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Conservation Objectives Series

North Inishowen Coast SAC 002012

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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***

002012	North Inishowen Coast SAC
1014	Narrow-mouthed Whorl Snail *Vertigo angustior*
1140	Mudflats and sandflats not covered by seawater at low tide
1220	Perennial vegetation of stony banks
1230	Vegetated sea cliffs of the Atlantic and Baltic coasts
1355	Otter *Lutra lutra*
2130	Fixed coastal dunes with herbaceous vegetation (grey dunes)*
21A0	Machairs (* in Ireland)
4030	European dry heaths

Please note that this SAC overlaps with Trawbreaga Bay SPA (004034) and Malin Head SPA (004146). See map 2. The conservation objectives for this site should be used in conjunction with those for overlapping sites as appropriate.

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

NPWS Documents

Year :	1996
Title :	Biomar survey of Irish machair sites
Author :	Crawford, I.; Bleasdale, A.; Conaghan, J.
Series :	Irish Wildlife Manual No. 3
Year :	1998
Title :	An inventory of Mollusca in potential SAC sites with special reference to *Vertigo angustior*, *V. moulinsiana* and *V. geyeri*: 1998 survey
Author :	Moorkens, E.
Series :	Unpublished report to NPWS
Year :	1999
Title :	National Shingle Beach Survey of Ireland 1999
Author :	Moore, D.; Wilson, F.
Series :	Unpublished Report to NPWS
Year :	2006
Title :	Otter survey of Ireland 2004/2005
Author :	Bailey, M.; Rochford, J.
Series :	Irish Wildlife Manual No. 23
Year :	2007
Title :	A Survey of Intertidal Mudflats and Sandflats in Ireland
Author :	Aquatic Services Unit
Series :	Unpublished report to NPWS
Year :	2007
Title :	Supporting documentation for the Habitats Directive Conservation Status Assessment - backing documents. Article 17 forms and supporting maps
Author :	NPWS
Series :	Unpublished report to NPWS
Year :	2009
Title :	Coastal Monitoring Project 2004-2006
Author :	Ryle, T.; Murray, A.; Connolly, K.; Swann, M.
Series :	Unpublished report to NPWS
Year :	2009
Title :	Saltmarsh monitoring project 2007-2008
Author :	McCorry, M.; Ryle, T.
Series :	Unpublished report to NPWS
Year :	2011
Title :	National survey and assessment of the conservation status of Irish sea cliffs
Author :	Barron, S.J.; Delaney, A.; Perrin, P.M.; Martin, J.; O'Neill, F.
Series :	Irish Wildlife Manual No. 53
Year :	2011
Title :	Monitoring and condition assessment of populations of *Vertigo geyeri*, *Vertigo angustior* and *Vertigo moulinsiana* in Ireland
Author :	Moorkens, E.; Killeen, I.
Series :	Irish Wildlife Manual No. 55

Year :	2013
Title :	National otter survey of Ireland 2010/12
Author :	Reid, N.; Hayden, B.; Lundy, M.G.; Pietravalle, S.; McDonald, R.A.; Montgomery, W.I.
Series :	Irish Wildlife Manual No. 76
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 Manual No. 75
Year :	2014
Title :	Guidelines for a national survey and conservation assessment of upland vegetation and habitats in Ireland, Version 2.0
Author :	Perrin, P.M.; Barron, S.J.; Roche, J.R.; O'Hanrahan, B.
Series :	Irish Wildlife Manual No. 79
Year :	2014
Title :	North Inishowen Coast SAC (site code: 2012) Conservation objectives supporting document-marine habitats V1
Author :	NPWS
Series :	Conservation objectives supporting document
Year :	2014
Title :	North Inishowen Coast SAC (site code: 2012) Conservation objectives supporting document-coastal habitats V1
Author :	NPWS
Series :	Conservation objectives supporting document

Other References

Year :	1982
Title :	Otter survey of Ireland
Author :	Chapman, P.J.; Chapman, L.L.
Series :	Unpublished report to Vincent Wildlife Trust
Year :	1991
Title :	The spatial organization of otters (*Lutra lutra*) in Shetland
Author :	Kruuk, H.; Moorhouse, A.
Series :	J. Zool, 224: 41-57
Year :	2006
Title :	Otters - ecology, behaviour and conservation
Author :	Kruuk, H.
Series :	Oxford University Press
Year :	2006
Title :	The vegetation of Irish machair
Author :	Gaynor, K.
Series :	Biology and Environment: Proceedings of the Royal Irish Academy, vol 106B, No. 3: 311-321
Year :	2008
Title :	The phytosociology and conservation value of Irish sand dunes
Author :	Gaynor, K.
Series :	Unpublished PhD thesis, National University of Ireland, Dublin

Year :	2010
Title :	Otter tracking study of Roaringwater Bay
Author :	De Jongh, A.; O'Neill, L.
Series :	Unpublished draft report to NPWS
Year :	2013
Title :	Benthic survey services framework- Trawbreaga Bay intertidal surveys 2009 & 2010
Author :	RPS
Series :	Unpublished report to the Marine Institute and NPWS

Spatial data sources

Year :	Interpolated 2014
Title :	Intertidal surveys 2007, 2009, 2010
GIS Operations :	Polygon feature classes from marine community types base data sub-divided based on interpolation of marine survey data. Expert opinion used as necessary to resolve any issues arising
Used For :	1140, Marine community types (maps 3 and 4)
Year :	2005
Title :	OSi Discovery series vector data
GIS Operations :	High water mark (HWM) and low water mark (LWM) polyline feature classes converted into polygon feature classes and combined; EU Annex I Saltmarsh and Coastal data erased out if present
Used For :	Marine community types base data (map 4)
Year :	2011
Title :	National survey and assessment of the conservation status of Irish sea cliffs
GIS Operations :	Clipped to SAC boundary
Used For :	1230 (map 5)
Year :	Revision 2014
Title :	National Shingle Beach Survey
GIS Operations :	Clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
Used For :	1220 (map 6)
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 :	2130, 21A0 (map 6)
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 :	2130, 21A0 (map 6)
Year :	2012
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 :	1014 (map 7)
Year :	2005
Title :	OSi Discovery series vector data
GIS Operations :	Creation of an 80m buffer on marine side of high water mark (HWM); creation of a 10m buffer on terrestrial side of the HWM; combination of 80m and 10m HWM buffer datasets; creation of a 10m buffer on terrestrial side of river banks data. Datasets combined with derived EPA WFD Waterbodies data for the 1355 CO. Overlapping regions investigated and resolved; resulting dataset clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising. Creation of 250m buffer on marine side of HWM to highlight potential commuting points
Used For :	1355 (map 8)
Year :	2010
Title :	EPA WFD Waterbodies data
GIS Operations :	Creation of a 20m buffer to river and stream centreline data; creation of 80m buffer on aquatic side of lake data; creation of 10m buffer on terrestrial side of lake data. Datasets combined with derived OSi data for the 1355 CO. Overlapping regions investigated and resolved; resulting dataset clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
Used For :	1355 (map 8)

1140 Mudflats and sandflats not covered by seawater at low tide

To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in North Inishowen Coast SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes. See map 3	Habitat area was estimated using OSi data as 988ha
Community extent	Hectares	Maintain the extent of the *Zostera*-dominated community, subject to natural processes. See map 4	Based on an intertidal walkover undertaken in 2013. See marine supporting document for further details
Community structure: *Zostera* density	Shoots/m²	Conserve the high quality of the *Zostera*-dominated community, subject to natural processes	Based on an intertidal walkover undertaken in 2013. See marine supporting document for further details
Community distribution	Hectares	Conserve the following community types in a natural condition: Fine to medium sand with *Eurydice pulchra* community complex; Muddy sand to coarse sediment with *Pygospio elegans* community complex; Sand with *Angulus tenuis* and *Scoloplos* (*Scoloplos*) *armiger* community complex. See map 4	Based on intertidal surveys undertaken in 2007 (ASU, 2007), 2009 and 2010 (RPS, 2013). See marine supporting document for further details

1220 Perennial vegetation of stony banks

To maintain the favourable conservation condition of Perennial vegetation of stony banks in North Inishowen Coast 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: Culdaff - 0.02ha; Doagh Isle - 1.21ha; Lag - 0.09ha; Lenankeel - 0.01ha; White Strand - 1.33ha. See map 6	Entire area within the SAC is unknown. 18 sub-sites (Tramone Bay; Slievebane; Bulbin; Portmore; Bulbinbeg; Esky Bay; Pebble Strand; Ineuran Bay; Whitestrand Bay; Whitestrand Bay - Culoort; Back Strand; Doaghmore Point; Lagacurry, Doagh Strand, Bincree, Binderg; Pollan Bay; Tullagh Bay and Tullan Point; Rockstown Harbour; Dunaff Bay; Lehan Bay) were surveyed during the National Shingle Beach Survey (NSBS) (Moore and Wilson, 1999) but extent is not recorded. The habitat was also recorded and mapped by the Coastal Monitoring Project (CMP) at Culdaff; Doagh Isle; Lag; Lenankeel and White Strand sub-sites, covering a total area of 3.46ha (Ryle et al., 2009). See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes. See map 6 for surveyed locations	Complete distribution currently unknown. The best shingle formations in the county are found on the Inishowen Peninsula and on Doagh Isle (Moore and Wilson, 1999). 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 Moore and Wilson (1999). Shingle features are relatively stable in the long term. See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from Moore and Wilson (1999). Transitions from shingle to intertidal shingle, rocky shore, shingle-based grassland, cliff, sand dunes and machair occur in this SAC. 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: sea sandwort (*Honckenya peploides*), sea beet (*Beta vulgaris* ssp *maritima*), rock samphire (Crithmum maritimum), sea mayweed (*Tripleurospermum maritimum*), yellow-horned poppy (*Glaucium flavum*) and sea campion (*Silene uniflora*)	Based on data from Moore and Wilson (1999). Lichens were recorded at White Strand Bay-Culoort, Doaghmore Point, Tullagh Bay and Tullagh Point and Rockstown Harbour and are an indication of stabilisation. All sub-sites containing the habitat were rated of high interest except Doaghmore Point which was rated medium interest owing to damage caused by extraction. The rare and protected oysterplant (*Mertensia maritima*) was recorded at two sub-sites: White Strand Bay-Culoort and Tullagh Bay and Tullagh Point. 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 Moore and Wilson (1999). Negative indicators include non-native species indicative of changes in nutrient status and species not considered characteristic of the habitat. Negative indicators include non-native species, species indicative of changes in nutrient status and species not considered characteristic of the habitat. The negative indicator species, ragwort (*Senecio jacobaea*) and montbretia (*Crocosmia x crocosmiiflora*) were recorded in vegetated shingle at White Strand by Ryle et al. (2009) See coastal habitats supporting document for further details

1230 Vegetated sea cliffs of the Atlantic and Baltic coasts

To maintain the favourable conservation condition of Vegetated sea cliffs of the Atlantic and Baltic coasts in North Inishowen Coast SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat length	Kilometres	Area stable, subject to natural processes, including erosion. For sub-sites mapped: Glengad - 21.5km; Altnadarrow - 4.4km; Binbane - 1.2km; Carrickabraghy - 1.9km; Binnion - 3.3km; Dunaff - 6.4km; Lenan - 0.7km; Lederg - 3.7km; Mossy Glen - 15.7km; Tirmacroragh - 5.6km; Stookanillar and Five Fingers - 3.3km. See map 5	Based on data from the Irish Sea Cliff Survey (ISCS) (Barron et al., 2011). 11 sub-sites were identified using a combination of aerial photos and the DCENR helicopter viewer. Two of the sub-sites at Stookanillar and Five Fingers, and Dunaff were surveyed in the field by the ISCS and assessed using remote survey methodology. A further undocumented site at Dunree was also identified. Cliffs are linear features and are therefore measured in kilometres. Total length of cliff section mapped within SAC: 68.0km. Length of cliff likely to be underestimated. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 5	Based on data from Barron et al. (2011). Cliffs are distributed throughout the SAC with the best examples to be found in the west of the site (Dunree to Leenan Head and Dunaff Head) and in the area north-west of Glengad Head. Hard cliffs are the dominant cliff type, however occasional soft cliffs were also recorded within the site. See coastal habitats supporting document for further details
Physical structure: functionality and hydrological regime	Occurrence of artificial barriers	No alteration to natural functioning of geomorphological and hydrological processes due to artificial structures	Based on data from Barron et al. (2011). Maintaining natural geomorphological processes including natural erosion is important for the health of a vegetated sea cliff. Hydrological processes maintain flushes and in some cases tufa formations that can be associated with sea cliffs. Within this SAC, hydrological features, such as gullies, streams and cascades, were associated with the following sub-sites: Mossy Glen, Stookanillar and Five Fingers, Binnion, Dunaff, Lenan, Lederg, Tirmacroragh and Glengad. See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain range of sea cliff habitat zonations including transitional zones, subject to natural processes including erosion and succession	Based on data from Barron et al. (2011). At Stookanillar and Five Fingers the following zones were recorded: scree, crevice ledge, heath and grazed coastal grassland on hard cliffs. At Dunaff three zones were recorded: Splash zone, crevice ledge and ungrazed coastal grassland on hard cliffs. See coastal habitats supporting document for further details
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward	Based on data from Barron et al. (2011). 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 the Irish Sea Cliff Survey (Barron et al., 2011)	Based on data from Barron et al. (2011). Rare species that occur on sea cliffs at this SAC include Scot's lovage (*Ligusticum scoticum*), moss campion (*Silene acaulis*), purple saxifrage (*Saxifraga oppositifolia*), ivy broomrape (*Orobanche hederae*) and roseroot (*Sedum rosea*). See coastal habitats supporting document for further details
Vegetation composition: negative indicator species	Percentage	Negative indicator species (including non-natives) to represent less than 5% cover	Based on data from Barron et al. (2011). See coastal habitats supporting document for further details

Vegetation composition: bracken and woody species	Percentage	Cover of bracken (*Pteridium aquilinum*) on grassland and/or heath less than 10%. Cover of woody species on grassland and/or heath less than 20%	Based on data from Barron et al. (2011). See coastal habitats supporting document for further details

2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)

To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation ('grey dunes') in North Inishowen Coast SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area increasing, subject to natural processes including erosion and succession. For sub-sites mapped: Crummies Bay - 11.92ha; Culdaff - 17.03ha; Doagh Isle - 324.53ha; Lag - 103.17ha; Lenankeel - 6.27ha; Tullagh - 30.81ha; White Strand - 2.33ha. See map 6	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 mapped at seven sub-sites, giving a total estimated area of 496.06ha. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes. See map 6 for known distribution	Based on data from Ryle et al. (2009) and Delaney et al. (2013). Fixed dunes were recorded at all of the seven 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). Physical barriers can lead to fossilisation or over-stabilisation of dunes, as well as beach starvation resulting in increased rates of erosion. At Lenankeel, rock armour affects the natural build up of the sand dune system. Extraction was noted from Tullagh and Doagh Isle sub-sites. Coastal protection works at Lag will cause a disruption to the natural functioning of the system over the longterm. 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% of fixed dune habitat, subject to natural processes	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: sward height	Centimetres	Maintain structural variation within sward	Based on data from Ryle et al. (2009) and Delaney et al. (2013). At Crummies Bay, the absence of grazers has produced a rank sward with low species diversity. At Tullagh, heavy grazing and poaching occur. Undergrazing is a feature of Culdaff. Both undergrazing and over grazing occur at Doagh Isle. 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 Gaynor (2008), Ryle et al. (2009) and Delaney et al. (2013). The seven sub-sites support a characteristic dune flora. 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 (*Hippophae rhamnoides*) should be absent or effectively controlled. Negative indicator species bracken (*Pteridium aquilinum*) and montbretia (*Crocosmia x crocosmiiflora*) were recorded at Culdaff. At Lagg, creeping thistle (*Cirsium arvense*) and nettle (*Urtica dioica*) were associated with ring feeders. At Tullagh, bracken (*Pteridium aquilinuim*) occurs in the fixed dune. 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 Culdaff there are several areas of dense scrub. Scrub also occurs in wet and dry areas at Crummies Bay. See coastal habitats supporting document for further details

21A0 Machairs (* in Ireland)

To restore the favourable conservation condition of Machairs in North Inishowen Coast 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: Doagh Isle - 90.11ha; Lenankeel - 12.15ha; Tullagh - 15.42ha, White Strand - 0.25ha. See map 6	Based on data from the Coastal Monitoring Project (CMP) (Ryle et al., 2009) and the Sand Dunes Monitoring Project (SDM) (Delaney et al., 2013). Four sub-sites (Doagh Isle, Lenankeel, Tullagh and White Strand) were mapped, giving a total estimated area of 117.96ha. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline or change in habitat distribution, subject to natural processes. See map 6 for known distribution	The largest machair site is at Doagh Isle. 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). Physical barriers can lead to fossilisation or over-stabilisation of dunes, as well as beach starvation resulting in increased rates of erosion. At Lenankeel, rock armour affects the natural build up of the sand system. Extraction was noted from Tullagh and Doagh Isle sub-sites. 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). 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). At Tullagh, heavy grazing and poaching occur. Both undergrazing and overgrazing occur at Doagh Isle. 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 Gaynor (2008), Ryle et al. (2009) and Delaney et al. (2013). The four sub-sites support a characteristic machair flora. 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: 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

4030 European dry heaths

To maintain the favourable conservation condition of European dry heaths in North Inishowen Coast 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	Total area of this habitat has not been calculated, but estimated to cover more than 10% of the SAC. It occurs in mosaic with other habitats such as wet heath/blanket bog and exposed rock (NPWS internal files) and is a component of the vegetation of the Annex I habitat: Vegetated sea cliffs of the Atlantic and Baltic coasts (1230)- see the coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline from current habitat distribution, subject to natural processes	The heath in this SAC is widely distributed along the hard coastline and also occurs at higher altitudes such as on Binnion, Urris and Dunaff Hills (NPWS internal files)
Ecosystem function: soil nutrient status	Soil pH and nutrient levels at a representative number of monitoring stops	Maintain soil nutrient status within natural range	Changes to soil nutrient status can occur from high stock densities or supplementary feeding above appropriate levels
Vegetation composition: positive indicator species	Number and percentage cover at a representative number of monitoring stops	At least two positive indicator species, as listed in Perrin et al. (2014), with combined cover of at least 50%	Attribute and target based on Perrin et al. (2014). Bell heather (*Erica cinerea*), ling (*Calluna vulgaris*), crowberry (*Empetrum nigrum*) and bilberry (*Vaccinium myrtillus*) are listed for the heath in this SAC (NPWS internal files)
Vegetation composition: bryophyte and non-crustose lichen species	Number at a representative number of monitoring stops	At least three bryophyte or non-crustose lichen species present, excluding *Campylopus* and *Polytrichum* moss species	Attribute and target based on Perrin et al. (2014)
Vegetation composition: rare/scarce species	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	
Vegetation composition: dwarf-shrub species	Percentage cover at a representative number of monitoring stops	Cover of bog myrtle (*Myrica gale*), creeping willow (*Salix repens*) and Western gorse (*Ulex gallii*) collectively less than 50%	Attribute and target based on Perrin et al. (2014)
Vegetation composition: negative indicator weed species	Pecentage cover at a representative number of monitoring stops	Cover of negative indicator weed species collectively less than 1%	Attribute and target based on Perrin et al. (2014) where weed species are also listed
Vegetation composition: non-native species	Pecentage cover at a representative number of monitoring stops and in local vicinity	Cover of non-native species less than 1%	Attribute and target based on Perrin et al. (2014)
Vegetation structure: native trees and shrubs	Pecentage cover in local vicinity	Cover of scattered native trees and shrubs less than 20%	Attribute and target based on Perrin et al. (2014)
Vegetation composition: bracken	Percentage cover in local vicinity	Cover of bracken (*Pteridium aquilinum*) less than 10%	Attribute and target based on Perrin et al. (2014)
Vegetation composition: soft rush	Percentage cover in local vicinity	Cover of soft rush (*Juncus effusus*) less than 10%	Attribute and target based on Perrin et al. (2014). Dense areas of soft rush can indicate disturbance
Vegetation structure: senescent ling	Percentage cover at a representative number of monitoring stops	Senescent proportion of ling (*Calluna vulgaris*) cover, less than 50%	Attribute and target based on Perrin et al. (2014)

Vegetation structure: growth phases of ling	Percentage cover in local vicinity	Outside boundaries of sensitive areas, all growth phases of ling (*Calluna vulgaris*) should occur throughout, with at least 10% of cover in mature phase	Attribute and target based on Perrin et al. (2014), where sensitive areas and growth phases are defined
Vegetation structure: signs of browsing	Percentage cover at a representative number of monitoring stops	Last complete growing season's shoots of ericoids showing signs of browsing collectively less than 33%	Attribute and target based on Perrin et al. (2014)
Vegetation structure: burning	Occurrence in local vicinity	No signs of burning inside sensitive areas	Attribute and target based on Perrin et al. (2014), where sensitive areas are defined
Physical structure: disturbed bare ground	Percentage cover at a representative number of monitoring stops and in local vicinity	Cover of disturbed bare ground less than 10% (but if peat soil less than 5%)	Attribute and target based on Perrin et al. (2014)

1014 Narrow-mouthed Whorl Snail *Vertigo angustior*

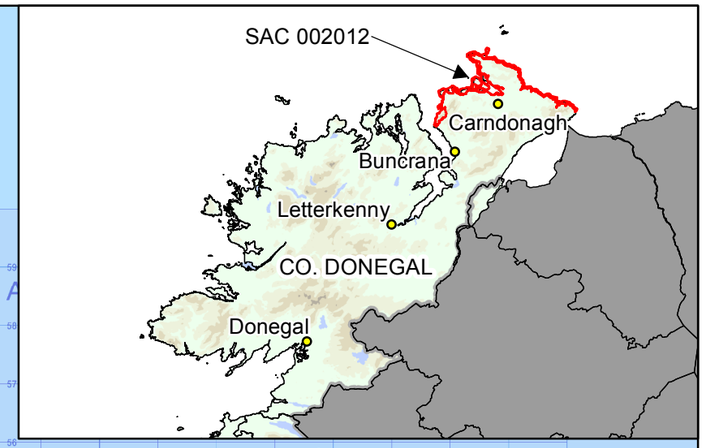
To maintain the favourable conservation condition of Narrow-mouthed Whorl Snail in North Inishowen Coast SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution: occupied sites	Number	No decline. There are two known sites for this species in this SAC, which overlaps with three 1km squares. See map 7	The species has been recorded from the sand dunes in the townlands of Lag and Drung behind Back Strand (site VaCAM12) as well as at Tullagh Bay (Moorkens, 1998; Moorkens and Killeen, 2011)
Presence: sampled locations	Percentage	Adult or sub-adult snails are present at 50% of sampled locations with suitable sub-optimal or better quality habitat at confirmed sites	There are two known sites within this SAC
Presence on transect	Occurrence	Adult or sub-adult snails are present in three of the eight maritime grassland zones on the transect with optimal or sub-optimal habitat	Transect established at Lag as part of condition assessment monitoring at this site (Moorkens and Killeen, 2011). See habitat extent target below for definition of optimal and sub-optimal habitat
Abundance	Number per sample	At least two samples on the transect should have more than 20 *V. angustior* individuals	From Moorkens and Killeen (2011)
Transect habitat quality	Metres	At least 40m of habitat along the transect is classed as optimal and at least another 55m as sub-optimal or optimal	From Moorkens and Killeen (2011). See habitat extent target 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 at least 55m along the transect	From Moorkens and Killeen (2011)
Habitat extent	Hectares	At least 30-35ha of the site at Lag/Drung comprises a mosaic of sub-optimal and optimal habitat. Adequate suitable habitat should also be present at Tullagh Bay	Optimal habitat is defined as fixed dune, species-rich grassland dominated by red fescue (*Festuca rubra*) and marram grass (*Ammophila arenaria*), with sparse lady's bedstraw (*Galium verum*), mouse-ear-hawkweed (*Pilosella officinarum*) and other low growing herbs. Vegetation height 10-30cm. Habitat growing on damp, friable soil covered with a layer of humid, open structured thatch. Sub-optimal habitat is as optimal habitat but with a higher proportion of white clover (*Trifolium repens*), and either vegetation height is less than 10cm or between 30 and 50cm, or the soil is dry and sandy, or the thatch is wetter with a denser structure. From Moorkens and Killeen (2011). Habitat at Tullagh Bay has not been described in detail

1355 Otter *Lutra lutra*

To maintain the favourable conservation condition of Otter in North Inishowen Coast SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution	Percentage positive survey sites	No significant decline	Measure based on standard otter survey technique. FCS target, based on 1980/81 survey findings, is 88% in SACs. Current range is estimated at 93.6% (Reid et al., 2013)
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 146.6ha above high water mark (HWM); 61.3ha along river banks/ around ponds	No field survey. Areas mapped to include 10m terrestrial buffer along shoreline (above HWM and along river banks) identified as critical for otters (NPWS, 2007)
Extent of marine habitat	Hectares	No significant decline. Area mapped and calculated as 1099.2ha	No field survey. Area mapped based on evidence that otters tend to forage within 80m of the shoreline (HWM) (NPWS, 2007; Kruuk, 2006)
Extent of freshwater (river) habitat	Kilometres	No significant decline. Length mapped and calculated as 30.9km	No field survey. River length calculated on the basis that otters will utilise freshwater habitats from estuary to headwaters (Chapman and Chapman, 1982)
Extent of freshwater (lake/lagoon) habitat	Hectares	No significant decline. Area mapped and calculated as 2.7ha	No field survey. Area mapped based on evidence that otters tend to forage within 80m of the shoreline (NPWS, 2007)
Couching sites and holts	Number	No significant decline	Otters need lying up areas throughout their territory where they are secure from disturbance (Kruuk, 2006; Kruuk and Moorhouse, 1991)
Fish biomass available	Kilograms	No significant decline	Broad diet that varies locally and seasonally, but dominated by fish, in particular salmonids, eels and sticklebacks in freshwater (Bailey and Rochford, 2006; Reid et al., 2013) and wrasse and rockling in coastal waters (Kingston et al., 1999)
Barriers to connectivity	Number	No significant increase. For guidance, see map 8	Otters will regularly commute across stretches of open water up to 500m e.g. between the mainland and an island; between two islands; across an estuary (De Jongh and O'Neill, 2010). It is important that such commuting routes are not obstructed



ATLANTIC OCEA
An tAigéan Atlantach

Malin Head
Cionn Mhálanna

OAGH ISLAND
Oileán na Bumbeha

Trawbreaga Bay
Trá Bhréige

Glengad Head
Cionn Ghleann Gad

Dunaff Head
Cionn Dhún Dathaí

Ballyliffin
Baile Lifín

Clonmany
Cluain Maine

Carndonagh
Carn Domhnach

Culdaff
Cúil Dabhcha

Dunree Head
Cionn an Dúin Riabhaigh

Slieve Snaght
Sliabh Sneachta

Slieve Main

Crockatienna

Greencastle
An Caisleán Nua

Moville
Bun an Phobail

LOUGH FOYLE
Loch Feabhail

Legend

North Inishowen Coast SAC 002012

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MAP 1:
NORTH INISHOWEN COAST SAC
CONSERVATION OBJECTIVES
SAC DESIGNATION

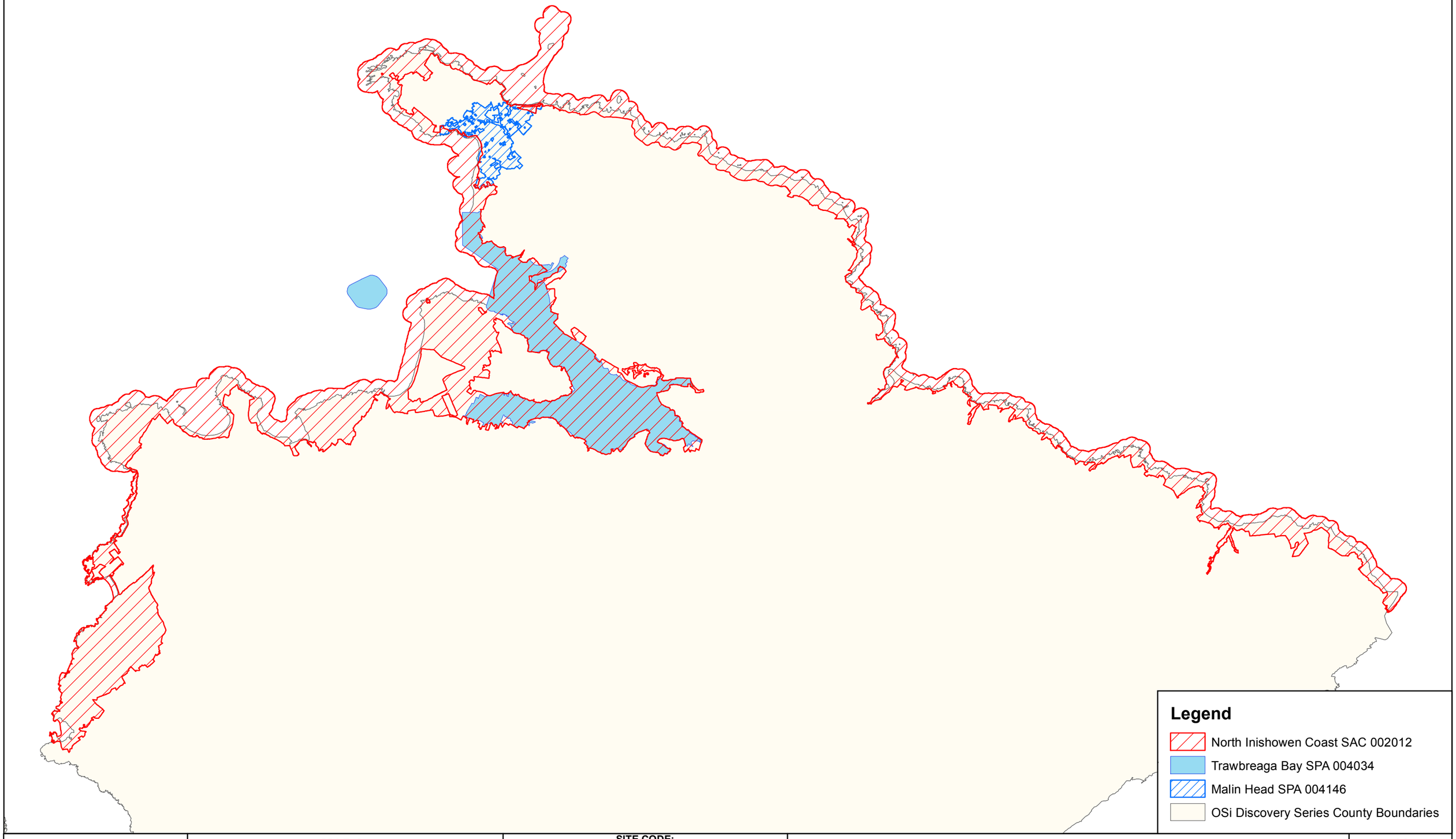
Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 002012; version 3. CO. DONEGAL

0 1 2 3 4 5 km

N

Map Version 1
Date: Nov 2014



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MAP 2:
NORTH INISHOWEN COAST SAC
CONSERVATION OBJECTIVES
ADJOINING / OVERLAPPING DESIGNATIONS

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

SITE CODE:
SAC 002012; version 3.
SPA 004034; version 1.05,
SPA 004146; version 1.03. CO. DONEGAL

0 1 2 3 4 5 km

N

Map Version 1
Date: Nov 2014

Legend

- North Inishowen Coast SAC 002012
- 1140 Mudflats and sandflats not covered by sea water at low tide
- OSi Discovery Series County Boundaries

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MAP 3:
NORTH INISHOWEN COAST SAC
CONSERVATION OBJECTIVES
TIDAL MUDFLATS AND SANDFLATS

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

SITE CODE:
SAC 002012; version 3. CO. DONEGAL

0 1 2 3 4 5 km

N

Map Version 1
Date: Nov 2014

Legend

North Inishowen Coast SAC 002012

OSi Discovery Series County Boundaries

Marine Community Types

Fine to medium sand with *Eurydice pulchra* community complex

Muddy sand to coarse sediment with *Pygospio elegans* community complex

Reef community complex

Sand with *Angulus tenuis* and *Scoloplos (Scoloplos) armiger* community complex

Zostera-dominated community

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MAP 4:
NORTH INISHOWEN COAST SAC
CONSERVATION OBJECTIVES
MARINE COMMUNITY TYPES

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

SITE CODE:
SAC 002012; version 3. CO. DONEGAL

0 1 2 3 4 5 km

N

Map Version 1
Date: Nov 2014

Altnadarrow
Site Id: 03002

Glengad
Site Id: 03042

Binbane
Site Id: 03003

Stookanillar and
Five Fingers
Site Id: 03004

Carrickabraghy
Site Id: 03005

Binnion
Site Id: 03006

Tirmacroragh
Site Id: 03041

Mossy Glen
Site Id: 03001

Dunaff
Site Id: 03007

Lenan
Site Id:03008

Lederg
Site Id: 03009

Dunree

Legend

- North Inishowen Coast SAC 002012
- 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts
- Undocumented 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts
- OSi Discovery Series County Boundary

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MAP 5:
NORTH INISHOWEN COAST SAC
CONSERVATION OBJECTIVES
VEGETATED SEA CLIFFS

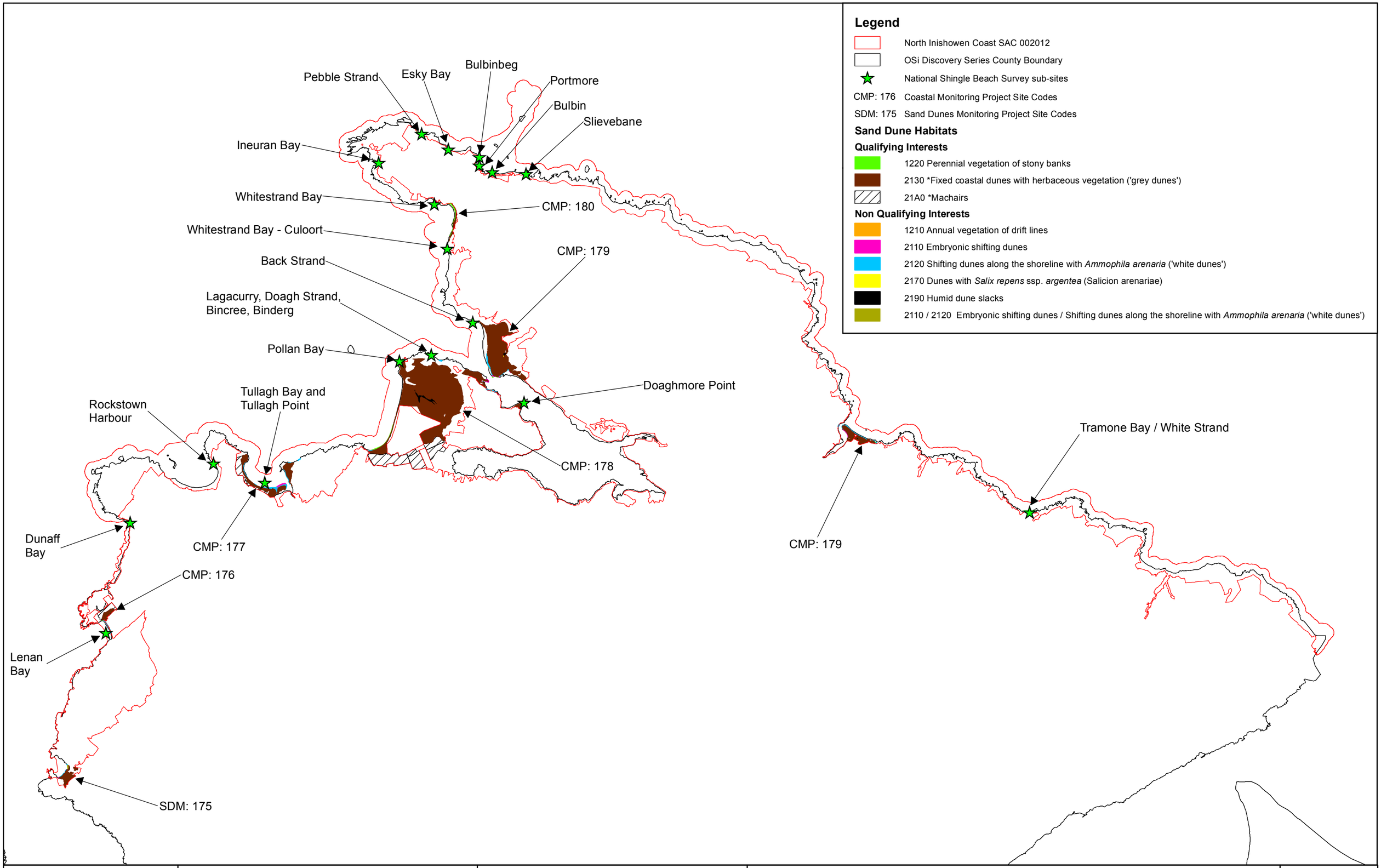
Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 002012; version 3. CO. DONEGAL

0 1 2 3 4 5 km

N

Map Version 1
Date: Nov 2014



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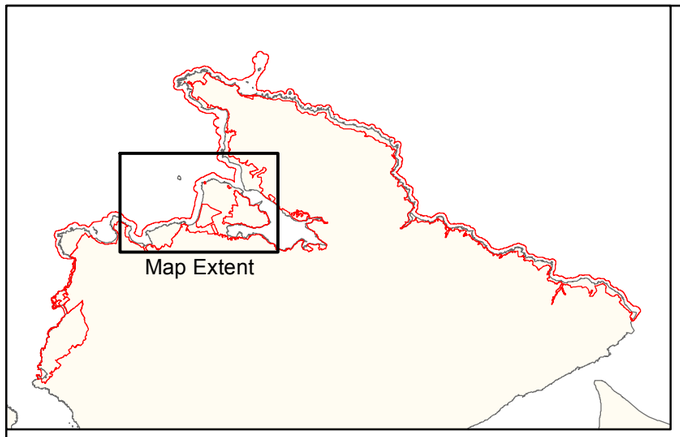
MAP 6:
NORTH INISHOWEN COAST SAC
CONSERVATION OBJECTIVES
SAND DUNE HABITATS &
PERENNIAL VEGETATION OF STONY BANKS
Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 002012; version 3. CO. DONEGAL

0 1 2 3 4 5 km

N

Map Version 1
Date: Nov 2014



C4253

C4252

C3548

Legend

- North Inishowen Coast SAC 002012
- 1014 Narrow-Mouthed Whorl Snail - *Vertigo angustior*
- OSi Discovery Series County Boundary

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MAP 7:
NORTH INISHOWEN COAST SAC
CONSERVATION OBJECTIVES
NARROW-MOUTHED WHORL SNAIL

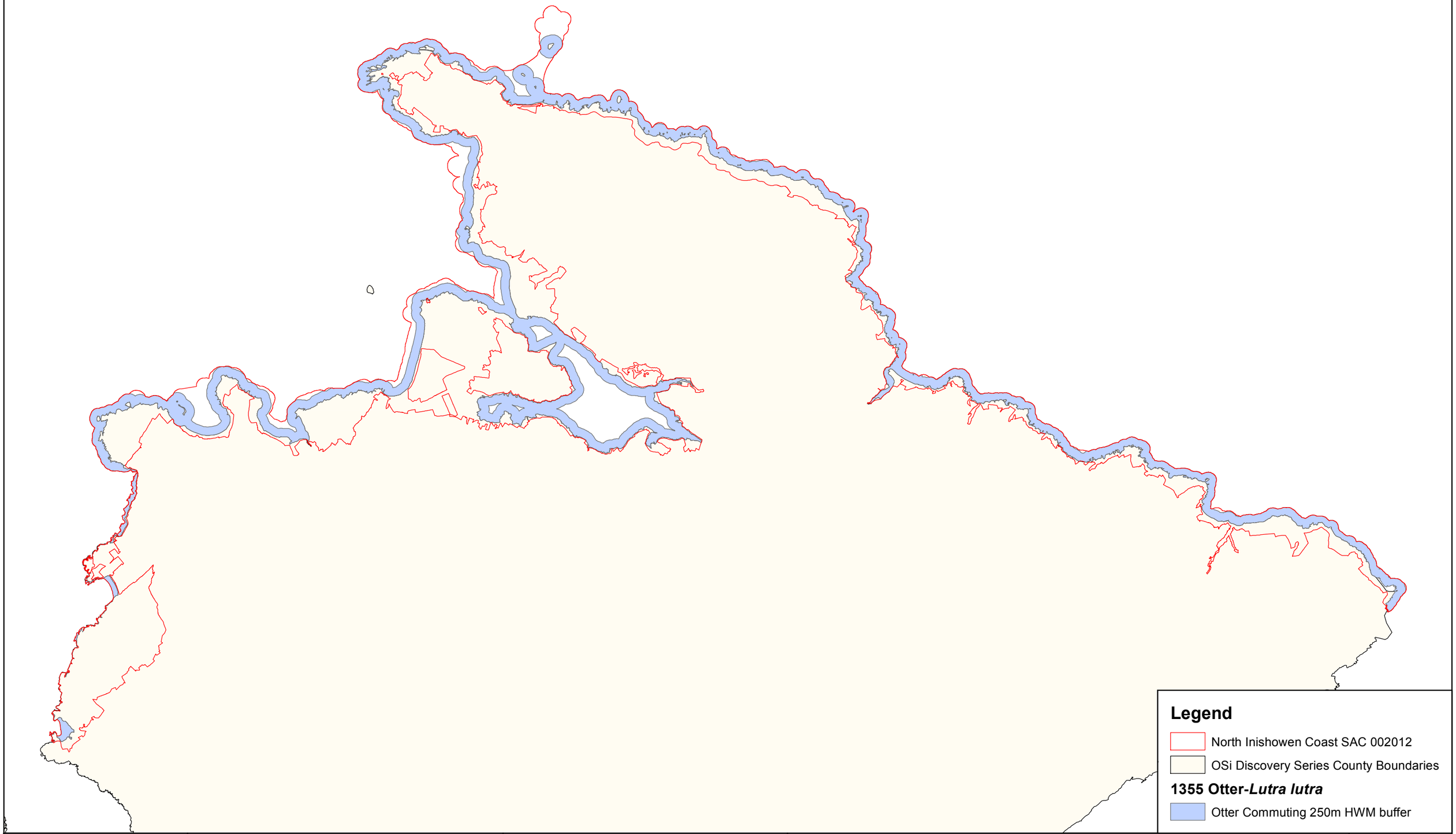
Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 002012; version 3. CO. DONEGAL

0 0.2 0.4 0.6 0.8 1 km

N

Map Version 1
Date: Nov 2014



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MAP 8:
NORTH INISHOWEN COAST SAC
CONSERVATION OBJECTIVES
OTTER COMMUTING

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

SITE CODE:
SAC 002012; version 3. CO. DONEGAL

0 1 2 3 4 5 km

N

Map Version 1
Date: Nov 2014