Comhairle Chontae Liatroma
Leitrim County Council

Comhairle Contae
Ros Comáin
Roscommon
County Council

Screening for Appropriate Assessment Report

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CONSOLIDATED SCREENING
FOR
APPROPRIATE ASSESSMENT REPORT

FOR THE

CARRICK-ON-SHANNON JOINT LOCAL AREA PLAN 2025-2031

TO BE ADOPTED

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

for: Leitrim and Roscommon County Councils

Comhairle Chontae Liatroma
Leitrim County Council

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Section 1 Introduction

1.1 Background

This Appropriate Assessment (AA) Screening Report (also known as Stage One AA) has been prepared to assess whether or not a Natura Impact Report (NIR) (also known as Stage Two AA) is required for the Carrick-on-Shannon Joint Local Area Plan 2025-2031 to be adopted[1] ("the Plan"). AA is a procedure carried out in accordance with the requirements of Article 6(3) of Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (hereafter referred to as the "Habitats Directive").

1.2 Legislative Context

The Habitats Directive provides legal protection for habitats and species of European importance. The overall aim of the Habitats Directive is to maintain or restore the "favourable conservation status" of habitats and species of European Community Interest. These habitats and species are listed in the Habitats and Birds Directives (Council Directive 2009/147/EC on the conservation of wild birds) with Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) designated to afford protection to the most vulnerable of them. These two designations are collectively known as European sites and Natura 2000.

AA is required under articles 6(3)[2] and 6(4)[3] of the Habitats Directive, as transposed into Irish legislation by the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) and the Planning and Development Act (as amended). AA is an assessment of the potential for adverse or negative effects of a plan or project, in combination with other plans or projects on the integrity of a European site, in view of the site's Conservation Objectives. European sites are either, SACs and SPAs and provide for the protection and long-term survival of Europe's most valuable and threatened species and habitats.

1.3 The AA Process

The initial test in the AA process is to ascertain whether the Plan is directly connected with or necessary to the management of European sites. If the Plan is not directly connected with or necessary for the management of European sites, then it will proceed to the first stage of the AA process. Subsequently, there are four main stages in the AA process as follow:

Stage One: Screening
The process that identifies the likely impacts upon a European site of a project or plan, either alone or in combination with other projects or plans and considers whether these impacts are likely to be significant.

Stage Two: Appropriate Assessment
The consideration of the identified impact and their effects on the integrity of the European site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and in view of its Conservation Objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts. If adequate mitigation is proposed to ensure no significant adverse impacts on European sites, then the process may end at this stage. However, if the likelihood of significant impacts remains, then the process must proceed to Stage Three.

Stage Three: Assessment of Alternative Solutions
The process that examines alternative ways of achieving the objectives of the project or plan that avoids adverse impacts on the integrity of the European site.

[1] Incorporating the Draft Plan and all and any material alterations and associated modifications considered by the AA process.
[2] Article 6(3): "*Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.*"
[3] Article 6(4): "*If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.*"

Stage Four: Assessment where no alternative solutions exist and where adverse impacts remain
An assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed.

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. This approach aims to avoid any impacts on European sites by identifying possible impacts early in the Plan-making process and avoiding such impacts. Second, the approach involves the application of mitigation measures, if necessary, during the AA process to the point where no adverse impacts on the site(s) remain. If adverse impacts on European sites remain, the approach requires the consideration of alternative solutions. If no alternative solutions are identified and the Plan/project is required for imperative reasons of overriding public interest, then compensation measures are required for any remaining adverse effect(s).

1.3.1 Is the Plan Necessary to the Management of European Sites?

The overarching objective of the Plan is not the nature conservation management of the sites, but to provide for the proper planning and sustainable development of Carrick-on-Shannon. Therefore, the Plan is not considered to be directly connected with or necessary to the management of European sites and must proceed to Stage 1 AA - Screening for Appropriate Assessment.

1.4 Methodology

1.4.1 Ecological desktop study

This Screening for AA is based on best scientific knowledge and ecological expertise, and is supported by desktop research on national databases including the National Biodiversity Data Centre[4], the National Parks and Wildlife Service (NPWS)[5] and the Environmental Protection Agency (EPA)[6] mapping websites (including data collected for the most recent Article 12 and 17 conservation status reporting cycle, 2019).

The ecological desktop study completed for this Screening for AA of the Plan, comprised the following elements:

- Identification of European sites within 15 km of the Plan boundary;
- Examination of European sites hydrologically linked (via direct surface water connection or shared groundwater body) or other ecological links beyond 15 km of the Plan boundary;
- Examination of the NPWS Qualifying Interests (for SACs), Special Conservation Interests (for SPAs) and Conservation Objectives for the above identified sites with potential pathways to the Plan area;
- Examination of available additional information on protected and or designated species as relevant/necessary.

1.4.2 Source-pathway-receptor model and potential effects

The examination of the Plan for potential effects on European sites is conducted following a standard source-pathway-receptor model, where, in order for a potential for effect to be identified, all three elements of this mechanism must be in place. Examples of a source, a pathway and a receptor are:

- Source(s) – e.g., pollutant run-off from subject development;
- Pathway(s) – e.g., groundwater connecting to nearby qualifying wetland habitats; and,
- Receptor(s) – e.g., qualifying habitats and species of European sites.

As per the above examples; a source is any identifiable element of the Plan that may interact with ecological processes of European sites. A pathway is any connection between the source and the receptor. A receptor is a Qualifying Interest or Special Conservation Interests of the European site being examined, or an ecological feature that is known to be utilised by, or provide support to, the Qualifying Interests or Special Conservation Interests of a European site.

[4] Available at: https://maps.biodiversityireland.ie/
[5] Available at: https://www.npws.ie/protected-sites and https://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=8f7060450de3485fa1c1085536d477ba
[6] Available at: https://gis.epa.ie/EPAMaps/

When all three elements of the model are in place, a potential effect is identified. The potential effect is then examined further to determine whether or not it presents a *likelihood of significant effect*[7,8] on a European site. This is carried out by assessing objective information such as: the nature of the source; the nature of the pathway; the distances involved; the QIs/SCIs involved and their threats, pressures and sensitivities; and, consulting best scientific evidence/literature when required. As such, the presence of all three elements and the identification of a potential effect, does not automatically constitute the likelihood of significant effect to a European site, and is context dependent. However, the absence or removal of one of the elements of the mechanism is sufficient to conclude that there is no potential effect(s) and thus no likelihood for significant effects.

The Plan is also examined in-combination with other plans and programmes to assess whether there are sources for in-combination effects as a result of the implementation of the Plan.

Where a likelihood for significant effects to any European site is deemed to be present following the application of this model, then the Plan must proceed to Stage Two AA (i.e., the production of an NIR with accompanying mitigation measures addressing the likely significant effects identified at screening) in order to prevent adverse effects to the Qualifying Interests/Special Conservation Interests involved in light of their Conservation Objectives.

1.4.3 Relevant guidance

This report has been prepared taking into account legislation including the aforementioned legislation and guidance including the following:

- Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities, Department of the Environment, Heritage and Local Government, 2009;
- "Commission Notice: Managing Natura 2000 sites – The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC", European Commission 2018;
- Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, European Commission Notice, Journal of the European Union, 2021; and
- Practice Note PN01: Appropriate Assessment Screening for Development Management, Office of the Planning Regulator, 2021.

[7] "Likely" defied by the OPR Practice Note PN01 on Appropriate Assessment Screening for Development Management (2021) as the: "*risk or possibility of effects occurring that cannot be ruled out based on objective information.*"
[8] With regard to Article 6(3) of the Habitats Directive

Section 2 Description of the Plan

The Carrick-on-Shannon Joint Local Area Plan 2025-2031 to be adopted[9] sets out a strategy for the proper planning and sustainable development of Carrick-on-Shannon and consists of a written statement and accompanying maps including Local Objectives specific to Carrick-on-Shannon. These Objectives will provide a framework for guiding the future development of housing, transportation, employment, heritage, tourism, and social and community infrastructure in the town.

The Plan has been prepared under the Planning and Development Act 2000 (as amended), particularly Sections 18-20.

The Plan provides a framework to deliver on a vision for Carrick-on-Shannon to respond positively to the distinct setting and built form of the area and to continue to create an environment that the local community and visitors can relate to and identify with in terms of its scale and quality.

The Plan's written statement is divided into ten chapters as follow:

1. Introduction and Context
2. Town Centre Frist and Regeneration
3. Economic Development and Tourism
4. Homes and Communities
5. Climate Action and Flood Risk
6. Movement and Transport
7. Social and Community Infrastructure
8. Built and Natural Heritage
9. Land Use Strategy
10. Implementation and Monitoring

The Plan fully aligns with the provisions of the existing wider planning framework, including the National Planning Framework, Ireland 2040, the National Climate Action Plan 2024, the Northern and Western Regional Spatial and Economic Strategy, the Leitrim County Development Plan 2023-2029, the Roscommon County Development Plan 2022-2028, the Leitrim Climate Action Plan 2024-2029 and the Roscommon Climate Action Plan 2024-2029, all of which have been subject to legislative requirements relating to public consultation and environmental assessment/screening for environmental assessment.

With respect to the Leitrim and Roscommon County Development Plans, in particular, the provisions of these plans take precedence over the Local Area Plan. For the avoidance of duplication, policies/objectives as set out in Volume 1 (Written Statements) of both of the above-mentioned County Development Plans and the Development Management standards as set out in Chapter 13 of the Leitrim County Development Plan and Chapter 12 of the Roscommon County Development Plan have not been repeated in the Local Area Plan. All development proposals put forward in accordance with the Local Area Plan's provisions must also comply with the relevant County Development Plan.

[9] Incorporating the Draft Plan and all and any material alterations and associated modifications considered by the AA process.

Section 3 Screening for Appropriate Assessment

3.1 Introduction to Screening

This stage of the process identifies any likely significant effect to any European site from a project or plan, either alone or in combination with other projects or plans.

An important element of the AA process is the identification of the "'Conservation Objectives" (COs), "Qualifying Interests" (QIs) and/or "Special Conservation Interests" (SCIs) of European Sites requiring assessment. QIs are the habitat features and species listed in Annexes I and II of the Habitats Directive for which each European Site has been designated and afforded protection. SCIs are wetland habitats and bird species listed within Annexes I and II of the Birds Directive. It is also vital that the threats to the ecological/environmental conditions that are required to support QIs and SCIs are considered as part of the assessment.

The following NPWS First Order Site-Specific Conservation Objectives have been considered in the screening:

- For SACs, to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected; and
- For SPAs, to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

Where available, Site-Specific Conservation Objectives (SSCOs) designed to define favourable conservation status for a particular habitat[10] or species[11] at that site have been considered.

3.2 Identification of Relevant European Sites

The Department of the Environment (2009) Guidance on AA recommends a 15 km pathway consideration zone to be considered. All European sites within a 15km radius of the Carrick-on-Shannon were examined using the source-pathway-receptor model to assess potential connectivity corridors on a landscape scale, and assess potential interactions between Plan and each of the relevant European sites.

Details of European sites that occur within the 15 km Pathway Consideration Zone of the Plan area are listed in Table 3.1 and mapped on Figure 3.1. European sites, that have surface hydrological connectivity with, and/or occur within the same groundwater body[12] as the Plan area[13] (these can occur beyond the 15 km Pathway Consideration Zone) are mapped on Figure 3.2 and Figure 3.3 respectively.

For the European sites identified from this search, information on QIs, SCIs, site-specific vulnerabilities and sensitivities (see Appendix I) and background information (such as that within Ireland's Article 17 Report to the European Commission, site synopses and Natura 2000 standard data forms) is then considered where required. The COs of the European sites that have been considered throughout the assessment report where required, which were sourced from the following NPWS documents:

- NPWS (2019) Conservation Objectives for Annaghmore Lough (Roscommon) SAC [IE0001626] Version 1.
- NPWS (2016) Conservation Objectives for Cuilcagh-Anierin Uplands SAC [IE0000584] Version 1.
- NPWS (2021) Conservation Objectives for Lough Arrow SAC [IE0001673] Version 1.
- NPWS (2016) Conservation Objectives for Cloonshanville Bog SAC [IE0000614] Version 1.
- NPWS (2016) Conservation Objectives for Lough Forbes Complex SAC [IE0001818] Version 1.
- NPWS (2022) First Order Site-specific Conservation Objectives for Ballykenny-Fisherstown Bog SPA [IE0004101] Version 1.
- NPWS (2018) Conservation Objectives for Mullygollan Turlough SAC [IE0000612] Version 1.
- NPWS (2016) Conservation Objectives for Callow Bog SAC [IE0000595] Version 1.
- NPWS (2016) Conservation Objectives for Lough Ree SAC [IE0000440] Version 1.

[10] Favourable conservation status of a habitat is achieved when: its natural range, and area it covers within that range, are stable or increasing; the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and the conservation status of its typical species is favourable.

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

[12] Special Areas of Conservation with groundwater sensitive Qualifying Interests

[13] Source: EPA datasets on waterways in Ireland (https://gis.epa.ie/EPAMaps/). Accessed: June 2024

- NPWS (2022) First Order Site-specific Conservation Objectives for Lough Ree SPA [IE0004064] Version 1.
- NPWS (2016) Conservation Objectives for Drumalough Bog SAC [IE0002338] Version 1.
- NPWS (2015) Conservation Objectives for Derrinea Bog SAC [IE0000604] Version 1.
- NPWS (2017) Conservation Objectives for Errit Lough SAC [IE0000607] Version 1.
- NPWS (2017) Conservation Objectives for Urlaur Lakes SAC [IE0001571] Version 1.
- NPWS (2022) Conservation Objectives for Middle Shannon Callows SPA [IE0004096] Version 1.
- NPWS (2022) Conservation Objectives for River Shannon Callows SAC [IE0000216] Version 1.
- NPWS (2019) Conservation Objectives for Lough Derg, North-East Shore SAC [IE0002241] Version 1.
- NPWS (2022) First Order Site-specific Conservation Objectives for Lough Derg (Shannon) SPA [IE0004058] Version 1.
- NPWS (2012) Conservation Objectives for Lower River Shannon SAC [IE0002165] Version 1.
- NPWS (2012) Conservation Objectives for River Shannon and River Fergus Estuaries SPA [IE0004077] Version 1.

The COs focus on maintaining the favourable conservation condition of the QIs/SCIs of each European site, therefore the screening process concentrated on assessing any likely significant effects on any European site of the Plan with respect to the QIs/SCIs of each European site.

3.3 Potential Effects of the Plan

The Plan provisions are examined for the presence of any potential effects, and whether these may then result in a likelihood of significant effects with respect to the relevant guidelines and utilising the source-pathway-receptor model (as described in Section 1.4.2).

In addition, the European Commission Environment DG document *"Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*" details the following activities which could also present sources for potential effects, and these are also considered when examining the nature and context of the Plan:

- Land take
- Resource Requirements (Drinking Water Abstraction Etc.)
- Emissions (Disposal to Land, Water or Air)
- Excavation Requirements
- Transportation Requirements
- Duration of Construction, Operation, Decommissioning

The Plan provides a framework for the sustainable development of the Carrick-on-Shannon Plan area. Plan elements that present sources with pathways for potential effects to European sites are:

- The Plan's provisions, including those relating to climate change, town centre revitalisation, placemaking, housing, economic development, transport and movement and community services development, which introduce sources for potential effects through construction phase such as habitat loss, light pollution, disturbance effects and hydrological interactions through surface hydrological connectivity (Figure 3.2) and/or shared groundwater sources (Figure 3.3);
- Loading pressures from the operational phase of developments resulting from the Plan – these sources could result in habitat loss/fragmentation, light pollution, disturbance effects and interactions with water quality (surface and/or groundwater); and
- Increases in visitor numbers to European sites or supporting/connected areas for European sites via the operational phase of greenways/blueways or other tourism incentives, projects or programmes which have potential to introduce sources for effects such as disturbance, habitat loss, habitat degradation, habitat fragmentation and pollution.

The Plan fully aligns with the provisions of the existing wider planning framework, including the National Planning Framework, Ireland 2040, the National Climate Action Plan 2024, the Northern and Western Regional Spatial and Economic Strategy, the Leitrim County Development Plan 2023-2029, the Roscommon County Development Plan 2022-2028, the Leitrim Climate Action Plan 2024-2029 and the Roscommon Climate Action Plan 2024-2029, all of which have been subject to legislative requirements relating to public consultation and environmental assessment/screening for environmental assessment. With respect to the Leitrim and Roscommon County Development Plans, in particular, the provisions of these plans take precedence over the Local Area Plan. For the avoidance of duplication, policies/objectives as set out in Volume 1 (Written Statements) of both of the above-mentioned County Development Plans and the Development Management standards as set out in Chapter 13 of the Leitrim County Development Plan and Chapter 12 of the Roscommon County Development Plan have not been repeated in the Local Area Plan. All development proposals put forward in accordance with the Local Area Plan's provisions must also comply with the relevant County Development Plan.

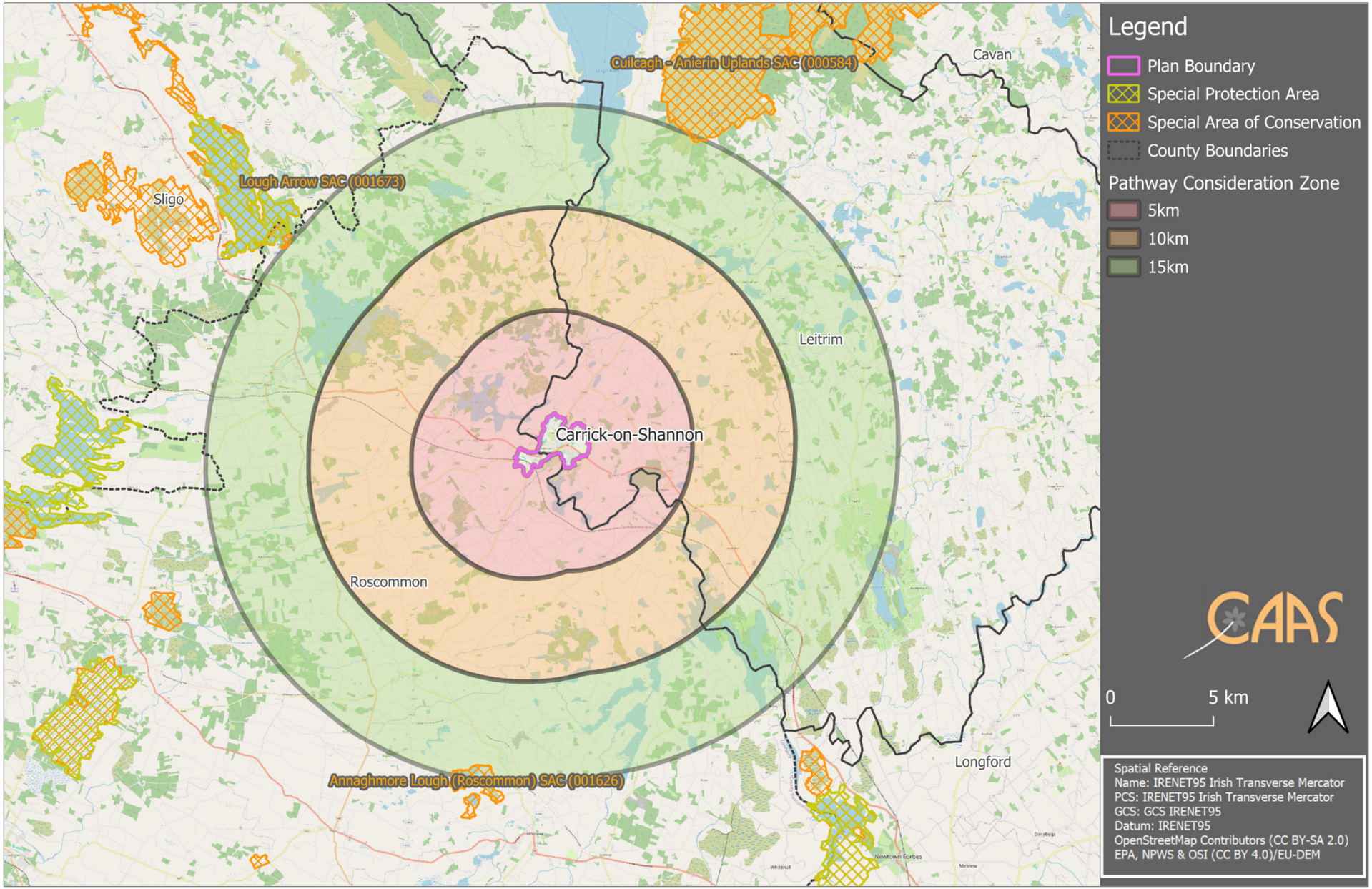

Figure 3.1 European sites with pathways for interactions with the area to which the Plan relates [14]

[14] Source: NPWS

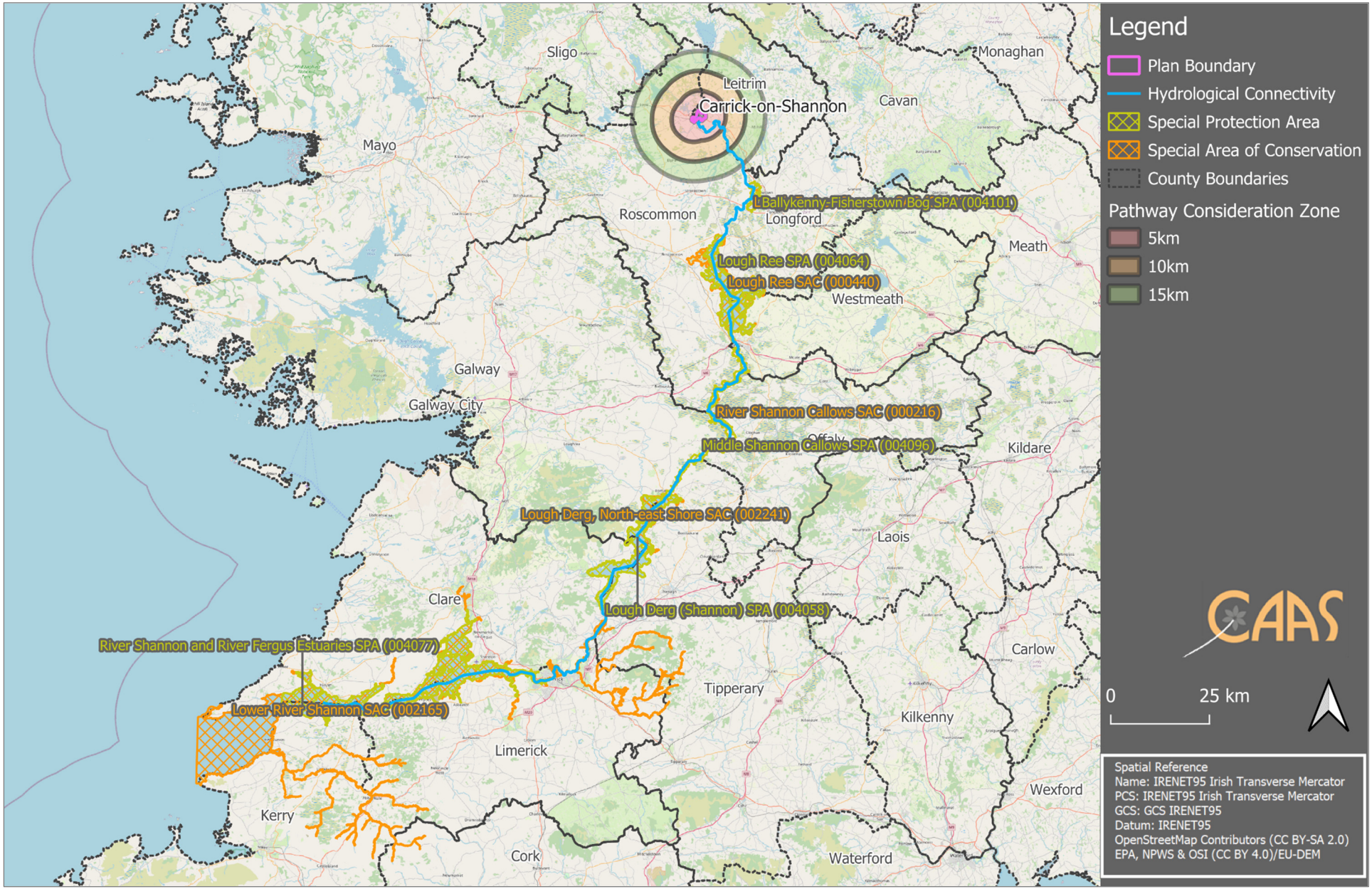

Figure 3.2 European sites with surface hydrological connectivity[15] to the Plan boundary

[15] Source: EPA datasets – accessed at: https://gis.epa.ie/EPAMaps/

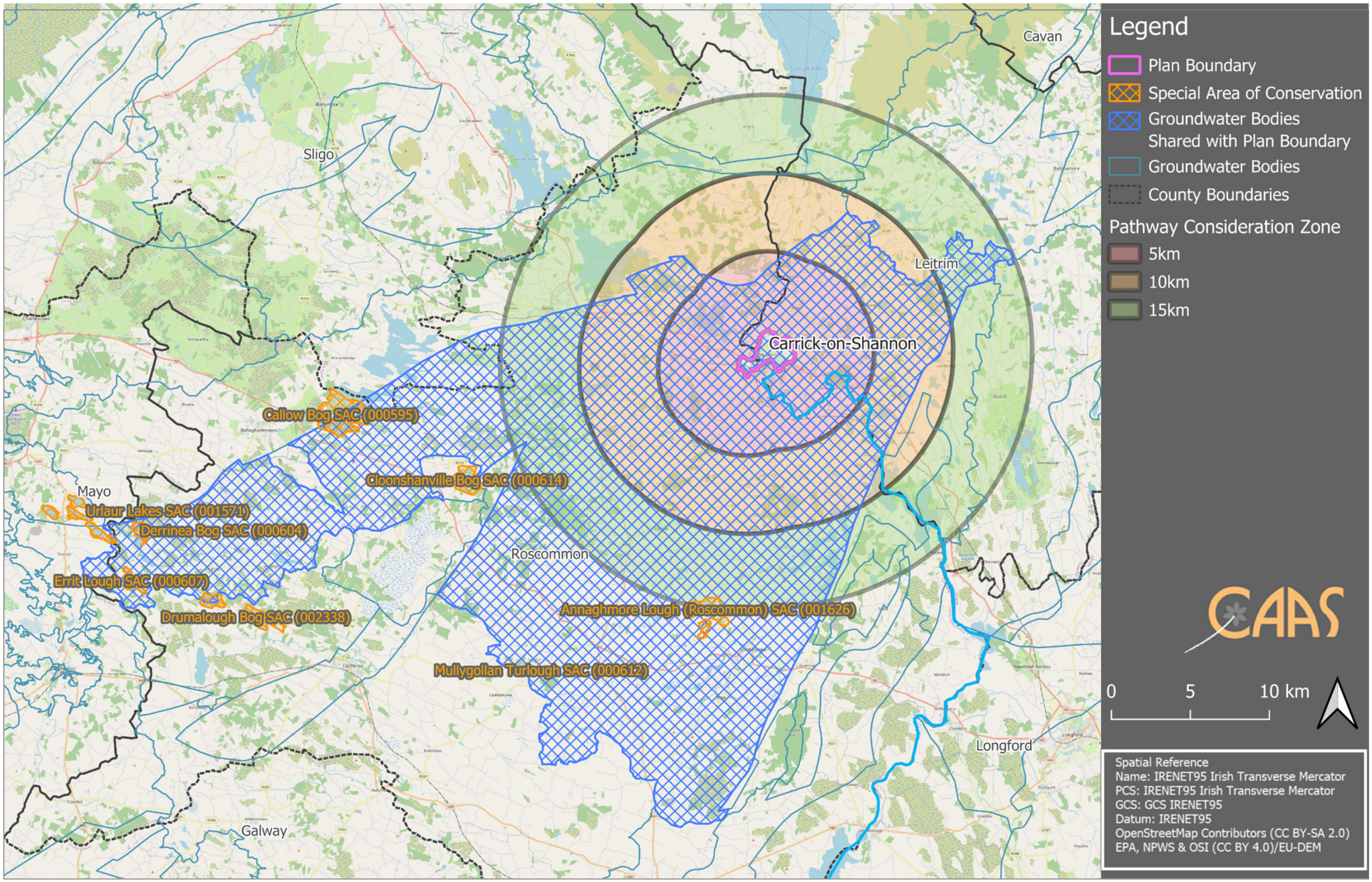

Figure 3.3 Groundwater sensitive European sites that share the same groundwater bodies to which the Plan relates [16]

[16] Source: NPWS

3.4 Screening for AA

The European sites identified for consideration in this screening for AA report are analysed individually in Table 3.1 in order to establish whether, considering the sources for potential effects identified (Section 3), and the QIs, SCIs and Conservation Objectives of the European sites considered (refer to Appendix I), there is a likelihood for significant effects[7,8] on any European sites as a result of the implementation of the Plan. All policies and objectives contained within the Plan are considered with respect to Conservation Objectives and the ecological sensitivities of each of the QIs and SCIs of each of the European sites identified.

Table 3.1 Screening of European Sites

Site Code	Site Name	Distance (km)	Qualifying Feature[17]	Analysis for Likely Significant Effects (Refer also to Section 3.3 above)	Likelihood of Significant Effects	Likelihood of Significant In-Combination Effects
001626	Annaghmore Lough (Roscommon) SAC	14.20	Geyer`s whorl snail *(Vertigo geyeri)* [1013], Alkaline fens [7230]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. This SAC is sensitive to direct land use management activities, hydrological interactions and groundwater interactions. This site exists 14.20 km outside of the Plan area. There is no direct surface hydrological connection between the Plan area and this site. However, this European site has groundwater sensitive Qualifying Interests, and shares the same groundwater body as the Plan area (Figure 3.3). Considering groundwater interactions: groundwater is reliant on and interacts with a myriad of hydrogeological and landscape characteristics[18], and has been shown to be heavily influenced by the direct management of soil, rivers and streams[19]. It has also been shown that the effects from groundwater contaminants are diluted through volume of water[20]. Considering the nature of the Plan, the distances involved and the significant dilution factor of over 5km, there is no pathway with sources for likely significant effects via groundwater interactions as a result of the implementation of the Plan. Considering the QIs of this SAC, and given the nature of the Plan, and the distances involved, there are no potential sources for direct land use management effects, as the site is outside of the Plan boundary. In addition, there are no direct surface hydrological pathways between the site and the Plan boundary. Therefore, there are no sources with pathways for likely significant effects via groundwater interactions for this SAC. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.	No	No
000584	Cuilcagh - Anierin Uplands SAC	14.74	Transition mires and quaking bogs [7140], Blanket bogs * if active bog [7130], Natural dystrophic lakes and ponds [3160], European dry heaths [4030], Slender green feather-moss *(Hamatocaulis vernicosus)* [6216], Oligotrophic waters containing very few minerals of sandy plains *(Littorelletalia uniflorae)* [3110], Northern Atlantic wet heaths with Erica tetralix [4010], Alpine and Boreal heaths [4060], Siliceous rocky slopes with chasmophytic vegetation [8220], Petrifying springs with tufa formation *(Cratoneurion)* [7220], Species-rich Nardus grasslands, on siliceous substrates in mountain areas - and submountain areas in Continental Europe [6230], Siliceous scree of the montane to snow levels *(Androsacetalia alpinae and Galeopsietalia ladani)* [8110]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. This SAC is sensitive to direct land use management activities and hydrological and groundwater interactions. This SAC is sensitive to hydrological interactions and groundwater interactions. This site exists 14.74 km outside of the Plan area. There is no direct surface hydrological connection between the Plan area and this site and there is no shared groundwater body between the Plan boundary and this European site. Considering the QIs of this SAC, and given the nature of the Plan, and the distances involved, there are no potential sources for direct land use management effects, as this site is outside of the Plan boundary. In addition, there are no direct surface hydrological connections or shared groundwater bodies between the site and the Plan boundary, therefore, there are no sources with pathways for effect for hydrological interactions to the SAC. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.	No	No
001673	Lough Arrow SAC	14.94	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. This SAC is sensitive to hydrological interactions and groundwater interactions. This site exists 14.94 km outside of the Plan area. There is no direct surface hydrological connection between the Plan area and this site and there is no shared groundwater body between the Plan boundary and this European site. Considering the QIs of this SAC, the nature of the Plan, and the that there are no direct surface hydrological connections or shared groundwater bodies between the site and the Plan boundary, there are no sources with pathways for likely significant effect via hydrological interactions with the SAC.	No	No

[17] Tern used to encompass both Qualifying Interests and Special Conservation Interests
[18] Wehncke, E.V. & Mariano, N.A., 2021. Groundwater and Its Role in Maintaining the Ecological Functions of Ecosystems—A Review. *Intensified Land and Water Use: A Holistic Perspective of Local to Regional Integration*, pp.55-86.
[19] Silva, A.C.F. *et al.* 2012. Estuarine biodiversity as an indicator of groundwater discharge. *Estuarine, Coastal and Shelf Science*, *97*, pp.38-43.
[20] Lasagna, M. *et al.* 2013. Effect of the dilution process on the attenuation of contaminants in aquifers. *Environmental earth sciences*, *70*(6), pp.2767-2784.

Site Code	Site Name	Distance (km)	Qualifying Feature[17]	Analysis for Likely Significant Effects (Refer also to Section 3.3 above)	Likelihood of Significant Effects	Likelihood of Significant In-Combination Effects
				Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.		
000614	Cloonshanville Bog SAC	17.61	Degraded raised bogs still capable of natural regeneration [7120], Depressions on peat substrates of the Rhynchosporion [7150], Bog woodland [91D0], Active raised bogs [7110]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. This SAC is sensitive to direct land use management activities, hydrological interactions and groundwater interactions. This site exists 17.61 km outside of the Plan area. There is no direct surface hydrological connection between the Plan area and this site. However, this European site has groundwater sensitive Qualifying Interests, and shares the same groundwater body as the Plan area (Figure 3.3). Considering groundwater interactions: groundwater is reliant on and interacts with a myriad of hydrogeological and landscape characteristics[21], and has been shown to be heavily influenced by the direct management of soil, rivers and streams[22]. It has also been shown that the effects from groundwater contaminants are diluted through volume of water[23]. Considering the nature of the Plan, the distances involved and the significant dilution factor of over 5km, there is no pathway with sources for likely significant effects via groundwater interactions as a result of the implementation of the Plan. Considering the QI of this SAC, and given the nature of the Plan, and the distances involved, there are no potential sources for direct land use management effects, as the site is outside of the Plan boundary. In addition, there are no direct surface hydrological pathways between the site and the Plan boundary, therefore, there are no sources of effect for hydrological interactions to the SAC. There are also no sources with pathways for likely significant effects via groundwater interactions for this SAC. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.	No	No
001818	Lough Forbes Complex SAC	19.93	Depressions on peat substrates of the Rhynchosporion [7150], Degraded raised bogs still capable of natural regeneration [7120], Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150], Active raised bogs [7110], Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. This SAC is sensitive to direct land use management activities. hydrological interactions and groundwater interactions. This site exists 19.93 km outside of the Plan area. There is a direct surface hydrological connection between the Plan area and this site and there is no shared groundwater body between the Plan boundary and this European site. Considering the QIs of this SAC and given the nature of the Plan and the distances involved, there are no potential pathways for direct land use management effects, as the site is outside of the Plan boundary. There is a direct surface hydrological connection between the Plan area and the SAC. However, there is a considerable dilution effect due to the distances involved, therefore, there are no pathways with a likelihood for potential effect for hydrological interactions to the SAC. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.	No	No
004101	Ballykenny-Fisherstown Bog SPA	19.95	Greenland White-fronted Goose *(Anser albifrons flavirostris)* [A395]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. The SPA is sensitive to direct land use management activities, hydrological interactions and disturbance effects. This site exists 19.95 km outside of the Plan area. There is a direct surface hydrological connection between the Plan area and this site. SCI species are sensitive to disturbance effects; in general distances beyond 2 km are seen to be sufficient to preclude such effects[24,25]. These distances can vary due to factors such as species and/or time of year[26,27]. Given the distance between the Plan area and the SPA there are no pathways for disturbance effects identified. SCI species are highly vagile and therefore may utilise ex-situ ecological resources which may have interactions with the Plan; however, at this scale landscape characteristics and the availability of alternate resources ensure the local scale interactions with ex-situ resources are not likely to have significant effects on the SPA.	No	No

[21] Wehncke, E.V. & Mariano, N.A., 2021. Groundwater and Its Role in Maintaining the Ecological Functions of Ecosystems—A Review. *Intensified Land and Water Use: A Holistic Perspective of Local to Regional Integration*, pp.55-86.
[22] Silva, A.C.F. *et al.* 2012. Estuarine biodiversity as an indicator of groundwater discharge. *Estuarine, Coastal and Shelf Science*, *97*, pp.38-43.
[23] Lasagna, M. *et al.* 2013. Effect of the dilution process on the attenuation of contaminants in aquifers. *Environmental earth sciences*, *70*(6), pp.2767-2784.
[24] Rudock, M. and Whitfield, D.P., 2007. A review of disturbance distances in selected bird species. A report from Natural Research (Projects) Ltd to Scottish Natural Heritage, 181.
[25] Bright, J.A., Langston, R. and Anthony, S., 2009. Mapped and written guidance in relation to birds and onshore wind energy development in England. Sandy: RSPB.
[26] Bötsch, Y., Tablado, Z. and Jenni, L., 2017. Experimental evidence of human recreational disturbance effects on bird-territory establishment. Proceedings of the Royal Society B: Biological Sciences, 284(1858), p.20170846.
[27] Goss-Custard, J.D., Hoppe, C.H., Hood, M.J. and Stillman, R.A., 2020. Disturbance does not have a significant impact on waders in an estuary close to conurbations: importance of overlap between birds and people in time and space. Ibis, 162(3), pp.845-862.

Site Code	Site Name	Distance (km)	Qualifying Feature[17]	Analysis for Likely Significant Effects (Refer also to Section 3.3 above)	Likelihood of Significant Effects	Likelihood of Significant In-Combination Effects
				Considering the SCI of this SPA, and given the nature of the Plan and the distance involved between the Plan area and the SPA, there are no sources of effect for direct land use management or disturbance effects to the SPA. In addition, there are no sources of effect for hydrological interactions considering the distances involved and the significant dilution effect along the direct surface hydrological connection. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.		
000612	Mullygollan Turlough SAC	22.32	Turloughs [3180]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. This SAC is sensitive to direct land use management activities, hydrological interactions and groundwater interactions. This site exists 22.32 km outside of the Plan area. There is no direct surface hydrological connection between the Plan area and this site. However, this European site has groundwater sensitive Qualifying Interests, and shares the same groundwater body as the Plan area (Figure 3.3). Considering groundwater interactions: groundwater is reliant on and interacts with a myriad of hydrogeological and landscape characteristics[28], and has been shown to be heavily influenced by the direct management of soil, rivers and streams[29]. It has also been shown that the effects from groundwater contaminants are diluted through volume of water[30]. Considering the nature of the Plan, the distances involved and the significant dilution factor of over 5km, there is no pathway with sources for likely significant effects via groundwater interactions as a result of the implementation of the Plan. Considering the QI of this SAC, and given the nature of the Plan, and the distances involved, there are no potential sources for direct land use management effects, as the site is outside of the Plan boundary. In addition, there are no direct surface hydrological pathways between the site and the Plan boundary, therefore, there are no sources of effect for hydrological interactions to the SAC. There are also no sources with pathways for likely significant effects via groundwater interactions for this SAC. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.	No	No
000595	Callow Bog SAC	23.41	Active raised bogs [7110], Depressions on peat substrates of the Rhynchosporion [7150], Degraded raised bogs still capable of natural regeneration [7120]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. This SAC is sensitive to direct land use management activities, hydrological interactions and groundwater interactions. This site exists 23.41 km outside of the Plan area. There is no direct surface hydrological connection between the Plan area and this site. However, this European site has groundwater sensitive Qualifying Interests, and shares the same groundwater body as the Plan area (Figure 3.3). Considering groundwater interactions: groundwater is reliant on and interacts with a myriad of hydrogeological and landscape characteristics[31], and has been shown to be heavily influenced by the direct management of soil, rivers and streams[32]. It has also been shown that the effects from groundwater contaminants are diluted through volume of water[33]. Considering the nature of the Plan, the distances involved and the significant dilution factor of over 5km, there is no pathway with sources for likely significant effects via groundwater interactions as a result of the implementation of the Plan. Considering the QI of this SAC, and given the nature of the Plan, and the distances involved, there are no potential sources for direct land use management effects, as the site is outside of the Plan boundary. In addition, there are no direct surface hydrological pathways between the site and the Plan boundary, therefore, there are no sources of effect for hydrological interactions to the SAC. There are also no sources with pathways for likely significant effects via groundwater interactions for this SAC. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.	No	No

[28] Wehncke, E.V. & Mariano, N.A., 2021. Groundwater and Its Role in Maintaining the Ecological Functions of Ecosystems—A Review. *Intensified Land and Water Use: A Holistic Perspective of Local to Regional Integration*, pp.55-86.
[29] Silva, A.C.F. *et al.* 2012. Estuarine biodiversity as an indicator of groundwater discharge. *Estuarine, Coastal and Shelf Science*, *97*, pp.38-43.
[30] Lasagna, M. *et al.* 2013. Effect of the dilution process on the attenuation of contaminants in aquifers. *Environmental earth sciences*, *70*(6), pp.2767-2784.
[31] Wehncke, E.V. & Mariano, N.A., 2021. Groundwater and Its Role in Maintaining the Ecological Functions of Ecosystems—A Review. *Intensified Land and Water Use: A Holistic Perspective of Local to Regional Integration*, pp.55-86.
[32] Silva, A.C.F. *et al.* 2012. Estuarine biodiversity as an indicator of groundwater discharge. *Estuarine, Coastal and Shelf Science*, *97*, pp.38-43.
[33] Lasagna, M. *et al.* 2013. Effect of the dilution process on the attenuation of contaminants in aquifers. *Environmental earth sciences*, *70*(6), pp.2767-2784.

Site Code	Site Name	Distance (km)	Qualifying Feature[17]	Analysis for Likely Significant Effects (Refer also to Section 3.3 above)	Likelihood of Significant Effects	Likelihood of Significant In-Combination Effects
000440	Lough Ree SAC	29.16	Alkaline fens [7230], Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0], Limestone pavements [8240], Otter *(Lutra lutra)* [1355], Semi-natural dry grasslands and scrubland facies on calcareous substrates *(Festuco-Brometalia)* * important orchid sites [6210], Active raised bogs [7110], Bog woodland [91D0], Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150], Degraded raised bogs still capable of natural regeneration [7120]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. This SAC is sensitive to direct land use management activities. hydrological interactions and groundwater interactions. This site exists 29.16 km outside of the Plan area. There is a direct surface hydrological connection between the Plan area and this site and there is no shared groundwater body between the Plan boundary and this European site. Considering the QIs of this SAC and given the nature of the Plan and the distances involved, there are no potential pathways for direct land use management effects, as the site is outside of the Plan boundary. There is a direct surface hydrological connection between the Plan area and the SAC. However, there is a considerable dilution effect due to the distances involved, therefore, there are no pathways with a likelihood for significant effect for hydrological interactions to the SAC. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.	No	No
004064	Lough Ree SPA	29.29	Mallard *(Anas platyrhynchos)* [A053], Wetland and Waterbirds [A999], Coot *(Fulica atra)* [A125], Little Grebe *(Tachybaptus ruficollis)* [A004], Golden Plover *(Pluvialis apricaria)* [A140], Goldeneye *(Bucephala clangula)* [A067], Whooper Swan *(Cygnus cygnus)* [A038], Wigeon *(Anas penelope)* [A855], Lapwing *(Vanellus vanellus)* [A142], Tufted Duck *(Aythya fuligula)* [A061], Common tern *(Sterna hirundo)* [A193], Shoveler *(Anas clypeata)* [A056], Common Scoter *(Melanitta nigra)* [A065], Teal *(Anas crecca)* [A052]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. The SPA is sensitive to direct land use management activities, hydrological interactions and disturbance effects. This site exists 29.29 km outside of the Plan area. There is a direct surface hydrological connection between the Plan area and this site. SCI species are sensitive to disturbance effects; in general distances beyond 2 km are seen to be sufficient to preclude such effects[34,35]. These distances can vary due to factors such as species and/or time of year[36,37]. Given the distance between the Plan area and the SPA there are no pathways for disturbance effects identified. SCI species are highly vagile and therefore may utilise ex-situ ecological resources which may have interactions with the Plan; however, at this scale landscape characteristics and the availability of alternate resources ensure the local scale interactions with ex-situ resources are not likely to have significant effects on the SPA. Considering the SCIs of this SPA, and given the nature of the Plan and the distance involved between the Plan area and the SPA, there are no sources of effect for direct land use management or disturbance effects to the SPA. In addition, there are no sources of effect for hydrological interactions considering the distances involved and the significant dilution effect along the direct surface hydrological connection. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.	No	No
002338	Drumalough Bog SAC	32.92	Depressions on peat substrates of the Rhynchosporion [7150], Degraded raised bogs still capable of natural regeneration [7120], Active raised bogs [7110]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. This SAC is sensitive to direct land use management activities, hydrological interactions and groundwater interactions. This site exists 32.92 km outside of the Plan area. There is no direct surface hydrological connection between the Plan area and this site. However, this European site has groundwater sensitive Qualifying Interests, and shares the same groundwater body as the Plan area (Figure 3.3). Considering groundwater interactions: groundwater is reliant on and interacts with a myriad of hydrogeological and landscape characteristics[38], and has been shown to be heavily influenced by the direct management of soil, rivers and streams[39]. It has also been shown that the effects from groundwater contaminants are diluted through volume of water[40]. Considering the nature of the Plan, the distances involved and the significant dilution factor of over 5km, there is no pathway with sources for likely significant effects via groundwater interactions as a result of the implementation of the Plan.	No	No

[34] Rudock, M. and Whitfield, D.P., 2007. A review of disturbance distances in selected bird species. A report from Natural Research (Projects) Ltd to Scottish Natural Heritage, 181.
[35] Bright, J.A., Langston, R. and Anthony, S., 2009. Mapped and written guidance in relation to birds and onshore wind energy development in England. Sandy: RSPB.
[36] Bötsch, Y., Tablado, Z. and Jenni, L., 2017. Experimental evidence of human recreational disturbance effects on bird-territory establishment. Proceedings of the Royal Society B: Biological Sciences, 284(1858), p.20170846.
[37] Goss-Custard, J.D., Hoppe, C.H., Hood, M.J. and Stillman, R.A., 2020. Disturbance does not have a significant impact on waders in an estuary close to conurbations: importance of overlap between birds and people in time and space. Ibis, 162(3), pp.845-862.
[38] Wehncke, E.V. & Mariano, N.A., 2021. Groundwater and Its Role in Maintaining the Ecological Functions of Ecosystems—A Review. *Intensified Land and Water Use: A Holistic Perspective of Local to Regional Integration*, pp.55-86.
[39] Silva, A.C.F. *et al.* 2012. Estuarine biodiversity as an indicator of groundwater discharge. *Estuarine, Coastal and Shelf Science*, *97*, pp.38-43.
[40] Lasagna, M. *et al.* 2013. Effect of the dilution process on the attenuation of contaminants in aquifers. *Environmental earth sciences*, *70*(6), pp.2767-2784.

Site Code	Site Name	Distance (km)	Qualifying Feature[17]	Analysis for Likely Significant Effects (Refer also to Section 3.3 above)	Likelihood of Significant Effects	Likelihood of Significant In-Combination Effects
				Considering the QIs of this SAC, and given the nature of the Plan, and the distances involved, there are no potential sources for direct land use management effects, as the site is outside of the Plan boundary. In addition, there are no direct surface hydrological pathways between the site and the Plan boundary, therefore, there are no sources of effect for hydrological interactions to the SAC. There are also no sources with pathways for likely significant effects via groundwater interactions for this SAC. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.		
000604	Derrinea Bog SAC	38.58	Degraded raised bogs still capable of natural regeneration [7120], Active raised bogs [7110], Depressions on peat substrates of the Rhynchosporion [7150]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. This SAC is sensitive to direct land use management activities, hydrological interactions and groundwater interactions. This site exists 38.58 km outside of the Plan area. There is no direct surface hydrological connection between the Plan area and this site. However, this European site has groundwater sensitive Qualifying Interests, and shares the same groundwater body as the Plan area (Figure 3.3). Considering groundwater interactions: groundwater is reliant on and interacts with a myriad of hydrogeological and landscape characteristics[41], and has been shown to be heavily influenced by the direct management of soil, rivers and streams[42]. It has also been shown that the effects from groundwater contaminants are diluted through volume of water[43]. Considering the nature of the Plan, the distances involved and the significant dilution factor of over 5km, there is no pathway with sources for likely significant effects via groundwater interactions as a result of the implementation of the Plan. Considering the QIs of this SAC, and given the nature of the Plan, and the distances involved, there are no potential sources for direct land use management effects, as the site is outside of the Plan boundary. In addition, there are no direct surface hydrological pathways between the site and the Plan boundary, therefore, there are no sources of effect for hydrological interactions to the SAC. There are also no sources with pathways for likely significant effects via groundwater interactions for this SAC. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.	No	No
000607	Errit Lough SAC	40.02	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. This SAC is sensitive to direct land use management activities, hydrological interactions and groundwater interactions. This site exists 40.02 km outside of the Plan area. There is no direct surface hydrological connection between the Plan area and this site. However, this European site has groundwater sensitive Qualifying Interests, and shares the same groundwater body as the Plan area (Figure 3.3). Considering groundwater interactions: groundwater is reliant on and interacts with a myriad of hydrogeological and landscape characteristics[44], and has been shown to be heavily influenced by the direct management of soil, rivers and streams[45]. It has also been shown that the effects from groundwater contaminants are diluted through volume of water[46]. Considering the nature of the Plan, the distances involved and the significant dilution factor of over 5km, there is no pathway with sources for likely significant effects via groundwater interactions as a result of the implementation of the Plan. Considering the QI of this SAC, and given the nature of the Plan, and the distances involved, there are no potential sources for direct land use management effects, as the site is outside of the Plan boundary. In addition, there are no direct surface hydrological pathways between the site and the Plan boundary, therefore, there are no sources of effect for hydrological interactions to the SAC. There are also no sources with pathways for likely significant effects via groundwater interactions for this SAC. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.	No	No

[41] Wehncke, E.V. & Mariano, N.A., 2021. Groundwater and Its Role in Maintaining the Ecological Functions of Ecosystems—A Review. *Intensified Land and Water Use: A Holistic Perspective of Local to Regional Integration*, pp.55-86.
[42] Silva, A.C.F. *et al.* 2012. Estuarine biodiversity as an indicator of groundwater discharge. *Estuarine, Coastal and Shelf Science*, *97*, pp.38-43.
[43] Lasagna, M. *et al.* 2013. Effect of the dilution process on the attenuation of contaminants in aquifers. *Environmental earth sciences*, *70*(6), pp.2767-2784.
[44] Wehncke, E.V. & Mariano, N.A., 2021. Groundwater and Its Role in Maintaining the Ecological Functions of Ecosystems—A Review. *Intensified Land and Water Use: A Holistic Perspective of Local to Regional Integration*, pp.55-86.
[45] Silva, A.C.F. *et al.* 2012. Estuarine biodiversity as an indicator of groundwater discharge. *Estuarine, Coastal and Shelf Science*, *97*, pp.38-43.
[46] Lasagna, M. *et al.* 2013. Effect of the dilution process on the attenuation of contaminants in aquifers. *Environmental earth sciences*, *70*(6), pp.2767-2784.

Site Code	Site Name	Distance (km)	Qualifying Feature[17]	Analysis for Likely Significant Effects (Refer also to Section 3.3 above)	Likelihood of Significant Effects	Likelihood of Significant In-Combination Effects
001571	Urlaur Lakes SAC	40.72	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. This SAC is sensitive to direct land use management activities, hydrological interactions and groundwater interactions. This site exists 40.72 km outside of the Plan area. There is no direct surface hydrological connection between the Plan area and this site. However, this European site has groundwater sensitive Qualifying Interests, and shares the same groundwater body as the Plan area (Figure 3.3). Considering groundwater interactions: groundwater is reliant on and interacts with a myriad of hydrogeological and landscape characteristics[47], and has been shown to be heavily influenced by the direct management of soil, rivers and streams[48]. It has also been shown that the effects from groundwater contaminants are diluted through volume of water[49]. Considering the nature of the Plan, the distances involved and the significant dilution factor of over 5km, there is no pathway with sources for likely significant effects via groundwater interactions as a result of the implementation of the Plan. Considering the QI of this SAC, and given the nature of the Plan, and the distances involved, there are no potential sources for direct land use management effects, as the site is outside of the Plan boundary. In addition, there are no direct surface hydrological pathways between the site and the Plan boundary, therefore, there are no sources of effect for hydrological interactions to the SAC. There are also no sources with pathways for likely significant effects via groundwater interactions for this SAC. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.	No	No
004096	Middle Shannon Callows SPA	58.13	Corncrake *(Crex crex)* [A122], Black-tailed Godwit *(Limosa limosa)* [A156], Wigeon *(Anas penelope)* [A855], Wetland and Waterbirds [A999], Black-headed Gull *(Chroicocephalus ridibundus)* [A179], Lapwing *(Vanellus vanellus)* [A142], Whooper Swan *(Cygnus cygnus)* [A038], Golden Plover *(Pluvialis apricaria)* [A140]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. The SPA is sensitive to direct land use management activities, hydrological interactions and disturbance effects. This site exists 58.13 km outside of the Plan area. There is a direct surface hydrological connection between the Plan area and this site. SCI species are sensitive to disturbance effects; in general distances beyond 2 km are seen to be sufficient to preclude such effects[50,51]. These distances can vary due to factors such as species and/or time of year[52,53]. Given the distance between the Plan area and the SPA there are no pathways for disturbance effects identified. SCI species are highly vagile and therefore may utilise ex-situ ecological resources which may have interactions with the Plan; however, at this scale landscape characteristics and the availability of alternate resources ensure the local scale interactions with ex-situ resources are not likely to have significant effects on the SPA. Considering the SCIs of this SPA, and given the nature of the Plan and the distance involved between the Plan area and the SPA, there are no sources of effect for direct land use management or disturbance effects to the SPA. In addition, there are no sources of effect for hydrological interactions considering the distances involved and the significant dilution effect along the direct surface hydrological connection. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.	No	No
000216	River Shannon Callows SAC	58.14	Alkaline fens [7230], Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0], Limestone pavements [8240], Otter *(Lutra lutra)* [1355], Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinion caeruleae)* [6410],	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. This SAC is sensitive to direct land use management activities. hydrological interactions and groundwater interactions. This site exists 58.14 km outside of the Plan area. There is a direct surface hydrological connection between the Plan area and this site and there is no shared groundwater body between the Plan boundary and this European site.	No	No

[47] Wehncke, E.V. & Mariano, N.A., 2021. Groundwater and Its Role in Maintaining the Ecological Functions of Ecosystems—A Review. *Intensified Land and Water Use: A Holistic Perspective of Local to Regional Integration*, pp.55-86.
[48] Silva, A.C.F. *et al.* 2012. Estuarine biodiversity as an indicator of groundwater discharge. *Estuarine, Coastal and Shelf Science*, *97*, pp.38-43.
[49] Lasagna, M. *et al.* 2013. Effect of the dilution process on the attenuation of contaminants in aquifers. *Environmental earth sciences*, *70*(6), pp.2767-2784.
[50] Rudock, M. and Whitfield, D.P., 2007. A review of disturbance distances in selected bird species. A report from Natural Research (Projects) Ltd to Scottish Natural Heritage, 181.
[51] Bright, J.A., Langston, R. and Anthony, S., 2009. Mapped and written guidance in relation to birds and onshore wind energy development in England. Sandy: RSPB.
[52] Bötsch, Y., Tablado, Z. and Jenni, L., 2017. Experimental evidence of human recreational disturbance effects on bird-territory establishment. Proceedings of the Royal Society B: Biological Sciences, 284(1858), p.20170846.
[53] Goss-Custard, J.D., Hoppe, C.H., Hood, M.J. and Stillman, R.A., 2020. Disturbance does not have a significant impact on waders in an estuary close to conurbations: importance of overlap between birds and people in time and space. Ibis, 162(3), pp.845-862.

Site Code	Site Name	Distance (km)	Qualifying Feature[17]	Analysis for Likely Significant Effects (Refer also to Section 3.3 above)	Likelihood of Significant Effects	Likelihood of Significant In-Combination Effects
			Lowland hay meadows *(Alopecurus pratensis, Sanguisorba officinalis)* [6510]	Considering the QIs of this SAC and given the nature of the Plan and the distances involved, there are no potential pathways for direct land use management effects, as the site is outside of the Plan boundary. There is a direct surface hydrological connection between the Plan area and the SAC. However, there is a considerable dilution effect due to the distances involved, therefore, there are no pathways with a likelihood for significant effect for hydrological interactions to the SAC. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.		
002241	Lough Derg, North-East Shore SAC	94.50	Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210], Taxus baccata woods of the British Isles [91J0], Juniperus communis formations on heaths or calcareous grasslands [5130], Alkaline fens [7230], Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0], Limestone pavements [8240]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. This SAC is sensitive to direct land use management activities. hydrological interactions and groundwater interactions. This site exists 94.50 km outside of the Plan area. There is a direct surface hydrological connection between the Plan area and this site and there is no shared groundwater body between the Plan boundary and this European site. Considering the QIs of this SAC and given the nature of the Plan and the distances involved, there are no potential pathways for direct land use management effects, as the site is outside of the Plan boundary. There is a direct surface hydrological connection between the Plan area and the SAC. However, there is a considerable dilution effect due to the distances involved, therefore, there are no pathways with a likelihood for significant effect for hydrological interactions to the SAC. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.	No	No
004058	Lough Derg (Shannon) SPA	94.62	Cormorant *(Phalacrocorax carbo)* [A017], Common tern *(Sterna hirundo)* [A193], Tufted Duck *(Aythya fuligula)* [A061], Goldeneye *(Bucephala clangula)* [A067], Wetland and Waterbirds [A999]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. The SPA is sensitive to direct land use management activities, hydrological interactions and disturbance effects. This site exists 94.62 km outside of the Plan area. There is a direct surface hydrological connection between the Plan area and this site. SCI species are sensitive to disturbance effects; in general distances beyond 2 km are seen to be sufficient to preclude such effects[54,55]. These distances can vary due to factors such as species and/or time of year[56,57]. Given the distance between the Plan area and the SPA there are no pathways for disturbance effects identified. SCI species are highly vagile and therefore may utilise ex-situ ecological resources which may have interactions with the Plan; however, at this scale landscape characteristics and the availability of alternate resources ensure the local scale interactions with ex-situ resources are not likely to have significant effects on the SPA. Considering the SCIs of this SPA, and given the nature of the Plan and the distance involved between the Plan area and the SPA, there are no sources of effect for direct land use management or disturbance effects to the SPA. In addition, there are no sources of effect for hydrological interactions considering the distances involved and the significant dilution effect along the direct surface hydrological connection. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.	No	No
002165	Lower River Shannon SAC	126.99	Otter *(Lutra lutra)* [1355], Reefs [1170], Atlantic salmon *(Salmo salar)* [1106], Freshwater pearl mussel *(Margaritifera margaritifera)* [1029], Salicornia and other annuals colonising mud and sand [1310], Bottlenose dolphin *(Tursiops truncatus)* [1349], Vegetated sea cliffs of the Atlantic and Baltic coasts [1230], Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0], Water courses of plain to	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. This SAC is sensitive to direct land use management activities. hydrological interactions and groundwater interactions. This site exists 126.99 km outside of the Plan area. There is a direct surface hydrological connection between the Plan area and this site and there is no shared groundwater body between the Plan boundary and this European site. Considering the QIs of this SAC and given the nature of the Plan and the distances involved, there are no potential pathways for direct land use management effects, as the site is outside of the Plan boundary. There is a direct surface hydrological connection between the Plan area and the SAC. However, there is a considerable dilution effect due to the distances involved, therefore, there are no pathways with a likelihood for significant effect for hydrological interactions to the SAC.	No	No

[54] Rudock, M. and Whitfield, D.P., 2007. A review of disturbance distances in selected bird species. A report from Natural Research (Projects) Ltd to Scottish Natural Heritage, 181.
[55] Bright, J.A., Langston, R. and Anthony, S., 2009. Mapped and written guidance in relation to birds and onshore wind energy development in England. Sandy: RSPB.
[56] Bötsch, Y., Tablado, Z. and Jenni, L., 2017. Experimental evidence of human recreational disturbance effects on bird-territory establishment. Proceedings of the Royal Society B: Biological Sciences, 284(1858), p.20170846.
[57] Goss-Custard, J.D., Hoppe, C.H., Hood, M.J. and Stillman, R.A., 2020. Disturbance does not have a significant impact on waders in an estuary close to conurbations: importance of overlap between birds and people in time and space. Ibis, 162(3), pp.845-862.

Site Code	Site Name	Distance (km)	Qualifying Feature[17]	Analysis for Likely Significant Effects (Refer also to Section 3.3 above)	Likelihood of Significant Effects	Likelihood of Significant In-Combination Effects
			montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260], Sandbanks which are slightly covered by sea water all the time [1110], Mudflats and sandflats not covered by seawater at low tide [1140], Sea lamprey *(Petromyzon marinus)* [1095], Large shallow inlets and bays [1160], Perennial vegetation of stony banks [1220], Estuaries [1130], Coastal lagoons [1150], Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)* [1330], Mediterranean salt meadows *(Juncetalia maritimi)* [1410], Brook lamprey *(Lampetra planeri)* [1096], Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinion caeruleae)* [6410], River lamprey *(Lampetra fluviatilis)* [1099]	Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.		
004077	River Shannon and River Fergus Estuaries SPA	136.42	Black-headed Gull *(Chroicocephalus ridibundus)* [A179], Wigeon *(Anas penelope)* [A855], Redshank *(Tringa totanus)* [A162], Curlew *(Numenius arquata)* [A160], Shelduck *(Tadorna tadorna)* [A048], Greenshank *(Tringa nebularia)* [A164], Whooper Swan *(Cygnus cygnus)* [A038], Shoveler *(Anas clypeata)* [A056], Ringed Plover *(Charadrius hiaticula)* [A137], Bar-tailed Godwit *(Limosa lapponica)* [A157], Wetland and Waterbirds [A999], Teal *(Anas crecca)* [A052], Grey Plover *(Pluvialis squatarola)* [A141], Light-bellied Brent Goose *(Branta bernicla hrota)* [A674], Lapwing *(Vanellus vanellus)* [A142], Black-tailed Godwit *(Limosa limosa)* [A156], Scaup *(Aythya marila)* [A062], Knot *(Calidris canutus)* [A143], Cormorant *(Phalacrocorax carbo)* [A017], Golden Plover *(Pluvialis apricaria)* [A140], Dunlin *(Calidris alpina)* [A149], Pintail *(Anas acuta)* [A054]	The Plan provides a framework for land use development and activities with potential for construction and operation source effects throughout the Plan area. The SPA is sensitive to direct land use management activities, hydrological interactions and disturbance effects. This site exists 136.42 km outside of the Plan area. There is a direct surface hydrological connection between the Plan area and this site. SCI species are sensitive to disturbance effects; in general distances beyond 2 km are seen to be sufficient to preclude such effects[58,59]. These distances can vary due to factors such as species and/or time of year[60,61]. Given the distance between the Plan area and the SPA there are no pathways for disturbance effects identified. SCI species are highly vagile and therefore may utilise ex-situ ecological resources which may have interactions with the Plan; however, at this scale landscape characteristics and the availability of alternate resources ensure the local scale interactions with ex-situ resources are not likely to have significant effects on the SPA. Considering the SCIs of this SPA, and given the nature of the Plan and the distance involved between the Plan area and the SPA, there are no sources of effect for direct land use management or disturbance effects to the SPA. In addition, there are no sources of effect for hydrological interactions considering the distances involved and the significant dilution effect along the direct surface hydrological connection. Thus, there are no sources with pathways for likely significant effects foreseen and no further assessment is required.	No	No

[58] Rudock, M. and Whitfield, D.P., 2007. A review of disturbance distances in selected bird species. A report from Natural Research (Projects) Ltd to Scottish Natural Heritage, 181.
[59] Bright, J.A., Langston, R. and Anthony, S., 2009. Mapped and written guidance in relation to birds and onshore wind energy development in England. Sandy: RSPB.
[60] Bötsch, Y., Tablado, Z. and Jenni, L., 2017. Experimental evidence of human recreational disturbance effects on bird-territory establishment. Proceedings of the Royal Society B: Biological Sciences, 284(1858), p.20170846.
[61] Goss-Custard, J.D., Hoppe, C.H., Hood, M.J. and Stillman, R.A., 2020. Disturbance does not have a significant impact on waders in an estuary close to conurbations: importance of overlap between birds and people in time and space. Ibis, 162(3), pp.845-862.

3.5 Other Plans and Programmes

Article 6(3) of the Habitats Directive requires an assessment of a plan or project to consider other plans or programmes that might, in combination with the Plan or project, have likely significant effects upon European sites. As there are no provisions in the Plan that have a likelihood for introducing any sources for significant effects to European sites (see Section 3.3 and Table 3.1), there are no likely significant in-combination effect(s) with any other Plan that would result from the implementation of the Draft Carrick-on-Shannon Joint Local Area Plan 2025-2031.

Section 4 Screening for AA Conclusion

This report is to inform the Screening for AA for the Carrick-on-Shannon Joint Local Area Plan 2025-2031 to be adopted[62], which sets out a strategy for the proper planning and sustainable development of Carrick-on-Shannon.

Following the source-pathway-receptor model, the QIs, SCIs and Conservation Objectives of the relevant European sites were assessed in the context of the provisions of the Plan. No source for a likely significant effect on any European site would arise from implementation of the Plan.

In addition, the Plan fully aligns with the provisions of the existing wider planning framework, including the National Planning Framework, Ireland 2040, the National Climate Action Plan 2024, the Northern and Western Regional Spatial and Economic Strategy, the Leitrim County Development Plan 2023-2029, the Roscommon County Development Plan 2022-2028, the Leitrim Climate Action Plan 2024-2029 and the Roscommon Climate Action Plan 2024-2029, all of which have been subject to legislative requirements relating to public consultation and the AA process. With respect to the Leitrim and Roscommon County Development Plans, in particular, the provisions of these plans take precedence over the Local Area Plan. All development proposals put forward in accordance with the Local Area Plan's provisions must also comply with the relevant County Development Plan.

Therefore, the Plan does not introduce any additional source for an effect that was not already considered by the existing planning framework and associated AA processes.

Thus, it is concluded in this Screening for AA Report to inform the competent authorities carrying out the AA Screening, that the Plan is not foreseen to have any likelihood for any significant effect on any European site, alone or in combination with other plans or projects – and any likelihood for any significant effect to any European site as a result of implementing Plan can be ruled out.

This evaluation is made in view of the conservation objectives of the QIs and SCIs for which these sites have been designated. Consequently, Stage Two AA (including the preparation of a Natura Impact Report) is not required.

[62] Incorporating the Draft Plan and all and any material alterations and associated modifications considered by the AA process.

Appendix I Supporting information on European Sites

List of European Sites considered by the screening assessment; including the Qualifying features (Qualifying Interests or Special Conservation Interests) and Site Vulnerability/Sensitivity

Site Code	Site Name	Qualifying Feature[63]	Pressure Codes	Known Threats and Pressures
000216	River Shannon Callows SAC	Otter *(Lutra lutra)* [1355], Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0], Limestone pavements [8240], Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinion caeruleae)* [6410], Lowland hay meadows *(Alopecurus pratensis, Sanguisorba officinalis)* [6510], Alkaline fens [7230]	A03.03, A04.03, G05.01, A04.02.05, B02.02, A08, A04.01, J02.05, J02.11, J02.04.01, A03, A07, C01.03.02, B06, A10.01, D01.01, J02.01, K03.04, J02.05.02, F03.01, G01	Abandonment or lack of mowing , abandonment of pastoral systems lack of grazing, trampling, overuse, non-intensive mixed animal grazing, forestry clearance, fertilisation, intensive grazing, modification of hydrographic functioning, general, siltation rate changes, dumping, depositing of dredged deposits, flooding, mowing or cutting of grassland, use of biocides, hormones and chemicals, mechanical removal of peat, grazing in forests or woodland, removal of hedges and copses or scrub, paths, tracks, cycling tracks, landfill, land reclamation and drying out, general, predation, modifying structures of inland water courses, hunting, outdoor sports and leisure activities, recreational activities
000440	Lough Ree SAC	Otter *(Lutra lutra)* [1355], Limestone pavements [8240], Semi-natural dry grasslands and scrubland facies on calcareous substrates *(Festuco-Brometalia)* * important orchid sites [6210], Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0], Alkaline fens [7230], Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150], Active raised bogs [7110], Bog woodland [91D0], Degraded raised bogs still capable of natural regeneration [7120]	G02.09, K03.05, G01.01, J02.11.02, J02.04, B02, G01.02, H01.08, H02.06, A08, L08, A03.03, A04, D03.01.02, H06.03, F03.01, F02.03, E01.03, I01	Wildlife watching, antagonism arising from introduction of species, nautical sports, other siltation rate changes, flooding modifications, forest and plantation management & use, walking, horse-riding and non-motorised vehicles, diffuse pollution to surface waters due to household sewage and waste waters, diffuse groundwater pollution due to agricultural and forestry activities, fertilisation, inundation (natural processes), abandonment or lack of mowing , grazing, piers or tourist harbours or recreational piers, thermal heating of water bodies, hunting, leisure fishing, dispersed habitation, invasive non-native species
000584	Cuilcagh - Anierin Uplands SAC	European dry heaths [4030], Slender green feather-moss *(Hamatocaulis vernicosus)* [6216], Oligotrophic waters containing very few minerals of sandy plains *(Littorelletalia uniflorae)* [3110], Northern Atlantic wet heaths with Erica tetralix [4010], Alpine and Boreal heaths [4060], Siliceous rocky slopes with chasmophytic vegetation [8220], Petrifying springs with tufa formation *(Cratoneurion)* [7220], Species-rich Nardus grasslands, on siliceous substrates in mountain areas - and submountain areas in Continental Europe [6230], Siliceous scree of the montane to snow levels *(Androsacetalia alpinae and Galeopsietalia ladani)* [8110], Transition mires and quaking bogs [7140], Blanket bogs * if active bog [7130], Natural dystrophic lakes and ponds [3160]	A01, H01.05, D01.01, G01.03.02, I02, K01.01, D01.02, B01.02, A04.01.02, G05.01, G05.07, G05.09, C01.03, A04.01.03, J01, A04.02.03, H05.01, G01.02, B02.01, B, F03.02.02, A07	Cultivation, diffuse pollution to surface waters due to agricultural and forestry activities, paths, tracks, cycling tracks, off-road motorized driving, problematic native species, erosion, roads, motorways, artificial planting on open ground (non-native trees), intensive sheep grazing, trampling, overuse, missing or wrongly directed conservation measures, fences, fencing, peat extraction, intensive horse grazing, fire and fire suppression, non-intensive horse grazing, garbage and solid waste, walking, horse-riding and non-motorised vehicles, forest replanting, sylviculture, forestry, taking from nest (e.g., falcons), use of biocides, hormones and chemicals
000595	Callow Bog SAC	Active raised bogs [7110], Depressions on peat substrates of the Rhynchosporion [7150], Degraded raised bogs still capable of natural regeneration [7120]	X, B, J02.04, J02.15, J01.01, C01.03.02	No threats or pressures, sylviculture, forestry, flooding modifications, other human induced changes in hydraulic conditions, burning down, mechanical removal of peat
000604	Derrinea Bog SAC	Degraded raised bogs still capable of natural regeneration [7120], Active raised bogs [7110], Depressions on peat substrates of the Rhynchosporion [7150]	A04, E03.01, J02.05, I01	Grazing, disposal of household or recreational facility waste, modification of hydrographic functioning, general, invasive non-native species
000607	Errit Lough SAC	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140]	G05, X	Other human intrusions and disturbances, no threats or pressures
000612	Mullygollan Turlough SAC	Turloughs [3180]	F03.01, A08, A04	Hunting, fertilisation, grazing
000614	Cloonshanville Bog SAC	Bog woodland [91D0], Active raised bogs [7110], Degraded raised bogs still capable of natural regeneration [7120], Depressions on peat substrates of the Rhynchosporion [7150]	X, C01.03.02, J02.04, B	No threats or pressures, mechanical removal of peat, flooding modifications, sylviculture, forestry
001571	Urlaur Lakes SAC	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140]	C01.03.01, J02, A04, F02.03, E03.01, E01.03, C01.03.02, D01.02, A08	Hand cutting of peat, human induced changes in hydraulic conditions, grazing, leisure fishing, disposal of household or recreational facility waste, dispersed habitation, mechanical removal of peat, roads, motorways, fertilisation
001626	Annaghmore Lough (Roscommon) SAC	Geyer`s whorl snail *(Vertigo geyeri)* [1013], Alkaline fens [7230]	A04.02.01, J01, A02, A04.03	Non-intensive cattle grazing, fire and fire suppression, modification of cultivation practices, abandonment of pastoral systems lack of grazing
001673	Lough Arrow SAC	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140]	I01, X, D03.01.02, G02, A10.01, J02.01.03	Invasive non-native species, no threats or pressures, piers or tourist harbours or recreational piers, sport and leisure structures, removal of hedges and copses or scrub, infilling of ditches, dykes, ponds, pools, marshes or pits
001818	Lough Forbes Complex SAC	Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0], Degraded raised bogs still capable of natural regeneration [7120], Natural eutrophic lakes with	I01, J02.15, G02.09, A03.02, H02.06, J02.07.02,	Invasive non-native species, other human induced changes in hydraulic conditions, wildlife watching, non-intensive mowing, diffuse groundwater pollution due to agricultural and forestry activities, groundwater abstractions for public water supply,

[63] Tern used to encompass both Qualifying Interests and Special Conservation Interests

Site Code	Site Name	Qualifying Feature[63]	Pressure Codes	Known Threats and Pressures
		Magnopotamion or Hydrocharition - type vegetation [3150], Active raised bogs [7110], Depressions on peat substrates of the Rhynchosporion [7150]	F03.01, A03.03, A04.03, F02.03	hunting, abandonment or lack of mowing , abandonment of pastoral systems lack of grazing, leisure fishing
002165	Lower River Shannon SAC	Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0], River lamprey *(Lampetra fluviatilis)* [1099], Vegetated sea cliffs of the Atlantic and Baltic coasts [1230], Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinion caeruleae)* [6410], Sea lamprey *(Petromyzon marinus)* [1095], Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260], Bottlenose dolphin *(Tursiops truncatus)* [1349], Mudflats and sandflats not covered by seawater at low tide [1140], Atlantic salmon *(Salmo salar)* [1106], Freshwater pearl mussel *(Margaritifera margaritifera)* [1029], Salicornia and other annuals colonising mud and sand [1310], Mediterranean salt meadows *(Juncetalia maritimi)* [1410], Brook lamprey *(Lampetra planeri)* [1096], Estuaries [1130], Coastal lagoons [1150], Sandbanks which are slightly covered by sea water all the time [1110], Reefs [1170], Large shallow inlets and bays [1160], Perennial vegetation of stony banks [1220], Otter *(Lutra lutra)* [1355], Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)* [1330]	G01.01, A08, F02.03, F01, A04, C01.03.01, J02.12.01, D01.01, F03.01, B, C01.01.02, E03, I01, J02.01.02, H04, J02.10, J02.01.01, E01, K02.03	Nautical sports, fertilisation, leisure fishing, marine and freshwater aquaculture, grazing, hand cutting of peat, sea defence or coast protection works, tidal barrages, paths, tracks, cycling tracks, hunting, sylviculture, forestry, removal of beach materials, discharges, invasive non-native species, reclamation of land from sea, estuary or marsh, air pollution, air-borne pollutants, management of aquatic and bank vegetation for drainage purposes, polderisation, urbanised areas, human habitation, eutrophication (natural)
002241	Lough Derg, North-East Shore SAC	Alkaline fens [7230], Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210], Taxus baccata woods of the British Isles [91J0], Juniperus communis formations on heaths or calcareous grasslands [5130], Alluvial forests with Alnus glutinosa and Fraxinus excelsior *(Alno-Padion, Alnion incanae, Salicion albae)* [91E0], Limestone pavements [8240]	D03.01.02, C01, A08, I02, D01.01, K02.03, A04.02.05, H01.08, A04.01, A10.01, M01.03, J02, K02.01, I01, J02.01.03, M01.02, B02.01.01, G02.09, M01.01, H01, G01, J02.10	Piers or tourist harbours or recreational piers, mining and quarrying, fertilisation, problematic native species, paths, tracks, cycling tracks, eutrophication (natural), non-intensive mixed animal grazing, diffuse pollution to surface waters due to household sewage and waste waters, intensive grazing, removal of hedges and copses or scrub, flooding and rising precipitations, human induced changes in hydraulic conditions, species composition change (succession), invasive non-native species, infilling of ditches, dykes, ponds, pools, marshes or pits, droughts and less precipitations, forest replanting (native trees), wildlife watching, temperature changes (e.g., rise of temperature & extremes), pollution to surface waters (limnic & terrestrial, marine & brackish), outdoor sports and leisure activities, recreational activities, management of aquatic and bank vegetation for drainage purposes
002338	Drumalough Bog SAC	Active raised bogs [7110], Depressions on peat substrates of the Rhynchosporion [7150], Degraded raised bogs still capable of natural regeneration [7120]	X, J02.05, E03.01, I01	No threats or pressures, modification of hydrographic functioning, general, disposal of household or recreational facility waste, invasive non-native species
004058	Lough Derg (Shannon) SPA	Common tern *(Sterna hirundo)* [A193], Goldeneye *(Bucephala clangula)* [A067], Wetland and Waterbirds [A999], Cormorant *(Phalacrocorax carbo)* [A017], Tufted Duck *(Aythya fuligula)* [A061]	G01.01, A08, F03.01, F02.03	Nautical sports, fertilisation, hunting, leisure fishing
004064	Lough Ree SPA	Lapwing *(Vanellus vanellus)* [A142], Tufted Duck *(Aythya fuligula)* [A061], Wigeon *(Anas penelope)* [A855], Whooper Swan *(Cygnus cygnus)* [A038], Shoveler *(Anas clypeata)* [A056], Common Scoter *(Melanitta nigra)* [A065], Golden Plover *(Pluvialis apricaria)* [A140], Goldeneye *(Bucephala clangula)* [A067], Mallard *(Anas platyrhynchos)* [A053], Wetland and Waterbirds [A999], Coot *(Fulica atra)* [A125], Common tern *(Sterna hirundo)* [A193], Little Grebe *(Tachybaptus ruficollis)* [A004], Teal *(Anas crecca)* [A052]	A04, I01, G01.02, B, F03.01, F02.03, G01.01, A08	Grazing, invasive non-native species, walking, horse-riding and non-motorised vehicles, sylviculture, forestry, hunting, leisure fishing, nautical sports, fertilisation
004077	River Shannon and River Fergus Estuaries SPA	Redshank *(Tringa totanus)* [A162], Whooper Swan *(Cygnus cygnus)* [A038], Shoveler *(Anas clypeata)* [A056], Curlew *(Numenius arquata)* [A160], Bar-tailed Godwit *(Limosa lapponica)* [A157], Black-headed Gull *(Chroicocephalus ridibundus)* [A179], Wigeon *(Anas penelope)* [A855], Ringed Plover *(Charadrius hiaticula)* [A137], Scaup *(Aythya marila)* [A062], Shelduck *(Tadorna tadorna)* [A048], Greenshank *(Tringa nebularia)* [A164], Black-tailed Godwit *(Limosa limosa)* [A156], Dunlin *(Calidris alpina)* [A149], Pintail *(Anas acuta)* [A054], Wetland and Waterbirds [A999], Golden Plover *(Pluvialis apricaria)* [A140], Teal *(Anas crecca)* [A052], Grey Plover *(Pluvialis squatarola)* [A141], Light-bellied Brent Goose *(Branta bernicla hrota)* [A674], Lapwing *(Vanellus vanellus)* [A142], Knot *(Calidris canutus)* [A143], Cormorant *(Phalacrocorax carbo)* [A017]	F01, D03.02, E02, E01, A08, G01.01, E03	Marine and freshwater aquaculture, shipping lanes, industrial or commercial areas, urbanised areas, human habitation, fertilisation, nautical sports, discharges
004096	Middle Shannon Callows SPA	Black-tailed Godwit *(Limosa limosa)* [A156], Lapwing *(Vanellus vanellus)* [A142], Wigeon *(Anas penelope)* [A855], Wetland and Waterbirds [A999], Corncrake *(Crex crex)* [A122], Black-headed Gull *(Chroicocephalus ridibundus)* [A179], Whooper Swan *(Cygnus cygnus)* [A038], Golden Plover *(Pluvialis apricaria)* [A140]	A04, A04.03, G01.01, E01, F03.01, D01.05, D01.01, A03, A08, F02.03, G01.02	Grazing, abandonment of pastoral systems lack of grazing, nautical sports, urbanised areas, human habitation, hunting, bridge, viaduct, paths, tracks, cycling tracks, mowing or cutting of grassland, fertilisation, leisure fishing, walking, horse-riding and non-motorised vehicles
004101	Ballykenny-Fisherstown Bog SPA	Greenland White-fronted Goose *(Anser albifrons flavirostris)* [A395]	F02.03, A04, G01.01, F03.01, B	Leisure fishing, grazing, nautical sports, hunting, sylviculture, forestry

List of all Qualifying Interests of SACs that have been considered by the screening assessment, including Summaries of Current Threats and Sensitivity to Effects

EU Code	Qualifying Interests	Article 17 Report Summary - Threats and Pressures	Threats and Pressures Codes	Known Threats and Pressures	Sensitivity of Qualifying Interests
[1013]	Geyer's Whorl Snail *(Vertigo geyeri)*	The main pressures facing this species are associated with abandonment of land, and both under-grazing and overgrazing by livestock.	A06, A09, A10, K04	Abandonment of grassland management (e.g., cessation of grazing or of mowing), intensive grazing or overgrazing by livestock, extensive grazing or under grazing by livestock, modification of hydrological flow	Changes to ground vegetation condition, groundwater dependent and is highly sensitive to hydrological changes.
[1029]	Freshwater Pearl Mussel *(Margaritifera margaritifera)*	The pressures facing this species come from a wide variety of sources (e.g. pollution from urban wastewater, development activities, farming and forestry), often quite removed from the species' habitat. Flow changes, caused by land drainage are also a significant pressure facing the species.	A26, A31, B23, B27, C05, D02, F12, F28, F31, F33	Agricultural activities generating diffuse pollution to surface or ground waters, drainage for use as agricultural land, forestry activities generating pollution to surface or ground waters, modification of hydrological conditions, or physical alteration of water bodies and drainage for forestry (including dams), peat extraction, hydropower (dams, weirs, run-off-the-river), including infrastructure, discharge of urban waste water (excluding storm overflows and/or urban run-offs) generating pollution to surface or ground water, modification of flooding regimes, flood protection for residential or recreational development, other modification of hydrological conditions for residential or recreational development, abstraction of ground and surface waters (including marine) for public water supply and recreational use	Surface water dependent. Highly sensitive to hydrological change. Very highly sensitive to pollution.
[1095]	Sea Lamprey *(Petromyzon marinus)*	Most of the pressures on Sea Lampreys are associated with hydropower infrastructure, reduction of prey populations due to overharvesting, drainage and the use of both natural and synthetic fertilisers. Changes in rainfall due to climate change is also considered a significant pressure on the species.	A19, A20, A31, D02, G01, N01, N02, N03, Xo	Application of natural fertilisers on agricultural land, application of synthetic (mineral) fertilisers on agricultural land, drainage for use as agricultural land, hydropower (dams, weirs, run-off-the-river), including infrastructure, marine fishing and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species, temperature changes (e.g., rise of temperature & extremes) due to climate change, increases or changes in precipitation due to climate change, threats and pressures from outside the member state	Marine water dependent. Low sensitivity to hydrological changes. Coastal development, trampling from recreational activity.
[1096]	Brook Lamprey *(Lampetra planeri)*	Most of the pressures on Brook Lampreys are associated with drainage for agriculture, the use of both natural and synthetic fertilisers, tree removal. Infrastructure related to hydropower along with pollution to ground and surface water and the discharge of waste water are also considered pressures.	A19, A20, A31, B09, D02, F11, F12, N01, N02	Application of natural fertilisers on agricultural land, application of synthetic (mineral) fertilisers on agricultural land, drainage for use as agricultural land, clear-cutting, removal of all trees, hydropower (dams, weirs, run-off-the-river), including infrastructure, pollution to surface or ground water due to urban runoffs, discharge of urban waste water (excluding storm overflows and/or urban run-offs) generating pollution to surface or ground water, temperature changes (e.g., rise of temperature & extremes) due to climate change	Surface water dependent. Highly sensitive to hydrological change. Availability of suitable spawning ground is a considerable issue for the species.
[1099]	River Lamprey *(Lampetra fluviatilis)*	The main pressures on River Lampreys are associated with hydropower infrastructure and changes in rainfall due to climate change. The use of synthetic and natural fertilisers, drainage and also infrastructure related to shipping are also considered to be pressures on the species.	A19, A20, A31, D02, E03, N01, N02, N03	Application of natural fertilisers on agricultural land, application of synthetic (mineral) fertilisers on agricultural land, drainage for use as agricultural land, hydropower (dams, weirs, run-off-the-river), including infrastructure, shipping lanes, ferry lanes and anchorage infrastructure (e.g., canalisation, dredging), temperature changes (e.g., rise of temperature & extremes) due to climate change, increases or changes in precipitation due to climate change	Surface water dependent. Highly sensitive to hydrological change. Availability of suitable spawning ground is a considerable issue for the species.
[1106]	Salmon *(Salmo salar)*	Known pressures include exploitation at sea in commercial fisheries, interceptor fisheries in coastal waters, aquaculture and predation. In addition, the negative influence of climate change on prey structure as well as alterations in habitat and water quality are also pressures on the species.	A25, A26, B23, D02, F12, F28, G11, G19, G20, I02, J01, K05, L06, N01	Agricultural activities generating point source pollution to surface or ground waters, agricultural activities generating diffuse pollution to surface or ground waters, forestry activities generating pollution to surface or ground waters, hydropower (dams, weirs, run-off-the-river), including infrastructure, discharge of urban waste water (excluding storm overflows and/or urban run-offs) generating pollution to surface or ground water, modification of flooding regimes, flood protection for residential or recreational development, illegal harvesting, collecting and taking, other impacts from marine aquaculture, including infrastructure, abstraction of water, flow diversion, dams and other modifications of hydrological conditions for freshwater aquaculture, other invasive alien species (other than species of union concern), mixed source pollution to surface and ground waters (limnic and terrestrial), physical alteration of water bodies, interspecific relations (competition, predation, parasitism, pathogens), temperature changes (e.g., rise of temperature & extremes) due to climate change	Disease, parasites and barriers to movement.
[1110]	Sandbanks which are slightly covered by sea water all the time	No significant pressures were identified acting on this habitat.	Xxp, Xxt	No pressures, no threats	None identified.

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[1130]	Estuaries	Most of the pressures on estuaries come from various sources of pollution, including domestic wastewater, agriculture and marine aquaculture. Alien invasive species such as the naturalised Pacific oyster (Magalana gigas) are also recognised as a significant pressure	A28, F20, G16, I02, XU	Agricultural activities generating marine pollution, residential or recreational activities and structures generating marine pollution (excl. marine macro- and micro-particular pollution, marine aquaculture generating marine pollution, other invasive alien species (other than species of union concern), unknown pressure	Inappropriate development, changes in turbidity
[1140]	Mudflats and sandflats not covered by seawater at low tide	Pressures on mudflats and sandflats are partly caused by pollution from agricultural, forestry and wastewater sources, as well as impacts associated with marine aquaculture, particularly the Pacific oyster (Magallana gigas).	A28, F20, G16	Agricultural activities generating marine pollution, residential or recreational activities and structures generating marine pollution (excl. marine macro- and micro-particular pollution, marine aquaculture generating marine pollution	Surface and marine water dependent. Moderately sensitive to hydrological change. Moderate sensitivity to pollution. Changes to salinity and tidal regime. Coastal development.
[1150]	Coastal lagoons	Several high-ranking pressures were identified acting on this habitat: eutrophication, modification of hydrological flow, and drainage. Other pressures noted include erosion and silting up, accumulation of seaweed, and sedimentation from peat related to turf cutting and/or forestry.	C12, J02, K02, K04, L01, L03, N04	Extraction activities generating marine pollution, mixed source marine water pollution (marine and coastal), drainage, modification of hydrological flow, abiotic natural processes (e.g., erosion, silting up, drying out, submersion, salinization), accumulation of organic material, sea-level and wave exposure changes due to climate change	Erosion and silting up. Accumulation of seaweed. Land use management resulting in hydrological interactions.
[1160]	Large shallow inlets and bays	Pressures on the habitat include nutrient enrichment, dredging and invasive alien species.	A28, B23, F20, G01, G16, I02	Agricultural activities generating marine pollution, forestry activities generating pollution to surface or ground waters, residential or recreational activities and structures generating marine pollution (excl. marine macro- and micro- particular pollution, marine fishing and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species, marine aquaculture generating marine pollution, other invasive alien species (other than species of union concern)	Inappropriate development, changes in turbidity, surface water runoff, discharge etc. On site management activities.
[1170]	Reefs	The main pressures on reefs come from fishing methods that damage the seafloor.	G01, G03	Marine fishing and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species, marine fish and shellfish harvesting (professional, recreational) activities causing physical loss and disturbance of seafloor habitats	Sensitive to disturbance and pollution.
[1220]	Perennial vegetation of stony banks	The main pressures on this habitat are associated with coastal defences (which can interfere with sediment dynamics), recreation and shingle removal.	C01, E01, F07, F08, F09, I02	Extraction of minerals (e.g., rock, metal ores, gravel, sand, shell), roads, paths, railroads and related infrastructure (e.g., bridges, viaducts, tunnels), sports, tourism and leisure activities, modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defence or coast protection works and infrastructures), deposition and treatment of waste/garbage from household/recreational facilities, other invasive alien species (other than species of union concern)	Marine water dependent. Low sensitivity to hydrological changes. Coastal development, trampling from recreational activity and gravel removal.
[1230]	Vegetated sea cliffs of the Atlantic and Baltic coasts	A number of significant pressures were identified, including trampling by walkers, invasive non-native species, gravel extraction, and sea-level and wave exposure changes due to climate change.	C01, E01, F07, F08, I02, N03, N04	Extraction of minerals (e.g., rock, metal ores, gravel, sand, shell), roads, paths, railroads and related infrastructure (e.g., bridges, viaducts, tunnels), sports, tourism and leisure activities, modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defence or coast protection works and infrastructures), other invasive alien species (other than species of union concern), increases or changes in precipitation due to climate change, sea-level and wave exposure changes due to climate change	Land use activities such as tourism and/or agricultural practices. Direct alteration to the habitat or effects such as burning or drainage.
[1310]	Salicornia and other annuals colonising mud and sand	Pressures on Salicornia mud are caused by alien species and overgrazing by livestock	A09, I02	Intensive grazing or overgrazing by livestock, other invasive alien species (other than species of union concern)	Marine water dependent. Medium sensitivity to hydrological change. Changes in salinity and tidal regime. Infilling, reclamation, invasive species.
[1330]	Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)*	The main pressures on Atlantic salt meadows are from agriculture, including ecologically unstable grazing regimes and land reclamation, and the invasive non-native species common cord-grass (*Spartina anglica*).	A09, A33, A36, F07, F08, I02	Intensive grazing or overgrazing by livestock, modification of hydrological flow or physical alternation of water bodies for agriculture (excluding development and operation of dams), agriculture activities not referred to above, sports, tourism and leisure activities, modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defence or coast protection	Marine and groundwater dependent. Medium sensitivity to hydrological change. Changes in salinity and tidal regime. Overgrazing, erosion and accretion.

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				works and infrastructures), other invasive alien species (other than species of union concern)	
[1349]	Bottlenose Dolphin *(Tursiops truncatus)*	Pressures on this species in Irish waters mainly involve commercial vessel-based activities such as impacts arising from geophysical seismic exploration or from local/regional prey removal by fisheries.	C09, G01	Geotechnical surveying, marine fishing and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species	Large vessel movement effecting distributions. Prey availability, reduction in available habitat and water quality.
[1355]	Otter *(Lutra lutra)*	There are no pressures facing this species	Xxp, Xxt	No pressures, no threats	Surface and marine water dependent. Moderately sensitive to hydrological change. Sensitivity to pollution.
[1410]	Mediterranean salt meadows *(Juncetalia maritimi)*	Most of the pressures on Mediterranean salt meadows are associated with agriculture, including overgrazing, under-grazing and land reclamation.	A09, A10, A33, A36	Intensive grazing or overgrazing by livestock, extensive grazing or under grazing by livestock, modification of hydrological flow or physical alternation of water bodies for agriculture (excluding development and operation of dams), agriculture activities not referred to above	Marine and groundwater dependent. Medium sensitivity to hydrological change. Changes in salinity and tidal regime. Coastal development and reclamation.
[3110]	Oligotrophic waters containing very few minerals of sandy plains *(Littorelletalia uniflorae)*	This habitat is under significant pressure from eutrophication, and from drainage and other damage to peatland. Damage to peatland can result in hydrological changes in lakes, increased organic matter, water colour and turbidity, changes in sediment characteristics, acidification and enrichment.	A26, A31, B23, B27, C05, F12	Agricultural activities generating diffuse pollution to surface or ground waters, drainage for use as agricultural land, forestry activities generating pollution to surface or ground waters, modification of hydrological conditions, or physical alteration of water bodies and drainage for forestry (including dams), peat extraction, discharge of urban waste water (excluding storm overflows and/or urban run-offs) generating pollution to surface or ground water	Surface dependant. Highly sensitive to hydrological changes. Highly sensitive to pollution.
[3140]	Hard oligo-mesotrophic waters with benthic vegetation of muskgrass *(Chara spp.)*	The hard-water lake habitat is under significant pressure from eutrophication, the primary sources of nutrient and organic pollution being agriculture and municipal and industrial wastewaters.	A25, A26, A31, B23, B27, C05, F12, F13, F33, I02	Agricultural activities generating point source pollution to surface or ground waters, agricultural activities generating diffuse pollution to surface or ground waters, drainage for use as agricultural land, forestry activities generating pollution to surface or ground waters, modification of hydrological conditions, or physical alteration of water bodies and drainage for forestry (including dams), peat extraction, discharge of urban waste water (excluding storm overflows and/or urban run-offs) generating pollution to surface or ground water, plants, contaminated or abandoned industrial sites generating pollution to surface or ground water, abstraction of ground and surface waters (including marine) for public water supply and recreational use, other invasive alien species (other than species of union concern)	Surface and groundwater dependant. Highly sensitive to hydrological changes. Highly sensitive to pollution.
[3150]	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	Most of the pressures on this habitat are as a result of pollution from agriculture, forestry activities and wastewater.	A25, A26, B23, C05, F11, F12, F13, K04, K05	Agricultural activities generating point source pollution to surface or ground waters, agricultural activities generating diffuse pollution to surface or ground waters, forestry activities generating pollution to surface or ground waters, peat extraction, pollution to surface or ground water due to urban runoffs, discharge of urban waste water (excluding storm overflows and/or urban run-offs) generating pollution to surface or ground water, plants, contaminated or abandoned industrial sites generating pollution to surface or ground water, modification of hydrological flow, physical alteration of water bodies	Surface and groundwater dependant. Highly sensitive to hydrological changes. Highly sensitive to pollution.
[3160]	Natural dystrophic lakes and ponds	The pressures on this habitat are associated with pollution from agricultural and forestry activities and also from drainage.	A26, A31, B23, B27, C05, D08	Agricultural activities generating diffuse pollution to surface or ground waters, drainage for use as agricultural land, forestry activities generating pollution to surface or ground waters, modification of hydrological conditions, or physical alteration of water bodies and drainage for forestry (including dams), peat extraction, energy production and transmission activities generating pollution to surface or ground waters	Surface and groundwater dependant. Highly sensitive to hydrological changes. Highly sensitive to pollution
[3180]	Turloughs	The main pressures associated with this habitat are related to drainage, groundwater pollution and ecologically unsuitable grazing.	A09, A26, A31	Intensive grazing or overgrazing by livestock, agricultural activities generating diffuse pollution to surface or ground waters, drainage for use as agricultural land	Surface and groundwater dependant. Highly sensitive to hydrological changes. Highly sensitive to pollution.
[3260]	Water courses of plain to montane levels with vegetation *(Ranunculion fluitantis and Callitricho-Batrachion)*	The majority of pressures on this habitat are caused by damage through hydrological and morphological change, eutrophication and other water pollution.	A25, A26, B23, C05, F11, F12, F13, K01, K04, K05	Agricultural activities generating point source pollution to surface or ground waters, agricultural activities generating diffuse pollution to surface or ground waters, forestry activities generating pollution to surface or ground waters, peat extraction, pollution to surface or ground water due to urban runoffs, discharge of urban waste water (excluding storm overflows and/or urban run-offs) generating pollution to	Surface water dependent Highly sensitive to hydrological change and direct physical interactions.

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				surface or ground water, plants, contaminated or abandoned industrial sites generating pollution to surface or ground water, abstraction from groundwater, surface water or mixed water, modification of hydrological flow, physical alteration of water bodies	
[4010]	Northern Atlantic wet heaths with Erica tetralix	Overgrazing, burning, wind farm development and erosion are the main pressures associated with this habitat, along with nitrogen deposition from agricultural activities that generate air pollution.	A09, A11, A27, B01, D01, L01, N01, N02	Intensive grazing or overgrazing by livestock, burning for agriculture, agricultural activities generating air pollution, conversion to forest from other land uses, or afforestation (excluding drainage), wind, wave and tidal power, including infrastructure, abiotic natural processes (e.g., erosion, silting up, drying out, submersion, salinization), temperature changes (e.g., rise of temperature & extremes) due to climate change	Surface and groundwater dependent. Highly sensitive to hydrological changes. Inappropriate management.
[4030]	European dry heaths	A number of significant pressures were recorded for this habitat in the current reporting period, particularly overgrazing by sheep and burning for agriculture with afforestation and wind farms also being recognised as pressures.	A09, A11, B01, D01, N01, N02	Intensive grazing or overgrazing by livestock, burning for agriculture, conversion to forest from other land uses, or afforestation (excluding drainage), wind, wave and tidal power, including infrastructure, temperature changes (e.g., rise of temperature & extremes) due to climate change	Moderately sensitive to hydrological change. Changes in management. Changes in nutrient status.
[4060]	Alpine and Boreal heaths	Overgrazing by livestock, tourism (hill walking) and agricultural activities that cause air pollution are considered significant pressures for this habitat.	A09, A27, F07, N01, N02	Intensive grazing or overgrazing by livestock, agricultural activities generating air pollution, sports, tourism and leisure activities, temperature changes (e.g., rise of temperature & extremes) due to climate change	Changes in management. Changes in nutrient or base status. Moderately sensitive to hydrological change.
[5130]	Juniperus communis formations on heaths or calcareous grasslands	The pressures associated with this habitat are associated with overgrazing, erosion and scrub removal.	Xxp, Xxt	No pressures, no threats	Changes in management such as grazing regime. Changes in nutrient or base status. Changes to vegetation composition. Introduction of alien species.
[6210]	Semi-natural dry grasslands and scrubland facies on calcareous substrates *(Festuco-Brometalia)* * important orchid sites)	The significant pressures related to this habitat are mainly associated with agricultural intensification causing loss of species-rich communities, or abandonment of farmland resulting in succession to scrub.	A02, A09, A10, C01, I02, I04	Conversion from one type of agricultural land use to another (excluding drainage and burning), intensive grazing or overgrazing by livestock, extensive grazing or under grazing by livestock, extraction of minerals (e.g., rock, metal ores, gravel, sand, shell), other invasive alien species (other than species of union concern), problematic native species	Changes in management such as grazing regime. Changes in nutrient or base status. Changes to vegetation composition. Introduction of alien species.
[6230]	Species-rich Nardus grasslands, on siliceous substrates in mountain areas *(and submountain areas, in Continental Europe)*	The main pressures on this habitat are due to bracken encroachment and succession.	I04, L02	Problematic native species, natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices)	Changes in management such as grazing regime. Changes in nutrient or base status. Changes to vegetation composition. Introduction of alien species.
[6410]	Molinia meadows on calcareous, peaty or clayey-silt-laden soils *(Molinion caeruleae)*	The main pressures on the habitat are associated with agricultural intensification (e.g. land drainage, fertiliser application), under-grazing and forestry.	A02, A06, A10, A14, A31, B01	Conversion from one type of agricultural land use to another (excluding drainage and burning), abandonment of grassland management (e.g., cessation of grazing or of mowing), extensive grazing or under grazing by livestock, livestock farming (without grazing), drainage for use as agricultural land, conversion to forest from other land uses, or afforestation (excluding drainage)	Changes in management such as grazing regime. Changes in nutrient or base status. Changes to vegetation composition. Introduction of alien species.
[6510]	Lowland hay meadows *(Alopecurus pratensis, Sanguisorba officinalis)*	The main pressures associated with this habitat are due to agricultural intensification (fertiliser application) and changes in agricultural practices.	A02, A06, A14, A19, A20	Conversion from one type of agricultural land use to another (excluding drainage and burning), abandonment of grassland management (e.g., cessation of grazing or of mowing), livestock farming (without grazing), application of natural fertilisers on agricultural land, application of synthetic (mineral) fertilisers on agricultural land	Changes in management such as grazing regime. Changes in nutrient or base status. Changes to vegetation composition. Introduction of alien species.
[7110]	Active raised bogs	The main pressures on active raised bog are peat extraction, drainage, afforestation and burning.	A11, B01, C05, K02, N01	Burning for agriculture, conversion to forest from other land uses, or afforestation (excluding drainage), peat extraction, drainage, temperature changes (e.g., rise of temperature & extremes) due to climate change	Surface water interactions. Groundwater isolated system with sensitivities related to the bog basin. Drainage and land use management are the key things.
[7120]	Degraded raised bogs still capable of natural regeneration	The main pressure on degraded bogs come from peat extraction, drainage, afforestation and burning.	A11, B01, C05, K02, N01	Burning for agriculture, conversion to forest from other land uses, or afforestation (excluding drainage), peat extraction, drainage, temperature changes (e.g., rise of temperature & extremes) due to climate change	Surface water interactions. Groundwater isolated system with sensitivities related to the bog basin. Drainage and land use management are the key things.

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[7130]	Blanket bogs *(* if active bog)*	The main pressures on blanket bogs are overgrazing, burning, afforestation, peat extraction, and agricultural activities causing nitrogen deposition. Erosion, drainage and wind farm construction are also pressures relating to this habitat.	A09, A11, A27, B01, C05, D01, K02, L01, N01, N02	Intensive grazing or overgrazing by livestock, burning for agriculture, agricultural activities generating air pollution, conversion to forest from other land uses, or afforestation (excluding drainage), peat extraction, wind, wave and tidal power, including infrastructure, drainage, abiotic natural processes (e.g., erosion, silting up, drying out, submersion, salinization), temperature changes (e.g., rise of temperature & extremes) due to climate change	Surface water interactions. Drainage and land use management are the key things.
[7140]	Transition mires and quaking bogs	The main pressures facing transition mires in Ireland are afforestation, water pollution, drainage and hydrological changes with grazing/agricultural management also being a pressure.	A06, A09, B01, C05, J01, K01, K02, K04, L02	Abandonment of grassland management (e.g., cessation of grazing or of mowing), intensive grazing or overgrazing by livestock, conversion to forest from other land uses, or afforestation (excluding drainage), peat extraction, mixed source pollution to surface and ground waters (limnic and terrestrial), abstraction from groundwater, surface water or mixed water, drainage, modification of hydrological flow, natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices)	Surface water interactions. Groundwater isolated system with sensitivities related to the bog basin. Drainage and land use management are the key things.
[7150]	Depressions on peat substrates of the Rhynchosporion	The main pressures on the habitat are associated with impacts on the supporting bog habitats, especially overgrazing, burning, peat extraction, drainage and conversion to forestry.	A09, A11, B01, C05, K02, N01	Intensive grazing or overgrazing by livestock, burning for agriculture, conversion to forest from other land uses, or afforestation (excluding drainage), peat extraction, drainage, temperature changes (e.g., rise of temperature & extremes) due to climate change	Surface and ground water interactions. Drainage and land use management are the key things.
[7210]	Calcareous fens with species of mariscus sedge and bog cotton *(Cladium mariscus and Caricion davallianae)*	Overgrazing, groundwater pollution, abandonment of grassland management and drainage are pressures associated with this habitat.	A06, A09, C05, J01, K01, K02, K04	Abandonment of grassland management (e.g., cessation of grazing or of mowing), intensive grazing or overgrazing by livestock, peat extraction, mixed source pollution to surface and ground waters (limnic and terrestrial), abstraction from groundwater, surface water or mixed water, drainage, modification of hydrological flow	Surface and groundwater dependent. Highly sensitive to hydrological changes. Inappropriate management.
[7220]	Petrifying springs with tufa formation *(Cratoneurion)*	Pressures related to this habitat are associated with drainage, pollution to ground and surface waters, recreational activities, infrastructure, overgrazing and abandonment of grassland management.	A06, A10, E01, F07, H08, J01, K02, K04, L02	Abandonment of grassland management (e.g., cessation of grazing or of mowing), extensive grazing or under grazing by livestock, roads, paths, railroads and related infrastructure (e.g., bridges, viaducts, tunnels), sports, tourism and leisure activities, other human intrusions and disturbance not mentioned above (dumping, accidental and deliberate disturbance of bat roosts (e.g., caving)), mixed source pollution to surface and ground waters (limnic and terrestrial), drainage, modification of hydrological flow, natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices)	Surface and groundwater dependant. Highly sensitive to hydrological changes. Highly sensitive to pollution.
[7230]	Alkaline fens	The main pressures facing this habitat are land abandonment (and associated succession), overgrazing, drainage and pollution.	A06, A09, A26, J01, K01, K02, K04, L02, N02, N03	Abandonment of grassland management (e.g., cessation of grazing or of mowing), intensive grazing or overgrazing by livestock, agricultural activities generating diffuse pollution to surface or ground waters, mixed source pollution to surface and ground waters (limnic and terrestrial), abstraction from groundwater, surface water or mixed water, drainage, modification of hydrological flow, natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices), temperature changes (e.g., rise of temperature & extremes) due to climate change, increases or changes in precipitation due to climate change	Surface and groundwater dependent. Highly sensitive to hydrological changes. Inappropriate management.
[8110]	Siliceous scree of the montane to snow levels *(Androsacetalia alpinae and Galeopsietalia ladani)*	The main pressures on siliceous scree come from overgrazing, under-grazing and succession.	A09, A10, L02	Intensive grazing or overgrazing by livestock, extensive grazing or under grazing by livestock, natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices)	Erosion, overgrazing and recreation.
[8220]	Siliceous rocky slopes with chasmophytic vegetation	Pressure on this habitat is associated with the non-native invasive species New Zealand willowherb *(Epilobium brunnescens)*.	I02	Other invasive alien species (other than species of union concern)	Erosion, overgrazing and recreation.
[8240]	Limestone pavements	The main pressures facing this habitat are associated with conversion to agricultural land and housing construction, as well as scrub encroachment caused by under-grazing.	A01, A10, C01, F01, I02	Conversion into agricultural land (excluding drainage and burning), extensive grazing or under grazing by livestock, extraction of minerals (e.g., rock, metal ores, gravel, sand, shell), conversion from other land uses to housing, settlement or recreational areas (excluding drainage and modification of coastline, estuary and coastal conditions), other invasive alien species (other than species of union concern)	Erosion, overgrazing and recreation.
[91D0]	Bog woodland	Pressures facing this habitat are related to drainage, invasive species and burning.	A11, B09, C05, I02, K01	Burning for agriculture, clear-cutting, removal of all trees, peat extraction, other invasive alien species (other than species of union concern), abstraction from groundwater, surface water or mixed water	Changes in management. Changes in nutrient or base status. Introduction of alien species.

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[91E0]	Alluvial forests with Alder and Ash *(Alnus glutinosa, Fraxinus excelsior, Alno-Padion, Alnion incanae, Salicion albae)*	Many of the pressures facing this habitat include invasive species, particularly sycamore *(Acer pseudoplatanus)*, beech *(Fagus sylvatica)*, Indian balsam *(Impatiens glandulifera)* and currant species *(Ribes nigrum* and *R. rubrum)* as well as some native species such as brambles *(Rubus fruticoses agg.)* and common nettle, along with over felling.	B09, I02, I04, I05	Clear-cutting, removal of all trees, other invasive alien species (other than species of union concern), problematic native species, plant and animal diseases, pathogens and pests	Surface and groundwater dependent. Highly sensitive to hydrological changes. Changes in management.
[91J0]	Taxus baccata woods of the British Isles	Pressures facing this habitat are mainly linked to the presence of alien species such as sycamore *(Acer psedoplatanus)*, beech *(Fagus sylvatica)*, cherry laurel *(Prunus laurocerasus)* and traveller's joy *(Clematis vitalba)*, with overgrazing by deer also posing a pressure to the habitat.	A09, I02, I05	Intensive grazing or overgrazing by livestock, other invasive alien species (other than species of union concern), plant and animal diseases, pathogens and pests	Changes in management. Changes in nutrient or base status. Introduction of alien species.

List of all Special Conservation Interest of SPAs that have undergone Assessment including Summaries of Current Threats and Sensitivity to Effects

Species Code	Common Name	Scientific Name	Threats and Pressures Codes	Known Threats and Pressures
A038	Whooper Swan	*Cygnus cygnus*	D01, D06, F07, F28	Wind, wave and tidal power, including infrastructure, transmission of electricity and communications (cables), sports, tourism and leisure activities, modification of flooding regimes, flood protection for residential or recreational development
A048	Shelduck	*Tadorna tadorna*	F07, G19, N01, D01, N04	Sports, tourism and leisure activities, other impacts from marine aquaculture, including infrastructure, temperature changes (e.g. rise of temperature & extremes) due to climate change, wind, wave and tidal power, including infrastructure, sea-level and wave exposure changes due to climate change
A052	Teal	*Anas crecca*	G07, F07, D01, F28	Hunting, sports, tourism and leisure activities, wind, wave and tidal power, including infrastructure, modification of flooding regimes, flood protection for residential or recreational development
A053	Mallard	*Anas platyrhynchos*	F07, G07, D01, F28	Sports, tourism and leisure activities, hunting, wind, wave and tidal power, including infrastructure, modification of flooding regimes, flood protection for residential or recreational development
A054	Pintail	*Anas acuta*	F07, G07, N01, D01, F28	Sports, tourism and leisure activities, hunting, temperature changes (e.g. rise of temperature & extremes) due to climate change, wind, wave and tidal power, including infrastructure, modification of flooding regimes, flood protection for residential or recreational development
A061	Tufted Duck	*Aythya fuligula*	F28, F07, G07, J01, N01, D01	Modification of flooding regimes, flood protection for residential or recreational development, sports, tourism and leisure activities, hunting, mixed source pollution to surface and ground waters (limnic and terrestrial), temperature changes (e.g. rise of temperature & extremes) due to climate change, wind, wave and tidal power, including infrastructure
A062	Scaup	*Aythya marila*	F07, G07, G19, J01, D01	Sports, tourism and leisure activities, hunting, other impacts from marine aquaculture, including infrastructure, mixed source pollution to surface and ground waters (limnic and terrestrial), wind, wave and tidal power, including infrastructure
A067	Goldeneye	*Bucephala clangula*	F07, G07, J01, N01, N04, D01, F28	Sports, tourism and leisure activities, hunting, mixed source pollution to surface and ground waters (limnic and terrestrial), temperature changes (e.g. rise of temperature & extremes) due to climate change, sea-level and wave exposure changes due to climate change, wind, wave and tidal power, including infrastructure, modification of flooding regimes, flood protection for residential or recreational development
A122	Corncrake	*Crex crex*	A08, A06, L06, M08, N03, A09, A31, A20, A03	Mowing or cutting of grasslands, abandonment of grassland management (e.g. cessation of grazing or mowing), interspecific relations (competition, predation, parasitism, pathogens), flooding (natural processes), increases or changes in precipitation due to climate change, intensive grazing or overgrazing by livestock, drainage for use as agricultural land, application of synthetic (mineral) fertilisers on agricultural land, conversion from mixed farming and agroforestry systems to specialised (e.g. single crop) production
A125	Coot	*Fulica atra*	J01, N01	Mixed source pollution to surface and ground waters (limnic and terrestrial), temperature changes (e.g. rise of temperature & extremes) due to climate change
A137	Ringed Plover	*Charadrius hiaticula*	F07, G19, D01, F08, N04	Sports, tourism and leisure activities, other impacts from marine aquaculture, including infrastructure, wind, wave and tidal power, including infrastructure, modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defences or coastal protection works and infrastructures), sea-level and wave exposure changes due to climate change
A140	Golden Plover	*Pluvialis apricaria*	B01, I04, I02, A02, A11, A09, D01, H04, A31, G07, N01, F07, F28	Conversion to forest from other land uses, or afforestation (excluding drainage), problematic native species, other invasive alien species (other than species of union concern), conversion from one type of agricultural land use to another (excluding drainage and burning), burning for agriculture, intensive grazing or overgrazing by livestock, wind, wave and tidal power, including infrastructure, vandalism or arson, drainage for use as agricultural land, hunting, temperature changes (e.g. rise of temperature & extremes) due to climate change, sports, tourism and leisure activities, modification of flooding regimes, flood protection for residential or recreational development
A141	Grey Plover	*Pluvialis squatarola*	F07, G01, G19, D01, N04	Sports, tourism and leisure activities, marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species, other impacts from marine aquaculture, including infrastructure, wind, wave and tidal power, including infrastructure, sea-level and wave exposure changes due to climate change
A142	Lapwing	*Vanellus vanellus*	A08, A21, B01, I04, I02, A02, C05, D01, A06, A31, N01, F07, F28	Mowing or cutting of grasslands, use of plant protection chemicals in agriculture, conversion to forest from other land uses, or afforestation (excluding drainage), problematic native species, other invasive alien species (other than species of union concern), conversion from one type of agricultural land use to another (excluding drainage and burning), peat extraction, wind, wave and tidal power, including infrastructure, abandonment of grassland management (e.g. cessation of grazing or mowing), drainage for use as agricultural land, temperature changes (e.g. rise of temperature & extremes) due to climate change, sports, tourism and leisure activities, modification of flooding regimes, flood protection for residential or recreational development
A143	Knot	*Calidris canutus*	F07, G01, G19, D01, F08, N04	Sports, tourism and leisure activities, marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species, other impacts from marine aquaculture, including infrastructure, wind, wave and tidal power, including infrastructure, modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defences or coastal protection works and infrastructures), sea-level and wave exposure changes due to climate change
A149	Dunlin	*Calidris alpina*	G01, G19, D01, F08, N04, F07	Marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species, other impacts from marine aquaculture, including infrastructure, wind, wave and tidal power, including infrastructure, modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defences or coastal protection works and infrastructures), sea-level and wave exposure changes due to climate change, sports, tourism and leisure activities
A156	Black-tailed Godwit	*Limosa limosa*	F07, G19, D01, F08, N04	Sports, tourism and leisure activities, other impacts from marine aquaculture, including infrastructure, wind, wave and tidal power, including infrastructure, modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defences or coastal protection works and infrastructures), sea-level and wave exposure changes due to climate change
A157	Bar-tailed Godwit	*Limosa lapponica*	F07, G19, G01, F08, D01, N04	Sports, tourism and leisure activities, other impacts from marine aquaculture, including infrastructure, marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species, modification of coastline, estuary and coastal conditions for development, use and

Species Code	Common Name	Scientific Name	Threats and Pressures Codes	Known Threats and Pressures
				protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defences or coastal protection works and infrastructures), wind, wave and tidal power, including infrastructure, sea-level and wave exposure changes due to climate change
A162	Redshank	*Tringa totanus*	A08, A09, B01, I04, I02, A02, C05, D01, A06, A31, F07, F08, N04	Mowing or cutting of grasslands, intensive grazing or overgrazing by livestock, conversion to forest from other land uses, or afforestation (excluding drainage), problematic native species, other invasive alien species (other than species of union concern), conversion from one type of agricultural land use to another (excluding drainage and burning), peat extraction, wind, wave and tidal power, including infrastructure, abandonment of grassland management (e.g. cessation of grazing or mowing), drainage for use as agricultural land, sports, tourism and leisure activities, modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defences or coastal protection works and infrastructures), sea-level and wave exposure changes due to climate change
A164	Greenshank	*Tringa nebularia*	F07, D01, F08, N04	Sports, tourism and leisure activities, wind, wave and tidal power, including infrastructure, modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defences or coastal protection works and infrastructures), sea-level and wave exposure changes due to climate change
A179	Black-headed Gull	*Larus ridibundus*	F22, F23, I02, I04, D01, M08	Residential or recreational activities and structures generating marine macro- and micro- particulate pollution (e.g. plastic bags, styrofoam), industrial or commercial activities and structures generating marine macro- and micro- particulate pollution (e.g. plastic bags, styrofoam), other invasive alien species (other than species of union concern), problematic native species, wind, wave and tidal power, including infrastructure, flooding (natural processes)
A193	Common Tern	*Sterna hirundo*	A09, G12, I02, I04, J02, L06, M08, D01, F07, G01, N06, N07	Intensive grazing or overgrazing by livestock, bycatch and incidental killing (due to fishing and hunting activities), other invasive alien species (other than species of union concern), problematic native species, mixed source marine water pollution (marine and coastal), interspecific relations (competition, predation, parasitism, pathogens), flooding (natural processes), wind, wave and tidal power, including infrastructure, sports, tourism and leisure activities, marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species, desynchronisation of biological/ecological processes due to climate change, decline or extinction of related species (e.g. food source/prey, predator/parasite, symbiote, etc.) due to climate change
A395	Greenland White-fronted Goose	*Anser albifrons flavirostris*	F07, G10, A02, B01, D01, D06, E01, F01, J02, G01	Sports, tourism and leisure activities, illegal shooting/killing, conversion from one type of agricultural land use to another (excluding drainage and burning), conversion to forest from other land uses, or afforestation (excluding drainage), wind, wave and tidal power, including infrastructure, transmission of electricity and communications (cables), roads, paths, railroads and related infrastructure (e.g. bridges, viaducts, tunnels), conversion from other land uses to housing, settlement or recreational areas (excluding drainage and modification of coastline, estuary and coastal conditions), mixed source marine water pollution (marine and coastal), marine fish and shellfish harvesting (professional, recreational) causing reduction of species/prey populations and disturbance of species
A855	Wigeon	*Mareca penelope*	F07, G07, N01, D01, F08, F28	Sports, tourism and leisure activities, hunting, temperature changes (e.g. rise of temperature & extremes) due to climate change, wind, wave and tidal power, including infrastructure, modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defences or coastal protection works and infrastructures), modification of flooding regimes, flood protection for residential or recreational development


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