

National Parks and Wildlife Service

Conservation Objectives Series

Annaghmore Lough (Roscommon) SAC 001626



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

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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 <i>Vertigo geyeri</i> 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 <i>Vertigo geyeri</i> , <i>Vertigo angustior</i> and <i>Vertigo moulinsiana</i> 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)

Conservation Objectives for : Annaghmore Lough (Roscommon) SAC [001626]

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 <i>Bryum pseudotriquetrum</i> , <i>Calliergonella cuspidata</i> , <i>Calliergon giganteum</i> , <i>Campylium stellatum</i> , <i>Cratoneuron filicinum</i> , <i>Ctenidium molluscum</i> , <i>Fissidens adianthoides</i> , <i>Palustriella commutata</i> , <i>Scorpidium cossonii</i> , <i>S. revolvens</i> and <i>S. scorpioides</i> . Bryophytes recorded in the habitat in the SAC include <i>Campylium stellatum</i> , <i>Scorpidium revolvens</i> and <i>S. scorpioides</i> (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 (<i>Schoenus nigricans</i>), with other species recorded including broad-leaved cottongrass (<i>Eriophorum latifolium</i>), quaking grass (<i>Briza media</i>), purple moor-grass (<i>Molinia caerulea</i>), marsh helleborine (<i>Epipactis palustris</i>), meadow thistle (<i>Cirsium dissectum</i>), common butterwort (<i>Pinguicula vulgaris</i>), early marsh-orchid (<i>Dactylorhiza incarnata</i>) and the Near Threatened fly orchid (<i>Ophrys insectifera</i>) (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 (<i>Phalaris arundinacea</i>) and reed sweet-grass (<i>Glyceria maxima</i>), tall herbs such as great willowherb (<i>Epilobium hirsutum</i>), bracken (<i>Pteridium aquilinum</i>), bramble (<i>Rubus fruticosus</i>) and common nettle (<i>Urtica dioica</i>), and bryophytes such as <i>Brachythecium rutabulum</i> and <i>Kindbergia praelonga</i>
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 (<i>Juncus effusus</i>) and common reed (<i>Phragmites australis</i>) 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)

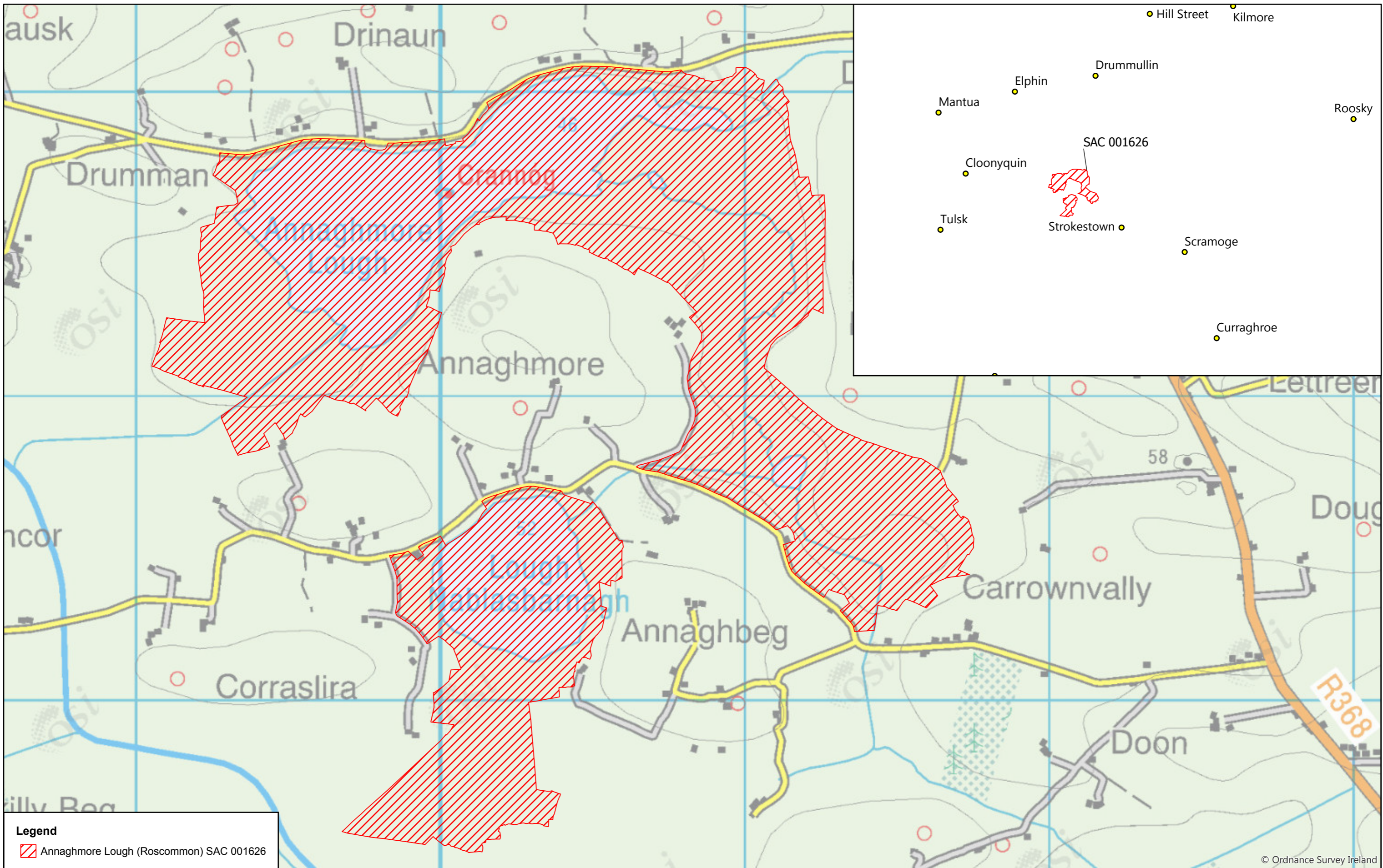
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat; maintain features of local distinctiveness, subject to natural processes	This includes species on the Flora (Protection) 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 (<i>Ophrys insectifera</i>) (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 <i>Leiostryla anglica</i> , <i>Vertigo antivertigo</i> , <i>V. geyeri</i> (listed on Annex II) and <i>Acicula fusca</i> ; also recorded are the Near Threatened species <i>Vertigo substriata</i> and <i>V. pygmaea</i> (Byrne et al., 2009; Moorkens and Killeen, 2011). See the conservation objective for Geyer's whorl snail (<i>Vertigo geyeri</i> ; species code 1013) in this volume
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Conservation Objectives for : Annaghmore Lough (Roscommon) SAC [001626]

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 (<i>Vertigo geyeri</i>) 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 (<i>Schoenus nigricans</i>) situated inland of the common club-rush (<i>Schoenoplectus lacustris</i>) and common reed (<i>Phragmites australis</i>) 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



Legend
 Annaghmore Lough (Roscommon) SAC 001626

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**MAP 1:
 ANNAGHMORE LOUGH (ROSCOMMON) SAC
 CONSERVATION OBJECTIVES
 SAC DESIGNATION**
 Map to be read in conjunction with the NPWS Conservation Objectives Document.

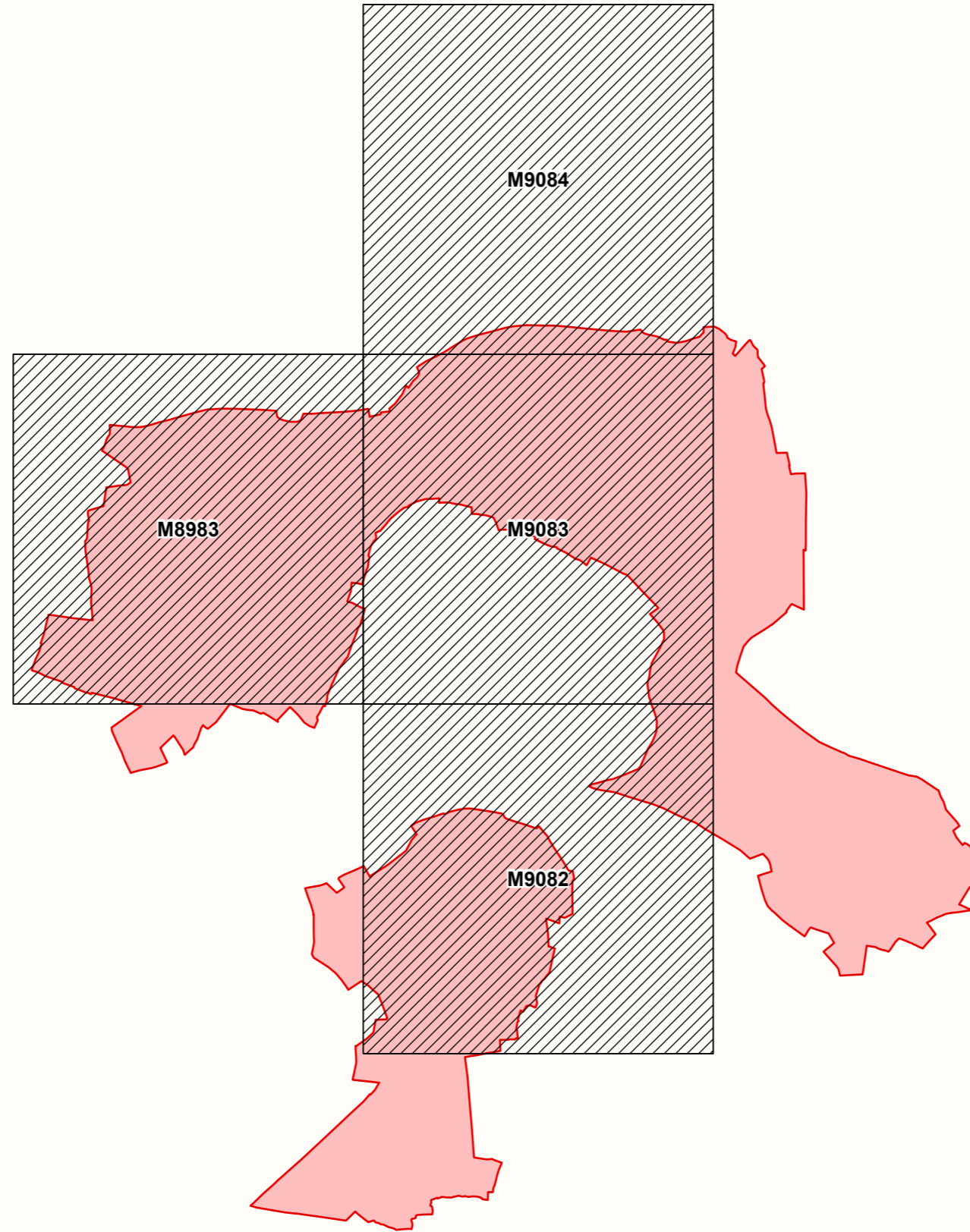
**SITE CODE:
 SAC 001626; version 3.02. CO. ROSCOMMON**

0 130 260 390 520 650 Meters




The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision.
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Níl sna teorainneacha ar na léarscáileanna ach nod garshuíomhach ginearálta. Féadfar athbhreithniú a déanamh ar theorainneacha na gceantar comharthaíthe. Suirbhéarachta Ordonáis na hÉireann Ceadúnas Uimh EN 0059216. © Suirbhéarachta Ordonáis na hÉireann Rialtas na hÉireann

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**Map Version 1
 Date: July 2018**



Legend

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

