

# **Appropriate Assessment Screening Report**

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## **Assessment of likely effects on Natura 2000 sites of the Eastern Bridge Variation of the Sligo and Environs Development Plan 2010-2016**

Sligo Borough Council



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**May 2011**



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## **Appendix**

### **NPWS site synopses**



## 1. Introduction

It is proposed that an objective for an Eastern Garavogue Bridge Scheme is to be included as a variation to the Sligo and Environs Development Plan 2010–2016.

The proposed variation would involve a change to the text of the SEDP and a change to Map 2 and the corresponding Fig. 10 as follows:

**A. In Section 10.2 Strategic road proposals**, under the heading **Strategic roads objectives**, include the following objective:

**T1.3** *Eastern Bridge scheme (E2) as approved by An Bord Pleanála, crossing the Garavogue River from Cleaveragh Demesne to Rathquarter, continuing north and turning west to connect with Ash Lane at Ballinode neighbourhood centre.*

**B. On Map 2 Transport Objectives** and on the corresponding **Figure 10** in the SEDP document, indicate the strategic road objective **T1.3**.

The aim of this proposed variation is to facilitate sustainable transport planning for Sligo.

Sligo Borough Council has recognised the existing deficiency of the roads infrastructure in the city and considers this proposed bridge and associated road scheme a fundamental part of addressing these deficiencies. The inclusion of the Eastern Garavogue Bridge Scheme as an objective in the variation of the Development Plan is in line with all other objectives identified within the existing Sligo and Environs Development Plan 2010 - 2016.

## 2. The Appropriate Assessment process

### 2.1 Requirement for an Assessment under Article 6 of the Habitats Directive

The requirement for appropriate assessment is set out in the EU Habitats Directive (92/34/EEC) in Article 6.3 which states:

*“Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site’s conservation objectives.”*

### 2.2 Appropriate Assessment Guidance

As set out in 2.1 above, Article 6(3) of the EU Habitats Directive (92/43/EEC) defines the requirement for Appropriate Assessment of certain plans and projects. In order to inform the requirements of the assessment the following guidance documents have been referred:

- Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (NPWS 2009, Revised February 2010);

- EU Guidance document on Article 6(4) of the ‘Habitats Directive’ 92/43/EEC (2007);and
- Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (2002).

In terms of what is required to allow the competent authority to undertake and complete the Appropriate Assessment, the Guidance for Planning Authorities (NPWS 2009, revised February 2010) states:

*“AA is an impact assessment process that fits within the decision making framework that fits within the decision-making frameworks and tests of Article 6(3) and 6(4) and comprises two main elements. Firstly a Natura Impact Statement – i.e. a statement of the likely and possible impacts of the plan or project on a Natura 2000 site (abbreviated in the following guidance to “NIS”) must be prepared. This comprises a comprehensive ecological impact assessment of a plan or project; it examines the direct and indirect impacts that the plan or project might have on its own or in combination with other plans and projects, on one or more Natura 2000 sites in view of the sites’ conservation objectives. Secondly, the competent authority carries out the AA, based on the NIS and any other information it may consider necessary.’*

### **2.3 Stages in the Process**

The European Commission’s guidance promotes a four stage process, as set out below, to complete an Appropriate Assessment:

1. Screening
2. Appropriate Assessment
3. Assessment of Alternative Solutions
4. The “IROPI test” (Imperative Reasons of Over-riding Public Interest)

Stages 1 and 2 deal with the main requirements for assessment under Article 6(3). Stages 3 and 4 are undertaken when, after Stages 1 and 2, it cannot be said with sufficient certainty that the development will not have any significant effect on the Natura 2000 sites.

This Screening Report includes the assessment and testing required under Stage One – the Screening Process. In complying with the obligations under Article 6(3) and to be consistent with the Guidance for Planning Authorities, this report has been structured as follows:

- Description of the Proposed Variation and other plans and projects that, in combination, have the potential to have a significant effect on Natura 2000 sites;
- Identification of Natura 2000 Sites which may be impacted by the plan and compilation of information on their qualifying interests and conservation objectives;
- Assessment of likely effects, direct, indirect and cumulative – undertaken on the basis of best available scientific information;
- Assessment of the significance of any such effects on Natura 2000 sites; and
- Screening Conclusion and Statement.

### 3. Description of the proposed variation

The Eastern Garavogue Bridge Scheme will provide a new link in a north-south direction crossing the Garavogue River on the eastern side of Sligo City. The bridge and roads scheme will connect the south-east of the city from the Cranmore Road to the north of the city at Ash Lane (via a link road) and the R286/Dromahir Road.

The proposed route crosses the Garavogue River with a clear span bridge.

The Garavogue River is part of Lough Gill candidate Special Area of Conservation (cSAC) and is upstream of the Cummeen Strand/Drumcliff Bay cSAC and SPA.

The proposed scheme crosses over the River Garavogue and is over 1km upstream of Cummeen Strand/Drumcliff Bay cSAC and SPA.

### 4. Natura 2000 sites

#### 4.1 Designated sites in the vicinity of the project

Section 3.2.3 of the Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (NPWS 2009, Revised February 2010) states that the approach to screening can be different for different plans and projects and will depend on the scale and the likely effects. For the purpose of this screening exercise the likely zone of impact relates to the zone immediately around the construction site with potential impact outside of this zone relating to downstream water quality at the Garavogue River and Cushlough Stream.

- Lough Gill cSAC (Site Code 1976) is in the immediate vicinity of the proposed Garavogue Bridge Scheme.
- Cummeen Strand/Drumcliff Bay cSAC (Sligo Bay) (Site Code 0627) is located downstream (over 1km) of the proposed scheme.
- Cummeen Strand SPA (Site Code) 4035 is over 1.5 km downstream of the proposed scheme.

#### 4.2 Characteristics of designated sites

##### **Site Name: Lough Gill cSAC:**

Site Code: 01976

Description: This site comprises of Lough Gill with Doon Lough to the north-east, the Bonet River as far but not including Glenade Lough, and a stretch of the Owenmore River near Manorhamilton in Co. Leitrim. Lough Gill is 2km east of Sligo town and includes, as part of its designation, the Garavogue River.

Qualifying Interests: The National Parks and Wildlife Service's (NPWS) site synopsis (attached as **Appendix 1**) describes Lough Gill cSAC as being selected for alluvial wet woodlands a priority habitat on Annex I of the E.U. Habitats Directive. The site is further

selected as a cSAC for old Oak woodlands and natural eutrophic lakes, both habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive - Sea Lamprey, River Lamprey, Brook Lamprey, Whiteclawed Crayfish, Atlantic Salmon and Otter.

Notable features: In addition to the qualifying interests the site contains other notable species including pine martin, Yellow Bird's nest (*Monotropa hypopitys*), Lady's Mantle (*Alchemilla glaucescens*), Ivy Broomrape (*Orobanche Hederae*), Black Bryony (*Tamus communis*), Intermediate Wintergreen (*Pyrola media*) and Bird's-nest Orchid (*Neottia nidus-avis*). Kingfishers are also found along the lake and rivers.

#### Conservation Objectives:

To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Natural eutrophic lakes with Magnopotamion or Hydrocharition-type vegetation, Old sessile oak woods with Ilex and Blechnum in British Isles, Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)

To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: *Petromyzon marinus*, *Lampetra planeri*, *Lampetra fluviatilis*, *Salmo salar*, *Austropotamobius pallipes*, *Lutra lutra*

#### **Site Name: Cummeen Strand/Drumcliff Bay (Sligo Bay) cSAC**

Site Code: 0627

Site Description: This large coastal site extends from Cullamore in the north-west to Killaspug in the south-west, and from Sligo town in the south-east to Drumcliff village in the northeast.

It encompasses two large, shallow bays (Drumcliff Bay and Sligo Harbour), Ardboline and Horse Islands, sand dunes and sand hills at Rosses Point, Killaspug, Yellow strand and Coney Island, grassland at Ballintemple and Ballygilgan (Lissadell) and a variety of other habitats (woodland, salt marsh, sandy beaches, boulder beaches, shingle, fen, freshwater marshes, rocky sea cliffs, lakes) (See Appendix 1 for full site synopsis).

Qualifying Interest: The site is selected for Annex I habitats: Estuaries; Mudflats and sandflats not covered by seawater at low tide; Shifting dunes along the shore line with *Ammophila arenaria*; Fixed coastal dunes with herbaceous vegetation; embryonic shifting dunes; petrifying springs with tufa formation; *juniperus communis* formations on heaths or calcareous grasslands. Qualifying Interest Annex II Species include: *Phoca vitulina* (common seal) and *vertigo angustior* (narrow mouthed whorl snail).

#### Conservation Objectives

To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Estuaries; Mudflats and sandflats not covered by seawater at low tide; Embryonic shifting dunes; Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes); Fixed coastal dunes with herbaceous vegetation (grey dunes); Petrifying springs with tufa formation (Cratoneurion)

To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: *Vertigo angustior*; *Phoca vitulina*

**Site Name: Cummeen Strand SPA**

Site Code: 4035

Site Description

The site supports an Internationally Important flock of Brent Geese and Nationally Important populations of Oystercatcher and Redshank. Whooper Swans also have been known to occur, though they are not regular visitors. The presence of Golden Plover, Bar-tailed Godwit (in lesser numbers) and Whooper Swan is of particular note as these species are listed on Annex I of the EU Birds Directive. None of these species are known to use the upper section of the Garavogue River at the location of the proposed variation to the plan.

Conservation Objectives

To maintain the special conservation interests for this SPA at favourable conservation status: Light-bellied Brent Goose, Oystercatcher, Redshank, wetland & water birds.

**5. Assessment of likely effects**

**Objective T1.3** Eastern Bridge scheme (E2) as approved by An Bord Pleanála, crossing the Garavogue River from Cleaveragh Demesne to Rathquarter, continuing north and turning west to connect with Ash Lane at Ballinode neighbourhood centre.

**Table 5.1 SEDP ObjectiveT1.3 (to be read in conjunction with Section 6)**

Natura 2000 sites that may be affected	Potential impact of Objective (Direct/ Indirect/ Cumulative) (Y/N/?)	Risk of Significant Impact (y/n?)	Possible in Combination effects (y/n/?)	Risk of significant effect conclusion (y/n/?)	Mitigation needed (y/n)
Lough Gill cSAC	Y	N	N	N	Y, at Project Phase.  The SEDP provides a list of objectives and policies within the plan which are specifically related to the management of Natura 2000 sites and listed in Chapter 13, page 110 and 111: P-NH-1 to P-NH 7 and O-NH-1 to O-NH-6. These objectives and policies ensure that Objective T1.3 will be

					<p>carried out with regard to all other objectives within the plan and provide that at project phase Objective T1.3 will be appropriately assessed.</p> <p>Objective O-NH-1 to O-NH-4 specifically ensures that all projects undergo appropriate assessment. In addition the following objectives and policies allow for the protection of watercourses:</p> <p>BA-3; P-NH-18; P-NH-19; P-WW-2; P-WW-3; P-WW-5; O-WW-10; P-SWD-3; P-SWD-5; PSWD-5; P-SWD-6; P-WQ-12, P-WQ-13</p>
Cummeen Strand/Drumcliff Bay (Sligo Bay) cSAC	<b>Y</b>	<b>N</b>	<b>N</b>	<b>N</b>	<p><b>Y</b>, at Project Phase</p> <p>The objectives outlined above for Lough Gill cSAC are also applicable to Cummeen Strand/Drumcliff Bay cSAC. Specifically Objective O-NH-1 to O-NH-4 ensures that Objective T1.3 undergoes appropriate assessment (Natura Impact Assessment) at project phase.</p>
Cummeen Strand SPA	<b>Y</b>	<b>N</b>	<b>N</b>	<b>N</b>	<p><b>Y</b></p> <p>The objectives outlined above for Lough Gill cSAC are also applicable to Cummeen Strand SPA. Specifically Objective O-NH-1 to O-NH-4 ensures that Objective T1.3 undergoes appropriate assessment (Natura Impact Assessment) at project phase.</p>

## **6. Natura 2000 conservation measures in the Sligo and Environs Development Plan 2010–2016**

The Development Plan contains numerous measures which will directly and/or indirectly contribute to the conservation of Natura 2000 sites. These will assist in the implementation of the requirements of the Habitats Directive and will ensure that the proposed variation to the plan T1.3 Eastern Garavogue Bridge will not have a significant impact on Natura 2000 sites.

- BA-3** Protecting environmental quality wisely ... Promote sustainable water use based on long-term protection of water resources and provide for sufficient supply of good quality surface and groundwater. Implement the (Draft) Western River Basin Management Plan (WRBMP).
- SP-Z-5** Protect designated nature conservation sites, landscape, archaeology, valuable natural amenity areas, water and natural resources, while allowing for the possible further expansion of the city in the long-term.
- P-NH-3** Consult with the relevant prescribed bodies and appropriate agencies when considering undertaking, approving or authorizing developments which are likely to affect designated natural heritage sites or those proposed to be designated.
- O-NH-1** Require an appropriate environmental assessment in respect of any proposed development likely to have an impact on a designated natural heritage site or those sites proposed to be designated.
- O-NH-2** Ensure that environmental assessments in relation to designated natural heritage sites (or those sites proposed to be designated) are carried out by appropriate professionals.
- O-NH-4** Any plan or project not directly connected with or necessary to the management of a Natura 2000 site, but likely to have significant effect thereon, either individually or in combination with other plans or projects, shall be subject to an appropriate assessment in accordance with Art. 6 of Directive 92/43/EEC, of its implications for the Natura 2000 site in view of the site's conservation objectives.
- P-NH-6** Ensure that development does not have a significant adverse impact, incapable of satisfactory mitigation, on plant, animal or bird species protected by law.
- P-NH-7** Consult with the National Parks and Wildlife Service, and take account of any licensing requirements, when undertaking, approving and authorizing development which is likely to affect plant, animal or bird species protected by law.

- P-NH-15** Protect rivers, streams and other water courses and, wherever possible, maintain them in an open state capable of providing suitable habitat for fauna and flora.
- P-NH-16** Protect and enhance the natural heritage and landscape character of river and stream corridors and valleys, maintain them free from inappropriate development and make provision for public access where feasible and appropriate.
- P-NH-17** Protect and enhance biodiversity richness by protecting rivers and stream corridors and valleys by reserving land along their banks for ecological corridors, maintaining them free from inappropriate development, and discouraging culverting or realignment.
- P-NH-18** Ensure that all proposed greenfield residential and commercial developments use sustainable drainage systems in accordance with best current practice.
- P-NH-19** Ensure that floodplains and wetlands within the Plan area are retained for their biodiversity and flood protection value.
- O-NH-12** Consult with prescribed bodies prior to undertaking, approving or authorising any works or development that may impact on rivers, streams and watercourses.
- O-NH-13** Require that runoff from a developed area does not result in deterioration of downstream watercourses or habitats, and that pollution generated by a development is treated within the development area prior to discharge to local watercourses.
- P-H-21** Require any plans or projects arising from this plan – which are susceptible of having a significant adverse effect on Natura 2000 sites (as per Art. 6 of the Habitats Directive) due to their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects – to comply with the provisions of the Directive.
- P-WW-2** Ensure that developers provide efficient drainage systems with separate foul and surface water networks.
- P-WW-3** Ensure that effluent / sludge is treated and disposed of in accordance with the required European Union standards.
- P-WW-5** Ensure that all development involving wastewater disposal is permitted only on lands that are serviced by (or capable of being serviced by immediate connection to) public wastewater infrastructure with adequate capacity.
- O-WW-10** Ensure that adequately designed oil interceptors are installed in all commercial developments that include car-parks or other oil- and petrol-related activities.

- P-SWD-1** Promote storm water retention facilities for new developments and existing catchment areas, particularly where developments are proposed in proximity to an existing open water course or stream.
- P-SWD-2** Generally prevent the alteration of natural drainage systems and, in the case of development works, require the provision of acceptable mitigation measures in order to minimise the risk of flooding and negative impacts on water quality (including run-off, erosion and sedimentation).
- P-SWD-3** Preserve and protect the water quality of natural surface water storage sites, such as wetlands, where these help to regulate stream flows, recharge groundwater and screen pollutants (such features also provide important habitat functions).
- P-SWD-5** Protect river channels and streams, which can facilitate surface water drainage, by ensuring that development is kept at an appropriate distance from stream banks and adequate protection measures are put in place.
- P-SWD-6** Discourage development in flood plains and natural water storage areas.
- P-WQ-1** Protect, maintain or improve the water quality of Lough Gill and Kilsellagh catchments, the Garavogue River, and all other water bodies in the Plan area to the status required in the Western River Basin District Management Plan (WRBDMP).
- P-WQ-12** Ensure that the ongoing development of Sligo City and Environs does not compromise the quality of surface and groundwater and associated species/habitats in the Plan area.
- P-WQ-13** Ensure that land uses do not give rise to pollution of ground- and surface water during the construction and operation of developments. This shall be achieved by adhering to best practice in the design, installation and management of systems for the interception, collection and appropriate disposal or treatment of all surface waters and effluents.

## 7. Finding of No Significant Effects report matrix

Name of project/plan	Variation of the SEDP for the Eastern Garavogue Bridge Scheme: Objective T1.3
Name and location of Natura 2000 site(s)	Lough Gill candidate Special Area Conservation (cSAC) (proposed Garavogue bridge crosses over Garavogue River (part of the Lough Gill cSAC)).  Cummeen Strand/Drumcliff Bay cSAC (over 1km downstream of the proposed Garvogue Bridge)  Cummeen Strand SPA (over 1.5km downstream of the proposed Garvogue Bridge)
Description of the project/plan	The proposed Eastern Garavogue Bridge will provide a new road link in a north-south direction crossing the Garavogue River on the eastern side of Sligo City. The proposed bridge will be clear span.
Is the project or plan directly connected with or necessary to the management of the site (provide details)	No
Are there other projects or plans that together with the project or plan being assessed could affect the site (provide details)?	No

### The assessment of significance of effects

Describe how the project or plan (alone or in combination) is likely to affect the Natura 2000 sites	Water pollution and runoff as a result of the construction and operational phase of the scheme.
Explain why the effects are not considered significant	A series of objectives and policies are outlined in the SEDP to ensure the protection of watercourses and Natura 2000 sites, their integrity and qualifying interests. A Natura Impact Assessment will be carried out at project phase of the Eastern Garavogue Bridge
List of agencies consulted: provide contact name and telephone or e-mail address	NPWS - William Cormacan william.cormacan AT environ.ie, tel. 071 9666703  Sligo County Council Heritage Officer - Siobhan Ryan sryan AT sligococo.ie, tel. 071 9111226
Response to consultation	Seasonal restriction for in stream works  Natura Impact Assessment in consultation with NPWS

### Data collected to carry out the assessment

Who carried out the assessment?	Sources of data	Level of assessment completed	Where can the full results of the assessment be accessed and viewed?
Sinead Gavin Roughan & O'Donovan Consulting Engineers	NPWS, Garavogue Bridge and Approach Roads EIS  Inland Fisheries Ireland	Stage 1 Screening	This document and online at:  <a href="http://www.sligoborough.ie/sedp">www.sligoborough.ie/sedp</a>

## 8. Conclusion and recommendations

AA Screening determines a finding of no significant effects.

This assessment has shown that the proposed objective T1.3 Eastern Garavogue Bridge Scheme complements other objectives within the SEDP. This objective will not have a significant impact on Natura 2000 site when considered in full with all objectives and policies detailed within the plan to ensure the protection of Lough Gill cSAC, Cummeen Strand/Drumcliff Bay cSAC and Cummeen Strand SPA.

As outlined in Objective O-NH-1 to O-NH-4 of the SEDP 2010 – 2016, appropriate assessment (project level) will be required in respect of the proposed project for the Eastern Garavogue Bridge. This will ensure a proper design and also that mitigation during both the construction and operational phase will be carried out.

## SITE SYNOPSIS

**SITE NAME: CUMMEEN STRAND SPA**

**SITE CODE: 004035**

Cummeen Strand is a large shallow bay stretching from Sligo town westwards to Coney Island. It is one of three estuarine bays within Sligo Bay, with Drumcliff Bay to the north and Ballysadare Bay to the south. The Garavogue River flows into the bay and forms a permanent channel.

At low tide, extensive sand and mud flats are exposed. These support a diverse macro-invertebrate fauna which provide the main food supply for the wintering waterfowl. Invertebrate species such as lugworm (*Arenicola marina*), ragworm (*Hediste diversicolor*), cockles (*Cerastoderma edule*), sand mason (*Lanice conchilega*), Baltic tellin (*Macoma balthica*), spire shell (*Hydrobia ulvae*) and mussels (*Mytilus edulis*) are frequent. Of particular note is the presence of eelgrass (*Zostera noltii* and *Z. angustifolia*) beds, which provide a valuable food stock for herbivorous wildfowl. The estuarine and intertidal flat habitats are of conservation significance and are listed on Annex I of the EU Habitats Directive. Areas of salt marsh fringe the bay in places and provide roosting sites for birds during the high tide periods. There are sand dunes at Killaspug Point and Coney Island, with a shingle spit at Standalone Point near Sligo town.

Cummeen Strand is of ornithological importance as it supports important concentrations of wintering waterfowl. The site supports an Internationally Important flock of Brent Geese (peak of 232 individuals in the winter of 1999/00, with the mean of peak monthly counts in the period 1996/99 (except 1998) being 228, peaking at 309) and Nationally Important populations of a further two species – Oystercatcher 891 and Redshank 501 (all figures are average peaks for the period). Other species which occurred in significant numbers included Shelduck 80, Wigeon 178, Teal 70, Mallard 170, Red-breasted Merganser 17, Golden Plover 567, Lapwing 734, Knot 18, Sanderling 18, Dunlin 601, Bar-tailed Godwit 57, Curlew 546, Greenshank 18 and Turnstone 80. Whooper Swans also occurred (9), though they are not regular visitors. The presence of Golden Plover, Bar-tailed Godwit and Whooper Swan is of particular note as these species are listed on Annex I of the EU Birds Directive.

This site is of high ornithological importance, with one species having a population of International Importance and two having populations of National Importance. In addition, there are three species that are listed on Annex I of the Birds Directive. The site is also important as a component of the much larger Sligo Bay complex.

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## SITE SYNOPSIS

**SITE NAME: CUMMEEN STRAND/DRUMCLIFF BAY (SLIGO BAY)**

**SITE CODE: 000627**

This large coastal site extends from Cullamore in the north-west to Killaspug in the south-west, and from Sligo town in the south-east to Drumcliff village in the north-east. It encompasses two large, shallow bays (Drumcliff Bay and Sligo Harbour), Ardboline and Horse Islands, sand dunes and sand hills at Rosses Point, Killaspug, Yellow Strand and Coney Island, grassland at Ballintemple and Ballygilgan (Lissadell) and a variety of other habitats (woodland, salt marsh, sandy beaches, boulder beaches, shingle, fen, freshwater marshes, rocky sea cliffs, lakes). The site is largely underlain by Carboniferous limestone, but acidic rocks are also found on the Rosses Point peninsula. At Serpent Rock in the north-western section of the site the most complete section of the north-western Carboniferous strata is exposed. Here are found an excellent series of fossilised corals which, in some strata, stand out from the rock matrix.

The dominant habitats on the site are estuaries and intertidal sand and mud flats. Sligo Harbour receives the waters of the Garavogue River, which flows from Lough Gill, while Drumcliff Bay receives the Drumcliff River which flows from Glencar Lough. At low tide extensive areas of intertidal flats are exposed in both of these sheltered estuarine bays. The intertidal flats support a diverse macrofauna, with invertebrate species such as lugworm (*Arenicola marina*), cockles (*Cerastoderma edule*), sand mason (*Lanice conchilega*), Baltic tellin (*Macoma balthica*), spire shell (*Hydrobia ulvae*) and mussels (*Mytilus edulis*) being frequent. Of particular note is the presence of eelgrass (*Zostera noltii* and *Z. angustifolia*) beds in both bays. Both estuaries and intertidal flats are of conservation significance and are listed on Annex I of the EU Habitats Directive. Areas of salt marsh fringe both bays in places.

Sand dunes, sand hills and dune grassland are found at Rosses Point, Killaspug, Yellow Strand and Coney Island. The dominant species of the dune grassland behind Yellow Strand are Sand Sedge (*Carex arenaria*) and Meadow-grass (*Poa pratensis*), with associated species including Lady's Bedstraw (*Galium verum*), Mouse-ear Hawkweed (*Hieracium pilosella*), Common Milkwort (*Polygala vulgaris*), Common Dog-violet (*Viola riviniana*), Mountain Everlasting (*Antennaria dioica*), Common Spotted-orchid (*Dactylorhiza fuchsii*), Early Marsh-orchid (*D. incarnata*), Frog Orchid (*Coeloglossum viride*) and Autumn Lady's-tresses (*Spiranthes spiralis*). Embryonic dunes, with characteristic species, including Sand Couch (*Elymus farctus*), occur at the southern end of Rosses Point. Sand dune habitats are rare and threatened in Europe and three types found on the site, embryonic dunes, Marram (*Ammophila arenaria*) dunes and fixed dunes, are listed on Annex I of the E.U. Habitats Directive, the last-named with priority status.

Wetlands on the site include Doonweelin Lake, a freshwater lake on the Rosses Point peninsula, which supports interesting vegetation communities that reflect the

juxtaposition of the underlying acidic and basic rocks. Ardtermon Fen, a small, floristically-rich area of freshwater marsh, swamp, wet grassland and fen is situated at the back of the Yellow Strand sandhills.

The site includes small areas of Hazel (*Corylus avellana*) and Ash (*Fraxinus excelsior*) woodland on limestone (e.g. Cummeen Wood) and several other stands of mixed woodland and wet Willow (*Salix* spp.) woodland (as at Ardtermon Fen).

Cliff-top grassland is common in the north-western part of the site. This is dominated by Red Fescue (*Festuca rubra*) and White Clover (*Trifolium repens*), with associated species including Daisy (*Bellis perennis*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Plantains (*Plantago coronopus*, *P. lanceolata* and *P. maritima*), Bulbous Buttercup (*Ranunculus bulbosus*), Common Scurvygrass (*Cochlearia officinalis*), Field Wood-rush (*Luzula campestris*) and Spring Sedge (*Carex caryophyllea*).

The site has a good example of petrifying springs with tufa formations, with several species of bryophyte typical of the *Cratoneurion*. The springs occur along seepage zones in clay sea cliffs on the northern side of Sligo Harbour. Petrifying springs are listed with priority status on Annex I of the EU Habitats Directive.

The site has a very rich and diverse flora, on account of the wide variety of habitats found, and the presence of both basic and acidic substrates. Several rare, Red Data Book species have been recorded from the site, i.e. Rough Poppy (*Papaver hybridum*) which is also listed under the Flora (Protection) Order, 1999, Hoary Whitlowgrass (*Draba incana*) and Yellow Saxifrage (*Saxifraga aizoides*).

Both Drumcliff Bay and Cummeen Strand are important for the large numbers of waterfowl which use them in autumn/winter, including Ringed Plover, Redshank, Lapwing, Knot, Bar-tailed Godwit, Oystercatcher, Curlew, Golden Plover, Dunlin, Turnstone, Brent Goose, Grey Heron, Teal, Wigeon, Mallard, Shelduck and Red-breasted Merganser. The fields at Lissadell and Ballintemple support one of the largest populations of Barnacle Goose in the country (c2000 in winters of 1995/96 and 1996/97). Both Drumcliff Bay and Cummeen Strand have been designated as Special Protection Areas under the EU Birds Directive. The important feeding site for Barnacle Geese at Lissadell is a Statutory Nature Reserve.

The islands in the north-western section of the site hold important seabird colonies. A Cormorant colony of national importance occurs on Ardboline and Horse Islands, with a total of 261 pairs in 1998. Herring Gull and Great Black-backed Gull also breed on both islands. Common Tern formerly bred on both islands. The islands are also used by Barnacle Geese from the adjacent mainland, which roost or seek refuge here. The low sea cliffs on the adjacent mainland at Ballyconnell and Roskeeragh Points also support small numbers of seabirds and both Black Guillemot and Fulmar nest. Choughs feeds in the sandy/grassy areas of the site and one pair is known to nest. Several of the bird species that use the site are listed on Annex I of the EU Birds Directive, i.e. Barnacle Goose, Chough, Golden Plover and Bar-tailed Godwit.

Three species listed on Annex II of the EU Habitats Directive are found within this site. Drumcliff Bay, is important for the presence of a large breeding population of Common Seal and Ardboline and Horse Islands on the western side of the site are also important as haul-out areas for this species. The Marsh Fritillary butterfly is found at Rosses Point, while the rare snail, *Vertigo angustior* has recently been recorded from sand dunes at Killaspugbrone.

Cummeen Strand/Drumcliff Bay (Sligo Bay) is an important site of high conservation significance, which includes a wide variety of habitat types, including several listed on Annex I of the EU Habitats Directive, several species listed on Annex II of this directive, large and important populations of waterfowl and seabirds, and several rare plant species.