

National Parks and Wildlife Service

Conservation Objectives Series

Horn Head and Rinclevan SAC 000147



NPWS

An tSeirbhís Páirceanna
Náisiúnta agus Fiadhúlra
National Parks and Wildlife
Service

**National Parks and Wildlife Service,
Department of Housing, Local Government and Heritage,
90 King Street North, Dublin 7, D07 N7CV, Ireland.
Web: www.npws.ie
E-mail: natureconservation@npws.gov.ie**

Citation:

**NPWS (2024) Conservation Objectives: Horn Head and Rinclevan SAC 000147.
Version 2. National Parks and Wildlife Service, Department of Housing, Local
Government and Heritage.**

**Series Editors: Maria Long and Colin Heaslip
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

000147	Horn Head and Rinclevan SAC
1013	Geyer's Whorl Snail <i>Vertigo geyeri</i>
1364	Grey Seal <i>Halichoerus grypus</i>
1395	Petalwort <i>Petalophyllum ralfsii</i>
1833	Slender Naiad <i>Najas flexilis</i>
2110	Embryonic shifting dunes
2120	Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)
2130	Fixed coastal dunes with herbaceous vegetation (grey dunes)*
2170	Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (Salicion arenariae)
2190	Humid dune slacks
21A0	Machairs (* in Ireland)
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea

Please note that this SAC overlaps with Horn Head to Fanad Head SPA (004194) and adjoins Ballyness Bay SAC (001090). See map 2. The conservation objectives for this site should be used in conjunction with those for overlapping and adjacent sites as appropriate. IMPORTANT: This 'Version 2' document includes 1 additional QI (3130). The conservation objectives for pre-existing QIs have not been updated.

Supporting documents, relevant reports & publications

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

NPWS Documents

Year :	1998
Title :	Biomar survey of Irish machair sites 1996
Author :	Crawford, I.; Bleasdale, A.; Conaghan, J.
Series :	Irish Wildlife Manual No. 3
Year :	2004
Title :	Harbour seal population assessment in the Republic of Ireland: August 2003
Author :	Cronin, M.; Duck, C.; O Cadhla, O.; Nairn, R.; Strong, D.; O'Keeffe, C.
Series :	Irish Wildlife Manual No. 11
Year :	2004
Title :	Summary of National Parks and Wildlife Service surveys for common (harbour) seals (<i>Phoca vitulina</i>) and grey seals (<i>Halichoerus grypus</i>), 1978 to 2003
Author :	Lyons, D.O.
Series :	Irish Wildlife Manual No. 13
Year :	2004
Title :	Aerial surveying of grey seal breeding colonies on the Blasket Islands, Co. Kerry, the Inishkea Group, Co. Mayo and the Donegal coast during the 2003 breeding season
Author :	Cronin, M.; Ó Cadhla, O.
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 :	2007
Title :	Grey seal moult population survey in the Republic of Ireland, 2007
Author :	Ó Cadhla, O.; Strong, D.
Series :	Unpublished report to NPWS
Year :	2008
Title :	An assessment of the breeding population of grey seals in the Republic of Ireland, 2005
Author :	O Cadhla, O.; Strong, D.; O'Keeffe, C.; Coleman, M.; Cronin, M.; Duck, C.; Murray, T.; Dower, P.; Nairn, R.; Murphy, P.; Smiddy, P.; Saich, C.; Lyons, D.O.; Hiby, L.
Series :	Irish Wildlife Manual No. 34
Year :	2009
Title :	Coastal Monitoring Project 2004-2006
Author :	Ryle, T.; Murray, A.; Connolly, K.; Swann, M.
Series :	Unpublished report to 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 :	2013
Title :	Monitoring survey of Annex I sand dune habitats in Ireland
Author :	Delaney, A.; Devaney, F.M.; Martin, J.M.; Barron, S.J.
Series :	Irish Wildlife Manuals, No. 75

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 :	An aerial survey of harbour seals in Ireland. Part 1: Lough Foyle to Galway Bay. August 2011
Author :	Duck, C.; Morris, C.
Series :	Unpublished report to NPWS
Year :	2014
Title :	Horn Head and Rinclevan SAC (site code: 147) Conservation objectives supporting document-coastal habitats V1
Author :	NPWS
Series :	Conservation objectives supporting document
Year :	2014
Title :	Horn Head and Rinclevan SAC (site code: 147) Conservation objectives supporting document-marine species V1
Author :	NPWS
Series :	Conservation objectives supporting document
Year :	2014
Title :	Horn Head and Rinclevan SAC (site code: 147) Conservation objectives supporting document- <i>Najas flexilis</i> V1
Author :	NPWS
Series :	Conservation objectives supporting document
Year :	2015
Title :	Habitats Directive Annex I lake habitats: a working interpretation for the purposes of site-specific conservation objectives and Article 17 reporting
Author :	O Connor, Á.
Series :	Unpublished document by NPWS
Year :	2019
Title :	The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments
Author :	NPWS
Series :	Conservation assessments
Year :	2021
Title :	A study of lakes with Slender Naiad (<i>Najas flexilis</i>)
Author :	Roden, C.; Murphy, P.; Ryan, J.B.
Series :	Irish Wildlife Manuals No. 132

Other References

Year :	1982
Title :	Eutrophication of waters. Monitoring assessment and control
Author :	OECD
Series :	OECD, Paris
Year :	1983
Title :	The grey seal (<i>Halichoerus grypus</i>) in Ireland
Author :	Summers, C.F.
Series :	Unpublished Report to the Minister for Fisheries, Forestry and Wildlife
Year :	2006
Title :	The vegetation of Irish machair
Author :	Gaynor, K.
Series :	Biology and Environment: Proceedings of the Royal Irish Academy, 106B(3): 311-321
Year :	2007
Title :	Aerial surveying of grey seal breeding colonies on the Blasket Islands, Co. Kerry, the Inishkeas group, Co. Mayo and the Donegal coast, Ireland
Author :	Cronin, M.A.; Duck, C.D.; Ó Cadhla, O.
Series :	J. Nat. Conserv. 15(2): 77-83
Year :	2008
Title :	The phytosociology and conservation value of Irish sand dunes
Author :	Gaynor, K.
Series :	Unpublished Ph.D. Thesis, National University of Ireland, Dublin
Year :	2013
Title :	Conservation of selected legally protected and Red Listed bryophytes in Ireland
Author :	Campbell, C.
Series :	Unpublished Ph.D. Thesis, Trinity College Dublin
Year :	2016
Title :	A narrative for conserving freshwater and wetland habitats in England
Author :	Mainstone, C.; Hall, R.; Diack, I.
Series :	Natural England Research Reports Number 064
Year :	2020
Title :	Slender Naiad (<i>Najas flexilis</i>) habitat quality assessment
Author :	Gunn, I.D.M.; Carvalho, L.
Series :	CRW2018_27. Scotland's Centre of Expertise for Waters (CREW)

Spatial data sources

Year :	2009
Title :	Coastal Monitoring Project 2004-2006. Version 1
GIS Operations :	QIs selected; clipped to SAC boundary; overlapping regions with Saltmarsh CO data investigated and resolved with expert opinion used
Used For :	2110, 2120, 2130, 2170, 2190, 21A0 (map 3)
Year :	2013
Title :	Sand Dune Monitoring Project 2011. Version 1
GIS Operations :	QIs selected; clipped to SAC boundary; overlapping regions with Saltmarsh CO data investigated and resolved with expert opinion used
Used For :	2110, 2120, 2130, 2170, 2190, 21A0 (map 3)
Year :	2014
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, 1364, 1395 (maps 4 and 5)
Year :	2005
Title :	OSi Discovery series vector data
GIS Operations :	High Water Mark (HWM) polyline feature class converted into polygon feature class; clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
Used For :	1364 (map 5)
Year :	2013
Title :	<i>Najas flexilis</i> data
GIS Operations :	Lake habitat for species clipped to SAC boundary
Used For :	1833 (map 6)

2110 Embryonic shifting dunes

To maintain the favourable conservation condition of Embryonic shifting dunes in Horn Head and Rinclevan 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, including erosion and succession. For sub-site mapped: Dunfanaghy - 0.39ha. See map 3	Based on data from the Coastal Monitoring Project (CMP) (Ryle et al., 2009) and Sand Dunes Monitoring Project (SDM) (Delaney et al., 2013). Habitat is very difficult to measure in view of its dynamic nature. Recorded at one sub-site, giving a total estimated area of 0.39ha
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 3 for known distribution	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Embryo dunes were absent from Rinclevan sub-site. See coastal habitats supporting document for further details
Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Dunes are naturally dynamic systems that require continuous supply and circulation of sand. At Dunfanaghy, there is a rock armour wall which protects the golf course at the most easterly end of the beach. See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from Ryle et al. (2009) and Delaney et al. (2013). A range of coastal habitats occur at both sub-sites. The sand dune habitats grade into saltmarsh at Dunfanaghy. See coastal habitats supporting document for further details
Vegetation composition: plant health of foredune grasses	Percentage cover	More than 95% of sand couch grass (<i>Elytrigia juncea</i>) and/or lyme grass (<i>Leymus arenarius</i>) should be healthy (i.e. green plant parts above ground and flowering heads present)	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain the presence of species-poor communities with typical species: sand couch grass (<i>Elytrigia juncea</i>) and/or lyme grass (<i>Leymus arenarius</i>)	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-native species) to represent less than 5% cover	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat. Sea-buckthorn (<i>Hippophae rhamnoides</i>) should be absent or effectively controlled. See coastal habitats supporting document for further details

Conservation Objectives for : Horn Head and Rinclevan SAC [000147]

2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes)

To maintain the favourable conservation condition of Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes') in Horn Head and Rinclevan 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 including erosion and succession. For sub-sites mapped: Rinclevan - 4.08ha; Dunfanaghy - 1.09ha. See map 3	Habitat was mapped during the Coastal Monitoring Project (CMP) (Ryle et al., 2009) and Sand Dunes Monitoring Project (SDM) (Delaney et al., 2013) at two sub-sites to give a total estimated area of 5.18ha. Habitat is very difficult to measure in view of its dynamic nature. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes. See map 3 for known distribution	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Shifting dunes were recorded from both sub-sites. See coastal habitats supporting document for further details
Physical structure: functionality and sediment supply	Presence/ absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Dunes are naturally dynamic systems that require continuous supply and circulation of sand. Marram grass (<i>Ammophila arenaria</i>) reproduces vegetatively and requires constant accretion of fresh sand to maintain active growth encouraging further accretion. At Rinclevan there was no substantial accreting of fore dune development. At Dunfanaghy there is good development of fore dunes, however in some areas they are discontinuous as a result of trampling and overuse which has led to erosion. See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from Gaynor (2008), Ryle et al. (2009) and Delaney et al. (2013). A range of coastal habitats occur at both Rinclevan and Dunfanaghy. The sand dune habitats grade into a small area of saltmarsh at Dunfanaghy. See coastal habitats supporting document for further details
Vegetation composition: plant health of dune grasses	Percentage cover	95% of marram grass (<i>Ammophila arenaria</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy (i.e. green plant parts above ground and flowering heads present)	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain the presence of species-poor communities dominated by marram grass (<i>Ammophila arenaria</i>) and/or lyme-grass (<i>Leymus arenarius</i>)	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Negative indicators include non-native species; species indicative of changes in nutrient status and species not considered characteristic of the habitat. Sea-buckthorn (<i>Hippophae rhamnoides</i>) should be absent or effectively controlled. At Rinclevan, sea-buckthorn (<i>Hippophae rhamnoides</i>) was recorded while bracken (<i>Pteridium aquilinum</i>) was noted at Dunfanaghy by the Ryle et al. (2009). See coastal habitats supporting document for further details

Conservation Objectives for : Horn Head and Rinclevan SAC [000147]

2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)*

To maintain the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation ('grey dunes') in Horn Head and Rinclevan 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 including erosion and succession. For sub-sites mapped: Rinclevan-277.75ha; Dunfanaghy - 14.58ha. See map 3	Based on data from the Coastal Monitoring Project (CMP) (Ryle et al., 2009) and the Sand Dunes Monitoring Project (SDM) (Delaney et al., 2013). Habitat was recorded from two sub-sites, giving a total estimated area of 292.33ha. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes. See map 3 for known distribution	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
Physical structure: functionality and sediment supply	Presence/ absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	Physical barriers can lead to fossilisation or over-stabilisation of dunes, as well as beach starvation resulting in increased rates of erosion. At Dunfanaghy there is a rock armour wall which protects a golf course. See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from Ryle et al. (2009) and Delaney et al. (2013). A range of coastal habitats occur at both Rinclevan and Dunfanaghy. At Dunfanaghy, the sand dune habitats grade into a small area of saltmarsh. See coastal habitats supporting document for further details
Vegetation structure: bare ground	Percentage cover	Bare ground should not exceed 10% of fixed dune habitat, subject to natural processes	Based on data from Gaynor (2008), Ryle et al. (2009) and Delaney et al. (2013). Petalwort (<i>Petalophyllum ralfsii</i>), a species that favours open conditions, is a qualifying interest for the SAC. See the conservation objective for this species (1395) as well as the coastal habitats supporting document for further details
Vegetation structure: sward height	Centimetres	Maintain structural variation within sward	Based on data from Gaynor (2008), Ryle et al. (2009) and Delaney et al. (2013). At Rinclevan the fixed dunes are overgrazed by both sheep and cattle. A sizable portion of the northern half of the dunes are owned by NPWS and the maintenance of a controlled grazing regime in this area is part of a management plan for the dunes. At Dunfanaghy the fixed dunes are undergrazed. See coastal habitats supporting document for further details
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain range of sub-communities with typical species listed in Delaney et al. (2013)	Based on data from Ryle et al. (2009), Delaney et al. (2013) and Gaynor (2008). At Rinclevan, petalwort (<i>Petalophyllum ralfsii</i>) is recorded at the southern end of the dune system (see also the conservation objective for this species (1395). Lesser meadow rue (<i>Thalictrum minus</i>) was recorded in the fixed dunes at Rinclevan. See coastal habitats supporting document for further details.
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat. Sea-buckthorn (<i>Hippophae rhamnoides</i>) should be absent or effectively controlled. At Rinclevan, a large stand of sea-buckthorn (<i>Hippophae rhamnoides</i>) was recorded in the eastern end of the site. At Dunfanaghy, Ryle et al. (2009) estimated that 70% of the fixed dune habitat was covered in bracken (<i>Pteridium aquilinum</i>). See coastal habitats supporting document for further details

Vegetation composition: scrub/trees	Percentage cover	No more than 5% cover or under control	Based on data from Ryle et al. (2009) and Delaney et al. (2013). At Dunfanaghy, Ryle et al. (2009) noted the presence of scattered hawthorn (<i>Crataegus monogyna</i>) and willow (<i>Salix</i> sp.) bushes in the dunes, as well as bramble (<i>Rubus fruticosus</i>). See coastal habitats supporting document for further details
-------------------------------------	------------------	--	--

Conservation Objectives for : Horn Head and Rinclevan SAC [000147]

2170 Dunes with *Salix repens* ssp. *argentea* (Salicion arenariae)

To restore the favourable conservation condition of Dunes with *Salix repens* ssp. *argentea* (Salicion arenariae) in Horn Head and Rinclevan 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, including erosion and succession. For sub-site mapped: Rinclevan - 9.04ha. See map 3	Based on data from the Coastal Monitoring Project (CMP) (Ryle et al., 2009) and the Sand Dunes Monitoring Project (SDM) (Delaney et al., 2013). Habitat was recorded from one sub-site, giving a total estimated area of 9.04ha. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 3 for known distribution	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
Physical structure: functionality and sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	Physical barriers can lead to fossilisation or over-stabilisation of dunes, as well as beach starvation resulting in increased rates of erosion. See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
Vegetation structure: bare ground	Percentage cover	Bare ground should not exceed 10% cover, subject to natural processes	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward	Based on data from Gaynor (2008), Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain range of sub-communities with typical species listed in Delaney et al. (2013)	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
Vegetation composition: cover and height of <i>Salix repens</i>	Percentage cover; centimetres	Maintain more than 10% cover of creeping willow (<i>Salix repens</i>); vegetation height should be in the average range 5 - 20cm	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Cover of creeping willow (<i>Salix repens</i>) is maintained through an appropriate grazing regime, which prevents the development of a coarse, rank vegetation cover. See coastal habitats supporting document for further details
Vegetation composition: negative indicator species	Percentage cover at a representative number of monitoring stops	Negative indicator species (including non-natives) to represent less than 5% cover	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat. Sea-buckthorn (<i>Hippophae rhamnoides</i>) should be absent or effectively controlled. At Rinclevan, a large stand of Sea-buckthorn (<i>Hippophae rhamnoides</i>) was recorded in the eastern end of the site. See coastal habitats supporting document for further details
Vegetation composition: scrub/trees	Percentage cover	For trees and scrub other than creeping willow (<i>Salix repens</i>), there should be no more than 5% cover, or their presence should be under control	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details

Conservation Objectives for : Horn Head and Rinclevan SAC [000147]

2190 Humid dune slacks

To maintain the favourable conservation condition of Humid dune slacks in Horn Head and Rinclevan 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 including erosion and succession. For sub-sites mapped: Rinclevan - 42.57ha See map 3	Based on data from the Coastal Monitoring Project (CMP) (Ryle et al., 2009) and Sand Dunes Monitoring Project (SDM) (Delaney et al., 2013). Habitat was mapped at one sub-site, giving a total estimated area of 42.57ha. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 3	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details.
Physical structure: functionality and sediment supply	Presence/ absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	Physical barriers can lead to fossilisation or over-stabilisation of dunes, as well as beach starvation, resulting in increased rates of erosion. See coastal habitats supporting document for further details
Physical structure: hydrological and flooding regime	Water table levels; groundwater fluctuations (metres)	Maintain natural hydrological regime	Based on data from Gaynor (2008), Ryle et al. (2009) and Delaney et al. (2013). At Rinclevan, the dune slack site area in the southern half of the dunes is one of the largest slack systems in the country and it is mostly intact and undamaged. See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from Ryle et al. (2009) and Delaney et al. (2013). A range of coastal habitats occur at both Rinclevan and Dunfanaghy. See coastal habitats supporting document for further details
Vegetation structure: bare ground	Percentage cover	Bare ground should not exceed 5% of dune slack habitat, with the exception of pioneer slacks which can have up to 20% bare ground	Based on data from Gaynor (2008), Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward	Based on data from Gaynor (2008), Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain range of sub-communities with typical species listed in Delaney et al. (2013)	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
Vegetation composition: cover of <i>Salix repens</i>	Percentage cover; centimetres	Maintain less than 40% cover of creeping willow (<i>Salix repens</i>)	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Cover of creeping willow (<i>Salix repens</i>) needs to be controlled (e.g. through an appropriate grazing regime) to prevent the development of a coarse, rank vegetation cover. Creeping willow (<i>Salix repens</i>) occurs constantly within the dune slack habitat at Rinclevan. See coastal habitats supporting document for further details
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat. Sea-buckthorn (<i>Hippophae rhamnoides</i>) should be absent or effectively controlled. At Rinclevan, a large stand of sea-buckthorn (<i>Hippophae rhamnoides</i>) was recorded in the eastern end of the site. See coastal habitats supporting document for further details

Vegetation composition: scrub/trees	Percentage cover	No more than 5% cover or under control	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
-------------------------------------	------------------	--	---

Conservation Objectives for : Horn Head and Rinclevan SAC [000147]

21A0 Machairs (* in Ireland)

To restore the favourable conservation condition of Machairs in Horn Head and Rinclevan 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 including erosion and succession. For sub-site mapped: Rinclevan - 41.32ha. See map 3	Based on data from the Coastal Monitoring Project (CMP) (Ryle et al., 2009) and the Sand Dunes Monitoring Project (SDM) (Delaney et al., 2013). Habitat was recorded from one sub-site, giving a total estimated area of 41.32ha. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 3	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
Physical structure: functionality and sediment supply	Presence/ absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
Physical structure: hydrological and flooding regime	Water table levels; groundwater fluctuations (metres)	Maintain natural hydrological regime	Based on data from Ryle et al. (2009), Delaney et al. (2013), Crawford et al. (1996) and Gaynor (2006). See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from Ryle et al. (2009) and Delaney et al. (2013). A range of coastal habitats occur at Dunfanghy and Rinclevan. See coastal habitats supporting document for further details
Vegetation structure: bare ground	Percentage cover	Bare ground should not exceed 10% of Machair habitat, subject to natural processes	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
Vegetation structure: sward height	Centimeters	Maintain structural variation within sward.	Based on data from Ryle et al. (2009) and Delaney et al. (2013). The machair at Rinclevan is overgrazed by sheep at Pollaguill Bay. See coastal habitats supporting document for further details
Vegetation composition: typical species and sub-communities	Percentage cover at a representative number of monitoring stops	Maintain range of sub-communities with typical species listed in Delaney et al. (2013)	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details
Vegetation composition: negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cover	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat. See coastal habitats supporting document for further details
Vegetation composition: scrub/trees	Percentage cover	No more than 5% cover or under control	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details.
Vegetation composition: bryophytes	Percentage cover	Should always be at least an occasional component of the vegetation	Based on data from Ryle et al. (2009) and Delaney et al. (2013). See coastal habitats supporting document for further details

Conservation Objectives for : Horn Head and Rinclevan SAC [000147]

3130 Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoetes-Nanojuncetea

To maintain the Favourable conservation condition of Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoetes-Nanojuncetea in the Horn Head and Rinclevan 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	Habitat 3130 is found in Port Lough (Loch an Phoirt) and was assessed as in Good conservation condition in 2016, but changes noted since 2004 were of concern (Roden et al., 2021). Habitat 3130 occurs in clear-water lakes of intermediate alkalinity where <i>Isoetes lacustris</i> and <i>Potamogeton perfoliatus/praelongus</i> co-occur and is characterised by high species-richness and a deep-water flora that can include <i>Najas flexilis</i> (Roden et al., 2021). Habitat 3130 was in Poor, deteriorating Conservation Status across Ireland in the two reporting periods, 2007-2018 (NPWS, 2013, 2019). Most lakes with 3130 appear to be damaged and high conservation value 3130 lakes in Good condition are extremely rare (Roden et al., 2021). Lake surface area is the simplest measure of extent and should be stable or increasing. See map 6. For further information, see Roden et al. (2021) and the lake habitats supporting document for <i>Najas flexilis</i>
Habitat distribution	Occurrence	No decline, subject to natural processes	At Horn Head and Rinclevan SAC, habitat 3130 is found at Port Lough, on Dalradian marble and schist. The habitat was described by Roden et al. (2021) as 'of exceptional conservation value', ranking second in conservation importance of all lakes studied, however the appearance of abundant, large plants of Canadian Pondweed <i>Elodea canadensis</i> between 2004 and 2016, and presence of blackened charophyte remains in 2016 were of concern. Previous surveys of Port Lough include Stewart and Preston in 1989, Stewart in 1991 and Roden in 2004 (Roden et al., 2021). See also the conservation objective for Slender Naiad <i>Najas flexilis</i> in this volume and the <i>Najas flexilis</i> conservation objective supporting document for the SAC for information relating to all attributes and targets
Vegetation species richness	Occurrence	Maintain appropriate species richness	Roden et al. (2021) recorded a diverse flora at Port Lough with many species more typical of base-rich water, and listed 31 aquatic plants. N.F. Stewart (pers. comm.) collated records for nine additional marginal and aquatic taxa at the lake. Notable species at Port Lough include <i>Callitriche hermaphrodita</i> , <i>Chara curta</i> , <i>Najas flexilis</i> and <i>Nitella confervacea</i> . <i>Elodea canadensis</i> was first recorded in Port Lough in 2016, when it had high abundance of large plants, and had suppressed a very unusual vegetation of <i>Najas flexilis</i> and <i>Callitriche hermaphrodita</i> growing between <i>Chara</i> hummocks (Roden et al., 2021). Habitat 3130 has a varied and species-rich flora, with high conservation value examples having >30 species of aquatic macrophytes (Roden et al., 2021). Almost all lakes with more than 30 species had euphotic depth >3m and the target is for the number of species to be stable or increasing (Roden et al., 2021)

Vegetation composition: typical species	Occurrence	Maintain typical species, in good condition, and demonstrating typical abundances and distribution	Habitat 3130 has a varied and species-rich flora with several rare typical species (Roden et al., 2021). In 2016, Port Lough had a stable <i>Najas flexilis</i> population and 11 typical indicator species (Roden et al., 2021). The indicator species recorded were <i>Littorella uniflora</i> , <i>Lobelia dortmanna</i> , <i>Myriophyllum alterniflorum</i> , <i>Isoetes lacustris</i> , <i>Callitriche hermaphroditica</i> , <i>Chara virgata</i> , <i>Nitella translucens</i> , <i>Potamogeton berchtoldii</i> , <i>Potamogeton perfoliatus</i> , <i>Najas flexilis</i> and <i>Nitella confervacea</i> , the last two being high quality indicators (Roden et al., 2021). The targets are: 1) a stable <i>Najas flexilis</i> population, 2) at least nine indicator species, 3) one or more high quality indicator species (Roden et al., 2021) and 4) to maintain condition and extent of typical species. See NPWS (2013, 2019), O Connor (2015) and <i>Najas flexilis</i> targets
Vegetation composition: characteristic zonation	Occurrence	Maintain characteristic deep-water vegetation	In 2016, there was full development of the characteristic deep-water vegetation at Port Lough: below 1m, the flora was diverse and included <i>Isoetes lacustris</i> , <i>Najas flexilis</i> , pondweeds and charophytes (Roden et al., 2021). The characteristic zonation (3 or more zones) is described in Roden et al. (2021). Shallow water (0-1.5m) has a <i>Lobelia-Littorella</i> zone, then an <i>Isoetes</i> zone (0.5-3m), both also typical of oligotrophic lakes (habitat 3110). The characteristic deep water community is the most sensitive element and consists of some or all of <i>Callitriche hermaphroditica</i> , <i>Hydrilla verticillata</i> , <i>Najas flexilis</i> , <i>Potamogeton berchtoldii</i> , <i>P. perfoliatus</i> , <i>P. pusillus</i> , <i>Nitella confervacea</i> , <i>Nitella flexilis</i> , <i>Nitella translucens</i> . Full development is when a distinct deep water zone is present, with one or more of its typical species having >25% cover. More alkaline 3130 lakes, such as Port Lough, also have stonewort and pondweed communities
Vegetation distribution: maximum (euphotic) depth	Metres	Maintain maximum depth of vegetation, subject to natural processes	The target for Port Lough is set as at least 5m. Maximum depth of vegetation or euphotic depth was 5m in Port Lough in 2016 (Roden et al., 2021). <i>Najas flexilis</i> , pondweeds and <i>Nitella</i> spp. were common at the base of the euphotic zone, however the widespread co-occurrence of <i>Elodea canadensis</i> was concerning, as was the noticeable deposit of blackened charophyte remains (Roden et al., 2021). Maximum depth of colonisation (euphotic depth) ranged from 5.5m to <2m in lakes surveyed from 2016-2018 and the target in 3130 lakes was set as at least 3m (Roden et al., 2021). Euphotic depth of >4m or >5m has been recorded in species-rich 3130 lakes in good condition and is considered to have declined in many lakes, owing to increased water colour. Lakes within undisturbed peatland are expected to have clear water and large maximum vegetation depth
Hydrological regime: water level fluctuations	Metres	Maintain appropriate hydrological regime necessary to support the habitat	Roden et al. (2021) found that, in summer, the <i>Lobelia-Littorella</i> zone is typically submerged and if more than half is exposed it is of concern, and water level should never be lower than the top of the <i>Isoetes</i> zone. Fluctuations in lake water level are typical in Ireland, but can be amplified by activities such as abstraction, drainage and over-grazing. Increased water level fluctuations can increase wave action, up-root vegetation, increase turbidity, alter the substratum and lead to release of nutrients from the sediment. Groundwater inputs are likely to be important for the characteristic deep-water zone and <i>Najas flexilis</i> (Gunn and Carvalho, 2020), and for the communities with <i>Chara</i> spp. in lakes such as Port Lough. The hydrological regime of the lake must be maintained so that the area, distribution and depth of the lake habitat and its constituent/characteristic vegetation zones and communities are not reduced

Lake substratum quality	Various	Maintain appropriate substratum type, extent and chemistry to support the vegetation	Gravel, fine mud and bedrock were recorded in Port Lough in 2016, and silt was dominant below 1m (Roden et al., 2021). Roden (2004) said 'the bottom is a fine reddish mud'. The high abundance of large <i>Elodea canadensis</i> plants in deep water in Port Lough in 2016 may indicate enrichment of the substratum with nutrients and organic matter. Roden et al. (2021) found that habitat 3130 is generally dominated by bedrock, sand and loose stones, silt mud or hard peat, and said that the appearance of large expanses of unconsolidated peat would indicate excessive sediment input. Groundwater inputs are likely to be important for the substratum of the characteristic deep-water zone and <i>Najas flexilis</i> (Gunn and Carvalho, 2020) and for the communities with <i>Chara</i> spp. in lakes such as Port Lough. Research is required to further characterise the chemical composition of the substratum
pH and alkalinity	pH units, mg/l	Maintain appropriate water and sediment pH, alkalinity and cation concentrations to support the habitat, subject to natural processes	Port Lough had pH 7.5 and alkalinity 36mg/l in February 2019 (Roden et al., 2021). The habitat is associated with intermediate alkalinity, largely between 20-80mg/l but lower values may occur on Old Red Sandstone (ORS) (Roden et al., 2021). Surveyed lakes had average alkalinity of 25mg/l (range 5.5-73mg/l) (Roden et al., 2021). In line with targets for <i>Najas flexilis</i> , median pH values should be greater than 7 pH units. Groundwater may influence sediment and water chemistry and be important for <i>Najas flexilis</i> and other characteristic flora, contributing base-poor water to obligate carbon dioxide photosynthesisers in more calcareous lakes and more base-rich water to highly oligotrophic lakes (ORS). Acidification by organic acids released from degraded peatland and conifer plantations may impact on the habitat. See also The European Communities Environmental Objectives (Surface Waters) (Amendment) Regulations 2019
Nutrients	mg/l P or mg/l N	Restore the concentration of nutrients in the water column to sufficiently low levels to support the habitat and its typical species	Roden et al. (2021) reported a total phosphorus (TP) concentration of 0.028mg/l at Port Lough, based on a single sample taken in February 2019. Roden et al. (2021) noted that the best quality lakes surveyed had average TP of <0.015mg/l. Lakes in Good condition with high-frequency nutrient data had an overall average of 0.01mg/l TP (lake averages ranged 0.008-0.015mg/l TP). While Roden et al. (2021) suggested a target of <0.015mg/l TP, the target for Good condition is set as an average of ≤0.010mg/l or WFD High Status, however vegetation attributes determine the overall conservation condition. See also the <i>Najas flexilis</i> supporting document for the SAC and The European Communities Environmental Objectives (Surface Waters) (Amendment) Regulations 2019. WFD High Status targets for total ammonia (annual average ≤0.04mg/l N and annual 95th percentile ≤0.09mg/l N) may also be appropriate

Water colour	mg/l PtCo	Restore appropriate water colour to support the habitat	Water colour in Port Lough was 68mg/l Platinum-Cobalt Scale (PtCo) on 5 February 2019 (Roden et al., 2021). The habitat is found in clear water. Water colour (dissolved light-absorbing compounds that impact on light penetration) is negatively correlated with max vegetation (euphotic) depth: lakes with euphotic depth >3m had colour <40mg/l PtCo, while those with euphotic depth >3.5m had colour <35mg/l PtCo (Roden et al., 2021). Lakes with high colour had fewer species and smaller populations of <i>Najas flexilis</i> . Roden et al. (2021) set Good condition at <40mg/l PtCo, however this was considered to be an impacted state some distance from reference condition. The primary source of increased colour in Ireland is peatland disturbance, e.g. through turf-cutting, over-grazing, plantation forestry. Further work is necessary to determine water colour in intact peatland catchments and sustainable levels for the habitat, which may be <30mg/l PtCo or even <20mg/l PtCo
Dissolved organic carbon (DOC)	mg/l	Maintain/restore appropriate organic carbon levels to support the habitat	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. The high colour recorded in Port Lough in February 2019 may have indicated high DOC from catchment sources. Roden et al. (2021) noted elevated water colour in winter was common in study lakes, but could not characterise the natural seasonal patterns
Turbidity	Nephelometric turbidity units/mg/l SS/other appropriate unit	Maintain appropriate turbidity to support the habitat	Turbidity can significantly affect the quantity and quality of light reaching rooted and attached vegetation and can, therefore, impact on lake habitats. The settlement of higher loads of inorganic or organic material on lake vegetation communities may also have impacts on sensitive species. Turbidity can increase as a result of re-suspension of material within the lake, higher loads of fine particulate matter entering the lake, or eutrophication. Particulate loads from peatlands are the most likely sources of increased turbidity in lakes with the habitat. Turbidity measurement and interpretation is challenging. As a result, it is likely to be difficult to set habitat-specific targets for turbidity in lakes
Transparency	Metres	Maintain appropriate Secchi transparency. There should be no decline in Secchi depth/transparency	Roden et al. (2021) reported a Secchi depth of 3m in Port Lough in August 2016 and high water colour in February 2019. Roden (2004) described it as a clear water lough. Transparency relates to light penetration and, hence, to the depth of colonisation of vegetation. Roden et al. (2021) advised it is preferable to measure euphotic depth directly by observation, but noted that a decreasing trend in Secchi depth indicates declining water quality. Transparency can be affected by phytoplankton blooms, water colour and turbidity. The OECD fixed boundary system (OECD, 1982) set transparency targets for oligotrophic lakes of ≥6m annual mean Secchi disk depth and ≥3m annual minimum Secchi disk depth

Attached algal biomass	Algal cover	Maintain trace/absent attached algal biomass (<5% cover)	Filamentous algae were not recorded in Port Lough in 2016 (Roden et al., 2021). Nutrient enrichment can favour epiphytic and epipelagic algae that can out-compete the submerged vegetation. Roden et al. (2021) noted that occasional blooms of filamentous algae occur in 3130 lakes in the absence of excess nutrients, especially species of the orders Zygnematales or Oedogoniales, but that drifting masses of <i>Cladophora</i> species may indicate a decline in water quality. In general, the cover abundance of attached algae in lakes with 3130 should be trace/absent (<5% cover)
Fringing habitat: area and condition	Hectares	Maintain/restore the area and condition of fringing habitats necessary to support the natural structure and functioning of habitat 3130	Much of the shoreline of Port Lough is bedrock or large boulders with sparse vegetation, although a very dense <i>Phragmites</i> bed occurs in the southern arm (Roden et al., 2021). It is fringed by some areas of semi-natural grassland, woodland and scrub, but mainly with more intensively used agricultural land. 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. Fringing habitats along lakes intergrade with and support the structure and functions of the lake habitat. Equally, fringing wetland habitats are dependent on the lake, particularly its water levels, and support invertebrate and plant communities and species of high diversity and conservation concern. See also Mainstone et al. (2016)

Conservation Objectives for : Horn Head and Rinclevan SAC [000147]

1013 Geyer's Whorl Snail *Vertigo geyeri*

To maintain the favourable conservation condition of Geyer's Whorl Snail in Horn Head and Rinclevan SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution: occupied sites	Number	No decline. There is one known site for this species in this SAC, which overlaps three 1km squares C0038, C0039 and B9938. See map 4	The site comprises suitable habitat on the south side of the valley of the Polaguill Burn and specifically runnels and small streams which drain the south side of the valley. From Moorkens and Killeen (2011) (site code VgCAM14)
Distribution in habitat patches	Occurrence	Adults or sub-adult snails present in at least two samples (out of a minimum of four) taken from discrete areas of suitable habitat	From Moorkens and Killeen (2011)
Presence on transect	Occurrence	Adult or sub-adult snails are present in at least two of the four samples taken from optimal or sub-optimal habitat on the transect	Transect established as part of condition assessment monitoring at this site (Moorkens and Killeen, 2011). See habitat extent attribute below for definition of optimal and sub-optimal habitat
Transect habitat quality	Metres	18m of habitat along the transect is classed as optimal or sub-optimal and there are five zones of habitat along the transect classed as optimal or sub-optimal	From Moorkens and Killeen (2011). See habitat extent attribute below for definition of optimal and sub-optimal habitat
Transect optimal wetness	Metres	Soils, at time of sampling, are damp (optimal wetness) and covered with a layer of humid thatch for 18m of the transect	From Moorkens and Killeen (2011)
Habitat extent	Hectares	At least 4ha of optimal habitat with a further 6ha supporting some sub-optimal habitat	Optimal habitat is defined as flushed fen grassland with sward lawns 10-30cm tall, (or on the transect, runnels), stony ground with tufa, containing species such as yellow sedge (<i>Carex viridula</i>), marsh horsetail (<i>Equisetum palustre</i>), jointed rush (<i>Juncus articulatus</i>), common butterwort (<i>Pinguicula vulgaris</i>), black bog-rush (<i>Schoenus nigricans</i>) and the mosses <i>Drepanocladus revolvens</i> and <i>Campyllum stellatum</i> . The water table should be between 0 and 5cm of the soil surface, but not above ground level. Sub-optimal grassland is defined as having same vegetation composition as above or including purple moorgrass (<i>Molinia caerulea</i>) and rushes (<i>Juncus</i> spp.), but either vegetation height is less than 5cm or greater than 30cm; or the water table is below 5cm or ground is flooded; or there are extensive areas of bare ground. From Moorkens and Killeen (2011)

Conservation Objectives for : Horn Head and Rinclevan SAC [000147]**1364****Grey Seal *Halichoerus grypus***

To maintain the favourable conservation condition of Grey Seal in Horn Head and Rinclevan SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Access to suitable habitat	Number of artificial barriers	Species range within the site should not be restricted by artificial barriers to site use	See marine supporting document for further details
Breeding behaviour	Breeding sites	Conserve the breeding sites in a natural condition. See map 5 for known sites	Attribute and target based on background knowledge of Irish breeding populations, a preliminary survey in 2003 (Cronin and Ó Cadhla, 2004; Cronin et al., 2007), comprehensive breeding surveys in 2005 (Ó Cadhla et al., 2008) and unpublished NPWS records including those reported by Summers (1983) and Lyons (2004). See marine supporting document for further details
Moulting behaviour	Moult haul-out sites	Conserve the moult haul-out sites in a natural condition	Attribute and target based on background knowledge of Irish populations, on review of data from Lyons (2004), a national moult survey (Ó Cadhla and Strong, 2007) and unpublished NPWS records. See marine supporting document for further details
Resting behaviour	Resting haul-out sites	Conserve the resting haul-out sites in a natural condition. See map 5 for known sites	Attribute and target based on review of data from Lyons (2004), Cronin et al. (2004), Duck and Morris (2013) and unpublished NPWS records. See marine supporting document for further details
Population composition	Number of cohorts	The grey seal population occurring within this site should contain adult, juvenile and pup cohorts annually	Attribute and target based on review data from Lyons (2004), Ó Cadhla et al. (2007), Ó Cadhla and Strong (2007) and unpublished NPWS records. See marine supporting document for further details
Disturbance	Level of impact	Human activities should occur at levels that do not adversely affect the grey seal population at the site	See marine supporting document for further details

Conservation Objectives for : Horn Head and Rinclevan SAC [000147]

1395 Petalwort *Petalophyllum ralfsii*

To maintain the favourable conservation condition of Petalwort in Horn Head and Rinclevan SAC, which is defined by the following list of attributes and targets:

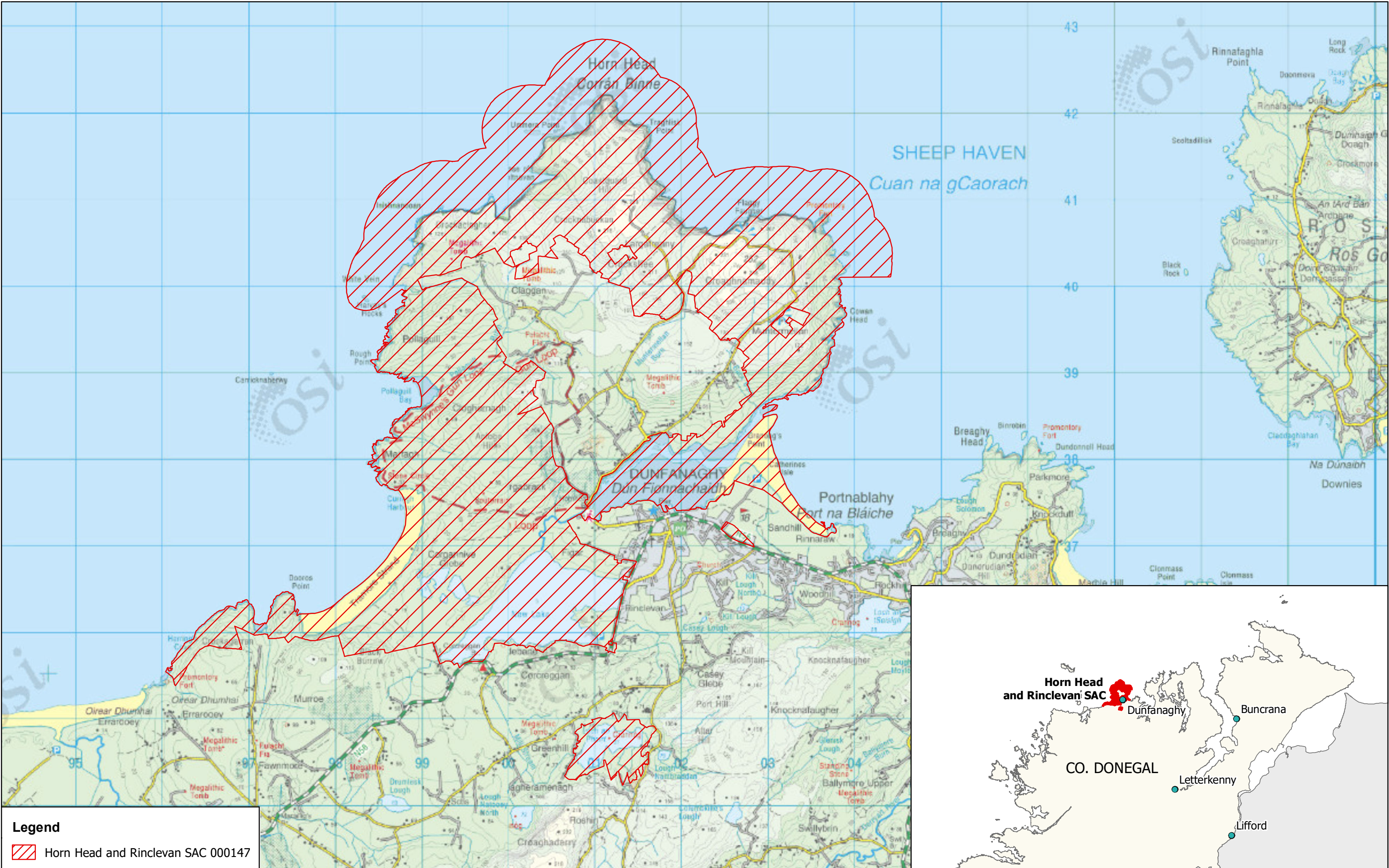
Attribute	Measure	Target	Notes
Distribution of populations	Number and geographical spread of populations	No decline. See map 4 for recorded location	The population occurs in carpet of low mosses on thin, damp sandy soil overlying more or less horizontal rock on top of low rocky knoll above sand beach and near dunes at Tramore/Black Burrow/SW of Dunfanaghy. Data from 2002 NPWS survey
Population size	Number of individuals	No decline. The population is estimated at a minimum of 3 thalli	Three thalli were counted in 2002
Area of suitable habitat	Hectares	No decline. Area of suitable habitat at Tramore/Black Burrow/SW of Dunfanaghy is estimated at c.0.000006ha	The area of occupancy is estimated to be 0.06 m ² . Therefore the area of suitable habitat is estimated 0.000006ha
Hydrological conditions: soil moisture	Occurrence of damp soil conditions	Maintain hydrological conditions so that substrate is kept moist and damp throughout the year, but not subject to prolonged inundation by flooding in winter	<i>Petalophyllum ralfsii</i> grows in damp sand. Based on Campbell (2013)
Vegetation: open structure	Height and percentage cover of vegetation	Maintain open, low vegetation, with a high percentage cover of bryophytes (small acrocarps and liverwort turf) and bare ground	<i>Petalophyllum ralfsii</i> grows in compacted, sandy ground, maintained by rabbit (<i>Oryctolagus cuniculus</i>), sheep and cattle grazing. At time of survey in 2002, the estimated vegetation height was less than 3cm

Conservation Objectives for : Horn Head and Rinclevan SAC [000147]


1833 Slender Naiad *Najas flexilis*

To maintain the favourable conservation condition of Slender Naiad in Horn Head and Rinclevan SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population extent	Hectares; distribution	No change to the spatial extent of <i>Najas flexilis</i> within the lake, subject to natural processes. See map 6 for known location	See <i>Najas flexilis</i> supporting document for further details
Population depth	Metres	No change to the depth range of <i>Najas flexilis</i> within the lake, subject to natural processes	See <i>Najas flexilis</i> supporting document for further details
Population viability	Plant traits	No decline in plant fitness, subject to natural processes	See <i>Najas flexilis</i> supporting document for further details
Population abundance	Square metres	No change to the cover abundance of <i>Najas flexilis</i> , subject to natural processes	See <i>Najas flexilis</i> supporting document for further details
Species distribution	Occurrence	No decline, subject to natural processes	See <i>Najas flexilis</i> supporting document for further details
Habitat extent	Hectares	No decline, subject to natural processes	See <i>Najas flexilis</i> supporting document for further details
Hydrological regime: water level fluctuations	Metres	Maintain appropriate natural hydrological regime necessary to support the habitat for the species	See <i>Najas flexilis</i> supporting document for further details
Lake substratum quality	Various	Maintain appropriate substratum type, extent and chemistry to support the population of the species	See <i>Najas flexilis</i> supporting document for further details
Water quality	Various	Maintain appropriate water quality to support the population of the species	See <i>Najas flexilis</i> supporting document for further details
Acidification status	pH units, mg/l	Maintain appropriate water and sediment pH, alkalinity and cation concentrations to support the population of <i>Najas flexilis</i> , subject to natural processes	See <i>Najas flexilis</i> supporting document for further details
Water colour	mg/l PtCo	Maintain appropriate water colour to support the population of <i>Najas flexilis</i>	See <i>Najas flexilis</i> supporting document for further details
Associated species	Species composition and abundance	Maintain appropriate associated species and vegetation communities to support the population of <i>Najas flexilis</i>	See <i>Najas flexilis</i> supporting document for further details
Fringing habitat: area and condition	Hectares	Maintain the area and condition of fringing habitats necessary to support the population of <i>Najas flexilis</i>	See <i>Najas flexilis</i> supporting document for further details



Legend

 Horn Head and Rinclevan SAC 000147



NPWS


An tSeirbhís Páircíneanna
Náisiúnta agus Fiadhúlra
National Parks and Wildlife
Service

**MAP 1:
HORN HEAD AND RINCLEVAN SAC
CONSERVATION OBJECTIVES
SAC DESIGNATION**

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


**SITE CODE:
SAC 000147; version 3.04
CO. DONEGAL**

0 0.5 1 2 Kilometres

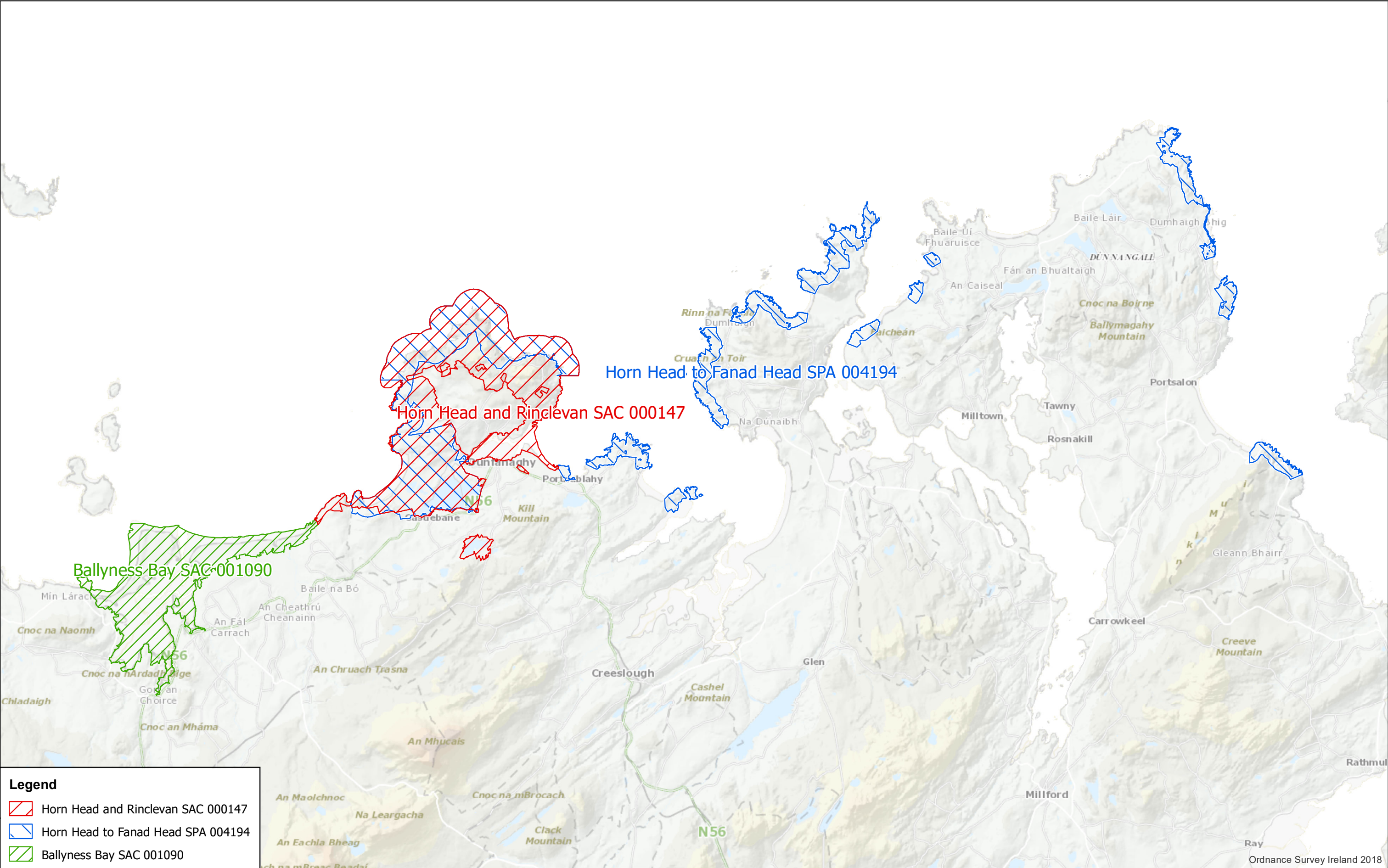


The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision.
© Includes National Mapping Division of Tailte Éireann data
reproduced under National Mapping Division of Tailte Éireann Licence number CYAL50351092.

Níl sna teorainneacha ar na léarscáileanna ach nod garshuimhach ginearálta. Féadfar athbheithnithe a déanamh ar theorainneacha na gceantar comharthaithe. © Folaíonn sé rannán Náisiúnta Mapála de shonraí Tailte Éireann ama áitirgeadh faoin rannán mapála Náisiúnta d'umhir cheadúnais Tailte Éireann CYAL50351092



Map version 2
Date: March 2024

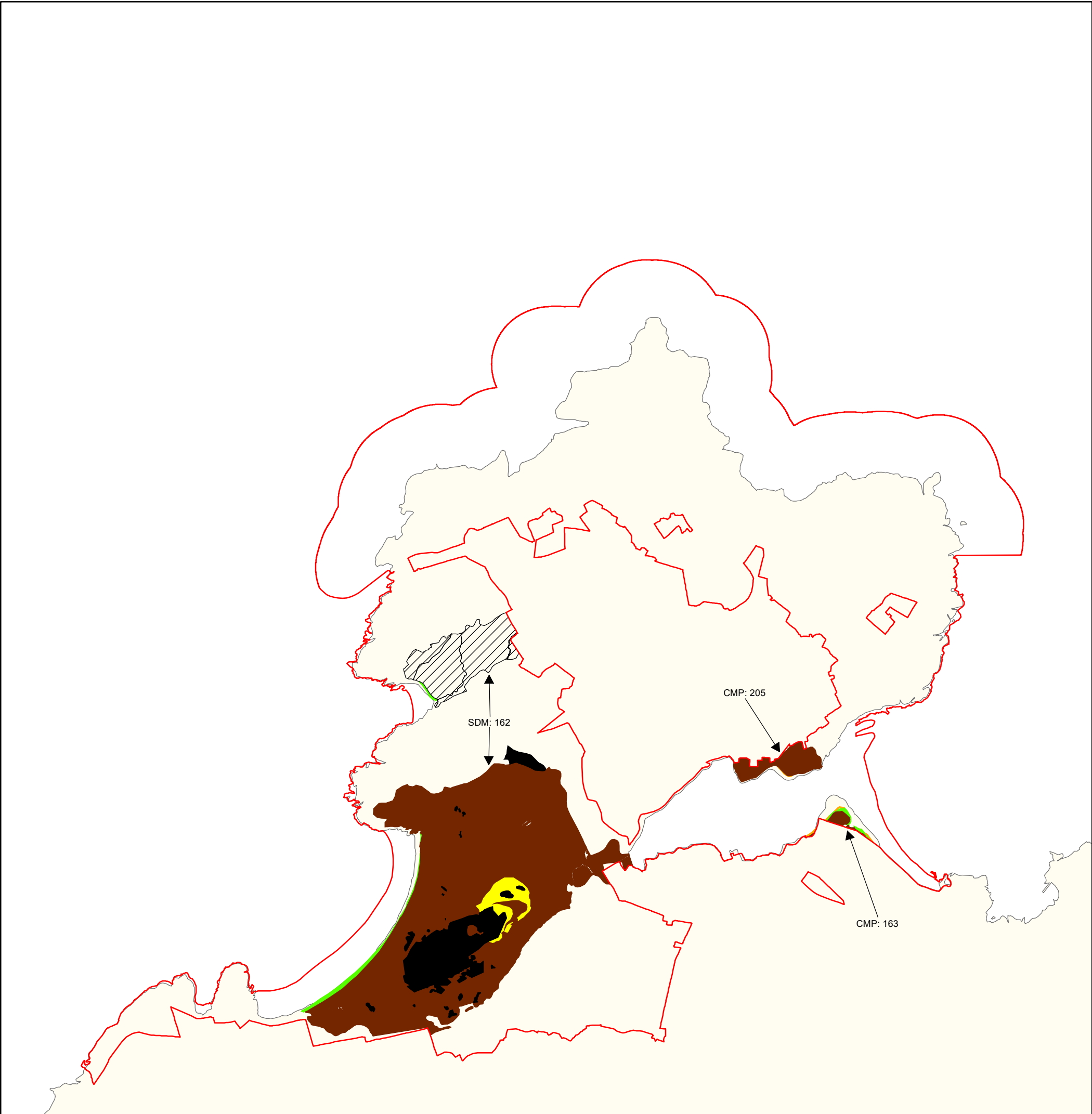


Legend



Horn Head and Rinclevan SAC 000147

Horn Head to Fanad Head SPA 004194







Ballyness Bay SAC 001090

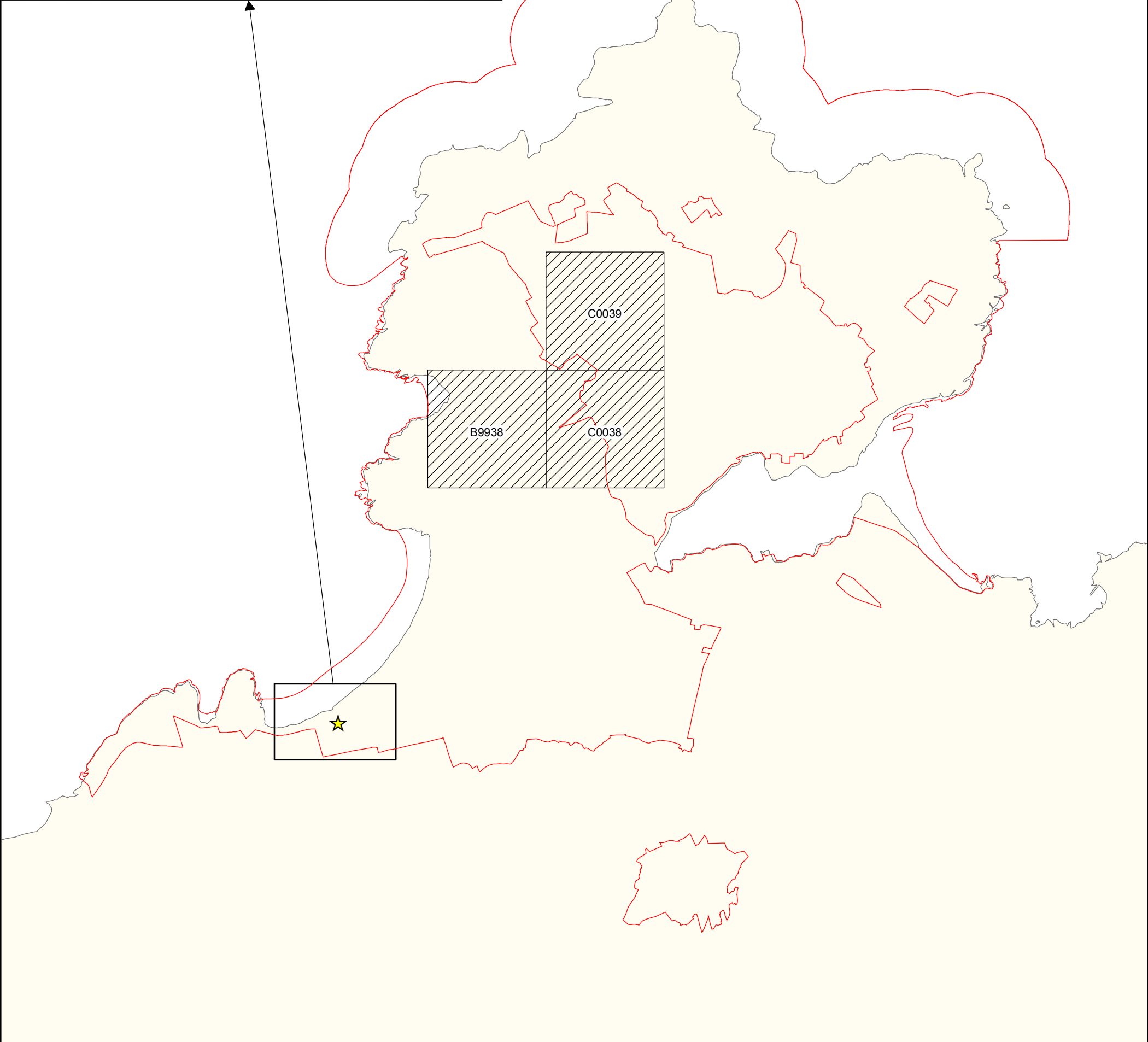
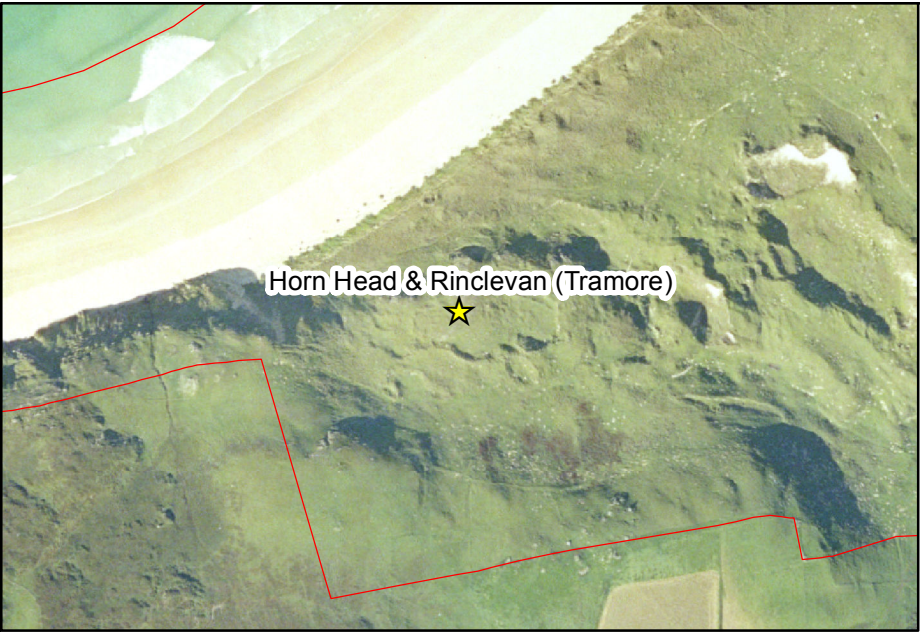


Legend

-  Horn Head and Rinclevan SAC 000147
-  OSi Discovery Series County Boundary
- CMP: 163 Coastal Monitoring Project Site Codes
- SDM: 162 Sand Dunes Monitoring Project Site Codes

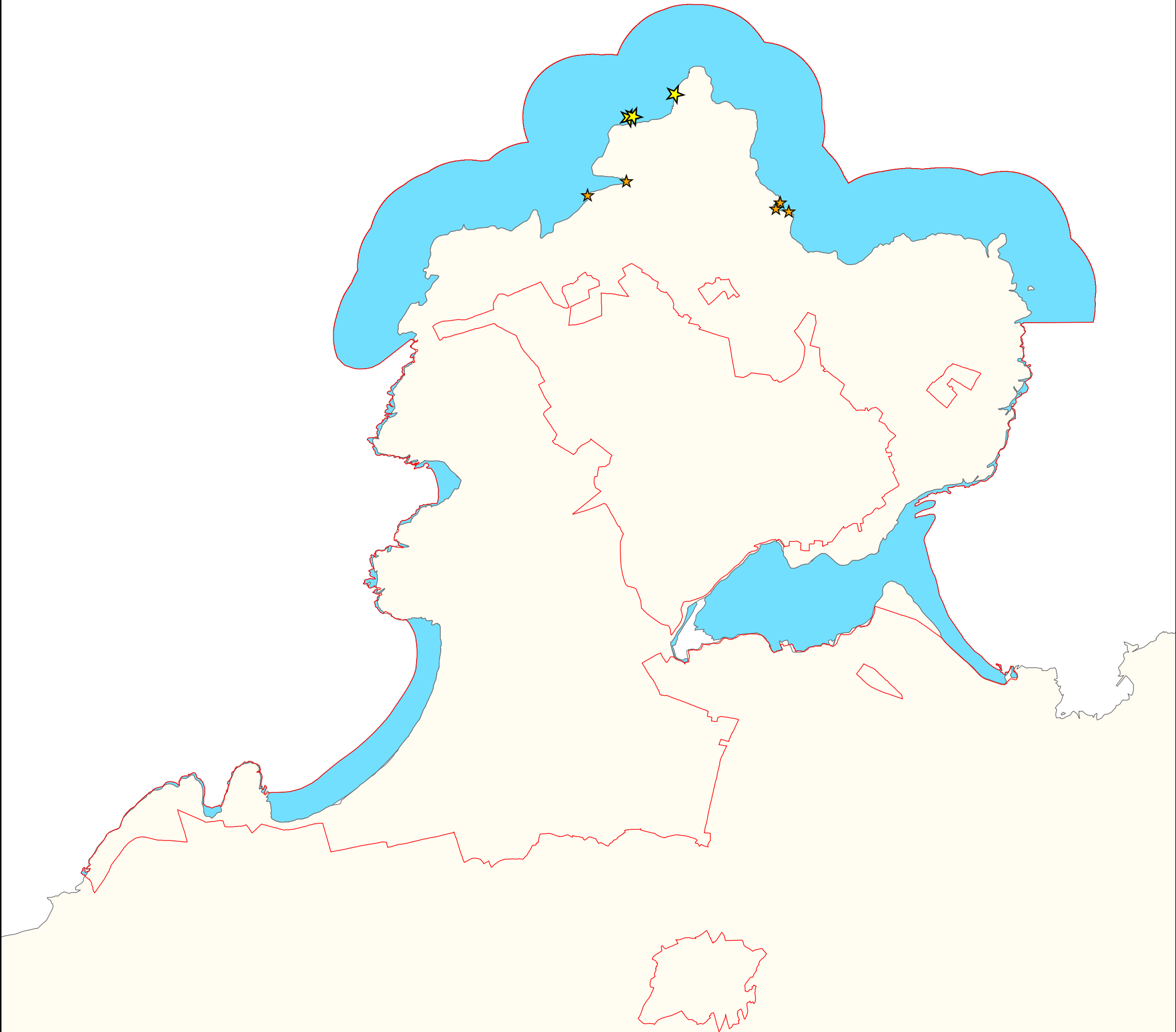
Sand Dune Habitats
Qualifying Interests

-  2110 Embryonic shifting dunes
-  2120 Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes')
-  2130 *Fixed coastal dunes with herbaceous vegetation ('grey dunes')
-  2170 Dunes with *Salix repens* ssp. *argentea* (Salicion arenariae)
-  2190 Humid dune slacks
-  21A0 Machairs (*in Ireland)








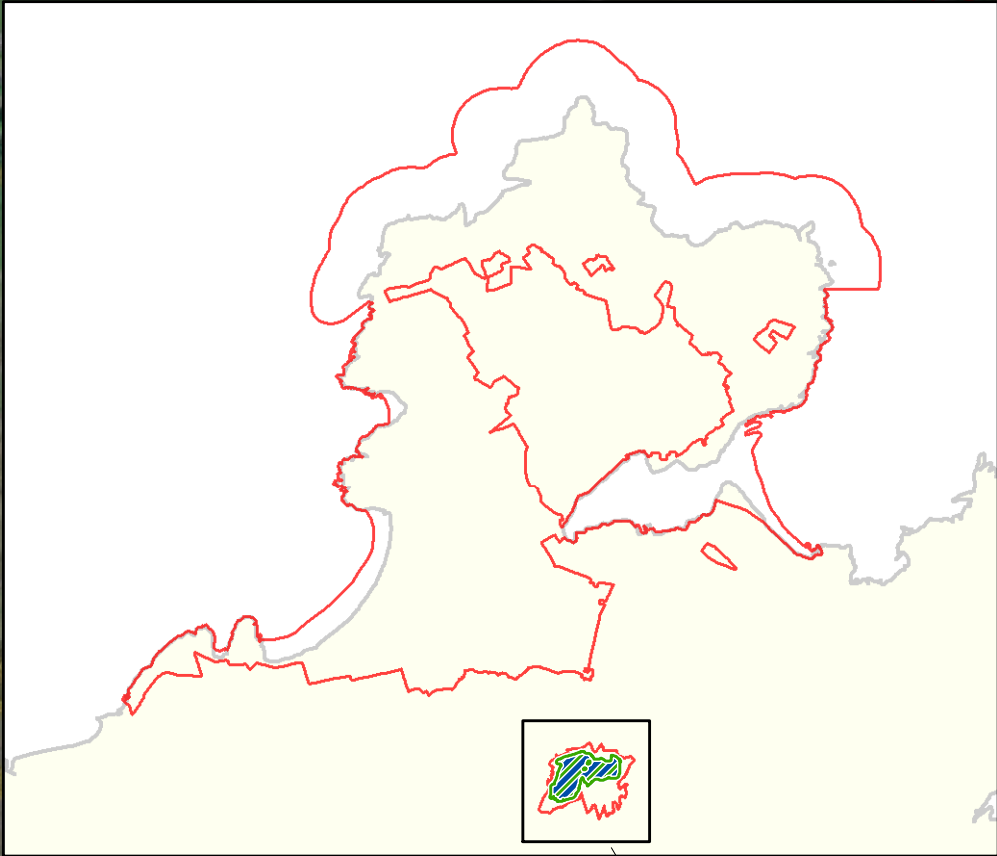
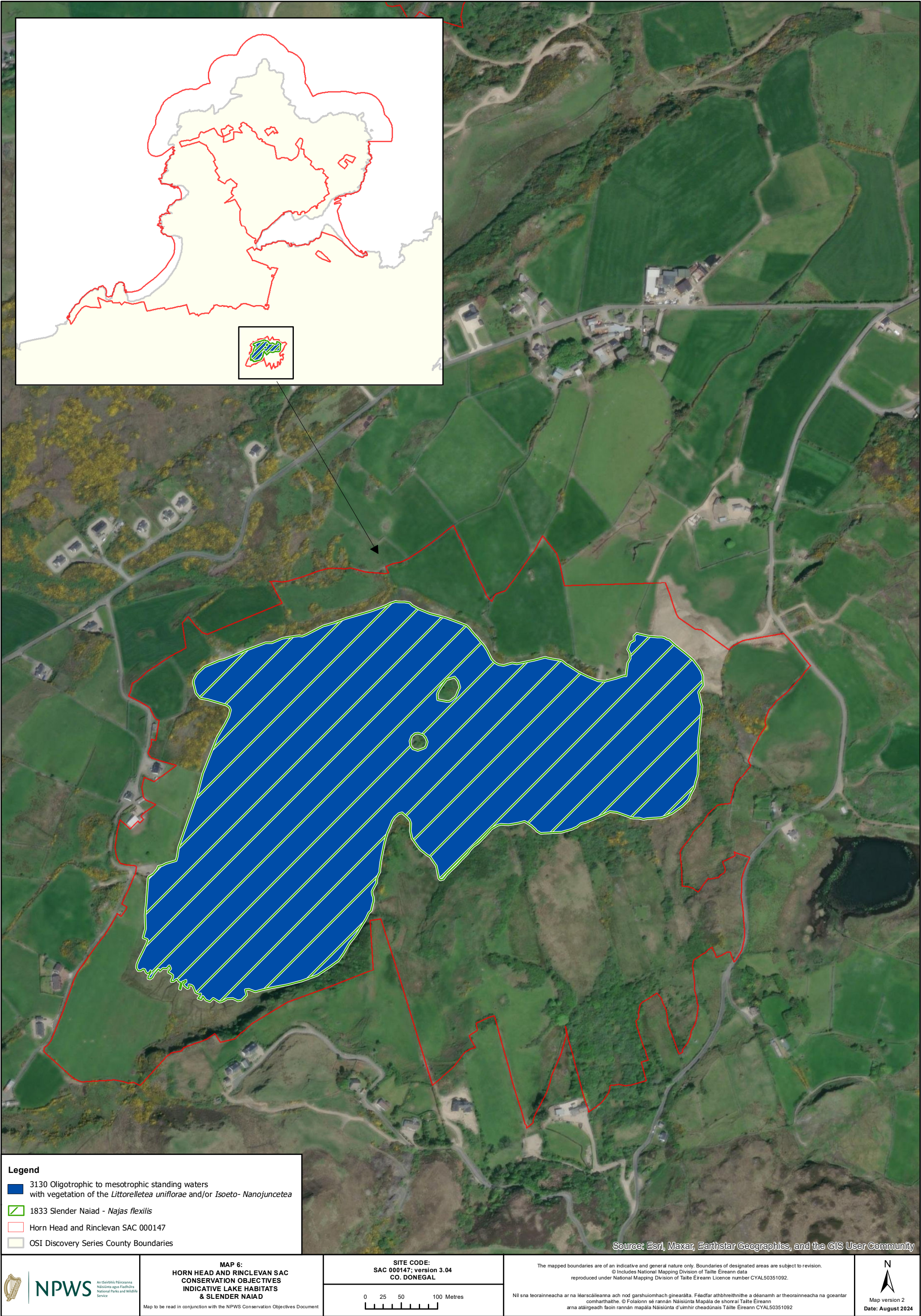
Legend

- Horn Head and Rinclevan SAC 000147
- 1395 Petalwort - *Petalophyllum ralfsii*
- 1013 Geyer's Whorl Snail - *Vertigo geyeri*
- OSi Discovery Series County Boundary



Legend

-  Horn Head and Rinclevan SAC 000147
-  1364 Grey Seal - *Halichoerus grypus* breeding sites
-  1364 Grey Seal - *Halichoerus grypus* resting sites
-  1364 Grey Seal - *Halichoerus grypus* habitat
-  OSi Discovery Series County Boundary



Legend

- 3130 Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto- Nanojuncetea*
- 1833 Slender Naiad - *Najas flexilis*
- Horn Head and Rinclevan SAC 000147
- OSI Discovery Series County Boundaries