

National Parks and Wildlife Service

Conservation Objectives Series

Black Head-Poulsallagh Complex SAC 000020



An Roinn
Ealaíon, Oidhreachta agus Gaeltachta

Department of
Arts, Heritage and the Gaeltacht



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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

000020	Black Head-Poulsallagh Complex SAC
1170	Reefs
1220	Perennial vegetation of stony banks
1395	Petalwort <i>Petalophyllum ralfsii</i>
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation
4060	Alpine and Boreal heaths
5130	Juncus formations on heaths or calcareous grasslands
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco Brometalia)(*important orchid sites)
6510	Lowland hay meadows (Corynephorion)
7220	Petrifying springs with tufa formation (Cratoneurion)
8240	Limestone pavements
8330	Submerged or partially submerged sea caves

Please note that this SAC is adjacent to Galway Bay Complex SAC (000268). See map 2. The conservation objectives for this site should be used in conjunction with those for the adjacent site as appropriate.

Supporting documents, relevant reports & publications

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

NPWS Documents

Year :	1999
Title :	National Shingle Beach Survey of Ireland 1999
Author :	Moore, D.; Wilson, F.
Series :	Unpublished Report to NPWS
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Year :	2013
Title :	Conservation status assessment for petrifying springs
Author :	Lyons, M.D.; Kelly, D.L.
Series :	Unpublished report to NPWS
<hr/>	
Year :	2013
Title :	Irish semi-natural grasslands survey 2007-2012
Author :	O'Neill, F.H.; Martin, J.R.; Devaney, F.M.; Perrin, P.M.
Series :	Irish Wildlife Manual No. 78
<hr/>	
Year :	2013
Title :	National survey of limestone pavement and associated habitats in Ireland
Author :	Wilson, S.; Fernández, F.
Series :	Irish Wildlife Manual No. 73
<hr/>	
Year :	2013
Title :	Monitoring survey of Annex I sand dune habitats in Ireland
Author :	Delaney, A.; Devaney, F.M.; Martin, J.R.; Barron, S.J.
Series :	Irish Wildlife Manual No. 75
<hr/>	
Year :	2014
Title :	Black Head-Poulsallagh Complex SAC (site code: 020) Conservation objectives supporting document- coastal habitats V1
Author :	NPWS
Series :	Conservation objectives supporting document
<hr/>	
Year :	2014
Title :	Black Head-Poulsallagh Complex SAC (site code: 020) Conservation objectives supporting document- water courses V1
Author :	NPWS
Series :	Conservation objectives supporting document
<hr/>	
Year :	2014
Title :	Black Head-Poulsallagh Complex SAC (site code: 020) Conservation objectives supporting document- marine habitats V1
Author :	NPWS
Series :	Conservation objectives supporting document

Other References

Year :	1997
Title :	The BioMar biotope viewer: a guide to marine habitats, fauna and flora in Britain and Ireland
Author :	Picton, B.E.; Costello, M.J.
Series :	Environmental Science Unit, Trinity College Dublin

Year : 2007
Title : Interpretation manual of European Union habitats
Author : European Commission
Series : DG Environment

Year : 2012
Title : Intertidal reef survey of Black Head-Poulsallagh Complex
Author : MERC
Series : Unpublished report to the Marine Institute and NPWS

Year : 2012
Title : Subtidal reef survey of Black Head-Poulsallagh Complex
Author : MERC
Series : Unpublished report to the Marine Institute and NPWS

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

Spatial data sources

Year :	Derived 2014
Title :	Coast of Ireland Oblique Imagery Survey 2003
GIS Operations :	Point dataset created from visual inspection of survey
Used For :	8330 (map 3)
Year :	Interpolated 2014
Title :	1994-1995 BioMar surveys; 2011 reef surveys
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 :	1170, 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 :	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 :	1395 (map 5)
Year :	Revision 2012
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 5)
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 :	1220 (map 5)
Year :	Derived 2014
Title :	Internal NPWS files
GIS Operations :	Dataset created from spatial reference contained in files
Used For :	7220 (map 6)
Year :	2013
Title :	National Survey of Limestone Pavement and Associated Habitats in Ireland distribution data
GIS Operations :	Dataset clipped to the SAC boundary. Expert opinion used as necessary to resolve any issues arising
Used For :	8240 (map 6)
Year :	Derived 2014
Title :	Internal NPWS files
GIS Operations :	Dataset created from spatial references supplied by NPWS experts. Expert opinion used as necessary to resolve any issues arising
Used For :	3260 (map 6)

1170 Reefs

To maintain the favourable conservation condition of Reefs in Black Head-Poulsallagh Complex 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 estimated as 541ha from 1994-1996 BioMar surveys (Picton and Costello, 1997) and 2011 intertidal and subtidal reef surveys (MERC, 2012)
Distribution	Occurrence	The distribution of reefs is stable or increasing, subject to natural processes. See map 3 for mapped distribution	Based on information from 1994-1996 BioMar surveys (Picton and Costello, 1997) and 2011 intertidal and subtidal reef surveys (MERC, 2012)
Community structure	Biological composition	Conserve the following community types in a natural condition: Intertidal reef community complex; <i>Laminaria</i> -dominated community complex. See map 4	Likely area of reef communities was derived from 1994-1996 BioMar surveys (Picton and Costello, 1997) and 2011 intertidal and subtidal reef surveys (MERC, 2012). See marine supporting document for further details

Conservation Objectives for : Black Head-Poulsallagh Complex SAC [000020]

1220 Perennial vegetation of stony banks

To maintain the favourable conservation condition of Perennial vegetation of stony banks in Black Head-Poulsallagh Complex 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: Fanore- 0.22ha	Current area within the SAC is unknown. It was recorded from Poulmagrahaun and Poulsallagh during the National Shingle Beach Survey (NSBS) (Moore and Wilson, 1999), but the extent was not mapped. One area of vegetated shingle was recorded at Fanore during the Sand Dunes Monitoring Project (SDM) (Delaney et al., 2013). NB further unsurveyed areas maybe present within the SAC. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes. See map 5 for mapped locations	Full distribution unknown at present, although the habitat was recorded at Poulmagrahaun and Poulsallagh (Moore and Wilson, 1999). It was also recorded from Fanore by Delaney et al. (2013)
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) and Delaney et al. (2013). 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) and Delaney et al. (2013). At Poulmagrahaun and Poulsallagh, associated habitats include lowland karst and intertidal shingle. At Fanore, a range of coastal habitats, such as strandline, embryo dunes, mobile dunes and fixed dunes, occur adjacent to the vegetated shingle. 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 typical vegetated shingle flora including the range of sub-communities within the different zones	Based on data from Moore and Wilson (1999) and Delaney et al. (2013). The population of rock samphire (<i>Crithmum maritimum</i>) at Poulsallagh was considered during the NSBS to be the best in the region. 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) 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

Conservation Objectives for : Black Head-Poulsallagh Complex SAC [000020]

3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation

To maintain the favourable conservation condition of Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation in Black Head-Poulsallagh Complex SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Kilometres	Area stable or increasing, subject to natural processes. See map 6	A nutrient poor, highly calcareous sub-type of this habitat occurs in the Caher River. This river (calculated as 7.4km long) is of international conservation importance, with in-stream tufaceous springs forming an integral part of the 3260 habitat. These springs also form part of the range of the priority Annex I habitat Petrifying springs with tufa formation (Cratoneurion) (7220) in the SAC. See Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation supporting document and the conservation objective for 7220 for further details
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 6	See Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation supporting document for further details
Hydrological regime: river flow	Metres per second	Maintain appropriate hydrological regime	See Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation supporting document for further details
Hydrological regime: groundwater discharge	Metres per second	Maintain appropriate hydrological regime	See Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation supporting document for further details
Substratum composition: particle size range	Millimetres	Maintain appropriate substratum particle size range, quantity and quality, subject to natural process	See Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation supporting document for further details
Calcium carbonate deposition/tufa formation	Various	Maintain appropriate calcium carbonate concentration in groundwater and appropriate deposition rates in the river to support the natural structure and functioning of the habitat	See Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation supporting document for further details
Water quality	Various	Maintain appropriate water quality to support the natural structure and functioning of the habitat	See Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation supporting document for further details
Vegetation composition: typical species	Occurrence	The typical species of the Caher River tufaceous sub-type should be present and in good condition	See Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation supporting document for further details
Vegetation composition: communities	Occurrence	The characteristic communities of the Caher River tufaceous sub-type should be present, in good condition and should not decline in area (subject to natural processes)	See Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation supporting document for further details
Floodplain connectivity	Hectares	The area of active floodplain at and upstream of the habitat should be maintained	See Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation supporting document for further details

Riparian habitat	Hectares	The area and condition of riparian habitats, notably hazel (<i>Corylus avellana</i>) woodland, should be maintained	See Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation supporting document for further details
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Conservation Objectives for : Black Head-Poulsallagh Complex SAC [000020]

4060 Alpine and Boreal heaths

To maintain the favourable conservation condition of Alpine and Boreal heaths in Black Head-Poulsallagh Complex 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	Alpine and Boreal heaths occurs in intimate association with other Annex I habitats in this SAC: <i>Juniperus communis</i> formations on heaths or calcareous grasslands (5130); Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco- Brometalia) (6210); Petrifying springs with tufa formation (Cratoneurion) (7220); Limestone pavements (8240). Therefore, these habitats cannot easily be mapped or considered separately. Conservation objectives for all these habitats should be used in conjunction with each other as appropriate
Habitat distribution	Occurrence	No decline, subject to natural processes	See notes for area above
Vegetation composition: typical species	Number at a representative number of monitoring stops	At least seven positive indicator species present	List of positive indicator species identified by the national survey of limestone pavement and associated habitats (Wilson and Fernandez, 2013). This document should be consulted for further details
Vegetation composition: negative indicator species	Percentage cover at a representative number of monitoring stops	Negative indicator species collectively not more than 10% cover	List of negative indicator species identified by Wilson and Fernandez (2013)
Vegetation composition: non-native species	Percentage cover at a representative number of monitoring stops	Non-native species not more than 1% cover	Attribute and target based on Wilson and Fernandez (2013)
Vegetation composition: trees and shrubs	Percentage cover at a representative number of monitoring stops	Cover of trees and shrubs (except juniper (<i>Juniperus communis</i>)) not more than 25%	Attribute and target based on Wilson and Fernandez (2013)
Physical structure: disturbance	Percentage cover at a representative number of monitoring stops	Less than 10% disturbed bare ground (excluding rocks/stones)	Attribute and target based on Wilson and Fernandez (2013)
Indicators of local distinctiveness	Occurrence	Indicators of local distinctiveness are maintained	Includes red-data and other rare or localised species as well as archaeological and geological features, which often support distinctive species

Conservation Objectives for : Black Head-Poulsallagh Complex SAC [000020]

5130 >i b]dYfi g'Wta a i b]g formations on heaths or calcareous grasslands

To maintain the favourable conservation condition of *Juniperus communis* formations on heaths or calcareous grasslands in Black Head-Poulsallagh Complex 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	<i>Juniperus communis</i> formations on heaths or calcareous grasslands occurs in intimate association with other Annex I habitats in this SAC: Alpine and Boreal heaths (4060); Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco- Brometalia) (6210); Petrifying springs with tufa formation (Cratoneurion) (7220); Limestone pavements (8240). Therefore, these habitats cannot easily be mapped or considered separately. Conservation objectives for all these habitats should be used in conjunction with each other as appropriate. Cooper et al. (2012) surveyed and mapped one juniper formation within the SAC. Wilson and Valverde (2013) also recorded this habitat
Habitat distribution	Occurrence	No decline, subject to natural processes	See notes for area above
Juniper: population size	Number per formation	At least 50 juniper plants per formation	To classify as a juniper formation, at least 50 plants should be present (Cooper et al., 2012). The surveyed formation (by Cooper et al. (2012)) contained at least 1000 plants
Vegetation composition: typical species	Number per formation	At least 50% of the listed positive indicator species for the relevant vegetation group present	The surveyed juniper formation (by Cooper et al. (2012)) is within vegetation group 1 (<i>Carex flacca-Succisa pratensis</i> group). See Cooper et al. (2012) for positive indicator species
Vegetation composition: negative indicator species	Occurrence per formation	Negative indicator species, particularly non-native invasive species, absent or under control	Negative indicator species listed by Cooper et al. (2012)
Vegetation structure: cone-bearing plants	Percentage per formation	At least 10% of juniper plants are bearing cones	Attribute and target based on Cooper et al. (2012)
Vegetation structure: seedling recruitment	Percentage per formation	At least 10% of juniper plants are seedlings	Attribute and target based on Cooper et al. (2012)
Vegetation structure: dead juniper	Percentage per formation	Mean percentage of each juniper plant dead less than 10%	Attribute and target based on Cooper et al. (2012)

Conservation Objectives for : Black Head-Poulsallagh Complex SAC [000020]

6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco Brometalia*)(*important orchid sites)

To maintain the favourable conservation condition of Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco Brometalia*) in Black Head-Poulsallagh Complex 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	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco- Brometalia</i>) occurs in intimate association with other Annex I habitats in this SAC: Alpine and Boreal heaths (4060); <i>Juniperus communis</i> formations on heaths or calcareous grasslands (5130); Petrifying springs with tufa formation (Cratoneurion) (7220); Limestone pavements (8240). Therefore, these habitats cannot easily be mapped or considered separately. Conservation objectives for all these habitats should be used in conjunction with each other as appropriate. O'Neill et al. (2013) surveyed and mapped some areas of this habitat within the SAC in detail, as did Wilson and Fernandez (2013)
Habitat distribution	Occurrence	No decline, subject to natural processes	See notes for area above
Vegetation composition: typical species	Number at a representative number of monitoring stops	At least seven positive indicator species present, including two "high quality" species	List of positive indicator species, including high quality species, identified by the Irish semi-natural grasslands survey (O'Neill et al., 2013). This document should be consulted for further details
Vegetation composition: negative indicator species	Percentage at a representative number of monitoring stops	Negative indicator species collectively not more than 20% cover, with cover by an individual species not more than 10%	List of negative indicator species identified by O'Neill et al. (2013)
Vegetation composition: non-native species	Percentage at a representative number of monitoring stops	Cover of non-native species not more than 1%	Attribute and target based on O'Neill et al. (2013). Wilson and Fernandez (2013) list red valerian (<i>Centranthus ruber</i>) and cotoneaster (<i>Cotoneaster</i> sp.) as non-native species particularly associated with this habitat and limestone pavement in the Burren
Vegetation composition: woody species and bracken	Percentage at a representative number of monitoring stops	Cover of woody species (except certain listed species) and bracken (<i>Pteridium aquilinum</i>) not more than 5%	Woody species that can occur above 5% cover are juniper (<i>Juniperus communis</i>), burnet rose (<i>Rosa spinosissima</i>), mountain avens (<i>Dryas octopetala</i>) and hoary rock-rose (<i>Helianthemum oelandicum</i>). However, cover of these species above 25% may indicate transition to another Annex I habitat such as Alpine and Boreal heaths (4060) or <i>Juniperus communis</i> formations (5130). Attribute and target based on O'Neill et al. (2013)
Vegetation structure: broadleaf herb: grass ratio	Percentage at a representative number of monitoring stops	Broadleaf herb component of vegetation between 40 and 90%	Attribute and target based on O'Neill et al. (2013)
Vegetation structure: sward height	Percentage at a representative number of monitoring stops	At least 30% of sward between 5cm and 40cm tall	Attribute and target based on O'Neill et al. (2013)
Vegetation structure: litter	Percentage at a representative number of monitoring stops	Litter cover not more than 25%	Attribute and target based on O'Neill et al. (2013)
Physical structure: bare soil	Percentage at a representative number of monitoring stops	Not more than 10% bare soil	Attribute and target based on O'Neill et al. (2013)
Physical structure: disturbance	Square metres	Area showing signs of serious grazing or other disturbance less than 20m ²	Attribute and target based on O'Neill et al. (2013)

Conservation Objectives for : Black Head-Poulsallagh Complex SAC [000020]

6510 Lowland hay meadows (5`cdYW fi g`dfUHbg]g, GUb[i]gcfVUcZV]bU]g)

To maintain the favourable conservation condition of Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*) in Black Head-Poulsallagh Complex 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	Extent of this habitat in this SAC is currently unknown. Internal NPWS files note meadows with some of the indicator species; however, further work is required to establish the nature and extent of this habitat in the SAC, particularly as management by mowing needs to be taken into account
Habitat distribution	Occurrence	No decline, subject to natural processes	Distribution of this habitat in this SAC is currently unknown. See notes for area above
Vegetation composition: typical species	Number at a representative number of monitoring stops	At least seven positive indicator species present, including one "high quality" species as listed in O'Neill et al. (2013)	List of positive indicator species, including high quality species, identified by the Irish semi-natural grasslands survey (O'Neill et al., 2013). This document should be consulted for further details
Vegetation composition: negative indicator species	Percentage at a representative number of monitoring stops	Negative indicator species collectively not more than 20% cover, with cover by an individual species not more than 10%	List of negative indicator species identified by O'Neill et al. (2013)
Vegetation composition: non-native species	Percentage at a representative number of monitoring stops	Cover of non-native species not more than 1%	Attribute and target based on O'Neill et al. (2013)
Vegetation composition: woody species and bracken	Percentage at a representative number of monitoring stops	Cover of woody species and bracken (<i>Pteridium aquilinum</i>) not more than 5%	Attribute and target based on O'Neill et al. (2013)
Vegetation structure: broadleaf herb: grass ratio	Percentage at a representative number of monitoring stops	Broadleaf herb component of vegetation between 40 and 90%	Attribute and target based on O'Neill et al. (2013)
Vegetation structure: sward height	Percentage at a representative number of monitoring stops	At least 50% of sward between 10cm and 50cm tall	Attribute and target based on O'Neill et al. (2013)
Vegetation structure: litter	Percentage at a representative number of monitoring stops	Litter cover not more than 25%	Attribute and target based on O'Neill et al. (2013)
Physical structure: bare soil	Percentage at a representative number of monitoring stops	Not more than 5% bare soil	Attribute and target based on O'Neill et al. (2013)
Physical structure: disturbance	Square metres	Area showing signs of serious grazing or other disturbance less than 20m ²	Attribute and target based on O'Neill et al. (2013)

Conservation Objectives for : Black Head-Poulsallagh Complex SAC [000020]

7220 Petrifying springs with tufa formation (*Cratoneurion*)

To maintain the favourable conservation condition of Petrifying springs with tufa formation (*Cratoneurion*) in Black Head-Poulsallagh Complex SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Square metres	Area stable or increasing, subject to natural processes	10 spring/spring complexes have been recorded in the site (internal NPWS files); however, habitat extent is not yet known. NB further areas of the habitat almost certainly occur within this SAC
Habitat distribution	Occurrence	No decline. See map 6 for recorded locations	This habitat has been recorded at 10 locations within the SAC and is associated with other habitats including limestone pavement (8240) and water courses of plain to montane levels (3260). Lyons and Kelly (2013) recognise three main subtypes of spring. The springs in this SAC fall into the inland non-wooded springs subtype (the other two subtypes being woodland springs and coastal springs) and within this subtype, karst springs are recognised as a distinct group. NB further areas of the habitat almost certainly occur within this SAC. See also the conservation objective for 3260
Hydrological regime: height of water table; water flow	Metres; metres per second	Maintain appropriate hydrological regimes	The hydrological regimes of individual springs are currently unknown in detail. Petrifying springs rely on permanent irrigation, usually from upwelling groundwater sources or seepage sources. In karst areas, water tends to flow away rapidly over bare rock surfaces, even on fairly flat ground (Lyons and Kelly, 2013)
Water quality	Water chemistry measures	Maintain oligotrophic and calcareous conditions	Water chemistry is currently unknown for springs in this SAC. Characteristically, petrifying spring water has high values for pH, alkalinity and dissolved calcium and is oligotrophic (Lyons and Kelly, 2013)
Vegetation composition: typical species	Occurrence	Maintain typical species	The bryophyte <i>Palustriella commutata</i> (<i>Cratoneuron commutatum</i>) is diagnostic of petrifying springs (EC, 2007) and is found in this habitat in the SAC (internal NPWS files). <i>Orthothecium rufescens</i> is recorded on the north-facing slopes of Black Head- its only recorded location in Ireland outside the northwest of the country (Lyons and Kelly, 2013), while the vascular species large-flowered butterwort (<i>Pinguicula grandiflora</i>) is also listed as being present at a number of springs on Cappanawalla. These two species can be indicative of petrifying spring habitat in the Burren (Lyons and Kelly, 2013)

Conservation Objectives for : Black Head-Poulsallagh Complex SAC [000020]

8240 Limestone pavements

To maintain the favourable conservation condition of Limestone pavements in Black Head-Poulsallagh Complex SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable, subject to natural processes	Limestone pavements occurs in intimate association with other Annex I habitats in this SAC: Alpine and Boreal heaths (4060); <i>Juniperus communis</i> formations on heaths or calcareous grasslands (5130); Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (6210); Petrifying springs with tufa formation (Cratoneurion) (7220). Therefore, these habitats cannot easily be mapped or considered separately. Conservation objectives for all these habitats should be used in conjunction with each other as appropriate. Wilson and Fernandez (2013) mapped the indicative area of limestone pavement, including associated habitats as 5,572ha (map 6). Four sites within the SAC were surveyed in detail as part of the national survey of limestone pavement and associated habitats (Wilson and Fernandez, 2013). This survey should be consulted for further details
Habitat distribution	Occurrence	No decline. Map 6 shows indicative distribution, including associated habitats	See notes for area above. Based on data from Wilson and Fernandez (2013). This habitat is split into exposed pavement and wooded pavement. In this SAC, the area of wooded pavement is relatively small
Vegetation composition: typical species	Number at a representative number of monitoring stops	At least seven positive indicator species present	Positive indicator species for exposed and wooded pavement are listed in Wilson and Fernandez (2013)
Vegetation composition: bryophyte layer	Percentage at a representative number of monitoring stops	Bryophyte cover at least 50% on wooded pavement	Attribute and target based on Wilson and Fernandez (2013)
Vegetation composition: negative indicator species	Percentage at a representative number of monitoring stops	Collective cover of negative indicator species on exposed pavement not more than 1%	Negative indicator species listed in Wilson and Fernandez (2013). Negative indicator species for wooded pavement overlap with non-native species (below)
Vegetation composition: non-native species	Percentage at a representative number of monitoring stops	Cover of non-native species not more than 1% on exposed pavement; on wooded pavement not more than 10% with no regeneration	Attribute and target based on Wilson and Fernandez (2013)
Vegetation composition: scrub	Percentage at a representative number of monitoring stops	Scrub cover no more than 25% of exposed pavement	Attribute and target based on Wilson and Fernandez (2013). This SAC has very little scrub cover compared with areas further inland
Vegetation composition: bracken cover	Percentage at a representative number of monitoring stops	Bracken (<i>Pteridium aquilinum</i>) cover no more than 10% on exposed pavement	Attribute and target based on Wilson and Fernandez (2013)
Vegetation structure: woodland canopy	Percentage at a representative number of monitoring stops	Canopy cover on wooded pavement at least 30%	Wooded limestone pavement in this SAC is mostly low-growing hazel (<i>Corylus avellana</i>) woodland, some of which can be classified as Atlantic hazel woodland, an internationally rare woodland type. Despite its low stature it is nonetheless an important habitat for woodland species. Attribute and target based on Wilson and Fernandez (2013)
Vegetation structure: dead wood	Occurrence in a representative number of monitoring stops	Sufficient quantity of dead wood on wooded pavement to provide habitat for saproxylic organisms	Dead wood is a valuable resource and an integral part of a healthy, functioning woodland ecosystem

Physical structure: disturbance	Occurrence in a representative number of monitoring stops	No evidence of grazing pressure on wooded pavement	Attribute and target based on Wilson and Fernandez (2013)
Indicators of local distinctiveness	Occurrence	Indicators of local distinctiveness are maintained	Includes red-data and other rare or localised species as well as archaeological and geological features, which often support distinctive species

Conservation Objectives for : Black Head-Poulsallagh Complex SAC [000020]

8330 Submerged or partially submerged sea caves

To maintain the favourable conservation condition of Submerged or partially submerged sea caves in Black Head-Poulsallagh Complex SAC, which is defined by the following list of attributes and targets:

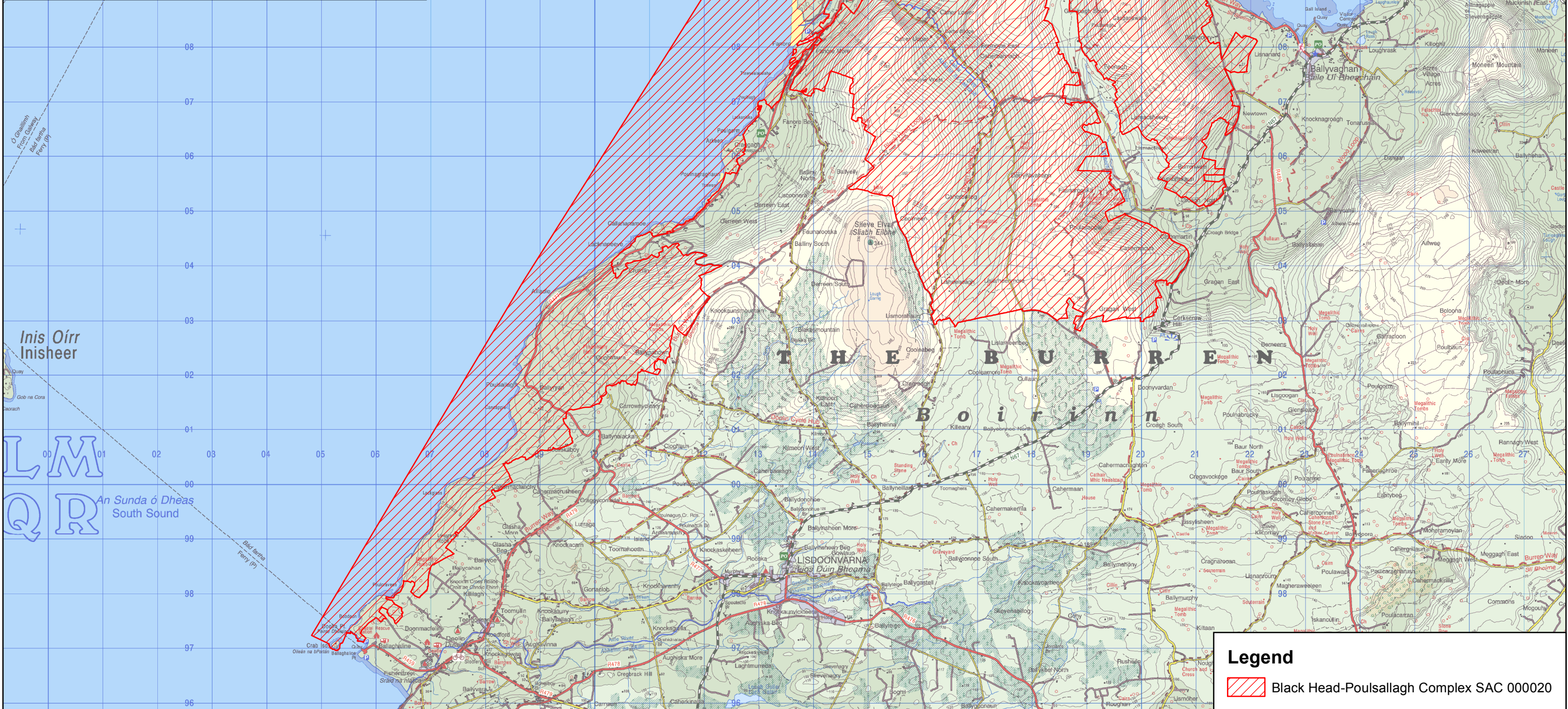
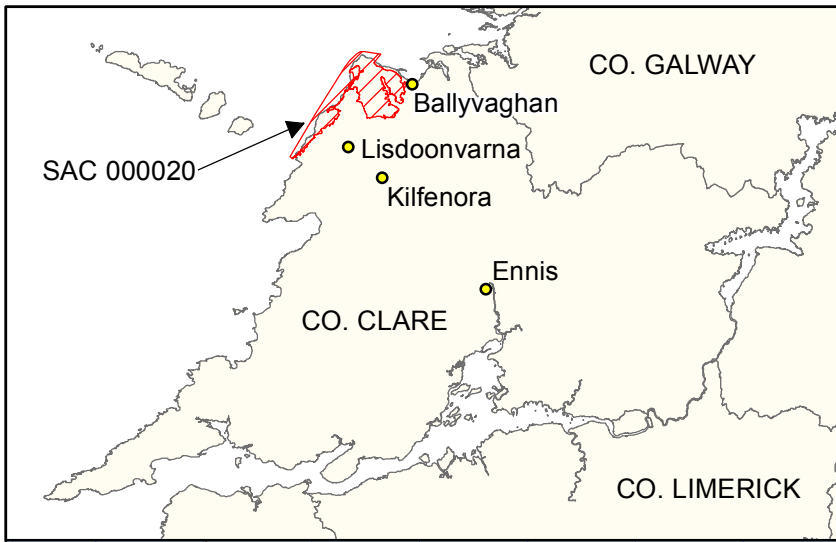
Attribute	Measure	Target	Notes
Distribution	Occurrence	The distribution of sea caves is stable, subject to natural processes. See map 3 for known caves	Sea cave distribution at this site was derived from an oblique aerial survey and therefore only detects the presence of sea caves visible intertidally in the flight path. NB other sea caves may occur within the SAC
Community structure	Biological composition	Human activities should occur at levels that do not adversely affect the ecology of sea caves in this SAC	See marine supporting document for further details

Conservation Objectives for : Black Head-Poulsallagh Complex SAC [000020]

1395 Petalwort *Petalophyllum ralfsii*

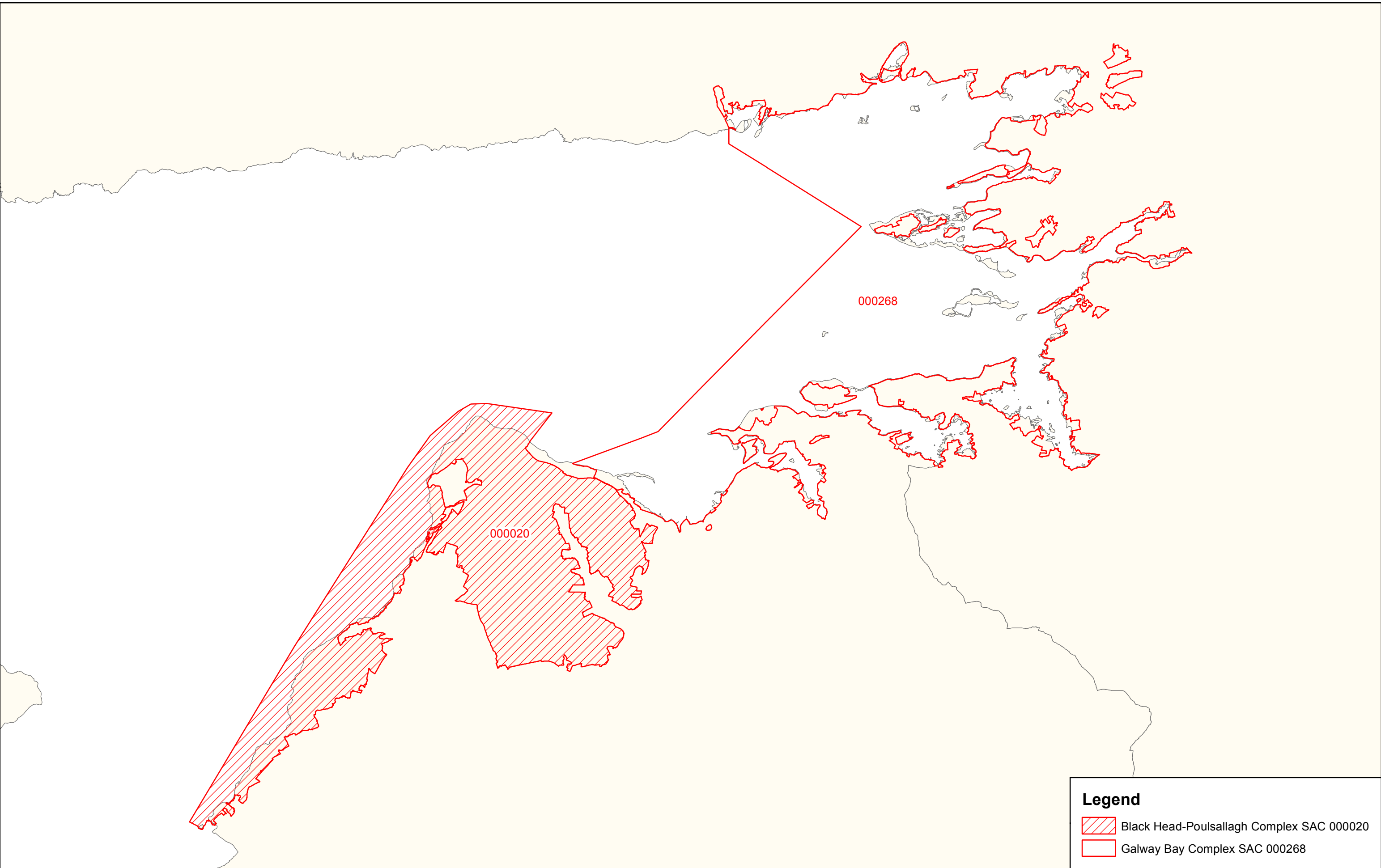
To maintain the favourable conservation condition of Petalwort in Black Head-Poulsallagh Complex SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Distribution of populations	Number and geographical spread	No decline of known population at Fanore. See map 5	The population at Fanore occurs on a trampled path in a damp flat depression strewn with large limestone boulders between sand dunes. Data from NPWS surveys and Campbell (2013)
Population size	Number of individuals	No decline. The population at Fanore is estimated at c.400 thalli	Population derived from mean of number of thalli in three 1 x 1m plots, from three counts from April 2009 to March 2011 (Campbell, 2013); 11.3 thalli per m ² in 35 m ² = 396 thalli (c.400 thalli)
Area of suitable habitat	Hectares	No decline. Area of suitable habitat at Fanore is estimated to be c.0.04ha	The area of occupancy of <i>P. ralfsii</i> at Fanore as measured by GPS mapping is c.70m ² (Campbell, 2013). However, not all of this is suitable and the extent of suitable habitat at Fanore is estimated to be ca. 50% of this figure, i.e. c.35 m ²
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>) grazing and trampling (by walkers). Campbell (2013) recorded a mean height of vegetation of 2.1cm, with bryophyte cover c.26-90% and bare ground c.3-25% (based on three 1 x 1m plots from 2009 and 2011)





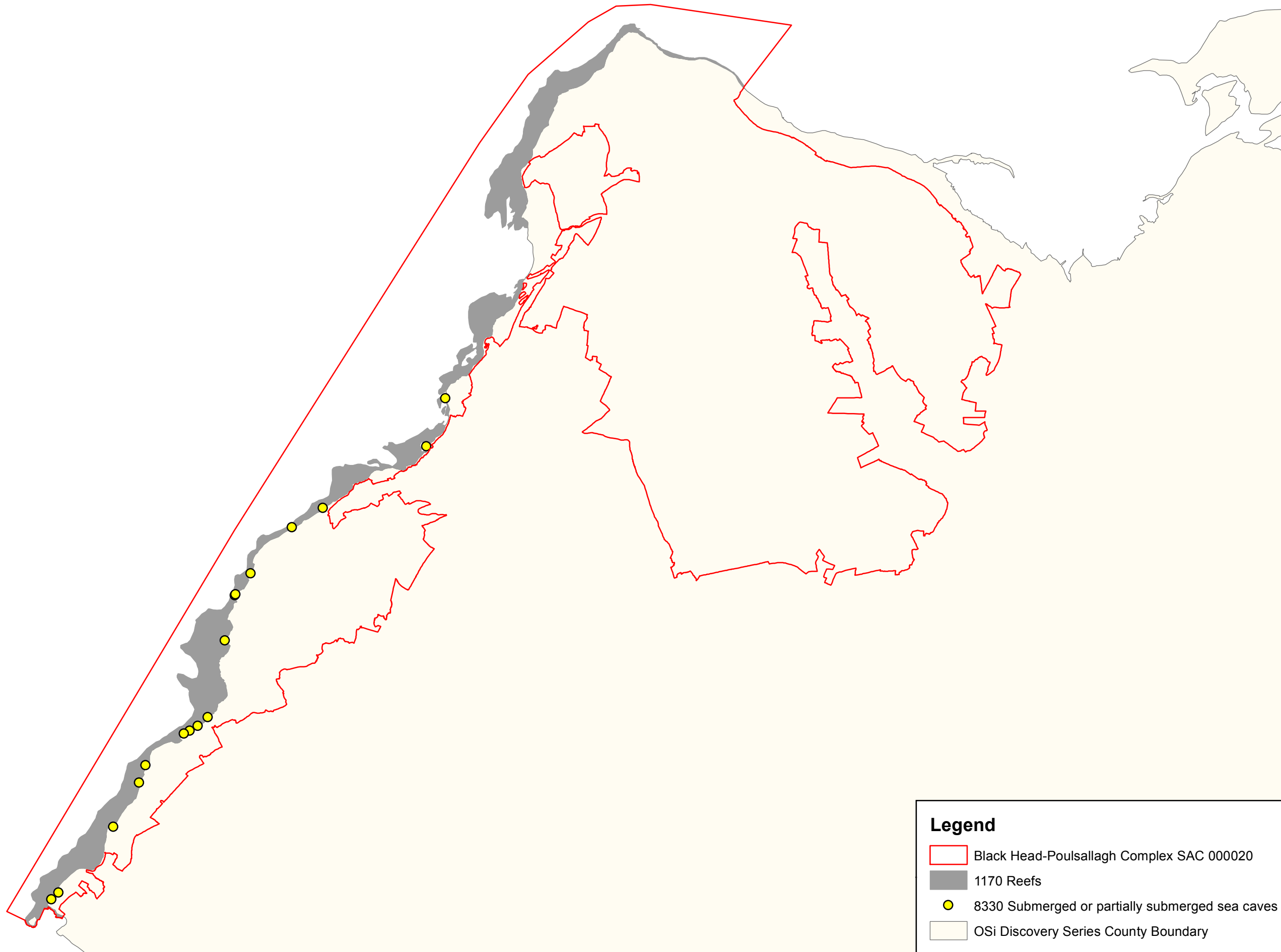
Legend

Black Head-Poulsallagh Complex SAC 000020



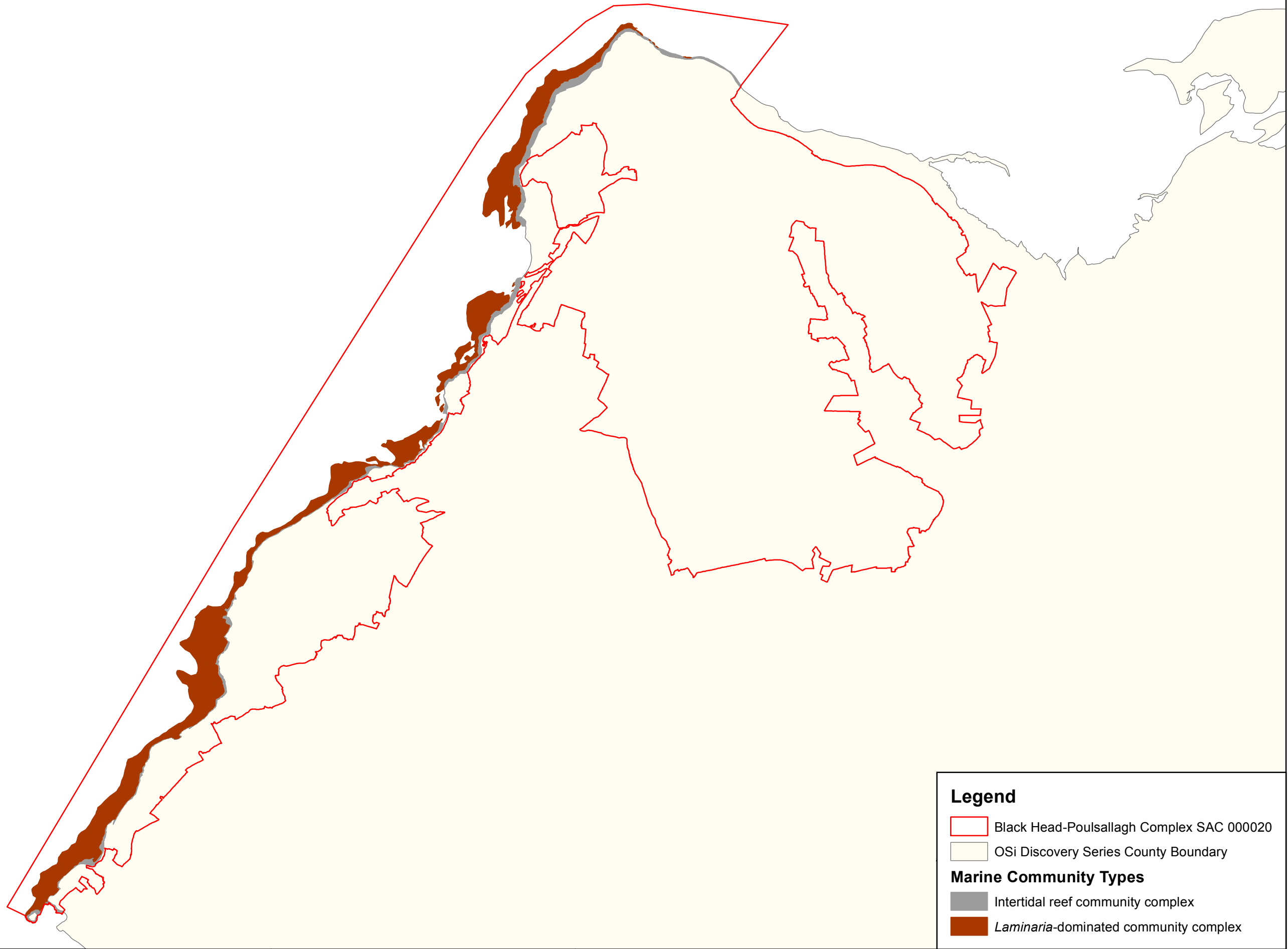
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-  Black Head-Poulsallagh Complex SAC 000020
-  Galway Bay Complex SAC 000268



Legend

- Black Head-Poulsallagh Complex SAC 000020
- 1170 Reefs
- 8330 Submerged or partially submerged sea caves
- OSI Discovery Series County Boundary

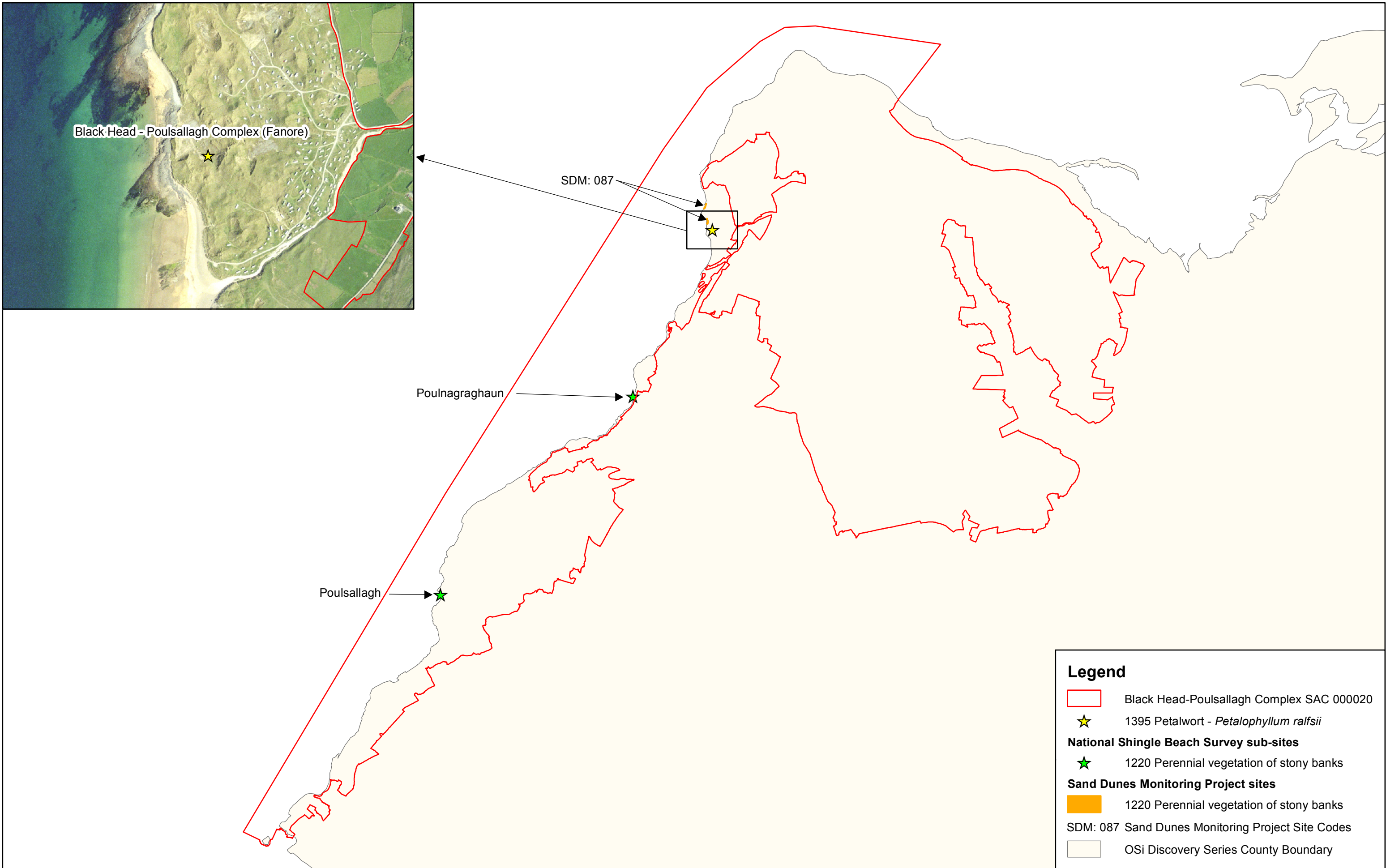


Legend

- Black Head-Poulsallagh Complex SAC 000020
- OSi Discovery Series County Boundary

Marine Community Types

- Intertidal reef community complex
- Laminaria*-dominated community complex



Legend

- Black Head-Poulsallagh Complex SAC 000020
- ★ 1395 Petalwort - *Petalophyllum ralfsii*
- National Shingle Beach Survey sub-sites**
- ★ 1220 Perennial vegetation of stony banks
- Sand Dunes Monitoring Project sites**
- 1220 Perennial vegetation of stony banks
- SDM: 087 Sand Dunes Monitoring Project Site Codes
- OSi Discovery Series County Boundary

