

## **Appendix A.8.18**

### **Desk Study**

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## Desk Study

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### Desktop Data Sources

The following sources were consulted during the desktop study:

- Online data available on Natura 2000 network of sites (hereafter referred to as European sites)<sup>1</sup>, Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) as held by the National Parks and Wildlife Service (NPWS). Available online at <[www.npws.ie/protectedsites/](http://www.npws.ie/protectedsites/)> and <<http://webgis.npws.ie/npwsviewer/>>. Accessed January 2018
- National Biodiversity Data Centre (NBDC) Online Database. Available online at <<http://maps.biodiversityireland.ie/#/Map>>. Accessed September 2017
- Ordnance Survey Ireland (OSI) orthophotography (from 2012) for the scheme study area
- Records of rare and protected species for the 10km grid squares M22 and M32, provided by the NPWS
- Habitat and species GIS datasets provided by the NPWS
- Bat records from Bat Conservation Ireland's (BCI) database
- *N6 Galway City Outer Bypass. Environmental Impact Statement* (RPS, 2006)
- *N59 Maigh Cuilinn (Moycullen) Bypass Road Project Environmental Impact Statement* (Galway County Council/Roscommon National Roads Design Office, 2011)
- Series of ecological reports carried out by RPS relating to the proposed R336 to N59 Road Scheme, Co. Galway (RPS, 2012a; RPS, 2012b; RPS, 2013a; RPS, 2013b; and, RPS, 2013c)
- *Galway County Development Plan 2015-2021* (Galway County Council, 2015)
- *Biodiversity Action Plan for County Galway 2008-2013* (Galway County Council, 2008)

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<sup>1</sup> European sites, are defined under the Habitats Directive (Article 3) as a European ecological network of Special Areas of Conservation and Special Protection Areas, composed of sites which host the natural habitat types listed in Annex I and habitats of the protected species listed in Annex II. The aim of the network is to aid the long-term survival of Europe's most vulnerable and threatened species and habitats. In Ireland these sites are designated as European sites – defined under the Planning Acts and/or Birds and Habitats Regulations as (a) a candidate site of Community importance, (b) a site of Community importance, (c) a candidate special area of conservation, (d) a special area of conservation, (e) a candidate special protection area, or (f) a special protection area. They are commonly referred to in Ireland as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

- *Draft Galway County Heritage & Biodiversity Plan 2017-2022* (Galway County Council, 2017)
- *Galway City Habitat Inventory. Galway City Council* (Natura Environmental Consultants, 2005) – including digital mapping dataset
- *The Wildflowers of Merlin Woods* and *The Butterflies of Merlin Woods* (Stanley 2013a and 2013b)
- *Galway City Council Development Plan 2017-2023* (Galway City Council, 2017)
- *Galway City Draft Biodiversity Action Plan 2014-2024* (Galway City Council, 2014)
- *Galway City Council Ardaun Local Area Plan Habitat Assessment* (Natura Environmental Consultants, 2012)
- *Draft Ardaun Local Area Plan 2018 –2024* (Galway City Council, 2018)
- *Bearna Local Area Plan 2007 –2017* (Galway County Council, 2007a)
- *Coastal Habitat Study for Bearna* (Galway County Council, 2007b)
- *The Barna Woods Project, Biodiversity Report* (Browne *et al.*, 2009)
- *Merlin Park Woodland Habitat Survey and Management Plan* (Browne, & Fuller, 2009)
- *Pseudorchis albida at Doughiska, Galway City – Report of a search in May-June 2005* (Roden, 2005)
- *Galway Harbour Extension Environmental Impact Statement* (Galway Harbour Company, 2014)
- Results of the NBDC’s ‘Bioblitz’ event at the NUI Galway campus
- *The phytosociology and ecology of the aquatic and the wetland plant communities of the Lower Corrib Basin, Co. Galway*. Proceedings of the Royal Irish Academy 90B (5) (Mooney & O’Connell, 1990)
- Various environmental planning reports relating to developments associated with NUI Galway (McCarthy, Keville & O’Sullivan, 2014a; McCarthy, Keville & O’Sullivan, 2014b; McCarthy, Keville & O’Sullivan, 2009a; McCarthy, Keville & O’Sullivan, 2009b; McCarthy, Keville & O’Sullivan, 2011; A.P. McCarthy Planning Consultants, 2007a and 2007b; and, Moore Group Environmental Services, 2011), and
- Other environmental planning reports from within the N6 scheme study area (Tobin Consulting Engineers, 2004; EIS Limited, 2005; Crushell, 2009).

## Consultation

The following organisations/individuals with relevance to collating information on ecological constraints were consulted:

- National Parks & Wildlife Service (NPWS)
- Inland Fisheries Ireland (IFI)
- BirdWatch Ireland (BWI)
- Bat Conservation Ireland (BCI)
- Botanical Society of Britain & Ireland (BSBI)
- Kate McAney of the Vincent Wildlife Trust, and
- Other members of the public with local knowledge/records (e.g. relating to bat roosts).

## Results

### Flora

Desktop records of protected, rare, or other notable plant species are listed below in **Table 1**. These are plant species which are legally protected under the Flora (Protection) Order, 2015 and/or are listed as Critically Endangered, Endangered or Vulnerable on the relevant national Red Data list for Ireland<sup>2</sup>. Where a grid reference is available for the record, the location is mapped on **Figure 8.2.1**.

**Table 1: Records of Protected, Red-listed or Notable Flora Recorded from the Desk Study within the scheme study area**

Common Name/ Scientific name	Legal Status <sup>3</sup>	Red List Status	Source
Slender cottongrass <i>Eriophorum gracile</i>	FPO	Near threatened	NPWS record <sup>4</sup> (M22) Galway City Council (2013) Galway Harbour Company (2014)
Small-white orchid <i>Pseudorchis albida</i>	FPO	Vulnerable	Galway City Council (2013) Galway Harbour Company (2014) Natura Environmental Consultants (2012) Roden (2005) NPWS online database (M22 and M32)

<sup>2</sup> Vascular flora from Wyse Jackson et al. (2016); bryophytes from Lockhart et al. (2012)

<sup>3</sup> HDII/IV/V = Habitats Directive Annexes II/IV/V; FPO = Flora (Protection) Order, 2015; WA = Wildlife Acts

<sup>4</sup> National Parks and Wildlife Service (NPWS) records, originally requested in 2014 and updated in August 2017 – codes in parenthesis refer to national 10km grid squares (e.g. M22 is the western part of the scheme study area and M32 the eastern).

Common Name/ Scientific name	Legal Status <sup>3</sup>	Red List Status	Source
Chives <i>Allium schoenoprasum</i>	FPO	Vulnerable	NPWS record (M22)
Henbane <i>Hyoscyamus niger</i>	none	Near threatened	NPWS record (M22 and M32)
Cornflower <i>Centaurea cyanus</i>	none	Waiting list <sup>5</sup>	NPWS record (M32)
Fine-leaved marsh feather-moss <i>Campyliadelphus elodes</i>	none	Near threatened	NBDC online database record (M32) <sup>6</sup>
Saltmarsh thread-moss <i>Bryum salinum</i>	FPO	Critically endangered	NBDC online database record (M32)
Woody thyme-moss <i>Plagiomnium cuspidatum</i>	none	Near threatened	NBDC online database record (M32)
Mountain liverwort <i>Marchantia polymorpha</i> subsp. <i>montivagans</i>	FPO	Endangered	NBDC online database record (M22)
Large hook-moss <i>Drepanocladus lycopodioides</i>	none	Vulnerable	NBDC online database record (M32)

The majority of the bryophyte species which were added to the revised Flora (Protection) Order, 2015 legislation were considered highly unlikely to occur within the scheme study area, based on a review of the habitat preferences for each species and on the habitats present within the scheme study area. Two species were considered to have potential to occur: Varnished hook-moss *Hamatocaulis vernicosus*, which was subject to a dedicated survey; and, Veilwort *Pallavicinia lyellii*, which is known to occur on wet, peaty ground in bogs and mires, such as that found in the peaty areas in the western part of the scheme study area. No bog or mire habitats are either directly or indirectly impacted by the proposed road development.

## Fauna

There are a number of European and nationally protected mammal, bird, fish, invertebrate and amphibian species which have been recorded within the scheme study area. These are summarised in **Table 2** below.

In relation to amphibian, reptile and mammal species those which are protected under the Wildlife Acts, the Habitats Directive and/or are listed as threatened (Vulnerable to Critically Endangered) on the relevant national Red Lists are included. In the case of bird species, only those species listed in Annex I of the Birds Directive or on the Birds of Conservation Concern in Ireland (BoCCI) Red List are included in the table below. For invertebrate species, those which are listed as threatened (Vulnerable to Critically Endangered) on the relevant national Red List are included.

<sup>5</sup> From Wyse Jackson et al. (2016) – waiting list classification is where there is “Insufficient distribution or population data, taxonomic uncertainties and/or uncertainties regarding native or alien status (of taxa or individuals) mean that no assessment could be made”.

<sup>6</sup> National Biodiversity Data Centre (NBDC) records (<http://maps.biodiversityireland.ie/#/Map>) accessed in May 2014.

**Table 2: Records of Protected, Red-listed or Notable Fauna from the Desktop Study within the scheme study area**

Common Name/ Scientific Name	Legal Status <sup>7</sup>	Red List Status <sup>8</sup>	Source
<b>Amphibians</b>			
Common frog <i>Rana temporaria</i>	HD_V, WA	Least concern	NBDC online database record NPWS record (M22 and M32) McCarthy, Keville & O'Sullivan (2009b) A.P. McCarthy Planning Consultants (2007)
Smooth newt <i>Triturus vulgaris</i>	WA	Least concern	NBDC online database record (M22 and M32) <sup>9</sup> NPWS record (M22)
<b>Reptiles</b>			
Common lizard <i>Lacerta vivipara</i>	WA	Least concern	NBDC online database record (M22 and M32) NPWS record (M22)
Leatherback turtle <i>Dermodochelys coriacea</i>	HD_IV, WA	Least concern	NBDC online database record
<b>Mammals (Marine)</b>			
Minke whale <i>Balaenoptera cutorostrata</i>	HD_IV, WA	n/a	NBDC online database record
Common dolphin <i>Delphinus delphis</i>	HD_IV, WA	n/a	NBDC online database record
Long-finned pilot whale <i>Globicephala melas</i>	HD_IV, WA	n/a	NBDC online database record
Grey seal <i>Halichoerus grypus</i>	HD_II & IV, WA	n/a	NBDC online database record
Pygmy sperm whale <i>Kogia breviceps</i>	HD_IV, WA	n/a	NBDC online database record
Common seal <i>Phoca vitulina</i>	HD_II & IV, WA	n/a	NBDC online database record NPWS record (M22 and M32)
Common porpoise <i>Phocoena phocoena</i>	HD_II & IV, WA	n/a	NBDC online database record
Bottle-nosed dolphin <i>Tursiops truncatus</i>	HD_II & IV, WA	n/a	NBDC online database record

<sup>7</sup> HD\_II/IV/V = Habitats Directive Annexes II/IV/V; WA = Wildlife Acts; BD\_I/II/III = Birds Directive Annex I/II/III; OSPAR = Convention for the protection of the marine environment of the North-east Atlantic 1992

<sup>8</sup> Mammal Red-list from Marnell *et al.*, 2009; Birds from Birds of Conservation Concern in Ireland (Colhoun & Cummins, 2013); Amphibians, reptiles and fish from King *et al.*, 2011; Non-Marine Molluscs from Byrne *et al.*, 2009; Butterflies from Regan *et al.* (2010); Moths from Allen *et al.* (2016); Damselflies and dragonflies from Nelson *et al.* (2011); Water beetles from Foster *et al.* (2009).

<sup>9</sup> National Biodiversity Data Centre (NBDC) records (<http://maps.biodiversityireland.ie/#/Map>) accessed in August 2017.

Common Name/ Scientific Name	Legal Status <sup>7</sup>	Red List Status <sup>8</sup>	Source
Cuvier's beaked whale <i>Ziphius cavirostris</i>	HD_IV, WA	n/a	NBDC online database record
Atlantic white-sided dolphin <i>Lagenorhynchus acutus</i>	HD_IV, WA	n/a	NBDC online database record
Sperm whale <i>Physeter macrocephalus</i>	HD_IV, WA	n/a	NBDC online database record
Striped dolphin <i>Stenella coeruleoalba</i>	HD_IV, WA	n/a	NBDC online database record
Mammals (Terrestrial)			
Badger	WA	Least concern	Browne & Fuller (2009) Galway City Council (2013) McCarthy, Keville & O'Sullivan (2014a) NBDC online database record Galway County Council/Roscommon National Roads Design Office (2011) RPS (2006) RPS (2013b) NPWS record (M22 and M32)
Otter <i>Lutra lutra</i>	HD_II & IV, WA	Near threatened	Browne <i>et al.</i> (2009) Galway City Council (2013) Galway Harbour Company (2014) NBDC online database record Galway County Council/Roscommon National Roads Design Office (2011) RPS (2006) RPS (2013b) NPWS record (M22 and M32)
Lesser horseshoe bat <i>Rhinolophus hipposideros</i>	HD_II & IV, WA	Least concern	BCI database record <sup>10</sup> Galway City Council (2013) McCarthy, Keville & O'Sullivan (2014a) McCarthy, Keville & O'Sullivan (2014b) NBDC online database record Galway County Council/Roscommon National Roads Design Office (2011) RPS (2006)
Natterer's bat <i>Myotis nattereri</i>	HD_IV, WA	Least concern	BCI database record NBDC online database record RPS (2006) RPS (2013a)

<sup>10</sup> Bat Conservation Ireland (BCI) database record accessed in October 2014



Common Name/ Scientific Name	Legal Status <sup>7</sup>	Red List Status <sup>8</sup>	Source
Brandt's bat/Whiskered bat <i>Myotis brandtii</i> / <i>Myotis mystacinus</i>	HD_IV, WA	Data deficient/ least concern	BCI database record
Unidentified <i>Myotis</i> spp. bat	HD_IV, WA	Least concern	BCI database record McCarthy, Keville & O'Sullivan (2014a) McCarthy, Keville & O'Sullivan (2014b) NBDC online database record
Brown long-eared bat <i>Plecotus auritus</i>	HD_IV, WA	Least concern	BCI database record Browne, A. & Fuller, J. (2009) Galway City Council (2013) McCarthy, Keville & O'Sullivan (2014a) NBDC online database record Galway County Council/Roscommon National Roads Design Office (2011) RPS (2006) RPS (2013a)
Daubenton's bat <i>Myotis daubentonii</i>	HD_IV, WA	Least concern	BCI database record Galway City Council (2013) McCarthy, Keville & O'Sullivan (2014a) McCarthy, Keville & O'Sullivan (2014b) NBDC online database record RPS (2006)
Leisler's bat <i>Nyctalus leisleri</i>	HD_IV, WA	Least concern	A.P. McCarthy Planning Consultants (2007a) BCI database record Galway City Council (2013) McCarthy, Keville & O'Sullivan (2014a) McCarthy, Keville & O'Sullivan (2014b) McCarthy, Keville & O'Sullivan (2009b) NBDC online database record Galway County Council/Roscommon National Roads Design Office (2011) RPS (2013a)

Common Name/ Scientific Name	Legal Status <sup>7</sup>	Red List Status <sup>8</sup>	Source
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	HD_IV, WA	Least concern	A.P. McCarthy Planning Consultants (2007a) BCI database record Browne <i>et al.</i> (2009) Browne & Fuller (2009) Galway City Council (2013) Galway County Council/Roscommon National Roads Design Office (2011) McCarthy, Keville & O'Sullivan (2014a) McCarthy, Keville & O'Sullivan (2014b) McCarthy, Keville & O'Sullivan (2009b) NBDC online database record RPS (2006) RPS (2013a)
Common pipistrelle <i>Pipistrellus pipistrellus</i>	HD_IV, WA	Least concern	A.P. McCarthy Planning Consultants (2007a) BCI database record Galway City Council (2013) McCarthy, Keville & O'Sullivan (2014a) McCarthy, Keville & O'Sullivan (2014b) McCarthy, Keville & O'Sullivan (2009b) NBDC online database record RPS (2006) RPS (2013a)
Hedgehog <i>Erinaceus europaeus</i>	WA	Least concern	Galway City Council (2013) NBDC online database record NPWS record (M22 and M32)
Irish hare <i>Lepus timidus subsp. hibernicus</i>	HD_V, WA	Least concern	Galway City Council (2013) NBDC online database record RPS (2013b) NPWS record (M22 and M32)
Pine marten <i>Martes martes</i>	HD_V, WA	Least concern	Galway City Council (2013) Galway County Council/Roscommon National Roads Design Office (2011) NBDC online database record
Red squirrel <i>Sciurus vulgaris</i>	WA	Near threatened	Browne & Fuller (2009) NBDC online database record
Pygmy shrew <i>Sorex minutus</i>	WA	Least concern	Galway City Council (2013) NBDC online database record NPWS record (M22)

Common Name/ Scientific Name	Legal Status <sup>7</sup>	Red List Status <sup>8</sup>	Source
Stoat <i>Mustela erminea</i>	WA	Least concern	Galway City Council (2013) NBDC online database record NPWS record (M22 and M32)
<b>Fish<sup>11</sup></b>			
Atlantic salmon <i>Salmo salar</i>	HD_II & V (in freshwater), OSPAR Fisheries Acts	Vulnerable	Galway Harbour Company (2014) O'Connor (2007)
Sea lamprey <i>Petromyzon marinus</i>	HD_II, OSPAR Fisheries Acts	Near threatened	NBDC online database record O'Connor (2007) NPWS record (M22)
Brook lamprey <i>Lampetra planeri</i>	HD_II Fisheries Acts	Least concern	Galway City Council (2013) O'Connor (2007)
Eel <i>Anguilla anguilla</i>	OSPAR Protected under Fisheries Acts and fishing by- laws	Critically endangered	Galway Harbour Company (2014) NBDC online database record
Brown/Sea trout <i>Salmo trutta</i>	Protected under Fisheries Acts and fishing by- laws	Least concern	NBDC online database record
Pike <i>Esox lucius</i>	Protected under Fisheries Acts and fishing by- laws	Non-native non-benign	NBDC online database record
Rudd <i>Scardinius erythrothalmus</i>	Protected under Fisheries Acts and fishing by- laws	Non-native non-benign	NBDC online database record
Roach <i>Rutilus rutilus</i>	Protected under Fisheries Acts and fishing by- laws	Non-native non-benign	NBDC online database record

<sup>11</sup> Inland Fisheries Ireland (IFI) noted in their consultation response that the Bearna Stream supports Brown trout and Eel, with trout spawning habitat present. Brown trout are also found in the Tonabrocky and Cappagh Streams and likely to be present in the Trusky and Sruthán na Líbeirtí Streams.

Common Name/ Scientific Name	Legal Status <sup>7</sup>	Red List Status <sup>8</sup>	Source
Perch <i>Perca fluviatilis</i>	Protected under Fisheries Acts and fishing by-laws	Non-native non-benign	NBDC online database record
Flounder <i>Platichthys flesus</i>	Protected under Fisheries Acts	Least concern	NBDC online database record
<b>Birds</b>			
Barn owl <i>Tyto alba</i>	WA	Red	Bird Atlas Database Record <sup>12</sup> Galway City Council (2013)
Black-headed gull <i>Larus ridibundus</i>	WA	Red	Bird Atlas Database Record Galway Harbour Company (2014) IWeBS database record <sup>13</sup> McCarthy, Keville & O'Sullivan (2009a) McCarthy, Keville & O'Sullivan (2009b) Whilde (1983)
Black-necked grebe <i>Podiceps nigricollis</i>	WA	Red	Bird Atlas Database Record
Common scoter <i>Melanitta nigra</i>	WA	Red	Bird Atlas Database Record IWeBS database record NBDC online database record
Curlew <i>Numenius arquata</i>	BD_II (II), WA	Red	Bird Atlas Database Record EIS Limited (2005) Galway Harbour Company (2014) IWeBS database record RPS (2006) NBDC online database record
Dunlin <i>Calidris alpina</i>	BD_I	Red	Bird Atlas Database Record IWeBS database record Whilde (1983) NBDC online database record
Golden plover <i>Pluvialis apricaria</i>	BD_I, II (II), III (III), WA	Red	Bird Atlas Database Record IWeBS database record NBDC online database record
Goldeneye <i>Bucephala clangula</i>	BD_II (II), WA	Red	Bird Atlas Database Record IWeBS database record NBDC online database record

<sup>12</sup> Bird Atlas database held by BirdWatch Ireland for 10km grid squares IM22 and IM32

<sup>13</sup> Irish Wetland Bird Survey (I-WeBS database record) database held by BirdWatch Ireland

Common Name/ Scientific Name	Legal Status <sup>7</sup>	Red List Status <sup>8</sup>	Source
Grey wagtail <i>Motacilla cinerea</i>	WA	Red	Bird Atlas Database Record NBDC online database record
Herring gull <i>Larus argentatus</i>	WA	Red	Bird Atlas Database Record Galway Harbour Company (2014) IWeBS database record Whilde (1983) NBDC online database record
Lapwing <i>Vanellus vanellus</i>	BD_II (II), WA	Red	Bird Atlas Database Record IWeBS database record NBDC online database record
Long-tailed duck <i>Clangula hyemalis</i>	BD_II (II), WA	Red	Bird Atlas Database Record IWeBS database record NBDC online database record
Meadow pipit <i>Anthus pratensis</i>	WA	Red	Bird Atlas Database Record Browne <i>et al.</i> (2009) Crushell (2009) Galway Harbour Company (2014) RPS (2006) Tobin Consulting (2004) NBDC online database record
Pintail <i>Anas acuta</i>	BD_II (I), III (II), WA	Red	Bird Atlas Database Record IWeBS database record NBDC online database record
Pochard <i>Aythya ferina</i>	BD_II (I), III (II), WA	Red	Bird Atlas Database Record IWeBS database record NBDC online database record
Red grouse <i>Lagopus lagopus</i>	BD_II (I), III (I), WA	Red	Bird Atlas Database Record Crushell (2009) NBDC online database record
Redshank <i>Tringa totanus</i>	WA	Red	Bird Atlas Database Record Galway Harbour Company (2014) IWeBS database record Whilde (1983) NBDC online database record
Shoveler <i>Anas clypeata</i>	BD_II (I), III (III), WA	Red	Bird Atlas Database Record IWeBS database record NBDC online database record
Tufted duck <i>Aythya fuligula</i>	BD_II (I), III (II), WA	Red	Bird Atlas Database Record IWeBS database record NBDC online database record
Twite <i>Carduelis flavirostris</i>	WA	Red	Bird Atlas Database Record Galway Harbour Company (2014) NBDC online database record

Common Name/ Scientific Name	Legal Status <sup>7</sup>	Red List Status <sup>8</sup>	Source
Wigeon <i>Anas penelope</i>	BD_II (I), III (II), WA	Red	Bird Atlas Database Record IWeBS database record
Woodcock <i>Scolopax rusticola</i>	BD_II (I), III (III), WA	Red	Bird Atlas Database Record NBDC online database record
Yellowhammer <i>Emberiza citrinella</i>	WA	Red	Bird Atlas Database Record NBDC online database record
Arctic tern <i>Sterna paradisaea</i>	BD_I, WA	Amber	Bird Atlas Database Record NBDC online database record
Bar-tailed godwit <i>Limosa lapponica</i>	BD_I, WA	Amber	Bird Atlas Database Record IWeBS database record Whilde (1983) NBDC online database record
Black-throated diver <i>Gavia arctica</i>	BD_I, WA	Amber	Bird Atlas Database Record NBDC online database record
Common tern <i>Sterna hirundo</i>	BD_I, WA	Amber	Bird Atlas Database Record Galway Harbour Company (2014) RPS (2006) NBDC online database record
Great northern diver <i>Gavia immer</i>	BD_I, WA	Amber	Bird Atlas Database Record Galway Harbour Company (2014) IWeBS database record NBDC online database record
Greenland white-fronted goose <i>Anser albifrons flavirostris</i>	BD_I, II (II), III (III), WA	Amber	Bird Atlas Database Record IWeBS database record NBDC online database record
Hen harrier <i>Circus cyaneus</i>	BD_I, WA	Amber	Bird Atlas Database Record RPS (2006) NBDC online database record
Kestrel <i>Falco tinnunculus</i>	BD_I, WA	Amber	Bird Atlas Database Record Galway Harbour Company (2014) NBDC online database record
Kingfisher <i>Alcedo atthis</i>	BD_I, WA	Amber	Bird Atlas Database Record Galway County Council/Roscommon National Roads Design Office (2011) NBDC online database record
Little egret <i>Egretta garzetta</i>	BD_I, WA	Green	Bird Atlas Database Record Galway Harbour Company (2014) IWeBS database record NBDC online database record

Common Name/ Scientific Name	Legal Status <sup>7</sup>	Red List Status <sup>8</sup>	Source
Little gull <i>Larus minutus</i>	BD_I, WA	Amber	Bird Atlas Database Record IWeBS database record RPS (2006) Whilde (1983) NBDC online database record
Little tern <i>Sterna albifrons</i>	BD_I, WA	Amber	Bird Atlas Database Record NBDC online database record
Mediterranean gull <i>Larus melanocephalus</i>	BD_I, WA	Amber	Bird Atlas Database Record IWeBS database record NBDC online database record
Merlin <i>Falco columbarius</i>	BD_I, WA	Amber	Bird Atlas Database Record Galway Harbour Company (2014) RPS (2006) NBDC online database record
Peregrine <i>Falco peregrinus</i>	BD_I, WA	Green	Bird Atlas Database Record NBDC online database record
Red-throated diver <i>Gavia stellata</i>	BD_I, WA	Amber	Bird Atlas Database Record Galway Harbour Company (2014) IWeBS database record Whilde (1983) NBDC online database record
Ruff <i>Philomachus pugnax</i>	BD_I, WA	Amber	Bird Atlas Database Record IWeBS database record NBDC online database record
Sandwich tern <i>Sterna sandvicensis</i>	BD_I, WA	Amber	Bird Atlas Database Record Galway Harbour Company (2014) IWeBS database record NBDC online database record
Snowy owl <i>Nyctea scandiaca</i>	BD_I, WA	Green	Bird Atlas Database Record NBDC online database record
Storm petrel <i>Hydrobates pelagicus</i>	BD_I, WA	Amber	Bird Atlas Database Record
Whooper swan <i>Cygnus cygnus</i>	BD_I, WA	Amber	Bird Atlas Database Record Galway Harbour Company (2014) IWeBS database record NBDC online database record
Grey partridge <i>Perdix perdix</i>	BD_II(I), III(I)	Red	NBDC online database record

Common Name/ Scientific Name	Legal Status <sup>7</sup>	Red List Status <sup>8</sup>	Source
<b>Invertebrates</b>			
White-clawed crayfish <i>Austropotamobius pallipes</i>	HD_II & V, WA	Endangered	RPS (2006) <sup>14</sup> O'Connor (2007)
Marsh fritillary butterfly <i>Euphydryas aurinia</i>	HD_II	Vulnerable	Barron <i>et al.</i> (2013)
Wall butterfly <i>Lasiommata megera</i>	none	Endangered	NBDC online database record Galway County Council/Roscommon National Roads Design Office (2011)
Dark green fritillary butterfly <i>Argynnis aglaja</i>	none	Vulnerable	NBDC online database record
Crescent bluet butterfly <i>Coenagrion lunulatum</i>	none	Vulnerable	NBDC online database record
Zircon reed beetle <i>Donacia aquatica</i>	none	Vulnerable	NBDC online database record
Shrill carder bee <i>Bombus (Thoracombus) sylvarum</i>	none	Endangered	NBDC online database record
Red-tailed carder bee <i>Bombus (Thoracombus) ruderalis</i>	none	Vulnerable	NBDC online database record
Duck mussel <i>Anodonta cygnea</i>	none	Vulnerable	NBDC online database record
Moss bladder snail <i>Aplexa hypnorum</i>	none	Vulnerable	NBDC online database record
Tree snail <i>Balea perversa</i>	none	Vulnerable	NBDC online database record
Blind awl snail <i>Cecilioides acicula</i>	none	Vulnerable	NBDC online database record
Field slug <i>Deroceras agreste</i>	none	Data deficient	NBDC online database record
Smooth ramshorn <i>Gyraulus laevis</i>	none	Endangered	NBDC online database record
Heath snail <i>Helicella itala</i>	none	Vulnerable	NBDC online database record
English chrysalis snail <i>Leiostryla anglica</i>	none	Vulnerable	NBDC online database record

<sup>14</sup> Existing records for this species relate to the shores of Lough Corrib with the species never having been recorded from the River Corrib within the scheme study area



<b>Common Name/ Scientific Name</b>	<b>Legal Status<sup>7</sup></b>	<b>Red List Status<sup>8</sup></b>	<b>Source</b>
Lake orb mussel <i>Musculium lacustre</i>	none	Vulnerable	NBDC online database record
Slender amber snail <i>Oxyloma sarsii</i>	none	Data deficient	NBDC online database record
Lilljeborg's pea mussel <i>Pisidium lilljeborgii</i>	none	Vulnerable	NBDC online database record
Iridescent pea mussel <i>Pisidium pulchellum</i>	none	Endangered	NBDC online database record
Ear pond snail <i>Radix auricularia</i>	none	Vulnerable	NBDC online database record
Beautiful grass snail <i>Vallonia pulchella</i>	none	Vulnerable	NBDC online database record
Marsh whorl snail <i>Vertigo (Vertigo) antivertigo</i>	none	Vulnerable	NBDC online database record
Moss chrysalis snail <i>Pupilla muscorum</i>	none	Endangered	NBDC online database record
Large heath butterfly <i>Coenonympha tullia</i>	none	Vulnerable	Galway County Council/Roscommon National Roads Design Office (2011)
<i>Limnebius nitidus</i>	none	Endangered	NBDC online database record
<i>Ochthebius bicolon</i>	none	Vulnerable	NBDC online database record
<i>Linnebius nitidus</i>	none	Endangered	NBDC online database record

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