Appropriate Assessment Screening Report

Active Travel Scheme at Aghamore,

Rooskey, Co Leitrim.

(Cycle lanes, footpaths and public lighting)

Prepared By:
Active Travel
Leitrim County Council

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Contents

1 Introduction

Leitrim County Council proposes to construct new footpaths and a two way cycle track with public lighting on the R371 and L1001 at Aghamore, Rooskey, Co. Leitrim. The main objective of this proposal is to provide walking and cycling infrastructure to link three housing developments to the village centre of Rooskey, in order to encourage Active Travel and therefore discourage the use of motor vehicles for trips to local amenities.

The provision of the proposed footpath and cycle track is aligned with the following policy and objectives of the County Development Plan 2015 - 2021:

- ***Policy 46***
  It is the policy of the Council to encourage safe walking and cycling by providing linear parks, footpaths, cycle paths and public lighting in towns and villages.
- **Objective 39**
  It is an objective of the Council to ensure all towns and villages have adequate footpaths and public lighting.
- **Objective 113**
  It is an objective of the Council to facilitate the provision of cycle lanes along public roads in urban/built up areas and in tourist areas, where appropriate and as funds allow

Under article 6(3) and 6(4) of the EU Habitats Directive (Directive 92/43/EEC) an Appropriate Assessment of plans or projects may be necessary, with respect to ecological implications of any project whether within or outside a designated site, which does not directly relate to the management of the site but may impact upon its conservation objectives.

Thus, the purpose of this Appropriate Assessment (AA) screening report is to consider whether, based on best scientific knowledge, this project will have potential impacts upon the conservation objectives of any Natura sites, and if so, the development where necessary, of mitigation or avoidance measures to preclude negative effects.

Natura Sites refer to Special Areas of Conservation (SAC's) designated under the Habitat's Directive and Special Protection Areas (SPA's) designated under the Bird's Directive. These sites are protected habitats of Flora and Fauna of European importance.

It is also the policy of Leitrim County Council to take appropriate steps to avoid, in these areas, the deterioration of natural habitats of species as well as disturbance of the species for which the areas have been designated, in so far as the disturbance could be significant in relation to the objectives of the Habitat's Directive 92/43/EEC Directive.

This is outlined in the County Development plan 2015-2021 which states *" it is the policy of the council to protect and conserve Special Area of Conservation and Special Protection Area including Candidate and Proposed areas"*

Following this screening, if it is found that this project may have an impact on the conservation objectives of a Natura 2000 site, or that such an impact cannot be ruled out, then an Appropriate Assessment of the Project must be carried out.

2 Natura Sites

Natura sites are protected habitats for Flora and Fauna of European importance. They comprise of Special Areas of Conservation (SAC's) and Special Protected Areas (SPA's). Site synopses in respect to SAC's and SPA's relevant to Rooskey are included in this report.

3 Special Areas of Conservation (SAC's)

These are prime wildlife conservation areas in the country, considered to be important on a European as well as Irish level. The EU Habitats Directive (92/43/EEC) lists certain habitats and species that must be protected. Sites proposed for designation are called candidate special areas of conservation (cSAC) and are legally protected under the Habitats Directives and EU Regulations. Details of these sites will be formally designated by the Minister as SAC. The SAC's closest to Rooskey are indicated on the attached map (Map No 1) and are listed below.

Special Areas of Conservation in adjacent 15 km of the proposed works

Site Code	Site Name
001626	Annaghmore Lough (Roscommon) SAC
002346	Brown Bog SAC
002348	Clooneen Bog SAC

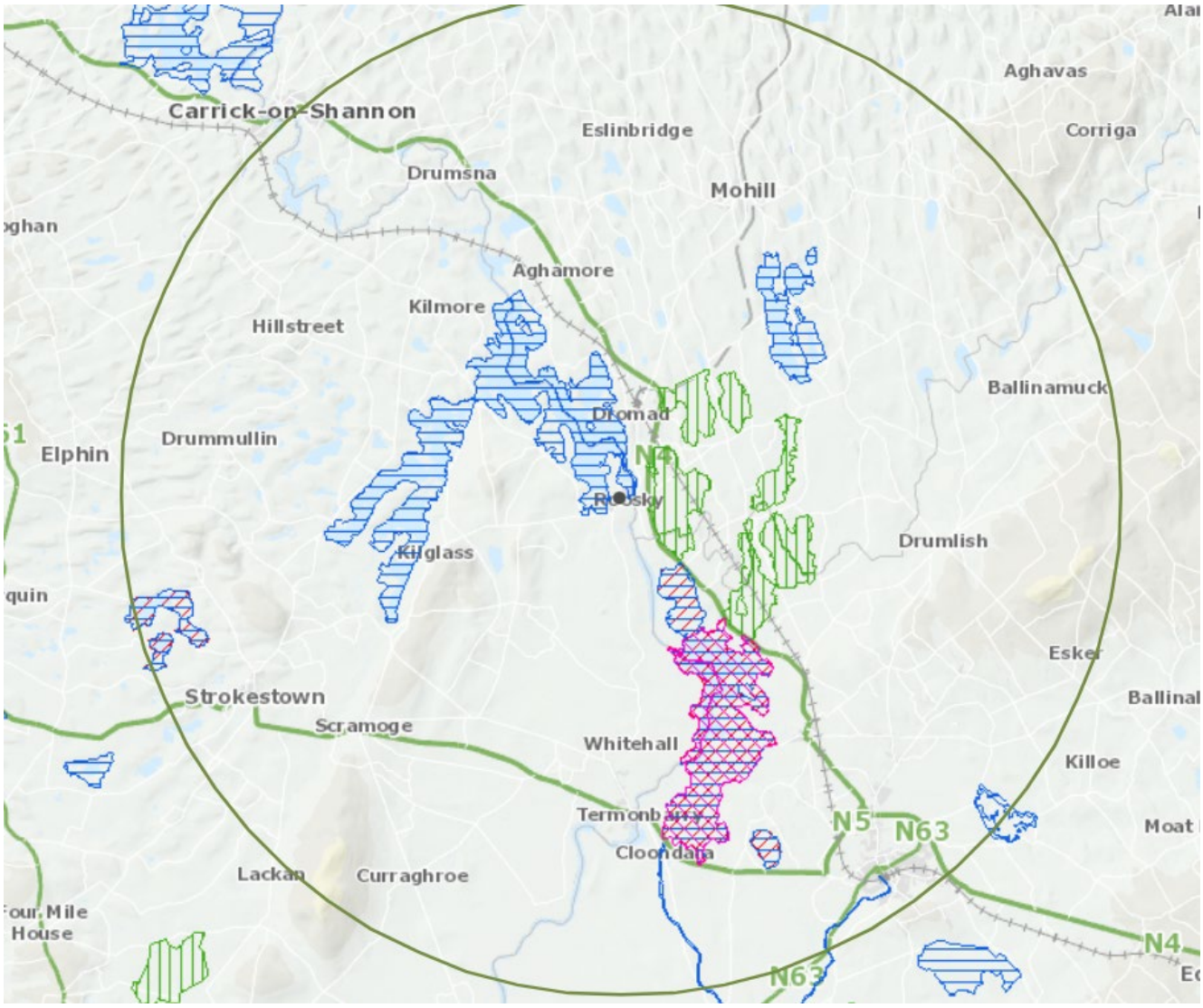
4 Special Protected Areas (SPA's)

These sites are areas of importance for birds (and often are also important for other types of wildlife). The EU Birds Directive (79/409/EEC) requires designation of SPA's for listed rare and vulnerable species, regularly occurring migratory species and wetlands, especially those of international importance, which attract large numbers of migratory birds each year. Any development in, near or adversely affecting an SPA should avoid any significant adverse impact on the feature for which the site has been designated. SPA's were given effect in Irish Law mainly under the Conservation of Wild Birds Regulations 1985 (SI 291 of 1985)

The SPA's which relate to this proposed project in Rooskey are indicated on the attached map and listed below.

Site Code	Site Name
004101	Ballykenny Fisherstown Bog SPA

5 Map of Area (15km radius)



6 Assessment Criteria/Screening Matrix

Description of the Project

Leitrim County Council proposes to construct new footpaths and a two way cycle track with public lighting on the R371 and L1001 at Aghamore, Rooskey, Co. Leitrim. The strategic aim of this project is to support Active Travel which will provide a change in how people travel. The proposal is to provide walking and cycling infrastructure to link three housing developments to the village centre of Rooskey. This project will promote opportunities for different forms of non-motorised transport to be utilised within the cycle lanes and additional safer pedestrian facilities being provided for the village of Rooskey.

The proposed development consists of the following:

- Construction of an off-road 3.5m wide two-way cycle track alongside a 2m footpath along the western edge of the existing R371(Old N4) carriageway.
- Construction of a 2m wide footpath along the west edge of local road L1001. This will serve as a continuation of the footpath adjacent to the above housing developments and will link to the new footpath at R371 (Old N4).
- Construction of an off-road 2m footpath along the eastern edge of the existing R371 (Old N4) Carriageway.
- Provision of Public Lighting along length of scheme.
- An uncontrolled pedestrian crossing across the R371 adjacent to junction with L1001 at south end of the scheme and across the entrance to Rooskey Lock housing development.
- Provision of associated surface water drainage to accommodate proposed works.
- The total length of scheme is 642m.
- Installation of drainage where required.
- Road signage

Leitrim County Development Plan 2015-2021

The provision of the proposed footpath and cycle track is aligned with the following policy and objectives of the County Development Plan:

- ***Policy 46***
  It is the policy of the Council to encourage safe walking and cycling by providing linear parks, footpaths, cycle paths and public lighting in towns and villages.

- **Objective 39**
  It is an objective of the Council to ensure all towns and villages have adequate footpaths and public lighting.

- **Objective 113**
  It is an objective of the Council to facilitate the provision of cycle lanes along public roads in urban/built up areas and in tourist areas, where appropriate and as funds allows.

Assessment Criteria

Describe the individual elements of this project that have potential for having significant effects on the Natura site.

This project has been devised to ensure that it will not give rise to significant adverse impact on the integrity of the SAC and the SPA in so far as the objectives and criteria for determining the needs of the site can be inferred from the relevant sites' synopsis.

Environmental and ecological best practice as outlined in the National Roads Authority publications and guidelines will be adhered to at all times. This includes, but is not limited to, the Guidelines for the Protection of Trees, Hedgerows and Scrub (NRA (2006), Guidelines on the Management of Noxious Weeds and Non Invasive Plant Species (NRA, 2010), with regard to the protection of riparian and wetland vegetation and habitats.

Removal of Mature Trees

It is hoped to avoid the unnecessary removal of any mature trees or the disturbance of the roots of trees during construction works.

Removal of Hedgerows

No hedgerows will be affected by these works

Construction of Walking trail & Cycle lanes

The volume of excavated material for the new walkways/cycle lanes is minimal. Waste material is top soil and sub soil. All spoil to be taken off site to a waste permitted facility in a timely manner to reduce any impact of silt run off. There will be no significant impact on any natura sites. Material and top soil storage areas will be cordoned off and stabilised outside of the SAC and SPA boundaries and away from any watercourse or drain to prevent the possible entry of suspended solids to the river.

All other works i.e road markings and signage will have no impact on any of the Natura sites.

The proposed works allows for proper planning and sustainable development of the area. All construction work will be undertaken in line with best practice, ensuring the minimisation of any impact of the surrounding environment.

Describe any likely direct/indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site

This project will not give rise to adverse direct, indirect or secondary impacts on the integrity of any Natura site arising from its size, scale, area or land take. .

Describe any likely direct/indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on Water Supply

The implementation of this project will not have any impact on drinking water in this area.

Describe any likely direct/indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on Emissions and waste

As described previously, any waste material generated by the works will be taken off-site to a waste permitted facility in a timely manner to reduce any potential for silt run off, thereby avoiding any significant impact on the Ballykenny Fisherstown Bog SPA, Annaghmore Lough SAC, Clooneen Bog SAC and the Brown Bog SAC. Material and top soil storage areas will be cordoned off and stabilised outside of the SAC and SPA boundaries and away from any watercourse or drain to prevent the possible entry of suspended solids to the river.
Due to the small-scale nature of this project, the emissions produced by vehicles/machinery involved in the construction work are deemed not to be significant.

Describe any likely direct/indirect or secondary impacts of excavation requirements for this project (either alone or in combination with other plans or projects)

The minimal excavation required for this project will not give rise to significant adverse direct, indirect or secondary impacts on the integrity of the Natura sites. Waste material will be top soil and sub soil. All spoil will be taken off-site to a waste permitted facility in a timely manner to reduce

any potential for silt run off, thereby avoiding any significant impact on the Ballykenny Fisherstown Bog SPA, Annaghmore Lough SAC, Clooneen Bog SAC and the Brown Bog SAC

Describe any likely changes to the Natura site arising as a result of reduction of the Habitat

This project will not require any land-take within the Natura Site

Describe any Habitat or Species Fragmentation as a result of this project

This project will not give rise to reduction of habitat or species fragmentation

Describe any Disturbance to Key Species as a result of this project

The Ballykenny Fisherstown Bog SPA, Annaghmore Lough SAC, Clooneen Bog SAC and the Brown Bog SAC collectively contain the following habitats and/or key species listed on Annex I / II of the E.U. Habitats Directive

[7110] Active Raised Bog
[7120] Degraded Raised Bog
[7150] Rhynchosporion Vegetation
[91D0] Bog Woodland
[7230] Alkaline Fens
[1013] Geyer's Whorl Snail (Vertigo geyeri)
[A056] Shoveler (Anas Clypeata)
[A052] Teal (Anas Crecca)
[A050] Wigeon (Anas Penelope)
[A061] Tufted Duck (Aythya Fuligula)
[A067] Golden Eye (Bucephala Clangula)
[A038] Whopper Swan (Cygnus)
[A098] Merlin (Falco Columbarius)
[A017] Cormorant (Phalacrocorax Carbo)

No disturbance to the sensitive habitats or species will occur as part of this project.

Describe any reduction of Species Density as a result of this project

This project will not give rise to reduction of Species Density

Describe any impact on Climate Change

The provision of the proposed walking/Cycle way will facilitate a direct increase in pedestrian and bicycle usage along the route. This in turn, will result in a reduction in the carbon footprint caused by vehicular traffic, thereby providing a positive contribution to Climate Change.

Describe any likely impacts on the Natura site in terms of the key relationship that define the structure of the site

Disturbance to the surrounding environment will be limited to noise and vibration during the construction period. No disturbance to sensitive habitats or species will occur as part of this project.

No conservation management plans for the the Ballykenny Fisherstown Bog SPA, Annaghmore Lough SAC, Clooneen Bog SAC and the Brown Bog SAC has yet to be published. It is felt that the proposal will not conflict with any of the operational objectives and management strategies of the SAC. The loss of habitat is miniscule in area and nature and is considered insignificant.

7 Finding of No Significant Effects Report

This project allows for the proper planning and sustainable development in the area.

It is the opinion of the author that the project does not have the potential to significantly impact on the integrity of the site and a Stage II Appropriate Assessment is not required. No Natura 2000 site was found to have the potential to be affected by this small-scale infrastructure project.

8 Data Collection

This assessment was a Desk top study carried out by members of Leitrim County Council Active Travel Office. Following completion of the assessment, the draft report was reviewed by the Planning Department in advance of the proposed PART 8 application being placed on public display.

9 Appendices

9.1 002348 – Clooneen Bog SAC Site Synopsis

9.2 002348 – Clooneen Bog SAC Standard Data Form

9.3 002348 – Clooneen Bog SAC Conservation Objective Series

9.4 001626 – Annaghmore Lough (Roscommon) SAC Site Synopsis

9.5 001626 – Annaghmore Lough (Roscommon) SAC Standard Data Form

9.6 001626 – Annaghmore Lough (Roscommon) SAC Conservation Objective Series

9.7 002346 – Brown Bog SAC – Site Synopsis

9.8 002346 – Brown Bog SAC – Standard Data Form

9.9 002346 – Brown Bog SAC – Conservation Objective Series

9.10 004101 – Ballykenny Fisherstown Bog SPA - Site Synopsis

9.11 004101 – Ballykenny Fisherstown Bog SPA - Standard Data Form

9.12 004101 – Ballykenny Fisherstown Bog SPA - Conservation Objective Series

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Conservation Objectives Series

Annaghmore Lough (Roscommon) SAC 001626

An Roinn Cultúir,
Oidhreachta agus Gaeltachta
Department of Culture,
Heritage and the Gaeltacht

National Parks and Wildlife Service,
Department of Culture, Heritage and the Gaeltacht,

90 King Street North, Dublin 7, D07 N7CV, Ireland.

Web: www.npws.ie
E-mail: nature.conservation@chg.gov.ie

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Introduction

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

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

Notes/Guidelines:

1. The targets given in these conservation objectives are based on best available information at the time of writing. As more information becomes available, targets for attributes may change. These will be updated periodically, as necessary.
2. An appropriate assessment based on these conservation objectives will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out. It is essential that the date and version are included when objectives are cited.
3. Assessments cannot consider an attribute in isolation from the others listed for that habitat or species, or for other habitats and species listed for that site. A plan or project with an apparently small impact on one attribute may have a significant impact on another.
4. Please note that the maps included in this document do not necessarily show the entire extent of the habitats and species for which the site is listed. This should be borne in mind when appropriate assessments are being carried out.
5. When using these objectives, it is essential that the relevant backing/supporting documents are consulted, particularly where instructed in the targets or notes for a particular attribute.

Qualifying Interests

**** indicates a priority habitat under the Habitats Directive***

001626	Annaghmore Lough (Roscommon) SAC
1013	Geyer's Whorl Snail *Vertigo geyeri*
7230	Alkaline fens

Supporting documents, relevant reports & publications

Supporting documents, NPWS reports and publications are available for download from: www.npws.ie/Publications

NPWS Documents

Year :	1974
Title :	A Preliminary Report on Areas of Scientific Interest in Co. Roscommon
Author :	Goodwillie, R.N.; Fahy, E.
Series :	Unpublished report
Year :	2007
Title :	Management prescriptions for *Vertigo geyeri* at cSAC sites for the species in the Republic of Ireland
Author :	Moorkens, E.
Series :	Unpublished report to NPWS
Year :	2009
Title :	Irish Red List No. 2: Non-marine molluscs
Author :	Byrne, A.; Moorkens, E.A.; Anderson, R.; Killeen, I.J.; Regan, E.C.
Series :	Ireland Red List series, NPWS
Year :	2010
Title :	Red List 4 - Butterflies
Author :	Regan, E.C.; Nelson, B.; Aldwell, B.; Bertrand, C.; Bond, K.; Harding, J.; Nash, D.; Nixon, D.; Wilson, C.J.
Series :	Ireland Red List series, NPWS
Year :	2011
Title :	Monitoring and condition assessment of populations of *Vertigo geyeri*, *Vertigo angustior* and *Vertigo moulinsiana* in Ireland
Author :	Moorkens, E.; Killeen, I.
Series :	Irish Wildlife Manuals, No. 55
Year :	2012
Title :	Ireland Red List No. 8: Bryophytes
Author :	Lockhart, N.; Hodgetts, N.; Holyoak, D.
Series :	Ireland Red List series, NPWS
Year :	2013
Title :	The status of EU protected habitats and species in Ireland. Volume 2. Habitats assessments
Author :	NPWS
Series :	Conservation assessments
Year :	2013
Title :	Conservation status assessments for three fen habitat types - 7230, 7210 and 7140
Author :	Kimberley, S.
Series :	Unpublished report to NPWS
Year :	2014
Title :	Guidelines for a national survey and conservation assessment of upland vegetation and habitats in Ireland, Version 2.0
Author :	Perrin, P.M.; Barron, S.J.; Roche, J.R.; O'Hanrahan, B.
Series :	Irish Wildlife Manuals, No. 79
Year :	2016
Title :	Ireland Red List No. 10: Vascular Plants
Author :	Wyse Jackson, M.; FitzPatrick, Ú.; Cole, E.; Jebb, M.; McFerran, D.; Sheehy Skeffington, M.; Wright, M.
Series :	Ireland Red List Series, NPWS

Year :	in prep.
Title :	Monitoring of sites and habitat for three Annex II species of whorl snail (*Vertigo*). Volume 1: Final report
Author :	Long, M.P.; Brophy, J.T.
Series :	Irish Wildlife Manuals, No. 104

Other References

Year :	2004
Title :	Common Standards Monitoring guidance for lowland wetland habitats
Author :	JNCC
Series :	Joint Nature Conservation Committee, Peterborough
Year :	2005
Title :	Widespread occurrence of *Vertigo geyeri* (Gastropoda: Vertiginidae) in north and west Ireland
Author :	Holyoak, G.A.
Series :	Irish Naturalists' Journal, 28(4): 141-150
Year :	2011
Title :	Review and revision of empirical critical loads and dose-response relationships. Proceedings of an expert workshop, Noordwijkerhout, 23-25 June 2010
Author :	Bobbink, R.; Hettelingh, J.P.
Series :	RIVM report 680359002, Coordination Centre for Effects, National Institute for Public Health and the Environment (RIVM)

Spatial data sources

Year :	2018
Title :	NPWS rare and threatened species database
GIS Operations :	Dataset created from spatial references in database records. Expert opinion used as necessary to resolve any issues arising
Used For :	1013 (map 2)

7230 Alkaline fens

To maintain the favourable conservation condition of Alkaline fens in Annaghmore Lough (Roscommon) SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes	Alkaline fen has not been mapped in detail for Annaghmore Lough (Roscommon) SAC and thus the total area of the qualifying habitat in the SAC is unknown. The habitat is found around the shoreline of Annaghmore Lough, particularly along the northern and eastern margins of this shallow calcareous lake. It typically occurs between reedbeds and damp calcareous grassland which is subject to winter flooding (NPWS internal files). Alkaline fen also occurs along the north shore of Lough Nablasbarnagh in the southern section of the SAC (Moorkens, 2007)
Habitat distribution	Occurrence	No decline, subject to natural processes	See the notes for Habitat area above
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil pH and nutrient status within natural ranges	Relevant nutrients and their natural ranges are yet to be defined. However, nitrogen deposition is noted as being relevant to this habitat in NPWS (2013). See also Bobbink and Hettelingh (2011)
Ecosystem function: peat formation	Percentage cover of peat-forming vegetation and water table levels	Maintain active peat formation, where appropriate	In order for peat to form, water levels need to be slightly below or above the soil surface for c.90% of the time
Ecosystem function: hydrology - groundwater levels	Water levels (centimetres); duration of levels; hydraulic gradients	Maintain, or where necessary restore, appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat	Fen habitats require high groundwater levels (i.e. water levels at or above the ground surface) for a large proportion of the calendar year (i.e. duration of mean groundwater level). Fen groundwater levels are controlled by regional groundwater levels in the contributing catchment area (which sustain the hydraulic gradients of the fen groundwater table). Regional abstraction of groundwater may affect fen groundwater levels
Ecosystem function: hydrology - surface water flow	Drain density and form	Maintain, or where necessary restore, as close as possible to natural or semi-natural drainage conditions	Drainage, either within or surrounding the fen habitat, can result in the drawdown of the alkaline fen groundwater table. The depth, geometry and density of drainage (hydromorphology) will indicate the scale and impact on fen hydrology. Drainage can result in loss of characteristic species and transition to drier habitats
Ecosystem function: water quality	Water chemistry measures	Maintain appropriate water quality, particularly pH and nutrient levels, to support the natural structure and functioning of the habitat	Fens receive natural levels of nutrients (e.g. iron, magnesium and calcium) from water sources. However, they are generally poor in nitrogen and phosphorus, with the latter tending to be the limiting nutrient under natural conditions. Water supply should be also relatively calcium-rich
Community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	The entire diversity of alkaline fen vegetation communities present in the SAC is currently unknown. Information on the vegetation communities associated with alkaline fens in the uplands is presented in Perrin et al. (2014)
Vegetation composition: brown mosses	Percentage cover at a representative number of 2m x 2m monitoring stops	Maintain adequate cover of typical brown moss species	Typical brown moss species include *Bryum pseudotriquetrum, Calliergonella cuspidata, Calliergon giganteum, Campylium stellatum, Cratoneuron filicinum, Ctenidium molluscum, Fissidens adianthoides, Palustriella commutata, Scorpidium cossonii, S. revolvens* and *S. scorpioides*. Bryophytes recorded in the habitat in the SAC include *Campylium stellatum, Scorpidium revolvens* and *S. scorpioides* (Moorkens, 2007)

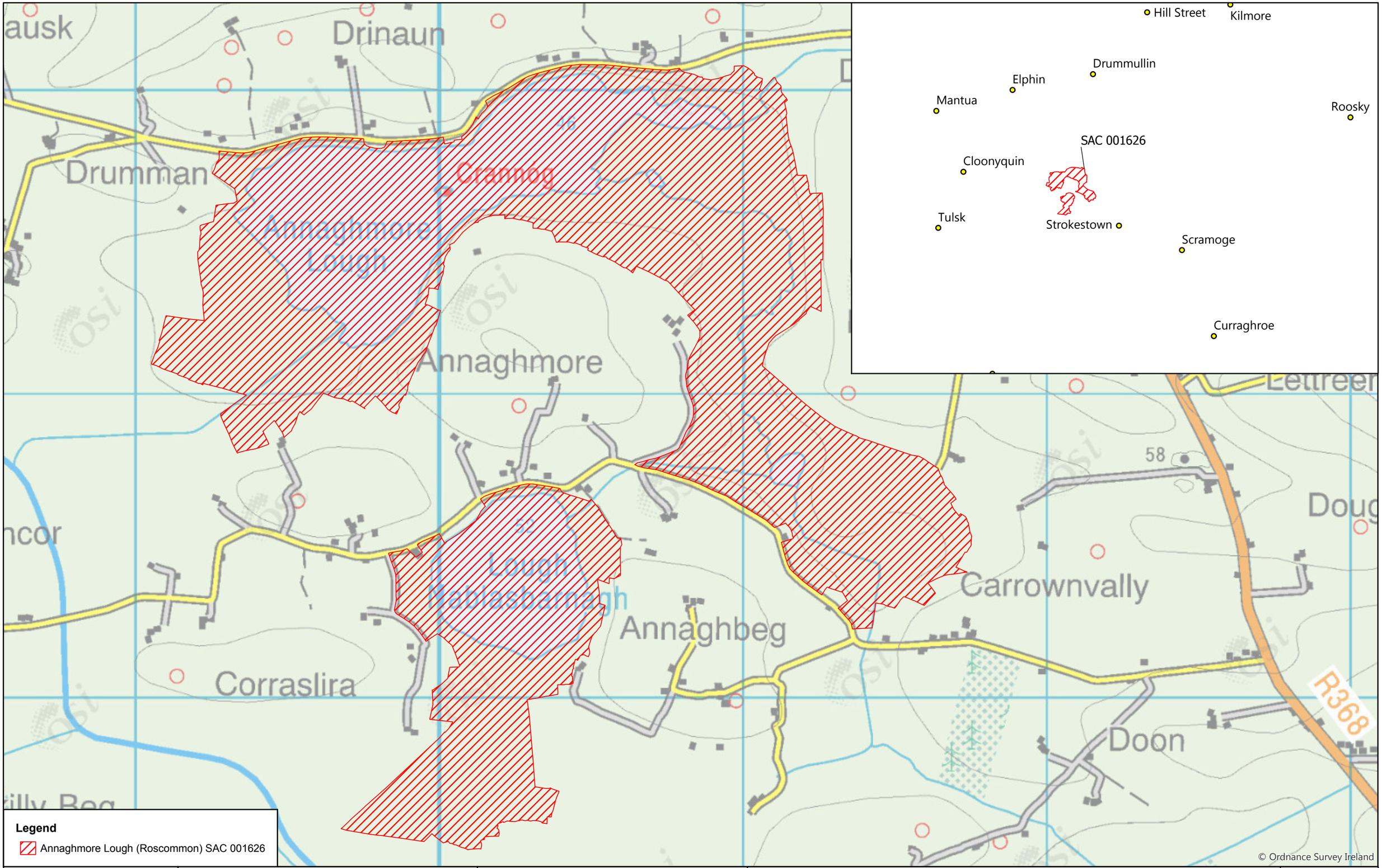
Vegetation composition: typical vascular plants	Percentage cover at a representative number of 2m x 2m monitoring stops	Maintain adequate cover of typical vascular plant species	For lists of typical plant species see the Article 17 conservation status assessment for alkaline fens (NPWS, 2013) and the fen habitats supporting document (Kimberley, 2013). See also Perrin et al. (2014) and JNCC (2004). The alkaline fen in the SAC is dominated by black bog-rush (*Schoenus nigricans*), with other species recorded including broad-leaved cottongrass (*Eriophorum latifolium*), quaking grass (*Briza media*), purple moor-grass (*Molinia caerulea*), marsh helleborine (*Epipactis palustris*), meadow thistle (*Cirsium dissectum*), common butterwort (*Pinguicula vulgaris*), early marsh-orchid (*Dactylorhiza incarnata*) and the Near Threatened fly orchid (*Ophrys insectifera*) (Wyse Jackson et al., 2016; Goodwillie and Fahy, 1974; Moorkens, 2007; NPWS internal files)
Vegetation composition: native negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of native negative indicator species at insignificant levels	Negative indicators include species not characteristic of the habitat and species indicative of undesirable activities such as overgrazing, undergrazing, nutrient enrichment, agricultural improvement or impacts on hydrology. Native negative indicators may include graminoids such as reed canary-grass (*Phalaris arundinacea*) and reed sweet-grass (*Glyceria maxima*), tall herbs such as great willowherb (*Epilobium hirsutum*), bracken (*Pteridium aquilinum*), bramble (*Rubus fruticosus*) and common nettle (*Urtica dioica*), and bryophytes such as *Brachythecium rutabulum* and *Kindbergia praelonga*
Vegetation composition: non-native species	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of non-native species less than 1%	Attribute and target based on Perrin et al. (2014). Non-native species can be invasive and have deleterious effects on native vegetation. A low target is set as non-native species can spread rapidly and are most easily dealt with when still at lower abundances
Vegetation composition: native trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of scattered native trees and shrubs less than 10%	Attribute and target based on Perrin et al. (2014). Scrub and trees will tend to invade if fen conditions become drier
Vegetation composition: soft rush and common reed cover	Percentage cover in local vicinity of a representative number of monitoring stops	Total cover of soft rush (*Juncus effusus*) and common reed (*Phragmites australis*) less than 10%	Attribute and target based on Perrin et al. (2014)
Vegetation structure: litter	Percentage cover in local vicinity of a representative number of monitoring stops	Total cover of litter not more than 25%	Attribute and target based on JNCC (2004). More than 25% litter cover may indicate insufficient removal of biomass by grazing and/or undesirable water table levels
Physical structure: disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of disturbed bare ground not more than 10%	Attribute and target based on Perrin et al. (2014). While grazing may be appropriate in this habitat, excessive areas of disturbed bare ground may develop due to unsuitable grazing regimes. Disturbance can include hoof marks, wallows, human footprints, vehicle and machinery tracks. Excessive disturbance can result in loss of characteristic species and presage erosion for peatlands
Physical structure: tufa formations	Percentage cover in local vicinity of a representative number of monitoring stops	Disturbed proportion of vegetation cover where tufa is present is less than 1%	Attribute and target based on Perrin et al. (2014)

Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat; maintain features of local distinctiveness, subject to natural processes	This includes species on the Flora (Protection) Order, 2015 and/or Red Lists (Byrne et al., 2009; Regan et al., 2010; Lockhart et al., 2012; Wyse Jackson et al., 2016, etc.). The Near Threatened fly orchid (*Ophrys insectifera*) (Wyse Jackson et al., 2016) has been recorded in the habitat in the SAC (Goodwillie and Fahy, 1974; NPWS internal files). Red Listed molluscs recorded from fen habitat in the SAC include the Vulnerable species *Leiostyla anglica, Vertigo antivertigo, V. geyeri* (listed on Annex II) and *Acicula fusca*; also recorded are the Near Threatened species *Vertigo substriata* and *V. pygmaea* (Byrne et al., 2009; Moorkens and Killeen, 2011). See the conservation objective for Geyer's whorl snail (*Vertigo geyeri*; species code 1013) in this volume

1013 Geyer's Whorl Snail *Vertigo geyeri*

To restore the favourable conservation condition of Geyer's Whorl Snail in Annaghmore Lough (Roscommon) SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution	Number of occupied 1km grid squares	No decline, subject to natural processes. The species is known from M8983, M9082, M9083 and M9084 in the SAC. See map 2	There are records of Geyer's whorl snail (*Vertigo geyeri*) from four 1km grid squares in Annaghmore Lough (Roscommon) SAC: M8983, M9082, M9083 and M9084. See Holyoak (2005), Moorkens (2007), Moorkens and Killeen (2011; site code VgCAM9) and Long and Brophy (in prep.; site code VgCAM09). The species was not recorded during a survey in 2015 in the sub-site 'Annaghmore Lough' (site code VgCAM09) although its habitat remains in good condition (Long and Brophy, in prep.)
Occurrence in suitable habitat	Percentage positive records in a representative number of samples	No decline, subject to natural processes; presence in a minimum of 67% sample points in optimal habitat areas; 33% in areas defined as suboptimal habitat	The species should be present in at least 67% of sample points within areas defined as optimal habitat and in 33% of sample points in suboptimal habitat. See Moorkens and Killeen (2011) and Long and Brophy (in prep.) for definitions of optimal and suboptimal habitat
Habitat area	Hectares	Area of suitable habitat stable or increasing, subject to natural processes; no less than 7ha of at least suboptimal habitat	The general habitat in which Geyer's whorl snail has been recorded in the surveyed site (code VgCAM09) in Annaghmore Lough (Roscommon) SAC is the alkaline fen habitat dominated by black bog-rush (*Schoenus nigricans*) situated inland of the common club-rush (*Schoenoplectus lacustris*) and common reed (*Phragmites australis*) zones on the lakeshore. There should be at least 7ha of habitat in at least suboptimal condition. See Moorkens and Killeen (2011) and Long and Brophy (in prep.) for definitions of optimal and suboptimal habitat
Habitat quality: soil wetness	Percentage of a representative number of sample points	No decline, subject to natural processes; at least 50% of a representative number of sample points in areas of optimal habitat should be classified as optimal wetness; at least 25% in areas of suboptimal habitat	This attribute should be assessed following the methodology and definitions in Moorkens and Killeen (2011) and Long and Brophy (in prep.). Over the site as a whole, soil wetness should be suitable for the species in 50% of sample points within optimal habitat and in 25% of sample points in suboptimal habitat



An Roinn Cultúir, Oidhreachta agus Gaeltachta
Department of Culture, Heritage and the Gaeltacht

MAP 1:
ANNAGHMORE LOUGH (ROSCOMMON) SAC
CONSERVATION OBJECTIVES
SAC DESIGNATION

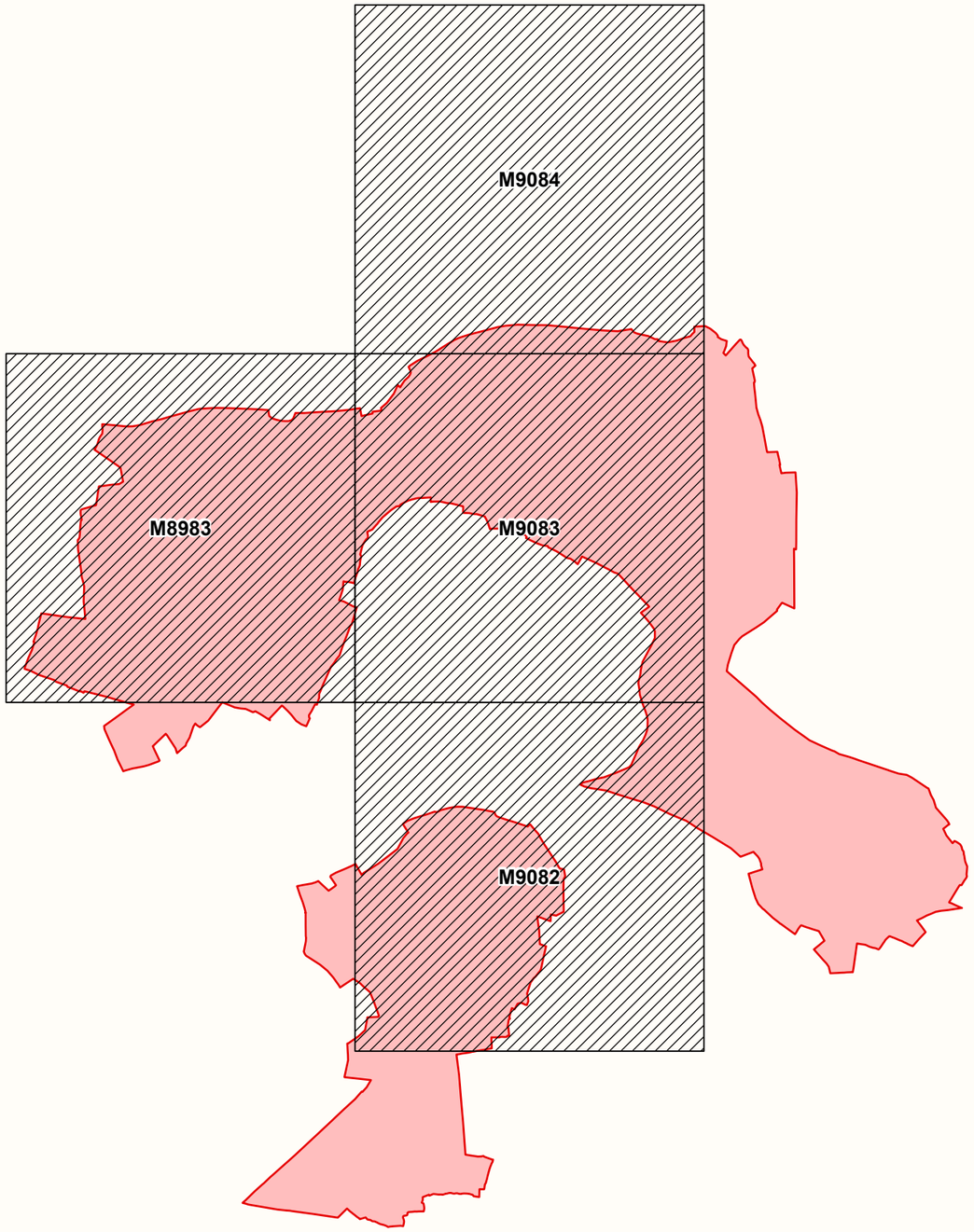
Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 001626; version 3.02. CO. ROSCOMMON

0 130 260 390 520 650 Meters

N

Map Version 1
Date: July 2018



Legend

- 1013 *Vertigo geyeri* Geyer's Whorl Snail
- Annaghmore Lough (Roscommon) SAC
- OSi Discovery Series County Boundaries

An Roinn Cultúir, Oidhreachta agus Gaeltachta
Department of Culture, Heritage and the Gaeltacht

MAP 2:
ANNAGHMORE LOUGH (ROSCOMMON) SAC
CONSERVATION OBJECTIVES
GEYER'S WHORL SNAIL

Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 001626; version 3.02. CO. ROSCOMMON

0 190 380 570 760 950 Meters

N

Map Version 1
Date: July 2018

ISSN 2009-4086

National Parks and Wildlife Service

Conservation Objectives Series

Brown Bog SAC 002346

An Roinn
Ealaíon, Oidhreachta agus Gaeltachta
Department of
Arts, Heritage and the Gaeltacht

National Parks and Wildlife Service,
Department of Arts, Heritage and the Gaeltacht,

7 Ely Place, Dublin 2, Ireland.

Web: www.npws.ie
E-mail: nature.conservation@ahg.gov.ie

Citation:

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Series Editor: Rebecca Jeffrey
ISSN 2009-4086

Introduction

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

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

Notes/Guidelines:

1. The targets given in these conservation objectives are based on best available information at the time of writing. As more information becomes available, targets for attributes may change. These will be updated periodically, as necessary.
2. An appropriate assessment based on these conservation objectives will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out. It is essential that the date and version are included when objectives are cited.
3. Assessments cannot consider an attribute in isolation from the others listed for that habitat or species, or for other habitats and species listed for that site. A plan or project with an apparently small impact on one attribute may have a significant impact on another.
4. Please note that the maps included in this document do not necessarily show the entire extent of the habitats and species for which the site is listed. This should be borne in mind when appropriate assessments are being carried out.
5. When using these objectives, it is essential that the relevant backing/supporting documents are consulted, particularly where instructed in the targets or notes for a particular attribute.

Qualifying Interests

**** indicates a priority habitat under the Habitats Directive***

002346	Brown Bog SAC
7110	Active raised bogs*
7120	Degraded raised bogs still capable of natural regeneration
7150	Depressions on peat substrates of the Rhynchosporion

Supporting documents, relevant reports & publications

Supporting documents, NPWS reports and publications are available for download from: www.npws.ie/Publications

NPWS Documents

Year :	2014
Title :	Raised Bog Monitoring and Assessment Survey 2013
Author :	Fernandez, F.; Connolly K.; Crowley W.; Denyer J.; Duff K.; Smith G.
Series :	Irish Wildlife Manual No. 81
Year :	2014
Title :	National raised bog SAC management plan
Author :	Department of Arts, Heritage and the Gaeltacht
Series :	Draft for consultation. 15 January 2014
Year :	2014
Title :	Brown Bog (SAC 002346), Co. Longford, Site Report
Author :	Fernandez, F.; Connolly, K.; Crowley, W.; Denyer J.; Duff K.; Smith G.
Series :	Raised bog monitoring and assessment survey 2013
Year :	2016
Title :	Brown Bog SAC (site code: 2346) Conservation objectives supporting document- raised bog habitats V1
Author :	NPWS
Series :	Conservation objectives supporting document

Other References

Year :	2011
Title :	Review and revision of empirical critical loads and dose-response relationships. Proceedings of an expert workshop, Noordwijkerhout, 23-25 June 2010
Author :	Bobbink, R.; Hettelingh, J.P.
Series :	RIVM report 680359002, Coordination Centre for Effects, National Institute for Public Health and the Environment (RIVM)
Year :	2014
Title :	Nitrogen deposition and exceedance of critical loads for nutrient nitrogen in Irish grasslands
Author :	Henry, J.; Aherne, J.
Series :	Science of the Total Environment 470–471: 216–223

Spatial data sources

Year :	2014
Title :	Scientific Basis for Raised Bog Conservation in Ireland
GIS Operations :	RBSB13_SACs_ARB_DRB dataset, RBSB13_SACs_2012_HB dataset, RBSB13_SACs_DrainagePatterns_5k dataset and RBSB13_SAC_LIDAR_DTMs dataset clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
Used For :	potential 7110; digital elevation model; drainage patterns (maps 2 and 4)
Year :	2013
Title :	Raised Bog Monitoring and Assessment Survey 2013
GIS Operations :	RBMA13_ecotope_map dataset clipped to SAC boundary. Appropriate ecotopes selected and exported to new dataset. Expert opinion used as necessary to resolve any issues arising
Used For :	7110 ecotopes (map 3)

7110 Active raised bogs

To restore the favourable conservation condition of Active raised bogs in Brown Bog SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Restore area of active raised bog to 13.2ha, subject to natural processes	Active Raised Bog (ARB) habitat was mapped at 10.8ha by Fernandez et al. (2014). Area of Degraded Raised Bog (DRB) on the High Bog (HB) has been modelled as 2.2ha. See map 2. It is estimated that this entire area is potentially restorable to ARB. The total potential ARB on the HB is therefore estimated to be 13.0ha. Eco-hydrological assessments of the cutover estimates that an additional 0.2ha of bog forming habitats could be restored. The long term target for ARB is therefore 13.2ha. See raised bog supporting document for further details on this and following attributes
Habitat distribution	Occurrence	Restore the distribution and variability of active raised bog across the SAC. See map 3 for distribution in 2012	ARB habitat at Brown Bog is central and sub-central ecotopes and active flush, and occurs from the center towards the north of the bog. DRB occurs around ARB areas on the bog, which will require restoration measures. There is also potential for ARB restoration on cutover areas of the bog (see area target above)
High bog area	Hectares	No decline in extent of high bog necessary to support the development and maintenance of active raised bog. See map 2	The area of high bog within Brown Bog SAC in 2012 (latest figure available) was 50.9ha (DAHG, 2014)
Hydrological regime: water levels	Centimetres	Restore appropriate water levels throughout the site	For ARB, mean water level needs to be near or above the surface of the bog lawns for most of the year. Seasonal fluctuations should not exceed 20cm, and should only be 10cm below the surface, except for very short periods of time
Hydrological regime: flow patterns	Flow direction; slope	Restore, where possible, appropriate high bog topography, flow directions and slopes. See map 4 for current situation	ARB depends on mean water levels being near or above the surface of bog lawns for most of the year. Long and gentle slopes are the most favourable to achieve these conditions. Changes to flow directions due to subsidence of bogs can radically change water regimes and cause drying out of high quality ARB
Transitional areas between high bog and adjacent mineral soils (including cutover areas)	Hectares; distribution	Restore adequate transitional areas to support/protect active raised bog and the services it provides	At Brown Bog the high bog is surrounded by a rim of cutover bog, much of which has been invaded by birch (*Betula pubescens*) scrub. Eco-hydrological assessments have evaluated the potential for ARB restoration on cutover areas (see note for habitat area attribute above)
Vegetation quality: central ecotope, active flush, soaks, bog woodland	Hectares	Restore 6.6ha of central ecotope/active flush/soaks/bog woodland as appropriate	At least 50% of ARB habitat should be high quality (i.e. central ecotope, active flush, soaks, bog woodland). Target area of active raised bog for the site has been set at 13.2ha (see area target above)
Vegetation quality: microtopograph-ical features	Hectares	Restore adequate cover of high quality microtopographical features	The surface of the ARB habitat on Brown Bog contains a good hummock and hollow microtopography with numerous pools
Vegetation quality: bog moss (*Sphagnum*) species	Percentage cover	Restore adequate cover of bog moss (*Sphagnum*) species to ensure peat-forming capacity	*Sphagnum* cover varies naturally across Ireland with relatively high cover in the east to lower cover in the west. Hummock forming species such as *Sphagnum austinii* are particularly good peat formers. *Sphagnum* cover and distribution also varies naturally across a site
Typical ARB species: flora	Occurrence	Restore, where appropriate, typical active raised bog flora	Typical flora species include widespread species, as well as those with more restricted distributions but typical of the habitat's subtypes or geographical range

Typical ARB species: fauna	Occurrence	Restore, where appropriate, typical active raised bog fauna	Typical fauna species include widespread species, as well as those with more restricted distributions but typical of the habitat's subtypes or geographical range
Elements of local distinctiveness	Occurrence	Maintain features of local distinctiveness, subject to natural processes	These include features of geological, topographical, archaeological and hydrological interest as well as noteworthy species of flora and fauna
Negative physical indicators	Percentage cover	Negative physical features absent or insignificant	Negative physical indicators include: bare peat, algae dominated pools and hollows, marginal cracks, tear patterns, subsidence features such as dry mineral mounds/ridges emerging or expanding and evidence of burning
Vegetation composition: native negative indicator species	Percentage cover	Native negative indicator species at insignificant levels	Native negative indicator species that suggest drying out include abundant bog asphodel (*Narthecium ossifragum*), deergrass (*Trichophorum germanicum*) and harestail cotton-grass (*Eriophorum vaginatum*) forming tussocks; abundant magellanic bog-moss (*Sphagnum magellanicum*) in pools previously dominated by *Sphagnum* species typical of very wet conditions (e.g. feathery bog-moss (*S. cuspidatum*)). Indicators of frequent burning events include abundant *Cladonia floerkeana* and high cover of carnation sedge (*Carex panicea*) (particularly in true midlands raised bogs)
Vegetation composition: non-native invasive species	Percentage cover	Non-native invasive species at insignificant levels and not more than 1% cover	Most common non-native invasive species on raised bogs include lodgepole pine (*Pinus contorta*), rhododendron (*Rhododendron ponticum*) and pitcherplant (*Sarracenia purpurea*)
Air quality: nitrogen deposition	kg N/ha/year	Air quality surrounding bog close to natural reference conditions. The total N deposition should not exceed 5kg N/ha/yr	Change in air quality can result from fertiliser drift; adjacent quarry activities; or other atmospheric inputs. The critical load range for ombrotrophic bogs has been set as between 5 and 10kg N/ha/yr (Bobbink and Hettelingh, 2011). The latest N deposition figures for the area around Brown Bog suggests that the current level is approximately 16.0kg N/ha/yr (Henry and Aherne, 2014)
Water quality	Hydrochemical measures	Water quality on the high bog and transitional areas close to natural reference conditions	Water chemistry within raised bogs is influenced by atmospheric inputs (rainwater). However, within soak systems, water chemistry is influenced by other inputs such as focused flow or interaction with underlying substrates. Water chemistry in marginal areas and lagg zone surrounding the high bog varies due to influences of different water types (bog water, regional groundwater and run-off from surrounding mineral lands)

Conservation Objectives for : Brown Bog SAC [002346]

7120 **Degraded raised bogs still capable of natural regeneration**

The long-term aim for Degraded raised bogs still capable of natural regeneration is that its peat-forming capability is re-established; therefore, the conservation objective for this habitat is inherently linked to that of Active raised bogs (7110) and a separate conservation objective has not been set in Brown Bog SAC

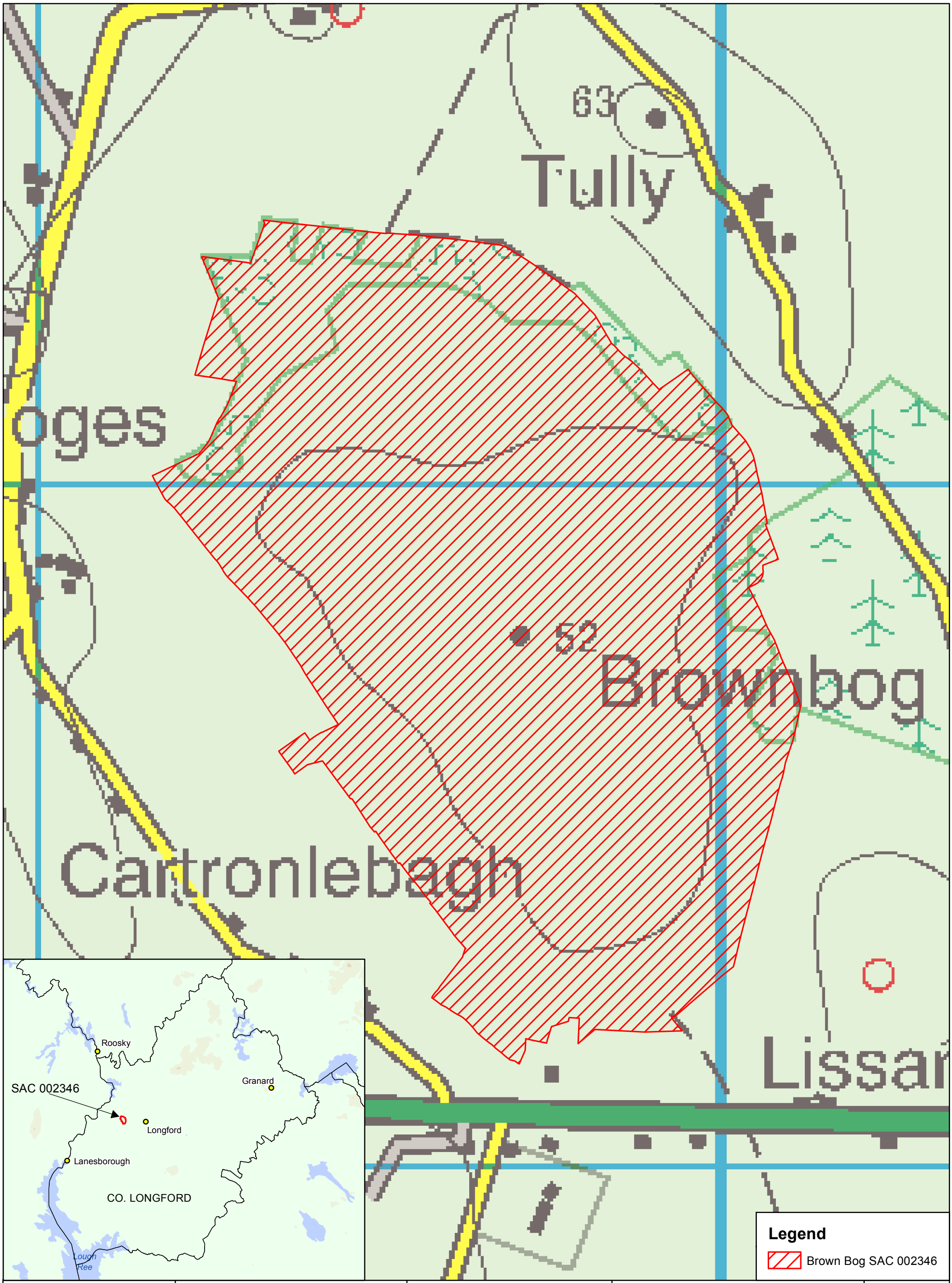
Attribute	Measure	Target	Notes

Conservation Objectives for : Brown Bog SAC [002346]

7150	Depressions on peat substrates of the Rhynchosporion

Depressions on peat substrates of the Rhynchosporion is an integral part of good quality Active raised bogs (7110) and thus a separate conservation objective has not been set for the habitat in Brown Bog SAC

Attribute	Measure	Target	Notes



An Roinn Ealaíon, Oidhreachta agus Gaeltachta
Department of Arts, Heritage and the Gaeltacht

MAP 1:
BROWN BOG SAC
CONSERVATION OBJECTIVES
SAC DESIGNATION

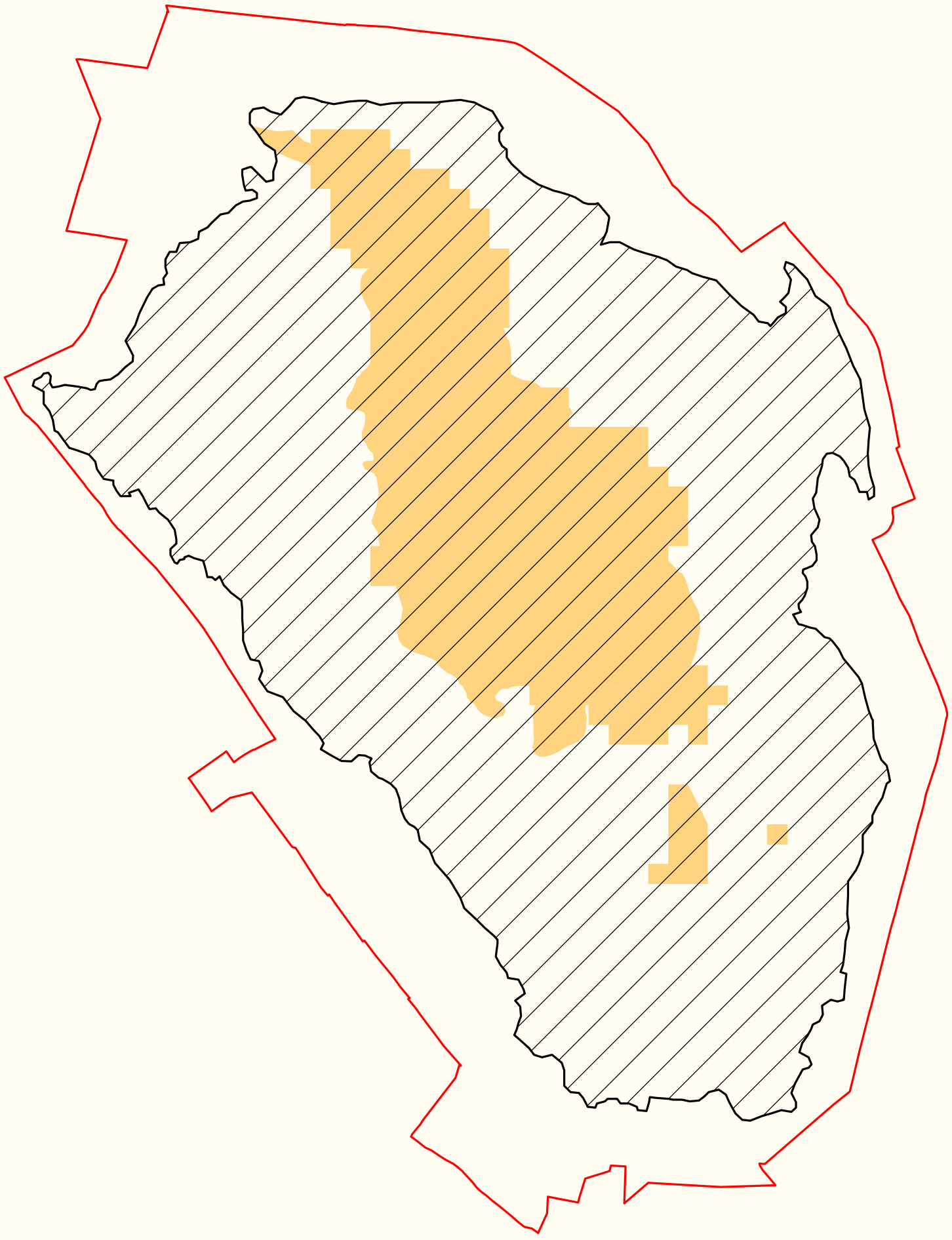
Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 002346; version 3.02. Co. Longford

0 50 100 150 200 m

N

Map Version 1
Date: Feb 2016



Legend

- Brown Bog SAC 002346
- High Bog Boundary
- Potential 7110 *Active Raised Bogs

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Department of Arts, Heritage and the Gaeltacht

MAP 2: BROWN BOG SAC CONSERVATION OBJECTIVES EXTENT OF POTENTIAL ACTIVE RAISED BOGS

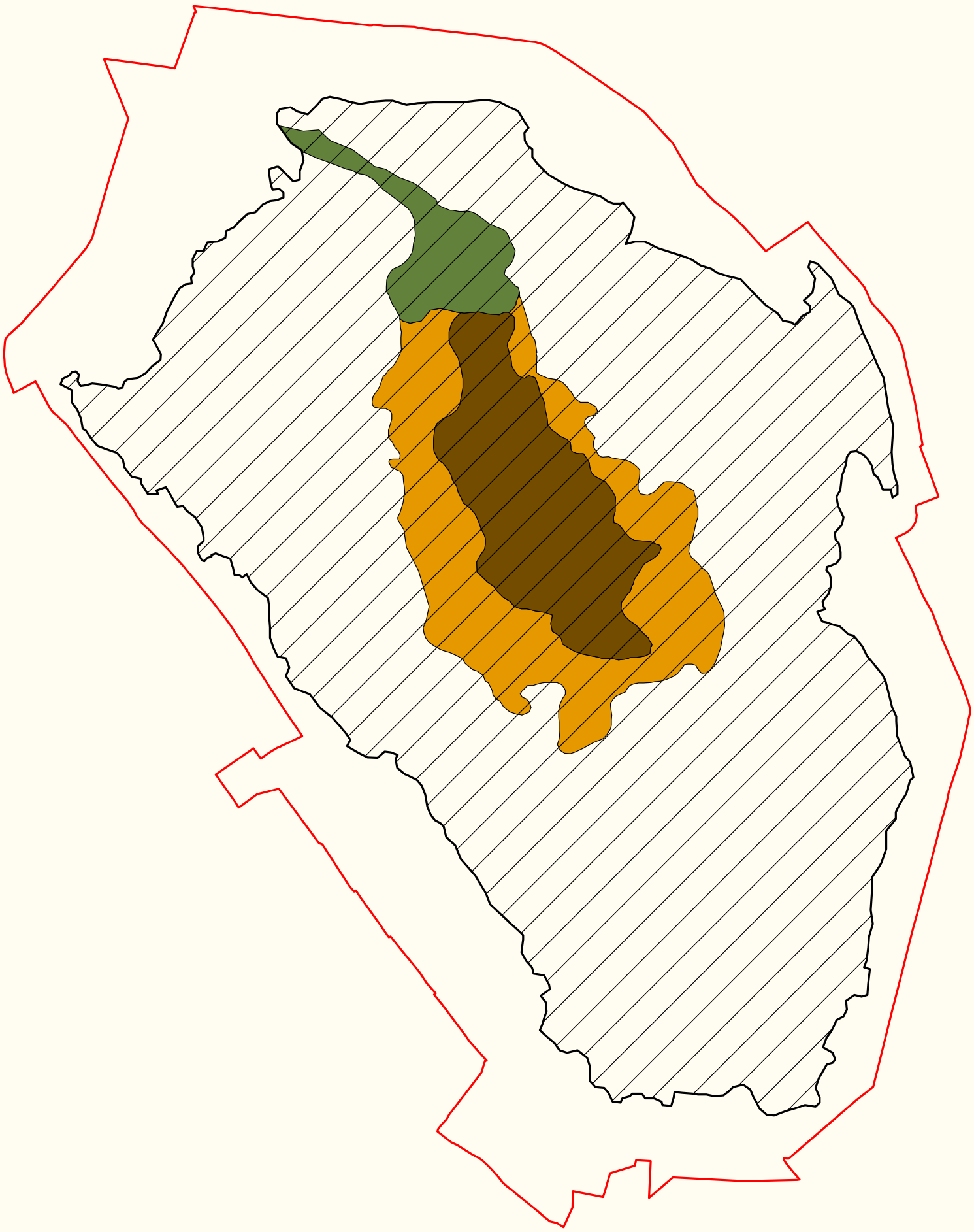
Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 002346; version 3.02. Co. Longford

0 50 100 150 200 m

N

Map Version 1
Date: Feb 2016



Legend

- Brown Bog SAC 002346
- High Bog Boundary

Active Raised Bogs Ecotopes

- Central ecotope
- Soaks / active flush
- Sub-central ecotope

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Arts, Heritage and the Gaeltacht

MAP 3:
BROWN BOG SAC
CONSERVATION OBJECTIVES
ACTIVE RAISED BOGS
ECOTOPES

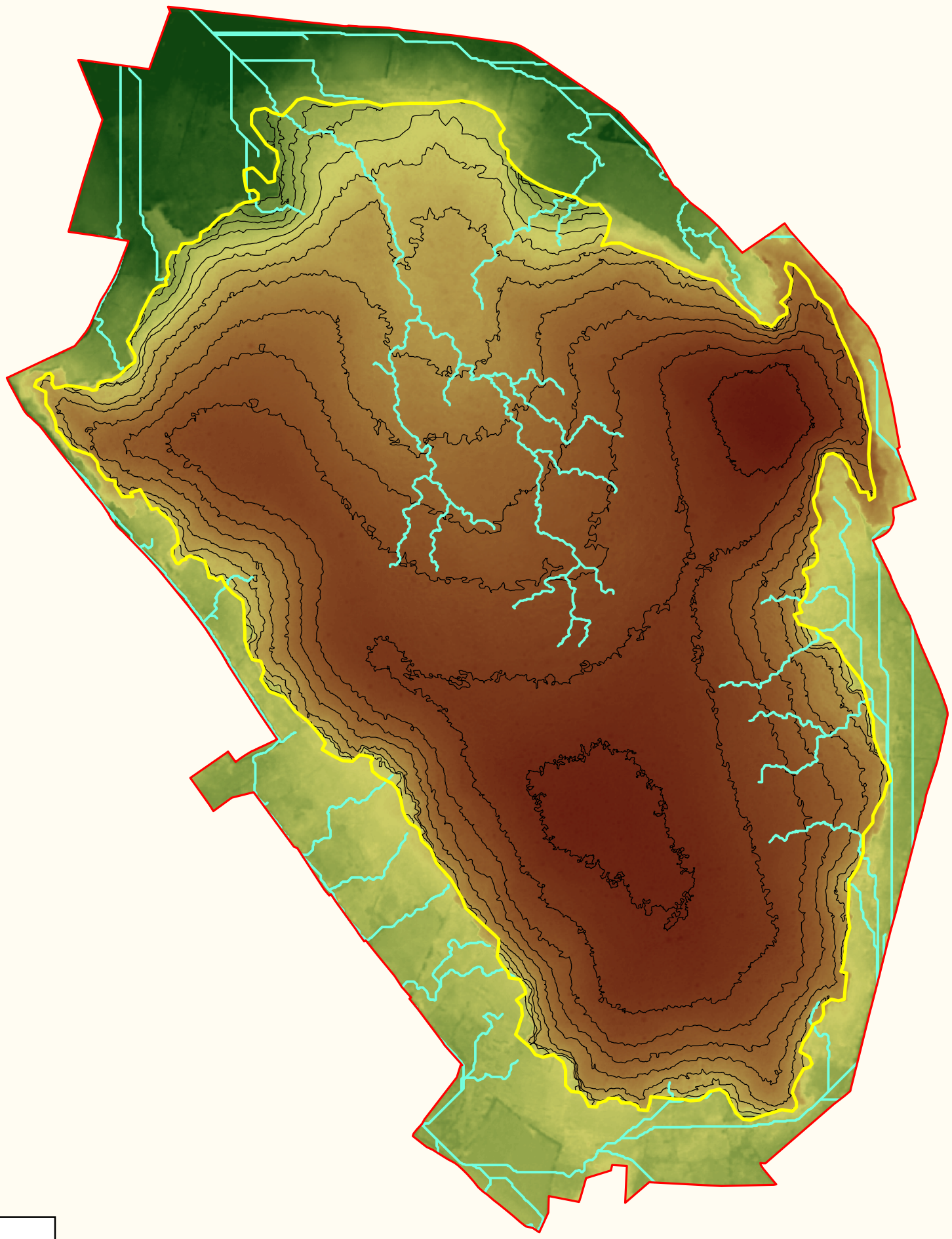
Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 002346; version 3.02. Co. Longford

0 50 100 150 200 m

N

Map Version 1
Date: Feb 2016



Legend

- Brown Bog SAC 002346
- High Bog Boundary
- Drainage Patterns
- Contours

Elevation

49.45 m

40.12 m

An Roinn Ealaíon, Oidhreachta agus Gaeltachta
Department of Arts, Heritage and the Gaeltacht

MAP 4:
BROWN BOG SAC
CONSERVATION OBJECTIVES
ACTIVE RAISED BOGS
DIGITAL ELEVATION MODEL
& DRAINAGE PATTERNS

Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 002346; version 3.02. Co. Longford

0 50 100 150 200 m

N

Map Version 1
Date: Feb 2016

ISSN 2009-4086

National Parks and Wildlife Service

Conservation Objectives Series

Clooneen Bog SAC 002348

An Roinn Ealaíon, Oidhreachta,
Gnóthaí Réigiúnacha, Tuaithe agus Gaeltachta

Department of Arts, Heritage,
Regional, Rural and Gaeltacht Affairs

National Parks and Wildlife Service,
Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs,

7 Ely Place, Dublin 2, Ireland.

Web: www.npws.ie
E-mail: nature.conservation@ahg.gov.ie

Citation:

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Series Editor: Rebecca Jeffrey
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Introduction

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The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

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

Notes/Guidelines:

1. The targets given in these conservation objectives are based on best available information at the time of writing. As more information becomes available, targets for attributes may change. These will be updated periodically, as necessary.
2. An appropriate assessment based on these conservation objectives will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out. It is essential that the date and version are included when objectives are cited.
3. Assessments cannot consider an attribute in isolation from the others listed for that habitat or species, or for other habitats and species listed for that site. A plan or project with an apparently small impact on one attribute may have a significant impact on another.
4. Please note that the maps included in this document do not necessarily show the entire extent of the habitats and species for which the site is listed. This should be borne in mind when appropriate assessments are being carried out.
5. When using these objectives, it is essential that the relevant backing/supporting documents are consulted, particularly where instructed in the targets or notes for a particular attribute.

Qualifying Interests

**** indicates a priority habitat under the Habitats Directive***

002348	Clooneen Bog SAC
7120	Degraded raised bogs still capable of natural regeneration
7150	Depressions on peat substrates of the Rhynchosporion
91D0	Bog woodland*

Please note that this SAC adjoins Lough Forbes Complex SAC (001818). See map 2. The conservation objectives for this site should be used in conjunction with those for the adjacent site as appropriate.

Supporting documents, relevant reports & publications

Supporting documents, NPWS reports and publications are available for download from: www.npws.ie/Publications

NPWS Documents

Year :	2000
Title :	Raised bog restoration project. A continuation of the investigation into the conservation and restoration of selected raised bog sites in Ireland
Author :	Derwin, J.; Mac Gowan, F.
Series :	Unpublished report to Duchas, the Heritage Service
Year :	2013
Title :	Results of a monitoring survey of bog woodland
Author :	Cross, J.; Lynn, D.
Series :	Irish Wildlife Manual No. 69
Year :	2014
Title :	National raised bog SAC management plan
Author :	Department of Arts, Heritage and the Gaeltacht
Series :	Draft for consultation. 15 January 2014
Year :	2016
Title :	Clooneen Bog SAC (site code: 2348) Conservation objectives supporting document- raised bog habitats V1
Author :	NPWS
Series :	Conservation objectives supporting document

Other References

Year :	2011
Title :	Review and revision of empirical critical loads and dose-response relationships. Proceedings of an expert workshop, Noordwijkerhout, 23-25 June 2010
Author :	Bobbink, R.; Hettelingh, J.P.
Series :	RIVM report 680359002, Coordination Centre for Effects, National Institute for Public Health and the Environment (RIVM)
Year :	2014
Title :	Nitrogen deposition and exceedance of critical loads for nutrient nitrogen in Irish grasslands
Author :	Henry, J.; Aherne, J.
Series :	Science of the Total Environment 470–471: 216–223

Spatial data sources

Year :	2014
Title :	Scientific Basis for Raised Bog Conservation in Ireland
GIS Operations :	RBSB13_SACs_ARB_DRB dataset, RBSB13_SACs_2012_HB dataset, RBSB13_SACs_DrainagePatterns_5k dataset and RBSB13_SAC_LIDAR_DTMs dataset clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
Used For :	potential 7110; digital elevation model; drainage patterns (maps 3 and 5)
Year :	Digitised 2003
Title :	Raised Bog Restoration Project 1999
GIS Operations :	Ecotope dataset clipped to SAC boundary. Appropriate ecotopes selected and exported to new dataset. Expert opinion used as necessary to resolve any issues arising
Used For :	7110 ecotopes (map 4)

7120 Degraded raised bogs still capable of natural regeneration

To restore the favourable conservation condition of Degraded raised bogs still capable of natural regeneration in Clooneen Bog SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Restore area of active raised bog to 16.6ha, subject to natural processes	Active Raised Bog (ARB) habitat is estimated to have been 10.0ha in area in 1999 based on data from Derwin and MacGowan (2000). Area of Degraded Raised Bog (DRB) on the High Bog (HB) has been modelled as 7.6ha. See map 3. It is estimated that 5.4ha of this area is potentially restorable to ARB by drain blocking. The total potential ARB on the HB is therefore estimated to be 15.4ha. Eco-hydrological assessments of the cutover estimates that an additional 1.2ha of bog forming habitats could be restored. The long term target for ARB is therefore 16.6ha. See raised bog supporting document for further details on this and following attributes
Habitat distribution	Occurrence	Restore the distribution and variability of active raised bog across the SAC. See map 4 for distribution mapped in 1999	ARB mainly occurs within the central part of Clooneen Bog as well as the northern flush. DRB occurs on both parts of the bog, which will require restoration measures. There is also potential for ARB restoration on cutover areas of the bog (see area target above)
High bog area	Hectares	No decline in extent of high bog necessary to support the development and maintenance of active raised bog. See map 3	The area of high bog within Clooneen Bog SAC in 2012 (latest figure available) was 93.5ha (DAHG 2014)
Hydrological regime: water levels	Centimetres	Restore appropriate water levels throughout the site	For ARB, mean water level needs to be near or above the surface of the bog lawns for most of the year. Seasonal fluctuations should not exceed 20cm, and should only be 10cm below the surface, except for very short periods of time. Open water is often characteristic of soak systems
Hydrological regime: flow patterns	Flow direction; slope	Restore, where possible, appropriate high bog topography, flow directions and slopes. See map 5 for current situation	ARB depends on mean water levels being near or above the surface of bog lawns for most of the year. Long and gentle slopes are the most favourable to achieve these conditions. Changes to flow directions due to subsidence of bogs can radically change water regimes and cause drying out of high quality ARB areas and soak systems
Transitional areas between high bog and adjacent mineral soils (including cutover areas)	Hectares; distribution	Restore adequate transitional areas to support/protect active raised bog and the services it provides	ARB is threatened due to effects of past drainage and peat-cutting around the margins of Clooneen Bog and natural marginal habitats no longer exist. Eco-hydrological assessments have evaluated the potential for ARB restoration on cutover areas (see note for habitat area attribute above)
Vegetation quality: central ecotope, active flush, soaks, bog woodland	Hectares	Restore 8.3ha of central ecotope/active flush/soaks/bog woodland as appropriate	At least 50% of ARB habitat should be high quality (i.e. central ecotope, active flush, soaks, bog woodland). Target area of active raised bog for the site has been set at 16.6ha (see area target above)
Vegetation quality: microtopograph-ical features	Hectares	Restore adequate cover of high quality microtopographical features	Good quality microtopography (hummocks, hollows and pools) is best developed in the central part of Clooneen Bog
Vegetation quality: bog moss (*Sphagnum*) species	Percentage cover	Restore adequate cover of bog moss (*Sphagnum*) species to ensure peat-forming capacity	*Sphagnum* cover varies naturally across Ireland with relatively high cover in the east to lower cover in the west. Hummock forming species such as *Sphagnum austinii* are particularly good peat formers. *Sphagnum* cover and distribution also varies naturally across a site

Typical ARB species: flora	Occurrence	Restore, where appropriate, typical active raised bog flora	Typical flora species include widespread species, as well as those with more restricted distributions but typical of the habitat's subtypes or geographical range
Typical ARB species: fauna	Occurrence	Restore, where appropriate, typical active raised bog fauna	Typical fauna species include widespread species, as well as those with more restricted distributions but typical of the habitat's subtypes or geographical range
Elements of local distinctiveness	Occurrence	Maintain features of local distinctiveness, subject to natural processes	Clooneen Bog is noted for the presence of two flush systems, the northern of which is active and contains an area of Annex I bog woodland (see the conservation objective for 91D0)
Negative physical indicators	Percentage cover	Negative physical features absent or insignificant	Negative physical indicators include: bare peat, algae dominated pools and hollows, marginal cracks, tear patterns, subsidence features such as dry mineral mounds /ridges emerging or expanding and evidence of burning
Vegetation composition: native negative indicator species	Percentage cover	Native negative indicator species at insignificant levels	Disturbance indicators include species indicative of conditions drying out such as abundant bog asphodel (*Narthecium ossifragum*), deergrass (*Trichophorum germanicum*) and harestail cotton-grass (*Eriophorum vaginatum*) forming tussocks; abundant magellanic bog-moss (*Sphagnum magellanicum*) in pools previously dominated by *Sphagnum* species typical of very wet conditions (e.g. feathery bog-moss (*S. cuspidatum*)); and indicators of frequent burning events such as abundant *Cladonia floerkeana* and high cover of carnation sedge (*Carex panicea*) (particularly in true midlands raised bogs)
Vegetation composition: non-native invasive species	Percentage cover	Non-native invasive species at insignificant levels and not more than 1% cover	Most common non-native invasive species include lodgepole pine (*Pinus contorta*), rhododendron (*Rhododendron ponticum*), and pitcherplant (*Sarracenia purpurea*). *Rhododendron* has been reported as spreading into the south-eastern section of Clooneen Bog
Air quality: nitrogen deposition	kg N/ha/year	Air quality surrounding bog close to natural reference conditions. The total N deposition should not exceed 5kg N/ha/yr	Change in air quality can result from fertiliser drift; adjacent quarry activities; or other atmospheric inputs. The critical load range for ombrotrophic bogs has been set as between 5 and 10kg N/ha/yr (Bobbink and Hettelingh, 2011). The latest N deposition figures for the area around Clooneen Bog suggests that the current level is approximately 15.1kg N/ha/yr (Henry and Aherne, 2014)
Water quality	Hydrochemical measures	Water quality on the high bog and in transitional areas close to natural reference conditions	Water chemistry within raised bogs is influenced by atmospheric inputs (rainwater). However, within soak systems, water chemistry is influenced by other inputs such as focused flow or interaction with underlying substrates. Water chemistry in areas surrounding the high bog varies due to influences of different water types (bog water, regional groundwater and run-off from surrounding mineral lands)

Conservation Objectives for : Clooneen Bog SAC [002348]

7150	Depressions on peat substrates of the Rhynchosporion

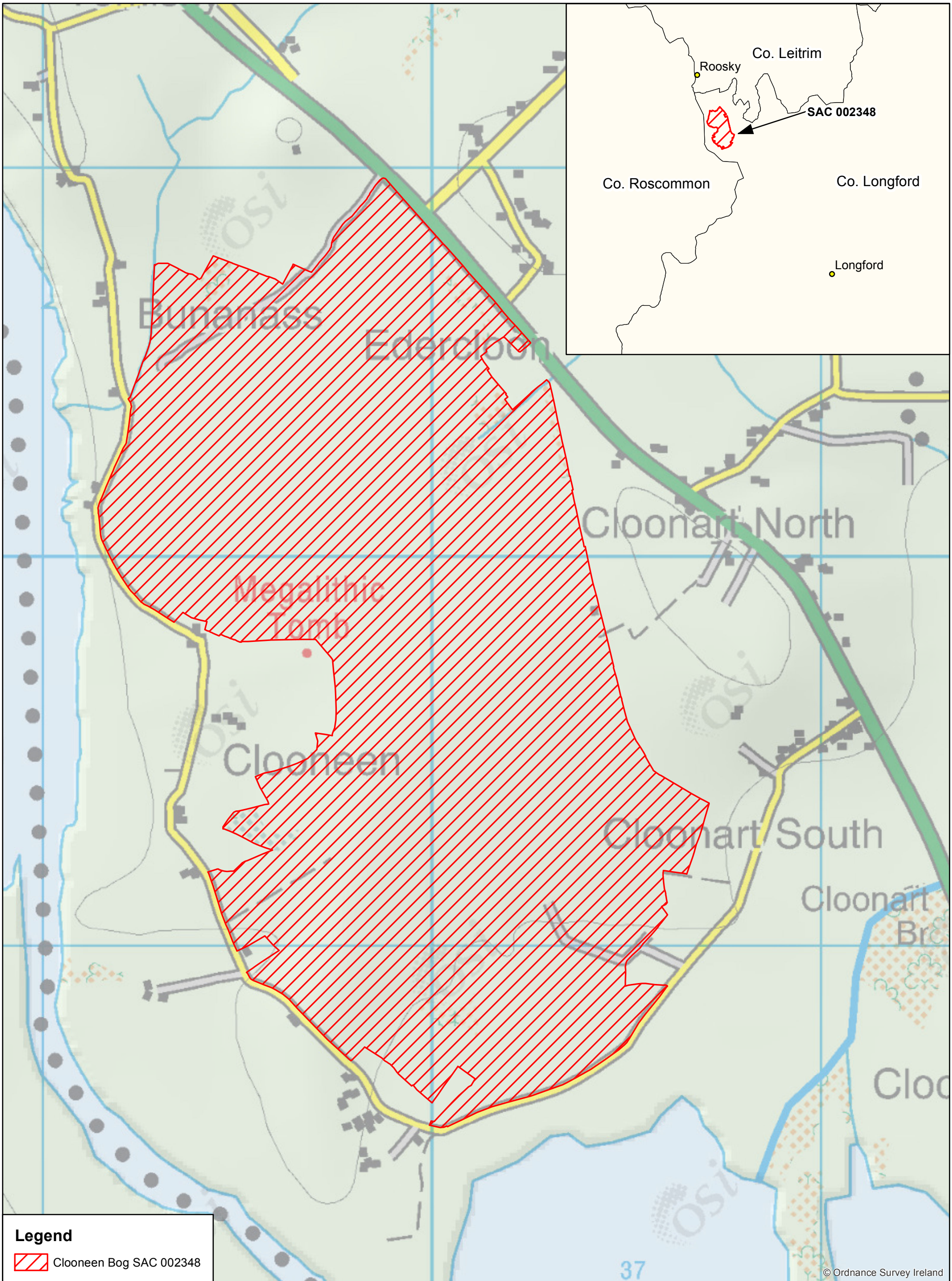
Depressions on peat substrates of the Rhynchosporion is an integral part of good quality Active raised bogs (7110) and thus a separate conservation objective has not been set for the habitat in Clooneen Bog SAC

Attribute	Measure	Target	Notes

91D0 Bog woodland

To maintain the favourable conservation condition of Bog woodland in Clooneen Bog SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes	This Annex I habitat is regarded as a component of the Active Raised Bog (ARB) habitat (7110) and thus, the conservation objective and supporting document for ARB (7110) are also relevant to this habitat and common attributes have not been repeated here. Cross and Lynn (2013) report the habitat area as 3.4ha (based on data from Derwin and MacGowan (2000)). However, this area may be over-estimated due to a refinement in the definition of the habitat since this site was surveyed
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 4 for location	Bog woodland is reported from an active flush in the northern part of the bog
Vegetation composition: positive indicator species	Number in a representative number of monitoring stops	Birch (*Betula pubescens*), bog moss (*Sphagnum* species) and at least five other species present	Bog woodland is typically species-poor but with a characteristic and distinctive flora. Positive indicator species are listed in bog woodland monitoring survey (Cross and Lynn, 2013)
Vegetation composition: negative indicator species	Percentage cover at a representative number of monitoring stops	Both native and non-native invasive species absent or under control. Total cover should be less than 10%	Negative indicator species include bracken (*Pteridium aquilinum*) and bramble (*Rubus fruticosus*), which can become invasive if the site begins drying out
Woodland structure: cover and height of birch	Percentage cover and metres at a representative number of monitoring stops	A minimum 30% cover of birch (*Betula pubescens*) with a median canopy height of 4m	Attribute and target based on Cross and Lynn (2013)
Woodland structure: dwarf shrub cover	Percentage cover at a representative number of monitoring stops	Dwarf shrub cover not more than 50%	Attribute and target based on Cross and Lynn (2013)
Woodland structure: ling cover	Percentage cover at a representative number of monitoring stops	Ling (*Calluna vulgaris*) cover not more than 40%	Attribute and target based on Cross and Lynn (2013)
Woodland structure: bryophyte cover	Percentage cover at a representative number of monitoring stops	Bryophyte cover at least 50%, with bog moss (*Sphagnum* spp.) cover at least 25%	Attribute and target based on Cross and Lynn (2013)
Woodland structure: tree size classes	Occurrence	Each size class present	Size classes are defined in Cross and Lynn (2013). The presence of all size classes suggests that a woodland has good structural variety with trees of varying ages
Woodland structure: senescent and dead wood	Occurrence	Senescent or dead wood present	Mature and veteran trees and dead wood are important for bryophytes, lichens, saproxylic organisms and some bird species. Their retention within a woodland is important to ensure continuity of habitats/niches and propagule sources over time. However, as birch (*Betula pubescens*) trees seldom exceed 30cm in diameter in this habitat and dead wood rots quickly and is engulfed by bog mosses (*Sphagnum* spp.), volume of dead wood may not be as high in bog woodland as in other woodland types



Legend

Clooneen Bog SAC 002348

An Roinn Ealaíon, Oidhreachta, Gnóthaí Réigiúnacha, Tuaithe agus Gaeltachta

Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs

MAP 1: CLOONEEN BOG SAC CONSERVATION OBJECTIVES SAC DESIGNATION

Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 002348; version 3. Co. Longford

0 100 200 300 400 m

N

Map Version 1
Date: July 2016

SAC 002348

SAC 001818

Legend

- Clooneen Bog SAC 002348
- Lough Forbes Complex SAC 001818
- OSi Discovery Series County Boundary

An Roinn Ealaíon, Oidhreachta, Gnóthaí Réigiúnacha, Tuaithe agus Gaeltachta

Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs

MAP 2: CLOONEEN BOG SAC CONSERVATION OBJECTIVES ADJACENT DESIGNATIONS

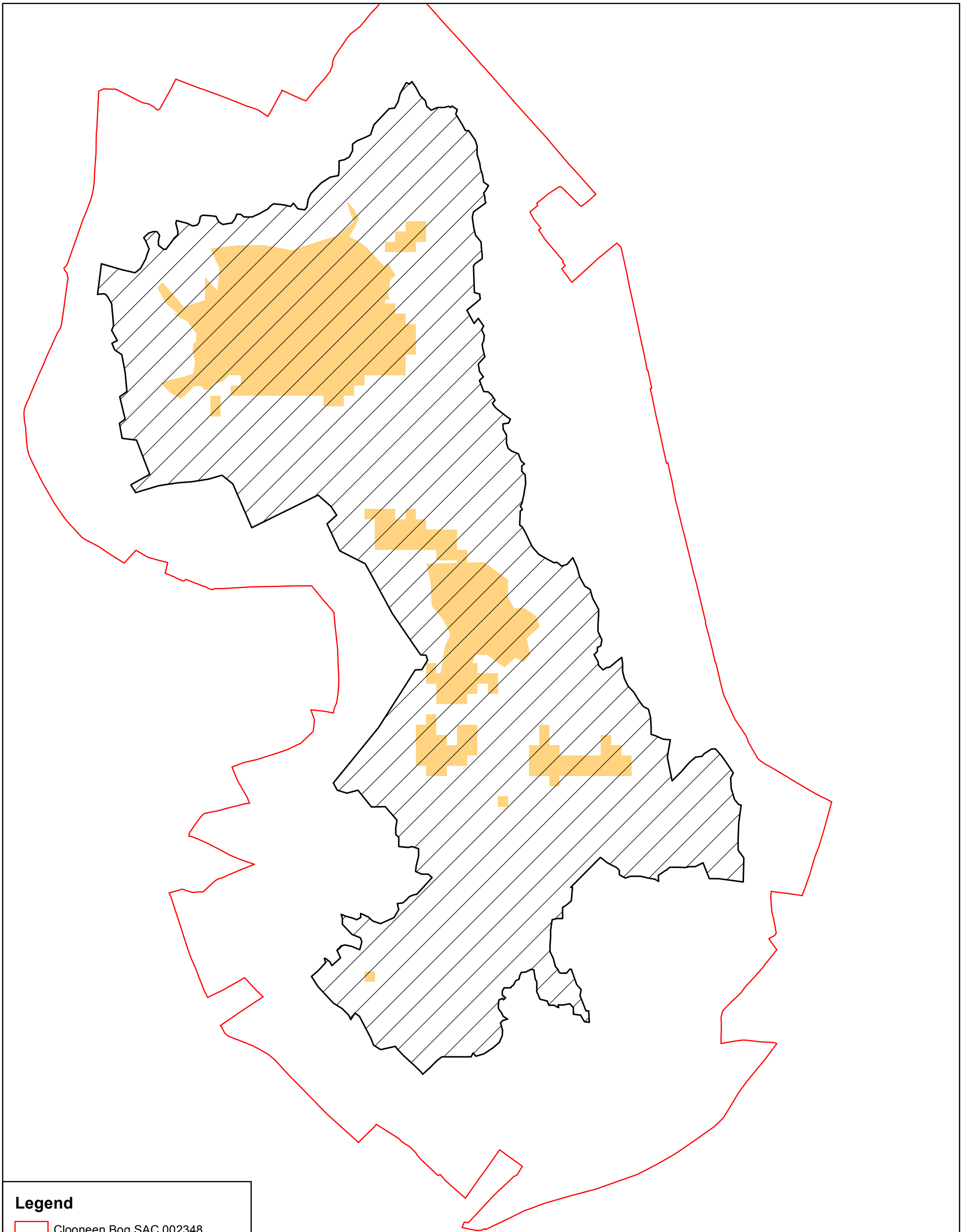
Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 001818; version 3,
SAC 002348; version 3. Co. Longford / Roscommon

0 250 500 750 1,000 m

N

Map Version 1
Date: July 2016



Legend

- Clooneen Bog SAC 002348
- High Bog Boundary
- Potential 7110 Active Raised Bogs

An Roinn Ealaíon, Oidhreachta, Gnóthaí Réigiúnacha, Tuaithe agus Gaeltachta

Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs

MAP 3: CLOONEEN BOG SAC CONSERVATION OBJECTIVES EXTENT OF POTENTIAL ACTIVE RAISED BOG

Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 002348; version 3. Co. Longford

0 75 150 225 300 m

N

Map Version 1
Date: July 2016

Legend

- Clooneen Bog SAC 002348
- High Bog Boundary

Active Raised Bog Ecotopes

- Active Flush
- Bog Woodland
- Sub-central

An Roinn Ealaíon, Oidhreachta, Gnóthaí Réigiúnacha, Tuaithe agus Gaeltachta

Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs

MAP 4: CLOONEEN BOG SAC CONSERVATION OBJECTIVES ACTIVE RAISED BOG ECOTOPES

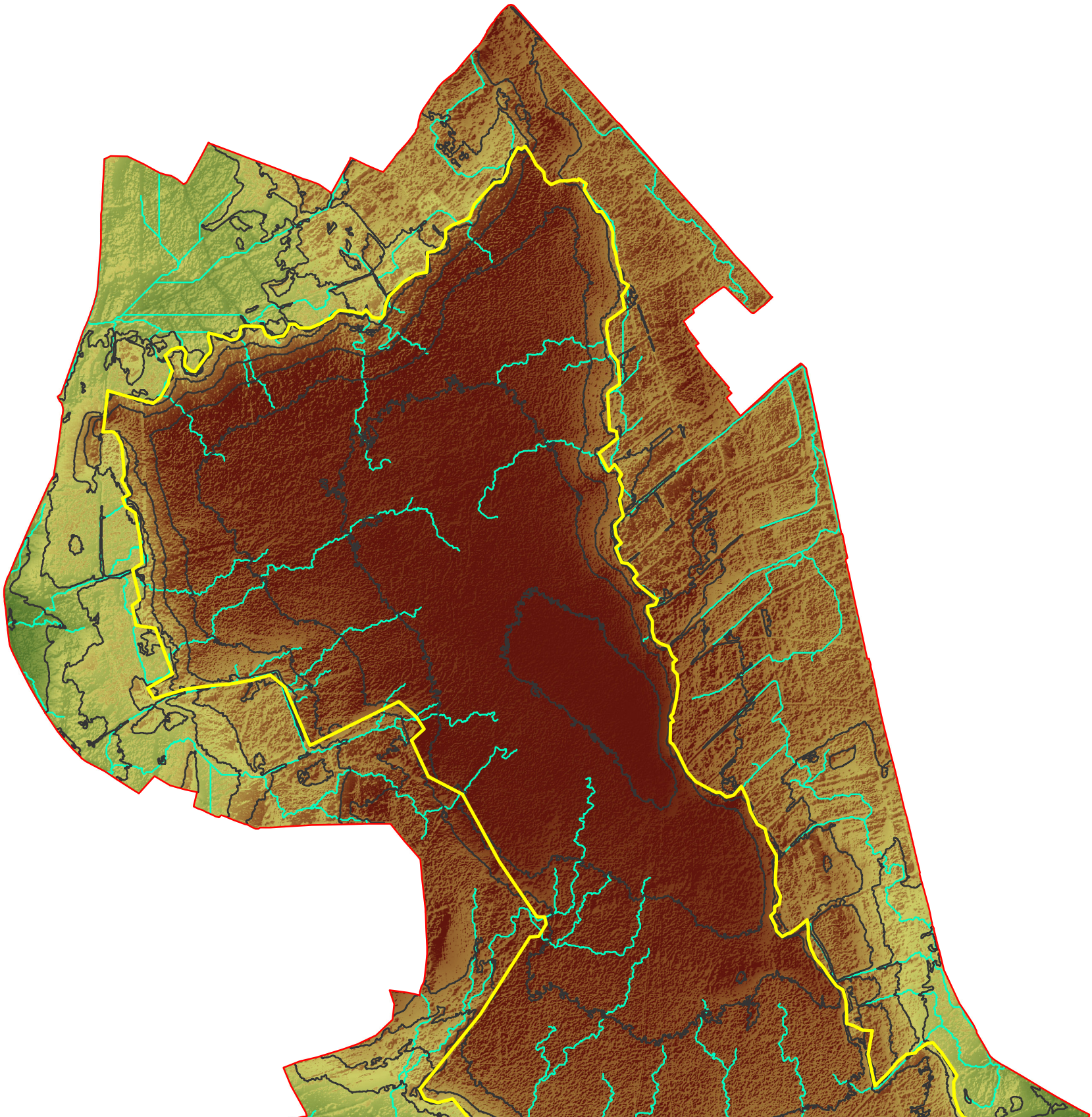
Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 002348; version 3. Co. Longford

0 75 150 225 300 m

N

Map Version 1
Date: July 2016



Legend

- Clooneen Bog SAC 002348
- High Bog Boundary
- Contours
- Drainage Patterns

Elevation (m)

High : 49.627

Low : 37.591

An Roinn Ealaíon, Oidhreachta, Gnóthaí Réigiúnacha, Tuaithe agus Gaeltachta

Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs

MAP 5: CLOONEEN BOG SAC DRAINAGE PATTERNS AND DIGITAL ELEVATION MODEL

Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 002348; version 3. Co. Longford

0 80 160 240 320 m

N

Map Version 1
Date: July 2016

Conservation objectives for Ballykenny-Fisherstown Bog SPA [004101]

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

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

Objective: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

Bird Code	Common Name	Scientific Name
A395	Greenland White-fronted Goose	*Anser albifrons flavirostris*

Citation: *NPWS (2021) Conservation objectives for Ballykenny-Fisherstown Bog SPA [004101]. Generic Version 8.0. Department of Housing, Local Government and Heritage.*

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE **IE0001626**

SITENAME **Annaghmore Lough (Roscommon) SAC**

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1. SITE IDENTIFICATION

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1.1 Type	1.2 Site code
B	IE0001626

1.3 Site name

Annaghmore Lough (Roscommon) SAC

1.4 First Compilation date	1.5 Update date
2003-04	2018-09

1.6 Respondent:

Name/Organisation:	National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht
Address:	90 King Street North, Dublin 7, D07 N7CV, Ireland
Email:	datadelivery@chg.gov.ie

Date site proposed as SCI:	2003-04
Date site confirmed as SCI:	No data
Date site designated as SAC:	2016-06
National legal reference of SAC designation:	301/2016

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude
-8.139895217

Latitude
53.79709448

2.2 Area [ha]:

249.8957691

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
IE01	Border, Midland and Western

2.6 Biogeographical Region(s)

Atlantic (%)

3. ECOLOGICAL INFORMATION

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3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A|B|C|D	A|B|C		
						Representativity	Relative Surface	Conservation	Global
7230			4.99		M	B	C	B	B

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo.

B	A054	Anas acuta			w	5	5	i		G	C	B	C	C
B	A056	Anas clypeata			w	55	55	i		G	C	B	C	B
B	A052	Anas crecca			w	545	545	i		G	C	B	C	B
B	A050	Anas penelope			w	402	402	i		G	C	B	C	C
B	A053	Anas platyrhynchos			w	183	183	i		G	C	B	C	C
B	A059	Aythya ferina			w	28	28	i		G	C	B	C	C
B	A067	Bucephala clangula			w	22	22	i		G	C	B	C	C
B	A038	Cygnus cygnus			w	7	7	i		G	C	B	C	C
B	A160	Numenius arquata			w	84	84	i		G	C	B	C	C
B	A140	Pluvialis apricaria			w	264	264	i		G	C	B	C	C
B	A142	Vanellus vanellus			w	297	297	i		G	C	B	C	C
I	1013	Vertigo geyeri			p				P	DD	B	B	A	B

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

3.3 Other important species of flora and fauna (optional)

Species					Population in the site				Motivation					
Group	CODE	Scientific Name	S	NP	Size		Unit	Cat.	Species Annex		Other categories			
					Min	Max		C|R|V|P	IV	V	A	B	C	D
P		Bryum neodamense												X
P		Bryum uliginosum												X
P		Epipactis palustris									X			
P		Ophrys apifera									X			

- **Group:** A = Amphibians, B = Birds, F = Fish, Fu = Fungi, I = Invertebrates, L = Lichens, M = Mammals, P = Plants, R = Reptiles
- **CODE:** for Birds, Annex IV and V species the code as provided in the reference portal should be used

in addition to the scientific name
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Unit:** i = individuals, p = pairs or other units according to the standard list of population units and codes in accordance with Article 12 and 17 reporting, (see reference portal)
- **Cat.:** Abundance categories: C = common, R = rare, V = very rare, P = present
- **Motivation categories: IV, V:** Annex Species (Habitats Directive), **A:** National Red List data; **B:** Endemics; **C:** International Conventions; **D:** other reasons

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N09	1.0
N07	18.0
N22	1.0
N08	1.0
N10	45.0
N06	30.0
N14	4.0
Total Habitat Cover	100

Other Site Characteristics

Annaghmore Lough is located 5 km north-west of Strokestown, Co. Roscommon. It lies within a network of small lakes in a rolling, drift-covered landscape. The shoreline slopes gently to the lake and these low-lying margins are extensively flooded in winter. In summer, when water levels recede, substantial areas of this shallow calcareous lake dry out leaving flat expanses of exposed marl. In addition to fen vegetation, there are extensive areas of reed swamp and wet grassland around the margins of the lake. A stream exits the lake at the south-east and flows through a low-lying area of wet grassland - this floods regularly and has a turlough character. This site includes a smaller, less calcareous lake, Lough Nablasbarnagh, to the south of Annaghmore. An area of cutover bog is associated with this lake. A small area of limestone pavement adds habitat diversity to the site.

4.2 Quality and importance

The site contains a good example of alkaline fen vegetation. While the extent of the habitat is relatively small, it supports a range of typical species including scarce plants such as Eriophorum latifolium and several orchid species. Alkaline fen is nowadays a scarce habitat in Co. Roscommon. A population of Vertigo geyeri has been recorded at this site as recently as 2001. This is the only known location for this rare mollusc in Co. Roscommon and one of the few sites in western Ireland. Annaghmore Lough supports a good diversity of wintering waterfowl, with nationally important populations of Anas crecca and Anas clypeata, and small numbers of Cygnus cygnus and Pluvialis apricaria . The birds commute to other wetlands in the district.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
L	A02		i
L	A04.03		i
L	J01		i

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
L	A04.02.01		i

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,
T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Colhoun, K. (2001). I-WeBS Report 1998-99. BirdWatch Ireland, Dublin. Goodwillie, R. and Fahy, E. (1974). A Preliminary Report on Areas of Scientific Interest in County Roscommon. Unpublished report, An Foras Forbartha, Dublin. Sheppard, R. (1993). Ireland's Wetland Wealth. Irish Wildbird Conservancy. Dublin.

6. SITE MANAGEMENT

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6.2 Management Plan(s):

An actual management plan does exist:

- [ ] Yes
- [ ] No, but in preparation
- [X] No

7. MAP OF THE SITES

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INSPIRE ID: IE.NPWS.PS.NATURA2000.SAC.IE0001626

Map delivered as PDF in electronic format (optional)

[ ] Yes [X] No

Reference(s) to the original map used for the digitalisation of the electronic boundaries (optional).

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE **IE0002346**

SITENAME **Brown Bog SAC**

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1. SITE IDENTIFICATION

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1.1 Type	1.2 Site code
B	IE0002346

1.3 Site name

Brown Bog SAC

1.4 First Compilation date	1.5 Update date
2003-03	2019-09

1.6 Respondent:

Name/Organisation:	National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht
Address:	90 King Street North, Dublin 7, D07 N7CV, Ireland
Email:	datadelivery@chg.gov.ie

Date site proposed as SCI:	2003-03
Date site confirmed as SCI:	No data
Date site designated as SAC:	2018-05
National legal reference of SAC designation:	288/2018

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude
-7.854202

Latitude
53.732079

2.2 Area [ha]:

73.62426732

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
IE01	Border, Midland and Western

2.6 Biogeographical Region(s)

Atlantic (%)

3. ECOLOGICAL INFORMATION

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3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A|B|C|D	A|B|C		
						Representativity	Relative Surface	Conservation	Glo
7110			10.77		G	B	C	B	B
7120			2.2		G	B	C	B	C
7150			0.465971834		M	B	C	B	B

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site				Site assessment	

G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo.

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

3.3 Other important species of flora and fauna (optional)

Species					Population in the site				Motivation					
Group	CODE	Scientific Name	S	NP	Size		Unit	Cat.	Species Annex		Other categories			
					Min	Max		C|R|V|P	IV	V	A	B	C	D
B		Lagopus lagopus											X	
B		Lagopus lagopus									X			
P		Sphagnum fuscum												X
P		Sphagnum imbricatum												X

- **Group:** A = Amphibians, B = Birds, F = Fish, Fu = Fungi, I = Invertebrates, L = Lichens, M = Mammals, P = Plants, R = Reptiles
- **CODE:** for Birds, Annex IV and V species the code as provided in the reference portal should be used in addition to the scientific name
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Unit:** i = individuals, p = pairs or other units according to the standard list of population units and codes in accordance with Article 12 and 17 reporting, (see reference portal)
- **Cat.:** Abundance categories: C = common, R = rare, V = very rare, P = present
- **Motivation categories: IV, V:** Annex Species (Habitats Directive), **A:** National Red List data; **B:** Endemics; **C:** International Conventions; **D:** other reasons

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N10	4.0

N20	1.0
N08	15.0
N07	76.0
N16	4.0
Total Habitat Cover	100

Other Site Characteristics

Brown Bog is a small midland raised bog situated approximately 7 km west of Longford town. Uncut high bog accounts for a relatively high proportion (c.70%) of the site, though the largest part of this is classified as degraded bog. The high bog is surrounded by a rim of cutover bog, much of which has been invaded by Betula pubescens scrub. Other habitats in the cutover zone are broad-leaved woodland, a small stand of planted conifers, and some wet grassland. A large area of cutover bog to the east of the site has recently been planted with conifers.

4.2 Quality and importance

Brown Bog is one of the best examples of a small, relatively intact midland raised bog in Ireland at present. The active bog is characterised by flat, quaking areas with frequent pools and with a wet flush. Sphagnum cover is high and includes the relatively rare S. imbricatum and S. fuscum. Lichen cover, mainly Cladonia spp., is high. The degraded area of high bog is relatively undisturbed and considered a good example of the habitat. It is possible that a significant portion of the degraded bog could be re-wetted in the future. Rhynchosporion vegetation is well-developed and of good quality. Lagopus lagopus, a threatened and Red listed species in Ireland, has been reported from the site. In general, this small bog is of good quality and has been relatively free of damaging activities such as peat-cutting and drainage.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
M	K01.03		b
L	J02.15		o

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
L	X		i

Rank: H = high, M = medium, L = low

Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,

T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions

i = inside, o = outside, b = both

4.5 Documentation

Cross, J.R. (1990). The Raised Bogs of Ireland: their Ecology, Status and Conservation. Report to the Minister of State at the Department of Finance. Stationery Office, Dublin. Douglas, C. and Grogan, H. (1986). Survey to Locate Raised Bogs of Scientific Interest in Counties Longford, Westmeath and Mayo. Unpublished report, Forest and Wildlife Service, Dublin. Farrell, L. (1972). A Preliminary Report on Areas of Scientific Interest in County Longford. Unpublished report, An Foras Forbartha, Dublin. Kelly, L., Doak, M. and Dromey, M. (1995). Raised Bog Conservation Project: An Investigation into the Conservation and Restoration of Selected Raised Bog Sites in Ireland. Unpublished report, National Parks and Wildlife, Dublin. National Parks and Wildlife Service (1992-1994). National Areas of Scientific Interest Survey. Unpublished report, National Parks and Wildlife Service, Dublin.

6. SITE MANAGEMENT

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6.2 Management Plan(s):

An actual management plan does exist:

☐

[ ] Yes

[ ] No, but in preparation

[X] No

7. MAP OF THE SITES

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INSPIRE ID: IE.NPWS.PS.NATURA2000.SAC.IE0002346

Map delivered as PDF in electronic format (optional)

[ ] Yes [X] No

Reference(s) to the original map used for the digitalisation of the electronic boundaries (optional).

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE **IE0002348**

SITENAME **Clooneen Bog SAC**

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1. SITE IDENTIFICATION

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1.1 Type	1.2 Site code
B	IE0002348

1.3 Site name

Clooneen Bog SAC

1.4 First Compilation date	1.5 Update date
2003-03	2019-09

1.6 Respondent:

Name/Organisation:	National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht
Address:	90 King Street North, Dublin 7, D07 N7CV, Ireland
Email:	datadelivery@chg.gov.ie

Date site proposed as SCI:	2003-03
Date site confirmed as SCI:	No data
Date site designated as SAC:	No data
National legal reference of SAC designation:	No data

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude
-7.895526098

Latitude
53.80325579

2.2 Area [ha]:

214.9338225

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
IE01	Border, Midland and Western

2.6 Biogeographical Region(s)

Atlantic (%)

3. ECOLOGICAL INFORMATION

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3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A|B|C|D	A|B|C		
						Representativity	Relative Surface	Conservation	Glo
7110			10.0		G	C	C	C	C
7120			5.35		G	B	C	C	B
7150			0.156472767		M	B	C	C	C
91D0			8.6		M	B	B	B	B

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site					Site assessment			
G	Code	Scientific Name	S	NP	T	Size	Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min Max				Pop.	Con.	Iso.	Glo.

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

3.3 Other important species of flora and fauna (optional)

Species					Population in the site				Motivation					
Group	CODE	Scientific Name	S	NP	Size		Unit	Cat.	Species Annex		Other categories			
					Min	Max		C|R|V|P	IV	V	A	B	C	D
P		Rhynchospora fusca												X
P		Sphagnum fuscum												X
P		Sphagnum imbricatum												X

- **Group:** A = Amphibians, B = Birds, F = Fish, Fu = Fungi, I = Invertebrates, L = Lichens, M = Mammals, P = Plants, R = Reptiles
- **CODE:** for Birds, Annex IV and V species the code as provided in the reference portal should be used in addition to the scientific name
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Unit:** i = individuals, p = pairs or other units according to the standard list of population units and codes in accordance with Article 12 and 17 reporting, (see reference portal)
- **Cat.:** Abundance categories: C = common, R = rare, V = very rare, P = present
- **Motivation categories: IV, V:** Annex Species (Habitats Directive), **A:** National Red List data; **B:** Endemics; **C:** International Conventions; **D:** other reasons

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N14	3.0
N16	5.0

N07	59.0
N10	31.0
N08	2.0
Total Habitat Cover	100

Other Site Characteristics

Clooneen Bog is located on the east bank of the River Shannon, approximately 3 km south-east of Roosky, Co. Longford. The site contains a large area of rather dry uncut high bog surrounded by cutover bog. The majority of the high bog is classified as degraded raised bog, with only a very small area of active bog. The cutover is now mostly semi-improved or wet grassland, with a small area of improved grassland also present. Some Betula pubescens scrub also occurs on the cutover.

4.2 Quality and importance

This is a relatively large midland raised bog complex which is one of the most northerly in the country. Although the high bog surface is rather dry and predominantly classified as degraded bog there is good habitat diversity, with wet bog woodland, pool systems and flush areas present. The area of bog woodland, which is mainly of Betula pubescens, is of particular interest as it ranks as one of the most extensive examples of the habitat in the country. Rhynchosporion vegetation appears to be well developed, if somewhat limited in extent, and contains the relatively rare Rhynchospora fusca.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
M	C01.03.02		i
L	A04.02.01		i
L	A09		i

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
L	A03		i

Rank: H = high, M = medium, L = low

Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,

T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions

i = inside, o = outside, b = both

4.5 Documentation

Cross, J.R. (1990). The Raised Bogs of Ireland: their Ecology, Status and Conservation. Report to the Minister of State at the Department of Finance. Stationery Office, Dublin. Derwin, J. and MacGowan, F. (2000). Raised Bog Conservation Project. Unpublished report, Dúchas The Heritage Service, Dublin. Douglas, C. and Grogan, H. (1986). Survey to Locate Raised Bogs of Scientific Interest in Counties Longford, Westmeath and Mayo. Unpublished report, Forest and Wildlife Service, Dublin. National Parks and Wildlife Service (1992-1994). National Areas of Scientific Interest Survey. Unpublished report, National Parks and Wildlife Service, Dublin.

6. SITE MANAGEMENT

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6.2 Management Plan(s):

An actual management plan does exist:

- [ ] Yes
- [ ] No, but in preparation
- [X] No

7. MAP OF THE SITES

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INSPIRE ID: IE.NPWS.PS.NATURA2000.SAC.IE0002348

Map delivered as PDF in electronic format (optional)

☐ Yes ☒ No

Reference(s) to the original map used for the digitalisation of the electronic boundaries (optional).

NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE **IE0004101**

SITENAME **Ballykenny-Fisherstown Bog SPA**

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1. SITE IDENTIFICATION

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1.1 Type	1.2 Site code
A	IE0004101

1.3 Site name

Ballykenny-Fisherstown Bog SPA

1.4 First Compilation date	1.5 Update date
2003-09	2018-09

1.6 Respondent:

Name/Organisation:	National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht
Address:	90 King Street North, Dublin 7, D07 N7CV, Ireland
Email:	datadelivery@chg.gov.ie

1.7 Site indication and designation / classification dates

Date site classified as SPA:	1996-10
National legal reference of SPA designation	No data

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude	Latitude

-7.878164689 53.76504791

2.2 Area [ha]:

1355.668759

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
IE01	Border, Midland and Western
IE01	Border, Midland and Western

2.6 Biogeographical Region(s)

Atlantic (%)

3. ECOLOGICAL INFORMATION

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3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo.
B	A056	Anas clypeata			w	6	6	i		G	C	B	C	C
B	A052	Anas crecca			w	444	444	i		G	C	B	C	C
B	A050	Anas penelope			w	419	419	i		G	C	B	C	C
B	A061	Aythya fuligula			w	49	49	i		G	C	B	C	C
B	A067	Bucephala clangula			w	11	11	i		G	C	B	C	C
B	A038	Cygnus cygnus			w	40	40	i		G	C	B	C	C
B	A098	Falco columbarius			p	1	1	p		G	C	B	C	C
B	A017	Phalacrocorax carbo			w	51	51	i		G	C	B	C	C

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory

species use permanent)

- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

3.3 Other important species of flora and fauna (optional)

Species					Population in the site				Motivation					
Group	CODE	Scientific Name	S	NP	Size		Unit	Cat.	Species Annex		Other categories			
					Min	Max		C|R|V|P	IV	V	A	B	C	D
B		Lagopus lagopus											X	
B		Lagopus lagopus									X			

- **Group:** A = Amphibians, B = Birds, F = Fish, Fu = Fungi, I = Invertebrates, L = Lichens, M = Mammals, P = Plants, R = Reptiles
- **CODE:** for Birds, Annex IV and V species the code as provided in the reference portal should be used in addition to the scientific name
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Unit:** i = individuals, p = pairs or other units according to the standard list of population units and codes in accordance with Article 12 and 17 reporting, (see reference portal)
- **Cat.:** Abundance categories: C = common, R = rare, V = very rare, P = present
- **Motivation categories: IV, V:** Annex Species (Habitats Directive), **A:** National Red List data; **B:** Endemics; **C:** International Conventions; **D:** other reasons

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N19	3.0
N06	25.0
N20	1.0
N16	9.0
N07	40.0
N10	18.0
N09	1.0
N08	3.0
Total Habitat Cover	100

Other Site Characteristics

Site is situated in the north central midlands overlying Carboniferous limestone. Lough Forbes is a naturally eutrophic lake on the Shannon system and is fed also from the north by the River Rinn. The lake has well

developed swamp vegetation and displays natural transition to seasonally flooded grassland, marsh and raised bog. The raised bogs, known as the Ballykenny-Fishertown complex, are separated by the Camlin River, which has further areas of callow grassland. The Castle Forbes estate on the eastern shore of the lake is extensively planted with mature semi-natural woodland, including some stands of old oak.

4.2 Quality and importance

This site has important examples of several habitats listed on Annex I of the EU Directive, notably active raised bog, degraded raised bog, naturally eutrophic lakes and old oak woodlands. The lake and callow grasslands provide good habitat for a range of wintering waterfowl species, including regionally important flocks of Cygnus cygnus, Anas crecca and Anas penelope. Species such as Phalacrocorax carbo and Aythya fuligula are also represented but in low numbers. The bogs were formerly used by wintering Anser albifrons flavirostris but these appear to have been now abandoned in favour of grassland sites elsewhere. Falco columbarius has been recorded and may breed in the site. Lagopus lagopus occurs on the bogs.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
M	G01.01		i
M	B		i
L	F02.03		i
M	A04		i
M	A04		o
L	F03.01		i

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
L	F03.01		i
L	F02.03		i
M	A04		i
M	A04		o

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,
T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Cross, J.R. (1990). The Raised Bogs of Ireland: their Ecology, Status and Conservation. Report for the Minister of State at the Department of Finance. Stationery Office, Dublin. Fox, A.D., Norriss, D.W., Stroud, D.A. & Wilson, H.J. (1994). Greenland White-fronted Geese in Ireland and Britain 1982/83 - 1993/94. Greenland White-fronted Goose Study research report no. 8. Greenland White-fronted Goose Study, Wales and National Parks & Wildlife Service, Dublin. Hunt, J., Derwin, J., Coveney, J. and Newton, S. (2000). Republic of Ireland. Pp. 365-416 in Heath, M.F. and Evans, M.I., (eds.) Important Bird Areas in Europe: Priority Sites for Conservation 1: Northern Europe. Cambridge, UK: BirdLife International (BirdLife Conservation Series No. 8). Irish Wetland Birds Survey (I-WeBS) Database, 1994/95-2000/01. BirdWatch Ireland, Dublin. Kelly, L., Doak, M., and Dromey, M. (1995). Raised Bog Restoration Project: An Investigation into the Conservation and Restoration of Selected Raised Bog Sites in Ireland. Unpublished report to the National Parks & Wildlife Service, Dublin. Merne, O.J. (1989) Important bird areas in the Republic of Ireland. In: Grimmett, R.F.A. and Jones, T.A. (eds) Important Bird Areas in Europe. ICBP Technical Publication No. 9. Cambridge.

6. SITE MANAGEMENT

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6.2 Management Plan(s):

An actual management plan does exist:

- ☐ Yes
- ☐ No, but in preparation
- ☐ No

X

7. MAP OF THE SITES

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INSPIRE ID: IE.NPWS.PS.NATURA2000.SPA.IE0004101

Map delivered as PDF in electronic format (optional)

☐ Yes ☒ No

Reference(s) to the original map used for the digitalisation of the electronic boundaries (optional).

SITE SYNOPSIS

Site Name: Annaghmore Lough (Roscommon) SAC

Site Code: 001626

Annaghmore Lough is located 5 km north-west of Strokestown, Co. Roscommon. It lies at the centre of a network of small lakes in a rolling, drift-covered landscape. The shoreline slopes gently to the lake and these low-lying margins are extensively flooded in winter. In summer, when water levels recede, substantial areas of this shallow calcareous lake dry out, leaving flat expanses of exposed marl. A smaller, less calcareous lake occurs to the south of the site.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[7230] Alkaline Fens
[1013] Geyer's Whorl Snail (*Vertigo geyeri*)

The main lake at this site is surrounded by Common Club-rush (*Scirpus lacustris*) backed by reedbeds of Common Reed (*Phragmites australis*). Extensive areas of alkaline fen, dominated by Black Bog-rush (*Schoenus nigricans*) occur around the shoreline. Damp calcareous grassland, subject to winter flooding, also occurs in association with the fen. Common Butterwort (*Pinguicula vulgaris*) is extremely abundant in this species-rich grassland, together with Common Sedge (*Carex nigra*), Carnation Sedge (*C. panicea*), Glaucous Sedge (*C. flacca*), Tawny Sedge (*C. hostiana*), Greater Bird's-foot-trefoil (*Lotus uliginosus*) and Few-flowered Spike-rush (*Eleocharis quinqueflora*). Several orchid species are found, including Early Marsh-orchid (*Dactylorhiza incarnata*) and Fragrant Orchid (*Gymnadenia canopsea*). A number of uncommon plants are found in the wet calcareous fen and surrounding grasslands. These include Broad-leaved Cottongrass (*Eriophorum latifolum*), Marsh Helleborine (*Epipactis palustris*), Marsh Hawk's-beard (*Crepis paludosa*), Bee Orchid (*Ophrys apifera*) and Fly Orchid (*O. insectifera*). The fen also hosts two rare moss species, *Bryum neodamense* and *B. uliginosum*, although the latter has not been seen at the site for several years.

A small area of limestone pavement with abundant White Stonecrop (*Sedum album*) and an old cutover bog add diversity to the site.

Two populations of the rare whorl snail *Vertigo geyeri* are found in association with Black Bog-rush in the alkaline fen on the northern shore of Annaghmore Lough. This species is rare in Europe and listed on Annex II of the E.U. Habitats Directive.

The site is important for wintering birds and is listed as a wildfowl sanctuary, with nationally important numbers of Teal (545) and Shoveler (55) (counts are average peaks for period 1998/99 – 2002/03). A good diversity of other species occur in local or regional concentrations, including Wigeon (402), Mallard (183), Pochard (28), Goldeneye (22), Lapwing (297) and Curlew (84). Of particular note is the occurrence, albeit in small numbers, of two species which are listed on Annex I of the E.U. Birds Directive, Whooper Swan (7) and Golden Plover (264).

This site is relatively intact with only minor damage caused by cattle poaching and some burning on the fen. Some infilling of wetland vegetation has occurred between the northern shore of the lake and the nearby road. Drainage is a potential threat to the site and associated floodlands.

This is a site of considerable conservation importance as it contains a range of uncommon plant species, supports significant bird numbers, and contains a good example of alkaline fen vegetation. It is also particularly noteworthy because it supports a population of the rare snail *Vertigo geyeri*.

SITE SYNOPSIS

Site Name: Brown Bog SAC

Site Code: 002346

Brown Bog NHA is located 5 km north-west of Longford town, mainly in the townlands of Tully, Lissanurlan and Cartronlebagh. The site comprises a raised bog that includes both areas of high bog and cutover bot. The bog margins are mainly surrounded by scrub/woodland.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[7110] Raised Bog (Active)*
[7120] Degraded Raised Bog
[7150] Rhynchosporion Vegetation

Active raised bog comprises areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses (*Sphagnum* spp.) is high, and where some or all of the following features occur: hummocks, pools, wet flats, *Sphagnum* lawns, flushes and soaks. Degraded raised bog corresponds to those areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration. The Rhynchosporion habitat occurs in wet depressions, pool edges and erosion channels where the vegetation includes White Beak-sedge (*Rhynchospora alba*) and/or Brown Beak-sedge (*R. fusca*), and at least some of the following associated species, Bog Asphodel (*Narthecium ossifragum*), sundews (*Drosera* spp.), Deergrass (*Scirpus cespitosus*) and Carnation Sedge (*Carex panicea*).

This site is situated in a drumlin-filled valley and consists of a small raised bog characterised by a central wet depression with quaking mats of bog mosses and tear pools colonised by algae. Water flows through the pools and it is possible that there is a spring located in the bog centre. A flush area occurs in the north. Abandoned cutover is found around the northern, western and north-eastern bog margins. Remnant old deciduous woodland occurs to the north-west.

The site supports typical Midland Raised Bog communities, which include Heather (*Calluna vulgaris*), Carnation Sedge, Bog-rosemary (*Andromeda polifolia*) and occasional Cranberry (*Vaccinium oxycoccos*). The high bog supports extensive quaking carpets of bog mosses including *Sphagnum magellanicum*, *S. papillosum* and *S. capillifolium.* Pools occur frequently and support *Sphagnum auriculatum,* Bogbean (*Menyanthes trifoliata*) and Great Sundew (*Drosera anglica*). Bare pools and algal pools are also found. Hummocks of *Sphagnum imbricatum* and *S. fuscum* occur. The high

bog is drier around the margins, where Heather and lichens (*Cladonia* spp.) dominate. Scattered Downy Birch (*Betula pubescens*) occurs in association with the northern flush, along with Soft Rush (*Juncus effusus*). Quaking flats of Bog Asphodel and bog moss lawns dominate the inter-pool areas of the flush. One pool with obvious water flow supports Bog Pondweed (*Potamogeton polygonifolius*). Old cutover is mainly colonised by Gorse (*Ulex europaeus*), Downy Birch, Scots Pine (*Pinus sylvestris*) and Purple Moor-grass (*Molinia caerulea*). In the north-west, old deciduous woodland with Downy Birch, Scots Pine, Rowan (*Sorbus aucuparia*) and occasional the Beech (*Fagus sylvatica*) is found.

There are few land uses associated with this site. There are no high bog drains and only two sets of marginal drains are present in the cutover to the north-west. At present there is no active peat-cutting on the site. A large area of cutover to the east of the site has been recently afforested with Sitka Spruce (*Picea sitchensis*). The majority of the bog has not been burnt for some time, although recent localised burning has taken place along the southern margin. Overall there has been little damage to this bog, with only small areas of cutover present. Most of the extent of the original peat basin appears to be remaining. However, peat-cutting and burning are the two main threats to the site.

Brown Bog is a site of considerable conservation significance as it comprises a relatively little-damaged raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. Although the site is small it supports a good diversity of raised bog microhabitats including hummock/hollow complexes, pools and a flush system with surrounding tear pool complex, along with cutover which adds to the diversity and scientific value of the site. Active raised bog is listed as a priority habitat on Annex I of the E.U. Habitats Directive. Priority status is given to habitats and species that are threatened throughout the E.U. Ireland has a high proportion of the E.U. resource of this habitat type (over 60%) and so has a special responsibility for its conservation at an international level.

SITE SYNOPSIS

Site Name: Clooneen Bog SAC

Site Code: 002348

Clooneen Bog lies approximately 3 km south-east of Roosky in Co. Longford on the east bank of the River Shannon, just north of Lough Forbes. It is located almost entirely in the townlands of Clooneen, Bunanass, Edercloon and Cloonart (North and South). The site comprises areas of high bog, including bog woodland and cutover bog, and is bounded by a mineral ridge to the east and agricultural fields to the north. Although it would have originally adjoined the River Shannon to the west and Lough Forbes to the south, it is now separated from these by a road and agricultural fields.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

[7110] Active Raised Bog*
[7120] Degraded Raised Bog
[7150] Rhynchosporion Vegetation
[91D0] Bog Woodland*

Active Raised Bog (ARB) habitat comprises areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses (*Sphagnum* spp.) is high, and where some or all of the following features occur: hummocks, pools, wet flats, *Sphagnum* lawns, flushes and soaks. Degraded Raised Bog (DRB) corresponds to those areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration. The Rhynchosporion habitat occurs in wet depressions, pool edges and erosion channels where the vegetation includes White Beak-sedge (*Rhynchospora alba*) and/or Brown Beak-sedge (*R. fusca*), and at least some of the following associated species, Bog Asphodel (*Narthecium ossifragum*), sundews (*Drosera* spp.), Deergrass (*Scirpus cespitosus*) and Carnation Sedge (*Carex panicea*).

This site consists of a narrow bog dome, with cutover bog to the north, south and west. An interesting feature is the extensive area of bog woodland growing on a flush in the northern section of the bog. There is also a large flush to the south-east associated with a marginal area which slopes relatively steeply towards an extensive region of old cutover. Wet grassland in this area floods from Lough Forbes.

Much of the high bog has vegetation typical of the Midland Raised Bog type, with Heather (*Calluna vulgaris*), Common Cottongrass (*Eriophorum angustifolium*) and Deergrass all occurring abundantly. Other species present include Cranberry

(*Vaccinium oxycoccos*), Cross-leaved Heath (*Erica tetralix*), White Beak-sedge and Bog Asphodel. In the narrow central region of the high bog there are small pools containing the bog moss *Sphagnum cuspidatum*, Great Sundew (*Drosera anglica*) and Bogbean (*Menyanthes trifoliata*). Bog mosses are plentiful between these pools, with *S. capillifolium, S. magellanicum* and *S. fuscum* noted. These pools are associated with a depression and become algal-filled tear pools towards the margins of the high bog.

Results from surveys of Clooneen Bog in 1999 indicate the area of ARB to be 10 ha, corresponding with sub-central ecotope, active flush (soak) and bog woodland. The open bog woodland is dominated by lichen encrusted Downy Birch (*Betula pubescens*), with a field layer of Purple Moor-grass (*Molinia caerulea*) and Hare's-tail Cottongrass (*Eriophorum vaginatum*) and ericaceous shrubs such as Heather, Crowberry (*Empetrum nigrum*), Bog-myrtle (*Myrica gale*) and Bilberry (*Vaccinium myrtillus*). Mosses such as *Hylocomium splendens* and *Breutelia chrysocoma* are also abundant. Species such as *Sphagnum recurvum*, *S. imbricatum* and *S. palustre* are less common. There are also several ferns present including Hard Fern (*Blechnum spicant*) and Broad Buckler-fern (*Dryopteris dilatata*). The flush to the south-east is dominated by Purple Moor-grass and may be associated with an area that has subsided. There are occasional clumps of Bog-myrtle, with some small Rhododendron (*Rhododendron ponticum*) bushes encroaching. This latter species is an invasive, non-native species. Common Reed (*Phragmites australis*) is associated with this flush, indicating some groundwater influence.

The current extent of DRB as estimated using a recently developed hydrological modelling technique, based largely on Light Detection and Ranging (LiDAR) data, is 7.6 ha.

Old cutover to the north is dominated by Purple Moor-grass, with cottongrass, Heather and Carnation Sedge. There is some active regeneration in the north-east, with cottongrass dominating over bog moss (*S. cuspidatum*). Birch and Gorse (*Ulex europaeus*) scrub occurs on old cut-away to the west and east. An extensive area of cut-away to the south is dominated by Purple Moor-grass and Heather, with Bog-myrtle occurring abundantly in places. This area forms a mosaic with wet grassland and there is some flooding from Lough Forbes.

Current land use on the site consists of mechanised peat-cutting to the north-west and south-west of the high bog. Some areas of cutover have been reclaimed for agriculture to the south-east and there are small conifer plantations to the east. Damaging activities associated with these land uses include drainage and burning. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site and pose a continuing threat to its viability. The bog is generally *Sphagnum*-poor due to burning, but regeneration is taking place.

Clooneen Bog is a site of considerable conservation significance as it consists of a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. Ireland has a high proportion of the total E.U. resource of this habitat type (over 60%) and so has a special responsibility for its conservation at

an international level. Bog woodland is listed as a priority habitat on Annex I of the E.U. Habitats Directive - priority status is given to habitats and species that are threatened throughout the E.U. The areas of degraded raised bog and Rhynchosporion are also of conservation importance, being habitats that are listed on Annex I of the E.U. Habitats Directive.

SITE SYNOPSIS

SITE NAME: BALLYKENNY-FISHERSTOWN BOG SPA

SITE CODE: 004101

Ballykenny-Fisherstown Bog SPA is located on the border between Counties Longford and Roscommon in the north-central midlands and is underlain by Carboniferous limestone. It is centered around Lough Forbes, a naturally eutrophic lake on the River Shannon system which is fed also from the north by the River Rinn. The lake has well-developed swamp vegetation and displays natural transitions to seasonally flooded grassland, marsh and raised bog. The raised bogs, known as the Ballykenny-Fishertown complex, are separated by the Camlin River, which has further areas of callow grassland. The central core areas of the bogs are quite wet with a good complement of bog mosses (*Sphagnum* spp.) and well-developed hummocks. Ballykenny Bog is unusual in that some of its margins are intact, a rare feature in the Irish midlands. Between the Camlin River and this bog, a complete transition from raised bog to callow grasslands can be seen, while the interface between the bog and lake is colonised by a narrow band of deciduous woodland.

At the time this site was designated as a Special Protection Area (SPA) it was being used by part of the Loughs Kilglass and Forbes Greenland White-fronted Goose population. The geese appear to have since abandoned the peatland sites in favour of grassland sites elsewhere. The site was regularly utilised during the 1980s and Greenland White-fronted Goose is regarded as a special conservation interest for this SPA. The last record of Greenland White-fronted Goose at this site was in 1990/91 (111 individuals).

Merlin and Red Grouse have also been recorded within the site.

The lake and callow grasslands provide good habitat for a range of wintering waterfowl species though most occur in relatively low numbers: Cormorant (51), Whooper Swan (40), Wigeon (419), Teal (444), Tufted Duck (49) and Goldeneye (11) – are counts are two year mean peaks for the period 1998/99 to 1999/2000.

24.4.2012