	Site Type	Site Source	Wetland Areas on the Site	Year of last survey	Designation	Designated Site Code	Indicative Site Wetland Conservation Ranking	Total site area ha from GIS
LE387	NEWTOWNGORE CONSTRUCTED WETLAND	221330	310616	Main Site	Constructed Wetlands Database	YES	2015	Undesignated site		E Rating: Local conservation value (low value)	0.05
LE388	KESHARRIGAN CONSTRUCTED WETLAND	203502	307724	Main Site	Constructed Wetlands Database	YES	2015	Undesignated site		E Rating: Local conservation value (low value)	0.50
LE389	KILROOSK GRASSLAND	188770	343681	Main Site	ISGS	YES	2009	Undesignated site		C+ Rating: County Conservation value	91.89
LE390	GUBACREENY GRASSLAND - LOUGH MELVIN SAC	180617	343681	Sub-site	ISGS	YES	2009	Undesignated site, SAC, pNHA	000428	C+ Rating: County Conservation value	
LE391	KINLOUGH WOOD pNHA	182832	354704	Main Site	Lough Melvin report	YES	NA	pNHA, cNHA, ASI	001415	F Rating: Unknown value - survey required	11.83
LE392	CORNACORROO WETLAND	195864	296416	Main Site	LEWS 2019 Review of aerial photography	YES	NA	Undesignated site		F Rating: Unknown value - survey required	10.85
LE393	CARRICKFAD BOG	177632	337778	Main Site	LEWS 2019 Review of aerial photography	YES	NA	Undesignated site		F Rating: Unknown value - survey required	22.15
LE394	LOUGH SALLAGH pNHA	211071	294763	Main Site	NPWS Designated site file	YES	1990's	pNHA, ASI	001808	B Rating: Nationally Important	13.03

Appendix 6

County Leitrim Wetland Study (LEWS) 2019 CD ROM

by Peter Foss, Brendan Kirwan, Mary Catherine Gallagher and Patrick Crushell

Contents

1. **County Leitrim Wetland Survey 2019** by Foss, P.J., Kirwan, B., Gallagher, MC. & Crushell, P. (2019). Report for Leitrim County Council. (In PDF format, requires Adobe Acrobat to view).
2. **LEWS Wetland Site & Survey Filemaker Pro Databases Version 1.0** (requires FilemakerPro 12 or later to view).
3. **Selected Excel tables to accompany the County Leitrim Wetland Survey report including appendices.**
 1. Summary list of all wetlands in County Leitrim held in the LEWS Site Database.
 2. Total data export on all site records and fields from the list of wetland sites held in the LEWS Site Database
4. **GIS Shape files from the County Leitrim Wetland Survey 2019.**
 - a. ArcView GIS dataset with Heritage Council mapping convention (Requires ArcView 10 GIS Software)
 - b. MapInfo GIS dataset with Leitrim County Council mapping convention (Requires MapInfo GIS Software)
5. **Map books of sites in Counties Leitrim** (PDF format)
6. **Leitrim Online Wetland Brochure**

An Action of the County Leitrim Heritage Plan 2003-2008