

National Parks and Wildlife Service

Conservation Objectives Series

Cregduff Lough SAC 001251



An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

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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*

001251	Cregduff Lough SAC
1833	Slender Naiad <i>Najas flexilis</i>
7140	Transition mires and quaking bogs

Supporting documents, relevant reports & publications

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

NPWS Documents

Year :	1984
Title :	The vegetation of Irish lakes
Author :	Heuff, H.
Series :	Unpublished report to NPWS
Year :	2002
Title :	<i>Najas flexilis</i> in Donegal
Author :	Roden, C.M.
Series :	Unpublished report to NPWS
Year :	2004
Title :	The distribution of <i>Najas flexilis</i> in Ireland 2002-2004
Author :	Roden, C.M.
Series :	Unpublished report to NPWS
Year :	2009
Title :	Ireland 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 :	Ireland Red List No. 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 :	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 :	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 Lists series, NPWS
Year :	2017
Title :	Ballyhoorisky Point to Fanad Head SAC (site code: 1975) Conservation objectives supporting document- <i>Najas flexilis</i> V1
Author :	NPWS
Series :	Conservation objectives supporting document
Year :	2017
Title :	Mweelrea/Sheeffry/Erriff Complex SAC (site code: 1932) Conservation objectives supporting document- <i>Najas flexilis</i> V1
Author :	NPWS
Series :	Conservation objectives supporting document

Year : 2017
Title : Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC (site code: 365) Conservation objectives supporting document- *Najas flexilis* V1
Author : NPWS
Series : Conservation objectives supporting document

Year : 2019
Title : The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments
Author : NPWS
Series : Conservation assessments

Year : in prep.
Title : A study of lakes with Slender Naiad (*Najas flexilis*)
Author : Roden, C.; Murphy, P.; Ryan, J.B.
Series : Irish Wildlife Manuals

Year : in prep.
Title : Scoping study and pilot survey of fens
Author : O'Neill, F.H.; Perrin, P.M.; Denyer, J.; Martin, J.R.; Daly, O.H.; Brophy, J.T.
Series : Irish Wildlife Manuals

Other References

Year : 1850
Title : Discovery of *Najas flexilis* in Ireland
Author : Oliver, D.
Series : The Botanical Gazette, 2(22): 278

Year : 1852
Title : Botanical Notes of a week in Ireland during the present month (August, 1852)
Author : Oliver, D.
Series : Phytologist, 4: 676-679

Year : 1967
Title : *Eriophorum gracile* Roth new to Ireland
Author : Rose, F.
Series : Irish Naturalists' Journal, 15(12): 361-362

Year : 1995
Title : The ecology of *Eriophorum gracile* Koch ex Roth and *Eriophorum latifolium* Hoppe in Ireland
Author : Conaghan, J.P.
Series : Ph.D. Thesis, National University of Ireland, Galway

Year : 2001
Title : Aquatic plants in Britain and Ireland
Author : Preston, C.D.; Croft, J.M.
Series : Harley Books, Colchester

Year : 2004
Title : The ecology of *Najas flexilis*
Author : Wingfield, R.A.; Murphy, K.J.; Hollingsworth, P.; Gaywood, M.J.
Series : Scottish Natural Heritage Commissioned Report No. 017 (ROAME No. F98PA02)

Year : 2009

Title : The distribution and conservation of *Eriophorum gracile* Koch ex Roth (Cyperaceae), Slender Cotton-grass, in Ireland

Author : Conaghan, J.P.; Sheehy Skeffington, M.

Series : Watsonia, 27: 229-238

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 : 2011

Title : The Fen Management Handbook

Author : McBride, A.; Diack, I.; Droy, N.; Hamill, B.; Jones, P.; Schutten, J.; Skinner, A.; Street, M. (eds.)

Series : Scottish Natural Heritage, Perth

Year : 2018

Title : Irish Vegetation Classification: Technical Progress Report No. 4

Author : Perrin, P.

Series : Report submitted to National Biodiversity Data Centre

Year : 2020

Title : Slender Naiad (*Najas flexilis*) habitat quality assessment

Author : Gunn, I.D.M.; Carvalho, L.

Series : CRW2018_27. Scotland's Centre of Expertise for Waters (CREW)

Conservation Objectives for : Cregduff Lough SAC [001251]

7140 Transition mires and quaking bogs

To maintain the favourable conservation condition of Transition mires and quaking bogs in Cregduff Lough 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	Transition mires and quaking bogs have not been mapped in detail for Cregduff Lough SAC and thus the total area of the qualifying habitat in the SAC is unknown. Cregduff Lough is an excellent example of an infilling lake and supports a good diversity of vegetation types ranging from open water communities, to quaking transition mire, to species-rich freshwater marsh vegetation. There is an extensive scraw (floating vegetation) system in the northern part of the lake (NPWS internal files)
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 - water levels	Centimetres; duration of water levels	Maintain appropriate water levels necessary to support the natural structure and functioning of the habitat	Maintenance of a permanently high water level, remaining close to the peat surface all year, with water level fluctuations within natural ranges, is required for this wetland habitat. See O'Neill et al. (in prep.)
Ecosystem function: hydrology - flow patterns	Flow direction	Maintain appropriate topography and water movement regime necessary to support the natural structure and functioning of the habitat	Maintenance, both within and surrounding the habitat, of topography and flow patterns within natural ranges is essential in order to ensure the hydrological integrity of this wetland habitat
Ecosystem function: water quality	Various	Maintain appropriate water quality to support the natural structure and functioning of the habitat	The surface water conditions necessary to maintain transition mires range from acidic to slightly base-rich. The vegetation typically has intimate mixtures of species considered to be acidophile and others considered calciphile. In other cases, these intermediate properties may reflect the actual process of succession, as peat accumulates in groundwater-fed fen or open water to produce rainwater-fed bog isolated from groundwater influence
Vegetation composition: community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	The entire diversity of transition mire vegetation communities present in the SAC is currently unknown, but see Heuff (1984). Information on vegetation communities associated with transition mires is provided in O'Neill et al. (in prep.). See also the Irish Vegetation Classification (Perrin, 2018; www.biodiversityireland.ie/projects/ivc-classification-explorer/)
Vegetation composition: typical vascular plants and bryophytes	Percentage cover at a representative number of monitoring stops	Maintain adequate cover of typical vascular plant and bryophyte species	For lists of typical vascular plant and bryophyte species for the different vegetation communities, including high quality indicator species, see O'Neill et al. (in prep.). In this SAC, typical species recorded in the habitat include slender sedge (<i>Carex lasiocarpa</i>), bottle sedge (<i>C. rostrata</i>) and common reed (<i>Phragmites australis</i>) (NPWS internal files)

Vegetation composition: native negative indicator species	Percentage cover at a representative number of monitoring stops	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 include sweet vernal-grass (<i>Anthoxanthum odoratum</i>), great willowherb (<i>Epilobium hirsutum</i>) and Yorkshire-fog (<i>Holcus lanatus</i>). Native negative indicator species that could suggest drying out include ling (<i>Calluna vulgaris</i>) and birch (<i>Betula pubescens</i>). See O'Neill et al. (in prep.)
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 O'Neill et al. (in prep.). 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: algal cover	Percentage cover at, and in local vicinity of, a representative number of monitoring stops	Cover of algae less than 2%	Attribute and target based on O'Neill et al. (in prep.). Algal cover is indicative of nutrient enrichment from multiple sources (McBride et al., 2011)
Vegetation structure: vegetation height	Percentage cover at a representative number of monitoring stops	At least 50% of the live leaves/flowering shoots are more than 15cm above ground surface	Attribute and target based on O'Neill et al. (in prep.). This attribute applies to the <i>Carex rostrata</i> fen and flush community types only (O'Neill et al., in prep.). While grazing may be appropriate in these communities, excessive grazing can reduce the ability of plant species to regenerate reproductively and maintain species diversity, especially if flowering shoots are cropped during the growing season.
Physical structure: drainage	Percentage area in local vicinity of a representative number of monitoring stops	Area showing signs of drainage from heavy trampling, tracking or ditches less than 10%	Attribute and target based on O'Neill et al. (in prep.). Drainage can result in loss of characteristic species and transition to drier habitats
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 less than 10%	Attribute and target based on O'Neill et al. (in prep.). 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
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 (FPO) and/or Red Lists (Byrne et al., 2009; Regan et al., 2010; Lockhart et al., 2012; Wyse Jackson et al., 2016, etc.). A population of the FPO listed and Near Threatened slender cottongrass (<i>Eriophorum gracile</i>) (Wyse Jackson et al., 2016), one of the largest in Ireland, has been recorded in the SAC, where it is common in the scraw in the northern half of Cregduff Lough (Rose, 1967; Conaghan, 1995; Conaghan and Sheehy Skeffington, 2009; NPWS internal files)
Transitional areas between fen and adjacent habitats	Hectares; distribution	Maintain adequate transitional areas to support/protect the transition mire habitat and the services it provides	In many cases, fens transition to other wetland habitats. It is important that the transitional areas between transition mire and other habitats are maintained in as natural condition as possible in order to protect the functioning of the habitat

Conservation Objectives for : Cregduff Lough SAC [001251]

1833 Slender Naiad *Najas flexilis*

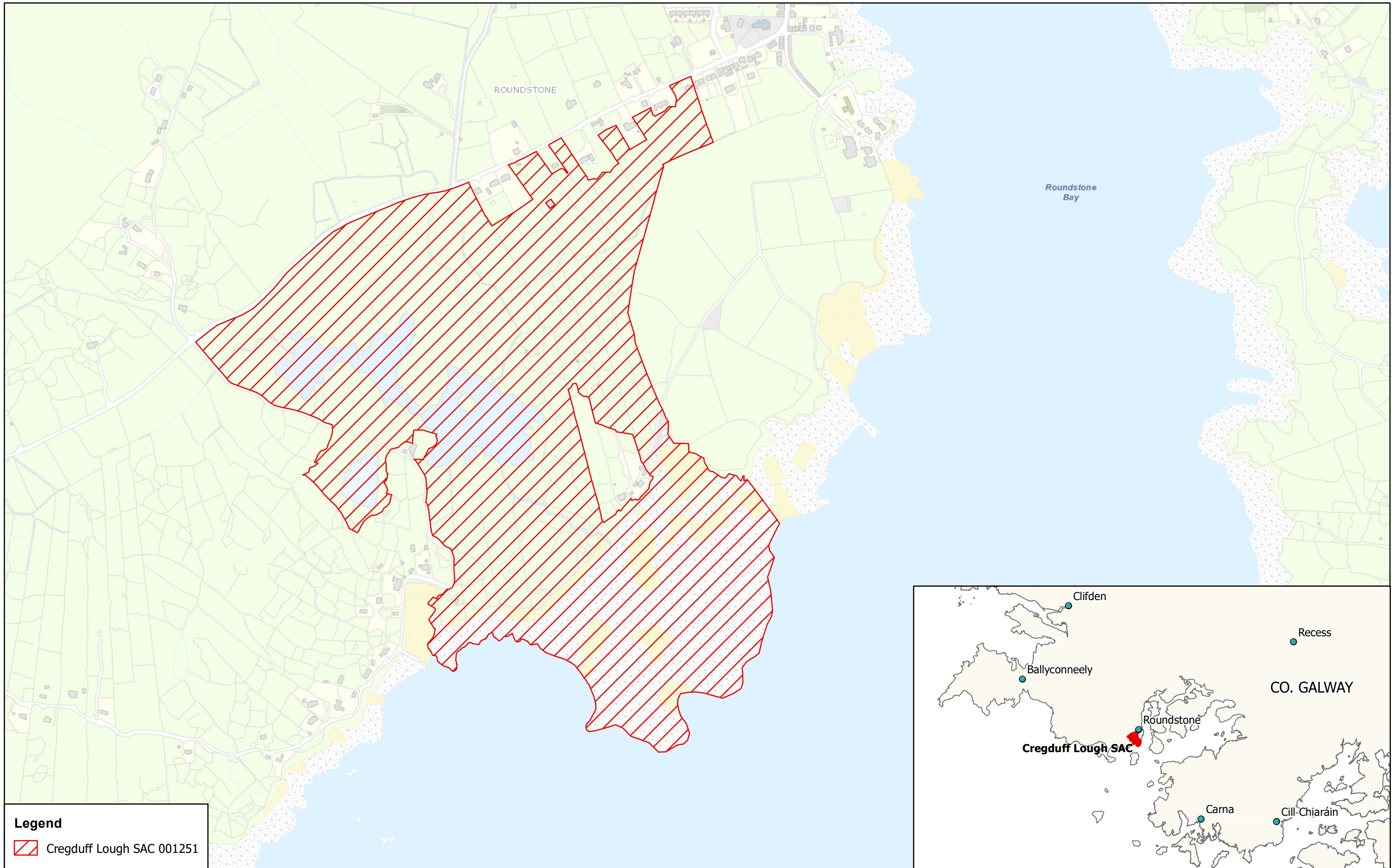
To maintain the favourable conservation condition of Slender Naiad (*Najas flexilis*) in Cregduff Lough SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population extent	Hectares: distribution	Maintain the spatial extent of slender naiad (<i>Najas flexilis</i>) within the lake, subject to natural processes	<i>Najas flexilis</i> was first recorded in Ireland by Daniel Oliver in Cregduff Lough, Co. Galway in 1850 (Oliver, 1850). It was recorded there on at least 15 occasions between 1852 and 1896, and on at least 15 more between 1907 and 1988. The most recent available record is from 2000 (Wingfield et al., 2004). Cregduff was surveyed by Heuff (1984) who found <i>Najas flexilis</i> in both deep and shallow water. The current conservation condition of <i>Najas flexilis</i> at Cregduff is not known. Open water is limited in extent and much of the former lake is covered in mats of floating vegetation. Heuff (1984) said the lake was drained. For further information on all attributes and targets, see Roden et al. (in prep.), O Connor (2013) and <i>Najas flexilis</i> conservation objective supporting documents for other SACs, for example SACs 001975 (NPWS, 2017), 001932 (NPWS, 2017) and 000365 (NPWS, 2017). For further information on the species in Ireland see also NPWS (2019)
Population depth	Metres	Maintain the depth range of <i>Najas flexilis</i> within the lake, subject to natural processes	Cregduff is a shallow lake. Heuff (1984) recorded a maximum depth of 3.4m and said ' <i>Najas flexilis</i> , a rare plant of deep water, occurs in deep and shallow water' and that it was dominant in the deepest parts. <i>Najas flexilis</i> is part of the characteristic deep-water community of lake habitat 3130 (Roden et al., in prep.). <i>Najas flexilis</i> is frequently associated with the lower depths of macrophyte growth, where scattered plants gradually give way to bare mud or silt (Preston and Croft, 2001; Roden, 2002)
Population viability	Plant traits	Maintain/restore plant fitness, subject to natural processes	Wingfield et al. (2004) used certain traits (leaf area/shoot length x reproductive number/shoot length) to assess <i>Najas flexilis</i> plant fitness and indicated a score of less than one would give rise to concern. They found that plants at Cregduff were relatively leafy but had only one seed between three plants (Wingfield et al., 2004). Cregduff plants scored below one, had the lowest fitness of any site surveyed and were assessed as at risk (Wingfield et al., 2004). Roden et al. (in prep.) suggested size measurements and photographs of the largest plants encountered may be non-destructive indicators of plant health
Population abundance	Square metres	Maintain/restore the cover abundance of <i>Najas flexilis</i> , subject to natural processes	Oliver (1852) found <i>Najas flexilis</i> 'in but sparing quantity'. R.L. Praeger said it occurred 'very sparsely in water 2 feet deep' in August 1869. The Revs E.F. and W.R. Linton observed that <i>Najas flexilis</i> occurred in 'great quantity' in August 1885 at Cregduff. Heuff (1984) stated that it was dominant in the deepest parts. C.D. Preston and N.F. Stewart 'dredged in on grapnel in quantity just offshore at NW end' of eastern-most area of open water in 1988. R. Wingfield noted it occurred in 'small quantity' in 2000. These reports suggest large inter-annual variation in abundance at Cregduff. Cover abundance is likely to vary within a lake, with depth, substratum and exposure. It may also vary inter-annually. However, there should be no sustained decline in the extent, overall size, cover abundance or density of the population in the lake


Species distribution	Occurrence	Maintain/restore distribution, subject to natural processes	The current distribution of the species in Cregduff is not known, but is likely limited by the availability of open water. Heuff (1984) investigated the south-eastern pool and recorded <i>Najas flexilis</i> there. C.D. Preston and N.F. Stewart also sampled the eastern-most open waters. R.L. Praeger found the species at the junction of the two lakes. It is unclear whether it has been recorded in the north-western lake. Given the hydrosere succession observed at Cregduff, the available habitat for <i>Najas flexilis</i> has declined over time. For further information on the species and its distribution in Ireland, see O Connor (2013), <i>Najas flexilis</i> conservation objective supporting documents for other SACs and NPWS (2019)
Habitat extent	Hectares	Maintain/restore habitat extent, subject to natural processes	Given the hydrosere succession observed at Cregduff, the available habitat for <i>Najas flexilis</i> has declined over time. Habitat for the species relates to the area and quality of the available habitat for the species. As Cregduff was last surveyed in 2000 (Wingfield et al., 2004), the current conservation condition of the species and its habitat are not known. See Roden et al. (in prep.) for further information on the species and its habitat
Vegetation distribution: maximum (euphotic) depth	Metres	Maintain/restore maximum depth of vegetation, subject to natural processes	Heuff (1984) stated that the south-eastern open water examined was shallow (maximum 3.4m), the maximum vegetation depth was 2m and <i>Najas flexilis</i> grew in shallow and deep water. In a national survey, euphotic depth ranged from 5.2m to 1.9m and the most extensive populations were found in lakes with euphotic depths >2.5m; however, several lakes with <i>Najas flexilis</i> had lower euphotic depths (Roden et al., in prep.). The target for maximum depth of vegetation colonisation (euphotic depth) was set as at least >3m (Roden et al., in prep.). Site-specific targets must be considered, however, as euphotic depths of >4m or >5m have been recorded in lakes with <i>Najas flexilis</i> in good condition
Hydrological regime: water level fluctuations	Metres	Maintain/restore appropriate natural hydrological regime necessary to support the habitat for the species	Heuff (1984) stated that Cregduff had been drained since the last OS 6 inch map survey and in 1977 it consisted of two separate pools connected by marshy ground. The hydrological regime of the lakes must be maintained so that the area, distribution and depth of the <i>Najas flexilis</i> habitats are not reduced. Groundwater inputs are likely to be important for the characteristic deep-water zone and for <i>Najas flexilis</i> (Gunn and Carvalho, 2020). See also Roden et al. (in prep.)
Lake substratum quality	Various	Maintain appropriate substratum type, extent and chemistry to support the population of the species	Heuff (1984) stated that Cregduff had unconsolidated peaty mud with undecomposed plant debris and considered that the presence of <i>Najas flexilis</i> in shallow water may have been a result of the lowering of the water table through drainage, because a fine, deep water substratum was present in the shallows and an open rocky lake shoreline was absent. Wingfield et al. (2004) measured 2.8mg/l available P in the sediment at Cregduff. <i>Najas flexilis</i> is typically found on soft substrata of mud, silt or fine sand (Preston and Croft, 2001; Roden, 2002, 2004). The sediment chemistry of <i>Najas flexilis</i> lakes is described by Wingfield et al. (2004) and Gunn and Carvalho (2020). See also Roden et al. (in prep.)

Nutrients	mg/l P; mg/l N	Maintain the concentration of nutrients in the water column at sufficiently low levels to support the population of the species	Wingfield et al. (2004) measured 0.004mg/l total phosphorus (TP) in Cregduff. <i>Najas flexilis</i> is typically associated with high water quality. This is demonstrated by naturally low dissolved nutrients, clear water and low algal growth. The species' association with mixed geology, including some base-enrichment, is well-documented (Preston and Croft, 2001; Roden, 2004; Wingfield et al., 2004). While Roden et al. (in prep.) suggested a target of <0.015mg/l TP, a precautionary target for good condition is set as ≤0.010mg/l or Water Framework Directive (WFD) High Status; however, population attributes determine the species' overall conservation condition. See also Roden et al. (in prep.)
Water colour	mg/l PtCo	Maintain/restore appropriate water colour to support the population of <i>Najas flexilis</i>	Heuff (1984) recorded transparency of only 1m and stated that the water was brown in colour. The unconsolidated peaty mud observed at Cregduff (Heuff, 1984) may indicate losses of dissolved and particulate carbon from adjacent peatland. The species is found in clear water (Roden et al., in prep.). Increased water colour (dissolved light-absorbing compounds) and turbidity decrease light penetration and can reduce the area of available <i>Najas flexilis</i> habitat, particularly at the lower euphotic depths. Roden et al. (in prep.) set good condition at <40mg/l PtCo; however, this was considered to be an impacted state some distance from reference condition. Further work is necessary to determine sustainable water colour levels for the species which may be <30 or even <20mg/l PtCo. The primary source of increased colour in Ireland is peatland disturbance, e.g. through turf-cutting, overgrazing, plantation forestry. See also Roden et al. (in prep.)
Dissolved organic carbon (DOC)	mg/l	Maintain/restore appropriate organic carbon levels to support the population of <i>Najas flexilis</i>	The unconsolidated peaty mud observed at Cregduff (Heuff, 1984) may indicate losses of dissolved and particulate carbon from adjacent peatland. Dissolved organic carbon (DOC) in the water column is linked to water colour and acidification (organic acids). It can provide a substrate (food source) for heterotrophic organisms, which can impact directly (e.g. shading) and indirectly (e.g. nutrient release) on the characteristic lake communities. Damage and degradation of peatland, e.g. through afforestation or turf-cutting, leading to decomposition of peat is likely to be the predominant source of dissolved and particulate organic carbon in Ireland
Acidification status	pH units; mg/l	Maintain/restore appropriate water and sediment pH, alkalinity and cation concentrations to support the population of <i>Najas flexilis</i> , subject to natural processes	Wingfield et al. (2004) recorded alkalinity of 17mg/l at Cregduff, and pH of 6.62, the lowest pH value of all sites surveyed. The species is associated with intermediate alkalinity, largely between 20-80mg/l, but also occurs in some lakes with lower values on Old Red Sandstone (Roden et al., in prep.). Acidification is considered a significant threat to <i>Najas flexilis</i> (Preston and Croft, 2001; Roden, 2004; Wingfield et al., 2004; Gunn and Carvalho, 2020). Wingfield et al. (2004) considered that <i>Najas flexilis</i> has rather specific environmental requirements and occupies a relatively narrow realised niche in Britain and Ireland. Groundwater may influence sediment and water chemistry and be important for <i>Najas flexilis</i> contributing base-poor water to this obligate carbon dioxide photosynthesiser in more calcareous lakes and more base-rich water to highly oligotrophic lakes. See also Roden et al. (in prep.)

Associated species	Species composition and abundance	Maintain/restore appropriate associated species and vegetation communities to support the population of <i>Najas flexilis</i>	Heuff (1984) found the submerged flora at Cregduff was dominated by <i>Potamogeton gramineus</i> , then <i>Myriophyllum alterniflorum</i> and <i>Najas flexilis</i> in the deepest water. C.D. Preston and N.F. Stewart found <i>Najas flexilis</i> with <i>Nitella translucens</i> , <i>Chara virgata</i> and <i>Myriophyllum alterniflorum</i> in 1988. Wingfield et al. (2004) found it with <i>Chara sp.</i> , <i>Elatine hexandra</i> , <i>Juncus bulbosus</i> , <i>Nuphar lutea</i> , <i>P. berchtoldii</i> , <i>P. natans</i> , <i>P. x. nitens</i> , <i>Sparganium angustifolium</i> . <i>Najas flexilis</i> is part of the characteristic and highly sensitive deep-water community of habitat 3130 that consists of some/all of <i>Callitriche hermaphroditica</i> , <i>Hydrilla verticillata</i> , <i>Najas flexilis</i> , <i>P. berchtoldii</i> , <i>P. perfoliatus</i> , <i>P. pusillus</i> , <i>Nitella confervacea</i> , <i>Nitella flexilis</i> , <i>Nitella translucens</i> (Roden et al., in prep.). See also Preston and Croft, 2001; Roden, 2004, 2007; Wingfield et al., 2004; O Connor, 2013; NPWS, 2019; Gunn and Carvalho, 2020
Fringing habitat: area and condition	Hectares	Maintain the area and condition of fringing habitats necessary to support the population of <i>Najas flexilis</i>	Much of the open water at Cregduff mapped on the O.S. 6 inch map is now covered with transition mire vegetation (see conservation objective for 7140 in this volume). This succession is partly natural, but was accelerated by drainage. The extensive transition mire in the northern part of the lake has <i>Carex lasiocarpa</i> , <i>C. rostrata</i> and one of the largest populations of the protected and Near Threatened (Wyse Jackson et al., 2016) <i>Eriophorum gracile</i> in Ireland. There is also reedswamp with <i>Phragmites australis</i> , some <i>Schoenoplectus lacustris</i> and <i>Sparganium erectum</i> . Surrounding the lake is a large area of species-rich coastal heath. Fringing habitats are an integral part of the structure and functioning of lake systems. Heterogeneous lake fringes with a range of natural and semi-natural habitats are preferable. Restoration or maintenance of open, species-rich fen, marsh and grassland can be particularly important. See also Mainstone et al. (2016)



Legend

 Cregduff Lough SAC 001251




**An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreacht**
Department of Housing,
Local Government and Heritage

**MAP 1:
CREGDUFF LOUGH SAC
CONSERVATION OBJECTIVES
SAC DESIGNATION**

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


**SITE CODE:
SAC 001251; version 3.01.
CO. GALWAY**

0 75 150 300 Metres



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 athbheithnithe a déanamh ar theorainneacha na gceantar comharthaíthe. Suirbhéarachta Ordonáis na hÉireann Ceadúnas Uimh OSI-NMA-014. © Suirbhéarachta Ordonáis na hÉireann Rialtas na hÉireann



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