



Ramsar Information Sheet

Published on 7 March 2023

Update version, previously published on : 30 May 1990

Ireland

Coole Lough & Garryland Wood



Designation date	30 May 1990
Site number	473
Coordinates	53°05'05"N 08°51'17"W
Area	390,00 ha

Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

1 - Summary

Summary

Coole Lough and Garryland Wood Ramsar site is located in the west of Ireland in County of Galway. The nearest large town is Gort which lies approximately 1km east of the site. Other towns in the vicinity of the site include; Kinvara (6.5km west of the site) and Ardrahan (8km north east of the site). The site is situated in a low-lying karstic limestone area and comprises several seasonal lakes (turloughs) which are fed by springs and a partly subterranean river. Turloughs are almost unique to Ireland and those at Coole-Garryland are particularly good examples of this habitat type, with some rare and notable plant species. Unusually the turlough is surrounded by mixed woodland.

The Ramsar site is part of the much more extensive Coole/Garryland Complex Special Area of Conservation (SAC) designated under the EU Habitats Directive. The SAC supports representative and unique examples of habitat types within the Atlantic biogeographic region including: natural eutrophic lakes, turloughs, rivers with muddy banks, juniper heath, semi-natural dry grassland, limestone pavement and Yew woodland.

The Ramsar site also part of the Coole/Garryland Special Protection Area (SPA), designated under the EU Birds Directive. In the past the site was of international importance for wintering Whooper Swan. While the site is still of importance for Whooper Swan, which use the site for feeding and roosting, numbers have declined in recent years. The SPA supports a diversity of other wintering waterbirds. Coole Lough is a Wildfowl Sanctuary and is particularly important for wintering waterbirds during prolonged dry spells as it is one of the few sites in the catchment which retains open water. Water levels in the turloughs vary greatly depending on rainfall and this has consequences for the numbers of birds present.

A number of notable mammals frequent the site including Otter and Pine Marten. Coole-Garryland complex is also home to one of the most important and unique assemblages of insects in the country, including several notable species of beetles and flies (NPWS, 2016).

The Ramsar site is also a National Parks and Wildlife Service Nature Reserve and is a popular outdoor amenity area with visitor centre, tea rooms and many historical and literary connections.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Responsible compiler

Institution/agency	National Parks and Wildlife Service, Department of Housing, Local Government and Heritage
Postal address	National Parks and Wildlife Service, 90 North King Street, Smithfield, Dublin, Ireland D07 N7CV

National Ramsar Administrative Authority

Institution/agency	National Parks and Wildlife Service, Department of Housing, Local Government and Heritage
Postal address	90 North King Street, Smithfield, Dublin, Ireland D07 N7CV

2.1.2 - Period of collection of data and information used to compile the RIS

From year	<input type="text" value="2004"/>
To year	<input type="text" value="2019"/>

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Coole Lough & Garryland Wood
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2.1.4 - Changes to the boundaries and area of the Site since its designation or earlier update

(Update) A. Changes to Site boundary	Yes <input checked="" type="radio"/> No <input type="radio"/>
(Update) The boundary has been delineated more accurately	<input checked="" type="checkbox"/>
(Update) The boundary has been extended	<input type="checkbox"/>
(Update) The boundary has been restricted	<input type="checkbox"/>
(Update) B. Changes to Site area	No change to area
(Update) For secretariat only: This update is an extension	<input type="checkbox"/>

2.1.5 - Changes to the ecological character of the Site

(Update) 6b i. Has the ecological character of the Ramsar Site (including applicable Criteria) changed since the previous RIS?	Not evaluated
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2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image

<3 file(s) uploaded>

Former maps	<input type="text" value="0"/>
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Boundaries description

The boundary of Coole Lough and Garryland Wood Ramsar site was delineated as the same boundary as the original Nature Reserve in 1984. This site is partially contained within the boundaries of the the EU Birds Directive (2009/147/EC) Coole-Garryland Special Protection Area and wholly within the boundaries of the EU Habitats Directive (92/43/EEC) Coole-Garryland Complex Special Area of Conservation. Although the Ramsar site is smaller and focused on the turlough and mixed woodland habitats it is an integral part of the wider wetland complex that is SPA and SAC. Details of the SAC/SPA can be found on the NPWS website at: <https://www.npws.ie/protected-sites>. Within this area a number of GIS data layers were used to define the Ramsar habitats within the site. These included:

- CORINE (Co-Ordinated Information on the Environment) land cover data sets (2012).
- Bing Maps Aerial - © Harris Corp, Earthstar Geographics LLC © 2017 Intermap Earthstar Geographics SIO © 2017 Microsoft Corporation.
- Environmental Protection Agency of Ireland Rivers and Lakes layers data layers.

The mapped layers were inspected by a site visit to confirm the presence of the habitats. Habitat areas were subsequently estimated by reference to the available imagery and layers and should be considered representative but approximate.

The mapped area, as calculated from the GIS boundary, differs slightly from the official boundary of the Ramsar site. This is due to historic mapping issues generally as a result of differing mapping projections.

Legend: <https://osi.ie/wp-content/uploads/2021/10/Discovery-Legend-for-OSI-Maps.pdf>

2.2.2 - General location

a) In which large administrative region does the site lie?

b) What is the nearest town or population centre?

2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other countries? Yes No

b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes No

2.2.4 - Area of the Site

Official area, in hectares (ha):

Area, in hectares (ha) as calculated from GIS boundaries

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Marine Ecoregions of the World (MEOW)	Atlantic
EU biogeographic regionalization	Atlantic

Other biogeographic regionalisation scheme

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

Criterion 1: Representative, rare or unique natural or near-natural wetland types

Hydrological services provided

Turloughs are seasonally flooded karst wetlands, a habitat type which is almost unique to Ireland (Sheehy Skeffington and Gormally, 2009) and one where hydrological function is critical in terms of groundwater recharge and discharge, pollution control (groundwater within a karst landscape and is extremely vulnerable to pollution) and flood control. Coole Lough - Garryland Woodland Ramsar site contains a series of seasonal lakes (turloughs), which are fed by springs. Coole Lough is the largest and most permanent of the turloughs, and retains some water throughout the year. The site acts as a significant storage facility for flood waters reducing flooding risks lower in the catchment.

Other ecosystem services provided

The site is important in terms of biodiversity support. The turloughs at Coole-Garryland are particularly good examples of a habitat type which is almost unique to Ireland (Sheehy Skeffington and Gormally, 2009). A remarkable feature of Coole-Garryland is that several of the turloughs are surrounded by woodland. The nationally rare Mudwort (*Limosella aquatica*) and Dropwort (*Filipendula vulgaris*) are present at this site as well as a species of Water-starwort *Callitriche palustris* (recently recorded at this site and first known station in Ireland). The Ramsar site is part of a wider wetland complex within a karst landscape which supports a range of important habitat types. The site also supports wintering Whooper Swan as well as a diversity of other wintering waterbirds.

Other reasons

This Ramsar site is important in terms of education, recreation, culture and spiritual connection. The site is an important amenity area, with pathways, viewing points and a visitor centre. The site has rich historical and literary connections to Lady Gregory, W.B. Yeats and other Irish writers.

Criterion 2 : Rare species and threatened ecological communities

Optional text box to provide further information

Rare (high conservation concern) wintering bird species are defined as:
 Regularly occurring species (occurring in at least 3 out of 10 seasons of monitoring or 30% of seasons; based on I-Webs data from 2006/07 to 2015/16) and that are:
 - Red Listed in Ireland's national Red List (Birds of Conservation Concern in Ireland (BoCCI) published by Colhoun and Cummins (2013)
 - Classified as VU in IUCN Global and/or European regional list
 - Listed in Annex I of the European Union Birds Directive

Several bird species of high conservation concern at local, european and/or global level are part of the wintering waterbird assemblage at this site e.g. Whooper Swan, Lapwing, Goldeneye

Criterion 3 : Biological diversity

Justification

The turlough system at Coole-Garryland is considered to be the most diverse in the country, for both its physiography and vegetation; it is unique in that it is so closely associated with woodland. The complex of habitats at this site supports a variety of species, including Otter and Pine Marten. Otter is listed in Annex II of the E.U. Habitats Directive. Pine Martin is a Red Listed Mammal in Ireland (Least Concern). The site is also home to one of the most important and unique assemblages of insects in the country, including several notable species of beetles and flies. A number of Red Data Book plant species are present including Mudwort, a Flora Protection Order species in Ireland. In the winter it provides important habitat for migratory waterbirds. The assemblage of wintering birds including those of high (Red Listed in Ireland, Vulnerable in Europe) and medium (Amber Listed species in Ireland) conservation status contribute to biodiversity within the biogeographical region.

Criterion 4 : Support during critical life cycle stage or in adverse conditions

Optional text box to provide further information

The site provides important feeding and roosting habitat for a diversity of over wintering waterbirds, including Whooper Swan an Annex I species of the EU Birds Directive. Coole Lough is a Wildfowl Sanctuary and is particularly important for wintering waterbirds during prolonged dry spells as it is one of the few sites in the catchment which retains open water. Water levels in the turloughs vary greatly depending on rainfall and this has consequences for the numbers of birds present.

3.2 - Plant species whose presence relates to the international importance of the site

Phylum	Scientific name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
Plantae								
TRACHEOPHYTA / MAGNOLIOPSIDA	<i>Callitriche palustris</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LC	<input type="checkbox"/>	Irish Red Data Book (Vulnerable)	Vulnerable and with restricted distribution within Ireland
TRACHEOPHYTA / MAGNOLIOPSIDA	<i>Limosella aquatica</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LC	<input type="checkbox"/>	Irish Red Data Book (Least Concern) and Flora (Protection) Order, 2015.	Protected species in Ireland.

The nationally rare Mudwort (*Limosella aquatica*) occurs at the site. This plant is listed as Least Concern in the Irish Red Data Book (Wyse Jackson et al, 2016) and is included in the Flora (Protection) Order, 2015.

According to NPWS (2015) a species of Water-starwort, *Callitriche palustris*, was recently recorded from the site, its first known station in Ireland – it has since been noted in several other turlough sites. First recorded in Ireland in 1999, It is now known from four sites in Co. Galway (all turloughs) and one in Co. Clare (Wyse Jackson et al, 2016)

3.3 - Animal species whose presence relates to the international importance of the site

Phylum	Scientific name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
		2	4	6	9	3	5	7	8								
Others																	
CHORDATA/ MAMMALIA	<i>Lutra lutra</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Annex II (Habitats Directive)	Annex II listing
Birds																	
CHORDATA/ AVES	<i>Anas clypeata</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12	2011-2015			<input type="checkbox"/>	<input type="checkbox"/>	Red-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	National (BoCCI) classification, part of wintering assemblage
CHORDATA/ AVES	<i>Anas crecca</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	137	2011-2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Amber-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	Part of wintering assemblage, maintaining biodiversity
CHORDATA/ AVES	<i>Anas penelope</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	227	2011-2015			<input type="checkbox"/>	<input type="checkbox"/>	Red-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	National (BoCCI) classification, part of wintering assemblage
CHORDATA/ AVES	<i>Aythya fuligula</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12	2011-2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Red-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	National (BoCCI) classification, part of wintering assemblage
CHORDATA/ AVES	<i>Bucephala clangula</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9	2011-2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Red-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	National (BoCCI) classification, part of wintering assemblage
CHORDATA/ AVES	<i>Cygnus cygnus</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	54	2011-2015	0.2	LC	<input type="checkbox"/>	<input type="checkbox"/>	Listed on Annex I (Birds Directive), Amber-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	Annex I listing, part of wintering assemblage
CHORDATA/ AVES	<i>Cygnus olor</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16	2011-2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Amber-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	Part of wintering assemblage, maintaining biodiversity
CHORDATA/ AVES	<i>Gallinago gallinago</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2011-2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Amber-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	Part of wintering assemblage, maintaining biodiversity
CHORDATA/ AVES	<i>Numenius arquata</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	47	2011-2015		NT	<input type="checkbox"/>	<input type="checkbox"/>	Red-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013), and Vulnerable classification IUCN Europe region)	National (BoCCI) and IUCN classifications, part of wintering assemblage
CHORDATA/ AVES	<i>Phalacrocorax carbo</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2011-2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Amber-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	Part of wintering assemblage, maintaining biodiversity
CHORDATA/ AVES	<i>Podiceps cristatus</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2011-2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Amber-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	Part of wintering assemblage, maintaining biodiversity
CHORDATA/ AVES	<i>Tachybaptus ruficollis</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	2011-2015		LC	<input type="checkbox"/>	<input type="checkbox"/>	Amber-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013)	Part of wintering assemblage, maintaining biodiversity
CHORDATA/ AVES	<i>Vanellus vanellus</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	41	2011-2015		NT	<input type="checkbox"/>	<input type="checkbox"/>	Red-listed in Birds of Conservation Concern in Ireland (Colhoun and Cummins 2013), and Vulnerable classification IUCN Europe region)	National (BoCCI) and IUCN classifications, part of wintering assemblage

1) Percentage of the total biogeographic population at the site

Wintering bird species listed under 3.3 have been selected based on an assessment of Irish Wetland Bird Survey data from the period 2006/07 to 2015/16. Coole-Garryland is a Special Protection Area (SPA) for birds, however not all species listed for the SPA may be listed under 3.3 (or vice versa) as the SPA designation is based on other data and criteria.

Coole Lough and Garryland Wood Ramsar Site overlaps with the Coole-Garryland Special Protection Area which is designated due to the presence of Whooper Swan. Traditionally an internationally important population of Whooper Swan occurred at the site, a species that is listed on Annex I of the E.U. Birds Directive. However, IWeBS data (from the period 2006/07 to 2015/16) indicates the numbers for this species to have fallen dramatically from an internationally important population in 2005/2006 to a low level of eight individuals in 2013/2014 and 91 in 2015/16. Other wetland wintering birds use the site notably the Wigeon, Teal, Shoveler, Pochard, Tufted Duck, Mallard, Pintail, Goldeneye, Mute Swan, Lapwing and Curlew. The Wigeon (*Anas penelope*) recorded intermittently at the site is deemed to be Threatened (EUNIS). The EU population of the Shoveler, a regular visitor to the site, is listed as Depleted (EUNIS). According to IUCN the Pochard is Vulnerable and the EU population is threatened (EUNIS). The EU population of the Pintail is Threatened. The Northern Lapwing (*Vanellus vanellus*), is a regular visitor at the site and is known to breed here, it is listed as 'Near Threatened' within globally and Vulnerable in Europe on the IUCN red list; EUNIS lists the EU population of this species as Threatened. The Curlew is undergoing rapid decline throughout Europe and according to IUCN is deemed Near Threatened globally and within Europe.

The complex of habitats at Coole-Garryland Complex provides habitat for a variety of mammal species, including Otter (*Lutra lutra*) and Pine Marten (*Martes martes*). The Otter has been protected in Ireland under national legislation since 1976 (Wildlife Act 1976) and is listed on Annex II and Annex IV of the EU Habitats Directive. According to Marnell et al., (2009) the Otter is deemed Near Threatened within Ireland as this species has shown a decline of 20-25% between 1980 and 2006, with most of that occurring in the first decade (i.e. 1980-1990), the cause of this decline is unclear. The IUCN deem the Eurasian Otter to be Near Threatened within Europe and globally. The Pine Marten (associated with terrestrial habitats at the site) is listed on Annex V of the EU Habitats Directive and is protected in Ireland under the Wildlife Act (1976).

According to NPWS (2016) Coole-Garryland complex is also home to one of the most important and unique assemblages of insects in the country, including several notable species of beetles and flies.

3.4 - Ecological communities whose presence relates to the international importance of the site

Name of ecological community	Community qualifies under Criterion 2?	Description	Justification
3180 Turloughs	<input checked="" type="checkbox"/>		Annex I habitat (Habitats Directive), priority habitat
3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	<input checked="" type="checkbox"/>		Annex I habitat (Habitats Directive)
3270 Rivers with muddy banks with <i>Chenopodium rubri</i> p.p. and <i>Bidens</i> p.p. vegetation	<input checked="" type="checkbox"/>		Annex I habitat (Habitats Directive)

[Optional text box to provide further information](#)

The following habitats, while not wetland in nature are part of the wider complex of important habitat types within which this Ramsar site lies and for which the wider area is designated a Special Area of Conservation (Coole-Garryland Complex SAC) : 5130 *Juniperus communis* formations on heaths or calcareous grasslands, 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid, 8240 Limestone pavements*, 91J0 *Taxus baccata* woods of the British Isles*)

4 - What is the Site like? (Ecological character description)

4.1 - Ecological character

Coole Lough and Garryland Wood Ramsar site comprises of a series of seasonal lakes (turloughs) fed by springs and a partly subterranean river. The site is surrounded by mixed woodland and lies within a larger wetland complex of turlough, lake, and river habitats together with: limestone pavement, juniper scrub, species rich grasslands and Yew woodland. The site is unique in that it is the only site in Ireland where the transition from turlough to climax woodland can be seen. The juxtaposition of these two distinct habitats, in addition to the variation in turlough characteristics, has led to the development of uncommon biotic communities, and the site hosts a number of rare species of insect and plant.

Traditionally an internationally important population of Whooper Swan occurred at the site, a species that is listed on Annex I of the E.U. Birds Directive. However, I-WeBS data (2010-2015) indicates the numbers for this species to have fallen dramatically from an internationally important population in 2005/2006 to a low level of 8 individuals in 2013/2014; 91 in 2015/16. Other wetland wintering birds use the site including the Wigeon, Teal, Shoveler, Pochard, Tufted Duck, Mallard, Pintail, Goldeneye, Mute Swan, Lapwing and Curlew. The Lapwing breeds at the site. Coole Lough, a Wildfowl Sanctuary, has particular significance for wintering waterbirds as during prolonged dry spells it is one of the few sites in the catchment which retains open water. Water levels in the turloughs vary greatly depending on rainfall and this has consequences for the numbers of birds present. During prolonged dry spells, higher numbers of some species are present as birds from other sites in the catchment are attracted to the permanent waters of Coole Lough. Excessive flood conditions may reduce the potential feeding areas though birds still roost on the lakes.

A number of notable mammals frequent the site including Otter and Pine Marten.

According to NPWS (2016) Coole-Garryland complex is also home to one of the most important and unique assemblages of insects in the country, including several notable species of beetles and flies.

4.2 - What wetland type(s) are in the site?

Inland wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
Fresh water > Flowing water >> M: Permanent rivers/ streams/ creeks	River	2	5	Representative
Fresh water > Lakes and pools >> P: Seasonal/ intermittent freshwater lakes	Turlough	1	90	Unique
Fresh water > Marshes on inorganic soils >> Ts: Seasonal/ intermittent freshwater marshes/ pools on inorganic soils		3	25	Representative

Other non-wetland habitat

Other non-wetland habitats within the site	Area (ha) if known
Woodland/ scrub	270

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Phylum	Scientific name	Position in range / endemism / other
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Ceratophyllum demersum</i>	Irish Red Data Book Species
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Filipendula vulgaris</i>	Irish Red Data Book Species
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Persicaria minor</i>	Irish Red Data Book Species
TRACHEOPHYTALILIOPSIDA	<i>Potamogeton bertholdii</i>	Irish Red Data Book Species
TRACHEOPHYTALILIOPSIDA	<i>Potamogeton perfoliatus</i>	Irish Red Data Book Species
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Rorippa islandica</i>	Irish Red Data Book Species
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Viola stagnina</i>	Irish Red Data Book Species

Optional text box to provide further information

Fen violet (*Viola stagnina*; previously *Viola persicifolia*) is a Red Listed species in Ireland (Near Threatened) and is found at this site (Sheehy Skeffington pers comm.)

The following Red Listed species in Ireland (Wyse Jackson et al, 2016) are also known from the site (all Least Concern): Northern Yellow-cress (*Rorippa islandica*) and Small Water-pepper (*Persicaria minor*) which has been recorded for the Coole River (Sheehy Skeffington pers comm.). Records for Dropwort (*Filipendula vulgaris*) suggest it does not occur within the Ramsar site boundary, though some suitable habitat may be present. This is a Red Data Book species (Least Concern).

In the habitat 'natural eutrophic lake' at the site, species such as Pondweeds (*Potamogeton perfoliatus* and *P. berchtoldii*) and Rigid Hornwort (*Ceratophyllum demersum*) are to be found. The pondweeds and Rigid Hornwort are Red Listed species of Least Concern.

4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
CHORDATA/MAMMALIA	<i>Martes martes</i>				

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
C: Moist Mid-Latitude climate with mild winters	Cfb: Marine west coast (Mild with no dry season, warm summer)

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres)

a) Maximum elevation above sea level (in metres)

- Entire river basin
- Upper part of river basin
- Middle part of river basin
- Lower part of river basin
- More than one river basin
- Not in river basin
- Coastal

4.4.3 - Soil

Mineral

(Update) Changes at RIS update No change Increase Decrease Unknown

Organic

(Update) Changes at RIS update No change Increase Decrease Unknown

No available information

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)? Yes No

4.4.4 - Water regime

Water permanence

Presence?	Changes at RIS update
Usually seasonal, ephemeral or intermittent water present	

Source of water that maintains character of the site

Presence?	Predominant water source	Changes at RIS update
Water inputs from precipitation	<input type="checkbox"/>	No change
Water inputs from surface water	<input type="checkbox"/>	No change
Water inputs from groundwater	<input type="checkbox"/>	No change

Water destination

Presence?	Changes at RIS update
Unknown	No change

Stability of water regime

Presence?	Changes at RIS update
Water levels fluctuating (including tidal)	No change

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology.

Coole Lough - Garryland Woodland Ramsar site contains a series of seasonal lakes (turloughs), which are fed by springs; turloughs are seasonal/intermittent freshwater lakes. Coole Lough is the largest and most permanent of the turloughs, and retains some water throughout the year. The site acts as a significant storage facility for flood waters reducing flooding risks lower in the catchment.

4.4.5 - Sediment regime

Sediment regime unknown

4.4.6 - Water pH

Alkaline (pH>7.4)

(Update) Changes at RIS update No change Increase Decrease Unknown

Unknown

4.4.7 - Water salinity

Fresh (<0.5 g/l)

(Update) Changes at RIS update No change Increase Decrease Unknown

Unknown

4.4.8 - Dissolved or suspended nutrients in water

Eutrophic

(Update) Changes at RIS update No change Increase Decrease Unknown

Unknown

4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the site itself: i) broadly similar ii) significantly different

Surrounding area has greater urbanisation or development

Surrounding area has higher human population density

Surrounding area has more intensive agricultural use

Surrounding area has significantly different land cover or habitat types

Please describe other ways in which the surrounding area is different:

Land use in the surrounding lands and catchment is primarily agricultural based on grazing by cattle and sheep. Small amounts of tillage occur on the eastern boundary. Scattered rural housing is widespread within the catchment and the medium sized town of Gort is approx. 1km east of the site.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	High
Pollution control and detoxification	Water purification/waste treatment or dilution	Medium
Climate regulation	Local climate regulation/buffering of change	Low
Climate regulation	Regulation of greenhouse gases, temperature, precipitation and other climactic processes	Low
Hazard reduction	Flood control, flood storage	Medium

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Picnics, outings, touring	High
Recreation and tourism	Nature observation and nature-based tourism	High
Spiritual and inspirational	Aesthetic and sense of place values	High
Spiritual and inspirational	Cultural heritage (historical and archaeological)	High
Spiritual and inspirational	Contemporary cultural significance, including for arts and creative inspiration, and including existence values	High
Spiritual and inspirational	Inspiration	High
Scientific and educational	Educational activities and opportunities	High
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	High
Scientific and educational	Long-term monitoring site	not relevant for site

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part	High
Soil formation	Sediment retention	Low
Soil formation	Accumulation of organic matter	Low
Nutrient cycling	Carbon storage/sequestration	Low
Nutrient cycling	Storage, recycling, processing and acquisition of nutrients	Low

Outside the site:

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes No Unknown

4.5.2 - Social and cultural values

- i) the site provides a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland
- ii) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland
- iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples
- iv) relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland

<no data available>

4.6 - Ecological processes

<no data available>

5 - How is the Site managed? (Conservation and management)

5.1 - Land tenure and responsibilities (Managers)

5.1.1 - Land tenure/ownership

Public ownership

Category	Within the Ramsar Site	In the surrounding area
National/Federal government	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Private ownership

Category	Within the Ramsar Site	In the surrounding area
Other types of private/individual owner(s)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Other

Category	Within the Ramsar Site	In the surrounding area
Commoners/customary rights	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Provide further information on the land tenure / ownership regime (optional):

The site encompasses two state - owned Nature Reserves (Coole Garryland and Ballynastaig), that are managed and owned by the National Parks and Wildlife Service on behalf of the state.
There are also some areas of land in private ownership and in commonage.

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site:

National Parks & Wildlife Service (NPWS), National Parks and Wildlife Service Department of Housing, Local Government and Heritage
Galway County Council.
Environmental Protection Agency (EPA).
Department of Communications, Climate Action and Environment.

Provide the name and/or title of the person or people with responsibility for the wetland:

Maurice Eakin

Postal address:

National Parks and Wildlife Service,
90 North King Street,
Smithfield, Dublin,
Ireland
D07 N7CV

E-mail address:

maurice.eakin@housing.gov.ie

5.2 - Ecological character threats and responses (Management)

5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

Human settlements (non agricultural)

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Housing and urban areas	Low impact	Medium impact	<input type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change

Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Annual and perennial non-timber crops	Low impact		<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change
Wood and pulp plantations	Medium impact		<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change
Livestock farming and ranching	Low impact	Medium impact	<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change

Energy production and mining

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Mining and quarrying	Low impact		<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change

Transportation and service corridors

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Roads and railroads	Low impact	Medium impact	<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change

Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Vegetation clearance/land conversion	Low impact	Medium impact	<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change

Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Agricultural and forestry effluents	Medium impact	High impact	<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change

5.2.2 - Legal conservation status

Regional (international) legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
EU Natura 2000	Coole-Garryland Complex SAC 000252.	https://www.npws.ie/protected-sites/sac/000252	whole
EU Natura 2000	Coole-Garryland SPA 004107	https://www.npws.ie/protected-sites/spa/004107	partly

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
National Reserve	Coole Garryland and Ballynastaig	https://www.npws.ie/nature-reserves/galway/coole-garryland-ballynastaig-wood-nature-reserves	whole

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Coole Park and Garryland complex	http://datazone.birdlife.org/site/factsheet/coole-park-and-garryland-complex-iba-ireland	whole

5.2.3 - IUCN protected areas categories (2008)

- Ia Strict Nature Reserve
- Ib Wilderness Area: protected area managed mainly for wilderness protection
- II National Park: protected area managed mainly for ecosystem protection and recreation
- III Natural Monument: protected area managed mainly for conservation of specific natural features
- IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention
- V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation
- VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems

5.2.4 - Key conservation measures

Legal protection

Measures	Status
Legal protection	Implemented

Habitat

Measures	Status
Habitat manipulation/enhancement	Implemented
Hydrology management/restoration	Implemented
Land conversion controls	Implemented

Human Activities

Measures	Status
Regulation/management of wastes	Implemented
Regulation/management of recreational activities	Implemented
Fisheries management/regulation	Implemented
Livestock management/exclusion (excluding fisheries)	Implemented
Harvest controls/poaching enforcement	Implemented
Research	Implemented

Other:

The Coole-Garryland Wood Ramsar site lies within the Coole-Garryland Complex SAC and Coole-Garryland SPA. Under European and national legislation Ireland must maintain at favourable conservation status areas designated as Special Areas of Conservation and/or Special Protection Areas. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites. Conservation objectives of this site have been set for the SAC and SPA; these can be accessed on NPWS.ie. The main objectives are

- To maintain the Annex I habitat for which the SAC has been selected at favourable conservation status i.e. Natural Eutrophic Lakes, Turloughs*, Chenopodium rubri p.p. and Ip.p. Vegetation, Juniper Scrub, Orchid-rich Calcareous Grassland*, Limestone Pavement* and Yew Woodlands*.
- To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA; and Wetlands.

Legislation in the Republic of Ireland affords protection to bird species outside of designated sites e.g. all wild bird species are afforded protection by The Wildlife Act 1976. Waterfowl shooting is under license only, managed by the National Parks & Wildlife Service. It is Departmental policy that no hunting occurs on State-owned lands.

5.2.5 - Management planning

Is there a site-specific management plan for the site? No

Has a management effectiveness assessment been undertaken for the site? Yes No

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party? Yes No

Please indicate if a Ramsar centre, other educational or visitor facility, or an educational or visitor programme is associated with the site:

The site has a dedicated visitor centre which offers interpretation outlining the natural and cultural history of Coole Park and the surrounding landscape. An audio visual presentation on "Lady Gregory of Coole" is followed by three separate interactive exhibitions about the site: geology and hydrology; other aspects of the natural history; and woodland flora and fauna. This is then followed by a pictorial exhibition relating to the literary and natural heritage element of the site. Guided tours of the grounds immediately adjacent to the centre are available.

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? Please select a value

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Water quality	Implemented
Plant species	Implemented
Birds	Implemented

As a EU Natura 2000 site, it is required under Article 12 and 17 of the EU Habitats and Birds Directives that the status and trends of the conservation objectives within the site are monitored and reported on every 6 years. The site is monitored under the I-WEBS scheme. The site is regularly inspected by the National Parks and Wildlife Service Conservation Rangers

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

Colhoun, K. and Cummins, S. 2013. Birds of conservation concern in Ireland 2014-2019. Irish Birds 9: 523-544

Kingston, N. (2012) Checklist of protected & rare species in Ireland. Unpublished National Parks & Wildlife Service Report.

Sheehy Skeffington, M. and Gormally, M. 2006. TURLOUGHES: A MOSAIC OF BIODIVERSITY AND MANAGEMENT SYSTEMS UNIQUE TO IRELAND. ACTA CARSOLOGICA 36/2, 217-222, POSTOJNA 2007

NPWS (2016) Conservation objectives for Coole-Garryland Complex SAC [000252]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

NPWS (2015) Natura Form for Coole-Garryland Complex SAC [000252]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

NPWS (2016) Site Synopsis for Coole-Garryland Complex SAC [000252]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

NPWS (2016) Conservation objectives for Coole-Garryland SPA [004107]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

NPWS (2015) Natura Form for Coole-Garryland SPA [004107]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

NPWS (2014) Site Synopsis for Coole-Garryland SPA [004107]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

IUCN Red List of Threatened Species 2007: e.T19518A8950866. Downloaded on 11 November 2017

Wyse Jackson, M., FitzPatrick, Ú., Cole, E., Jebb, M., McFerran, D., Sheehy Skeffington, M. & Wright, M. (2016) Ireland Red List No. 10: Vascular Plants. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Dublin, Ireland [BirdwatchIreland.ie](http://birdwatchireland.ie)
<http://eunis.eea.europa.eu>
 The Irish Wetland Bird Survey (I-WeBS).

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

<no file available>

ii. a detailed Ecological Character Description (ECD) (in a national format)

<no file available>

iii. a description of the site in a national or regional wetland inventory

<no file available>

iv. relevant Article 3.2 reports

<no file available>

v. site management plan

<no file available>

vi. other published literature

<no file available>

<no data available>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



Coole/Garryland Wood (NPWS, May 2013)



Coole/Garryland Wood (NPWS, May 2013)



Coole/Garryland Wood (NPWS, May 2013)



Coole/Garryland Wood (NPWS, May 2013)

6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation