

# National Parks and Wildlife Service

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## *Conservation Objectives Series*

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### Bellacorick Bog Complex SAC 001922



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



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## Introduction

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

### Notes/Guidelines:

1. The targets given in these conservation objectives are based on best available information at the time of writing. As more information becomes available, targets for attributes may change. These will be updated periodically, as necessary.
2. An appropriate assessment based on these conservation objectives will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out. It is essential that the date and version are included when objectives are cited.
3. Assessments cannot consider an attribute in isolation from the others listed for that habitat or species, or for other habitats and species listed for that site. A plan or project with an apparently small impact on one attribute may have a significant impact on another.
4. Please note that the maps included in this document do not necessarily show the entire extent of the habitats and species for which the site is listed. This should be borne in mind when appropriate assessments are being carried out.
5. When using these objectives, it is essential that the relevant backing/supporting documents are consulted, particularly where instructed in the targets or notes for a particular attribute.

## Qualifying Interests

*\* indicates a priority habitat under the Habitats Directive*

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001922	Bellacorick Bog Complex SAC
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1013	Geyer's Whorl Snail <i>Vertigo geyeri</i>
1528	Marsh Saxifrage <i>Saxifraga hirculus</i>
3160	Natural dystrophic lakes and ponds
4010	Northern Atlantic wet heaths with <i>Calluna vulgaris</i> <del>Calluna vulgaris</del>
7130	Blanket bogs (* if active bog)
7150	Depressions on peat substrates of the Rhynchosporion
7230	Alkaline fens

**Please note that this SAC is adjacent to River Moy SAC (002298). 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](http://www.npws.ie/Publications)

### NPWS Documents

<b>Year :</b>	1987
<b>Title :</b>	A survey to locate blanket bogs of scientific interest in County Mayo. Part I
<b>Author :</b>	Foss, P.; McGee, E.
<b>Series :</b>	A report commissioned by the Wildlife Service
<b>Year :</b>	1989
<b>Title :</b>	Survey to locate blanket bogs of scientific interest in Mayo. Part II
<b>Author :</b>	Douglas, C.; Garvey, L.; Kelly, L.; O'Sullivan, A.; Van Doorsleer, L.
<b>Series :</b>	A report commissioned by the Wildlife Service
<b>Year :</b>	2011
<b>Title :</b>	Monitoring and condition assessment of populations of <i>Vertigo geyeri</i> , <i>Vertigo angustior</i> and <i>Vertigo moulinsiana</i> in Ireland
<b>Author :</b>	Moorkens, E.; Killeen, I.
<b>Series :</b>	Irish Wildlife Manual No. 55
<b>Year :</b>	2011
<b>Title :</b>	Implementation of a <i>Vertigo</i> monitoring programme: <i>Vertigo angustior</i> monitoring at Fermoy
<b>Author :</b>	Moorkens, E.A.; Killeen, I.J.
<b>Series :</b>	Unpublished report to NPWS
<b>Year :</b>	2011
<b>Title :</b>	Implementation of a <i>Vertigo</i> monitoring programme: <i>Vertigo geyeri</i> monitoring at Brackloon
<b>Author :</b>	Moorkens, E.A.; Killeen, I.J.
<b>Series :</b>	Unpublished report to NPWS
<b>Year :</b>	2012
<b>Title :</b>	Ireland Red List No. 8: Bryophytes
<b>Author :</b>	Lockhart, N.; Hodgetts, N.; Holyoak, D.
<b>Series :</b>	Ireland Red List series, NPWS
<b>Year :</b>	2013
<b>Title :</b>	The status of EU protected habitats and species in Ireland. Volume 2. Habitats assessments
<b>Author :</b>	NPWS
<b>Series :</b>	Conservation assessments
<b>Year :</b>	2013
<b>Title :</b>	The status of EU protected habitats and species in Ireland. Volume 3. Species assessments
<b>Author :</b>	NPWS
<b>Series :</b>	Conservation assessments
<b>Year :</b>	2014
<b>Title :</b>	Guidelines for a national survey and conservation assessment of upland vegetation and habitats in Ireland, Version 2.0
<b>Author :</b>	Perrin, P.M.; Barron, S.J.; Roche, J.R.; O'Hanrahan, B.
<b>Series :</b>	Irish Wildlife Manual No. 79
<b>Year :</b>	2015
<b>Title :</b>	Monitoring recommendations for Marsh Saxifrage ( <i>Saxifraga hirculus</i> L.) in the Republic of Ireland
<b>Author :</b>	Muldoon, C.S.; Waldren, S.; Lynn, D.
<b>Series :</b>	Irish Wildlife Manual No. 88

<b>Year :</b>	2015
<b>Title :</b>	Habitats Directive Annex I lake habitats: a working interpretation for the purposes of site-specific conservation objectives and Article 17 reporting
<b>Author :</b>	O Connor, Á.
<b>Series :</b>	Unpublished document by NPWS
<b>Year :</b>	2016
<b>Title :</b>	Ireland Red List No. 10: Vascular Plants
<b>Author :</b>	Wyse Jackson, M.; FitzPatrick, Ú.; Cole, E.; Jebb, M.; McFerran, D.; Sheehy Skeffington, M.; Wright, M.
<b>Series :</b>	Ireland Red Lists series, NPWS
<b>Year :</b>	2017
<b>Title :</b>	Bellacorick Bog Complex SAC (site code: 1922) Conservation objectives supporting document-blanket bogs and associated habitats V1
<b>Author :</b>	NPWS
<b>Series :</b>	Conservation objectives supporting document

## Other References

<b>Year :</b>	1982
<b>Title :</b>	Eutrophication of waters. Monitoring assessment and control
<b>Author :</b>	OECD
<b>Series :</b>	OECD, Paris
<b>Year :</b>	2000
<b>Title :</b>	Colour in Irish lakes
<b>Author :</b>	Free, G.; Allott, N.; Mills, P.; Kennelly, C.; Day, S.
<b>Series :</b>	Verhandlungen Internationale Vereinigung für theoretische und angewandte Limnologie, 27: 2620-2623
<b>Year :</b>	2005
<b>Title :</b>	Widespread occurrence of <i>Vertigo geyeri</i> (Gastropoda: Vertiginidae) in north and west Ireland
<b>Author :</b>	Holyoak, G.A.
<b>Series :</b>	Irish Naturalists' Journal, 28: 141-150
<b>Year :</b>	2006
<b>Title :</b>	A reference-based typology and ecological assessment system for Irish lakes. Preliminary investigations. Final report. Project 2000-FS-1-M1 Ecological assessment of lakes pilot study to establish monitoring methodologies EU (WFD)
<b>Author :</b>	Free, G.; Little, R.; Tierney, D.; Donnelly, K.; Coroni, R.
<b>Series :</b>	EPA, Wexford
<b>Year :</b>	2008
<b>Title :</b>	Water Quality in Ireland 2004-2006
<b>Author :</b>	Clabby, K.J.; Bradley, C.; Craig, M.; Daly, D.; Lucey, J.; McGarrigle, M.; O'Boyle, S.; Tierney, D.; Bowman, J.
<b>Series :</b>	EPA, Wexford
<b>Year :</b>	2010
<b>Title :</b>	Water quality in Ireland 2007-2009
<b>Author :</b>	McGarrigle, M.; Lucey, J.; Ó Cinnéide, M.
<b>Series :</b>	EPA, Wexford
<b>Year :</b>	2011
<b>Title :</b>	Conservation biology of <i>Saxifraga hirculus</i> L. in Ireland
<b>Author :</b>	Muldoon, C.S.
<b>Series :</b>	Unpublished Ph.D. Thesis, Trinity College Dublin

<b>Year :</b>	2012
<b>Title :</b>	The impact of conifer plantation forestry on the ecology of peatland lakes
<b>Author :</b>	Drinan, T.J.
<b>Series :</b>	Unpublished Ph.D. thesis, University College Cork
<b>Year :</b>	2013
<b>Title :</b>	Interpretation manual of European Union habitats- Eur 28
<b>Author :</b>	European Commission- DG Environment
<b>Series :</b>	European Commission
<b>Year :</b>	2015
<b>Title :</b>	Water quality in Ireland 2010-2012
<b>Author :</b>	Bradley, C.; Byrne, C.; Craig, M.; Free, G.; Gallagher, T.; Kennedy, B.; Little, R.; Lucey, J.; Mannix, A.; McCreesh, P.; McDermott, G.; McGarrigle, M.; Ní Longphuirt, S.; O'Boyle, S.; Plant, C.; Tierney, D.; Trodd, W.; Webster, P.; Wilkes, R.; Wynne, C.
<b>Series :</b>	EPA, Wexford

## Spatial data sources

<b>Year :</b>	2008
<b>Title :</b>	OSi 1:5000 IG vector dataset
<b>GIS Operations :</b>	WaterPolygons feature class clipped to the SAC boundary. Expert opinion used to identify Annex I habitat and to resolve any issues arising
<b>Used For :</b>	3160 (map 3)
<b>Year :</b>	2017
<b>Title :</b>	NPWS rare and threatened species database
<b>GIS Operations :</b>	Dataset created from spatial references in database records. Expert opinion used as necessary to resolve any issues arising
<b>Used For :</b>	1013 (map 4)

## Conservation Objectives for : Bellacorick Bog Complex SAC [001922]

### 3160 Natural dystrophic lakes and ponds

**To maintain the favourable conservation condition of Natural dystrophic lakes and ponds in Bellacorick Bog 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	Bellacorick Bog Complex SAC has some of the most extensive extant areas of lowland blanket bog pool systems. Habitat 3160 is likely to occur in all pools and lakes and all are mapped as potential 3160 (map 3). Although there are more than 5,700 lake/pool polygons, many pools are not mapped in the 1:5,000 OSi data (see map 3). The habitat is of high conservation value in the SAC, owing to the area, extent and morphological diversity of pools. For further information on the distribution, vegetation and morphology of the habitat in the SAC, see Foss and McGee (1987) and Douglas et al. (1989). Two measures of extent should be used: 1. the area of the lake itself and; 2. the extent of the vegetation communities/zones that typify the habitat. Further information relating to all attributes is provided in the lake habitats supporting document for the purposes of site-specific conservation objectives and Article 17 reporting (O Connor, 2015)
Habitat distribution	Occurrence	No decline, subject to natural processes	As noted above, the habitat is widespread in the SAC (see map 3). All lake/pond polygons have been mapped as potential 3160
Typical species	Occurrence	Typical species present, in good condition, and demonstrating typical abundances and distribution	For lists of typical plant and invertebrate species, see the Article 17 habitat assessment for 3160 (NPWS, 2013) and O Connor (2015). Douglas et al. (1989) state that pools and lakes typically have many-stalked spike-rush ( <i>Eleocharis multicaulis</i> ), bogbean ( <i>Menyanthes trifoliata</i> ), the bog mosses <i>Sphagnum denticulatum</i> and <i>S. cuspidatum</i> , with great sundew ( <i>Drosera anglica</i> ) and round-leaved sundew ( <i>D. rotundifolia</i> ) in shallower interconnecting pools. Pipewort ( <i>Eriocaulon aquaticum</i> ), bulbous rush ( <i>Juncus bulbosus</i> ) and water lobelia ( <i>Lobelia dortmanna</i> ) also occur in pools and lakes, while bladderworts ( <i>Utricularia</i> spp.), broad-leaved pondweed ( <i>Potamogeton natans</i> ), common reed ( <i>Phragmites australis</i> ) and bottle sedge ( <i>Carex rostrata</i> ) were also recorded
Vegetation composition: characteristic zonation	Occurrence	All characteristic zones should be present, correctly distributed and in good condition	Further work is necessary to describe the characteristic zonation and other spatial patterns in lake habitat 3160 (see O Connor, 2015). Spatial patterns are likely to be relatively simple in 3160 lakes and ponds, with limited zonation
Vegetation distribution: maximum depth	Metres	Maintain maximum depth of vegetation, subject to natural processes	The maximum depth of vegetation is likely to be specific to the lake shoreline in question. Further work is necessary to develop indicative targets for lake habitat 3160. 3160 lakes and pools naturally have very clear water and, therefore, maximum depth can be large

Hydrological regime: water level fluctuations	Metres	Maintain appropriate natural hydrological regime necessary to support the habitat	Fluctuations in lake water level are typical in Ireland, but can be amplified by activities such as abstraction and drainage. 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. The hydrological regime of the lakes and pools 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. The hydrological regime of 3160 lakes and pools is integrally linked to that of the surrounding blanket bog, transition mire/quaking bog and other peatland habitats. Owing to their size and the sensitivity of peatland, 3160 lakes and pools can easily be damaged or destroyed by drainage
Lake substratum quality	Various	Maintain appropriate substratum type, extent and chemistry to support the vegetation	Research is required to further characterise the substratum types (particle size and origin) and substratum quality (notably pH, calcium, iron and nutrient concentrations) favoured by each of the five Annex I lake habitats in Ireland. It is likely that lake habitat 3160 is associated with nutrient-poor peat and silt substrates
Water quality: transparency	Metres	Maintain appropriate Secchi transparency. There should be no decline in Secchi depth/transparency	Transparency relates to light penetration and, hence, to the depth of colonisation of vegetation. It can be affected by phytoplankton blooms, water colour and turbidity. A specific target has yet to be established for this Annex I lake habitat. Habitat 3160 is associated with very clear water. The OECD fixed boundary system set transparency targets for ultra-oligotrophic lakes of $\geq 12\text{m}$ annual mean Secchi disk depth, and $\geq 6\text{m}$ annual minimum Secchi disk depth
Water quality: nutrients	$\mu\text{g/l P}$ ; $\text{mg/l N}$	Maintain the concentration of nutrients in the water column at sufficiently low levels to support the habitat and its typical species	As a nutrient-poor habitat, oligotrophic and Water Framework Directive (WFD) 'high' status targets apply. Where a lake has nutrient concentrations that are lower than these targets, there should be no decline within class, i.e. no upward trend in nutrient concentrations. For 3160 lakes and pools, annual average total phosphorus (TP) concentration should be $\leq 5\mu\text{g/l TP}$ , average annual total ammonia concentration should be $\leq 0.040\text{mg/l N}$ and annual 95th percentile for total ammonia should be $\leq 0.090\text{mg/l N}$ . See also The European Communities Environmental Objectives (Surface Waters) Regulations 2009
Water quality: phytoplankton biomass	$\mu\text{g/l Chlorophyll } a$	Maintain appropriate water quality to support the habitat, including high chlorophyll <i>a</i> status	Oligotrophic and WFD 'high' status targets apply to lake habitat 3160. The average growing season (March-October) chlorophyll <i>a</i> concentration must be $< 5.8\mu\text{g/l}$ (The European Communities Environmental Objectives (Surface Waters) Regulations 2009). Where a lake has a chlorophyll <i>a</i> concentration that is lower than this target, there should be no decline within class, i.e. no upward trend in phytoplankton biomass. The OECD targets may be more appropriate for habitat 3160: annual average chlorophyll <i>a</i> concentration $< 1\mu\text{g/l}$ and annual peak chlorophyll <i>a</i> concentration $\leq 2.5\mu\text{g/l}$
Water quality: phytoplankton composition	EPA phytoplankton composition metric	Maintain appropriate water quality to support the habitat, including high phytoplankton composition status	The Environmental Protection Agency (EPA) has developed a phytoplankton composition metric for nutrient enrichment of Irish lakes. As for other water quality indicators, lake habitat 3160 requires WFD high status
Water quality: attached algal biomass	Algal cover and EPA phytobenthos metric	Maintain trace/absent attached algal biomass ( $< 5\%$ cover) and high phytobenthos status	Nutrient enrichment can favour epiphytic and epipelic algae that can out-compete the submerged vegetation. The cover abundance of attached algae in the oligotrophic soft water habitat should, therefore, be trace/absent ( $< 5\%$ cover). EPA phytobenthos can be used as an indicator of changes in attached algal biomass. As for other water quality indicators, lake habitat 3160 requires high phytobenthos status

Water quality: macrophyte status	EPA macrophyte metric (The Free Index)	Maintain high macrophyte status	Nutrient enrichment can favour more competitive submerged macrophyte species that out-compete the typical and characteristic species for the lake habitat. The EPA monitors macrophyte status for WFD purposes using the 'Free Index'. The target for 3160 lakes and pools is high status or an Ecological Quality Ratio (EQR) for lake macrophytes of $\geq 0.90$ , as defined in Schedule Five of the European Communities Environmental Objectives (Surface Waters) Regulations 2009
Acidification status	pH units; mg/l	Maintain appropriate water and sediment pH, alkalinity and cation concentrations to support the habitat, subject to natural processes	Acidification can impact on species abundance and composition in soft water lake habitats. Although European Commission (2013) describes lake habitat 3160 as having pH 3-6, Drinan (2012) found mean pHs of 5.16 and 5.62 in upland and lowland 3160 lakes, respectively. The target for habitat 3160 is pH $>4.5$ and $<9.0$ , in line with the surface water standards for soft waters (where water hardness is $\leq 100$ mg/l calcium carbonate). See Schedule Five of the European Communities Environmental Objectives (Surface Waters) Regulations 2009. The specific requirements of lake habitat 3160, in terms of water and sediment pH, alkalinity and cation concentration, have not been determined
Water colour	mg/l PtCo	Maintain appropriate water colour to support the habitat	Increased water colour and turbidity decrease light penetration and can reduce the area of available habitat for lake macrophytes, particularly at the lower euphotic depths. The primary source of increased water colour in Ireland is disturbance to peatland. No habitat-specific or national standards for water colour currently exist. Studies have shown median colour concentrations in Irish lakes of 38mg/l PtCo (Free et al., 2000) and 33mg/l PtCo (Free et al., 2006). It is likely that the water colour in all Irish lake habitats would naturally be $<50$ mg/l PtCo. Water colour can be very low ( $<20$ mg/l PtCo or even $<10$ mg/l PtCo) in 3160 lakes and pools where the peatland in the lake's catchment is intact
Dissolved organic carbon (DOC)	mg/l	Maintain appropriate organic carbon levels to support the habitat	Dissolved (and particulate) organic carbon (OC) in the water column is linked to water colour and acidification (organic acids). Increasing DOC in water has been documented across the Northern Hemisphere, including afforested peatland catchments in Ireland. Damage and degradation of peatland, leading to decomposition of peat is likely to be the predominant source of OC in Ireland. OC in water promotes decomposition by fungi and bacteria that, in turn, releases dissolved nutrients. The increased biomass of decomposers can also impact directly on the characteristic lake communities through shading, competition, etc.
Turbidity	Nephelometric turbidity units/ mg/l SS/ other appropriate units	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, delicate species. Turbidity can increase as a result of re-suspension of material within the lake, higher loads entering the lake, or eutrophication. Turbidity measurement and interpretation is challenging. As a result, it is likely to be difficult to set habitat-specific targets for turbidity in lakes

Fringing habitat: Hectares  
area and condition

Maintain the area and condition of fringing habitats necessary to support the natural structure and functioning of habitat 3160

3160 lakes and pool intergrade with blanket bog communities in this SAC. Spring-fed, species-rich flushes are a significant feature, occurring throughout the complex and supporting poor and rich fen and swamp carr communities. Quaking bog is also associated with pool systems in the SAC. These habitats support the structure and functions of the lake habitat. The fringing habitats are also dependent on the lake/pool, particularly its water levels, and can support wetland communities and species of conservation concern

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## Conservation Objectives for : Bellacorick Bog Complex SAC [001922]

### 4010 Northern Atlantic wet heaths with *Erica tetralix*

**To restore the favourable conservation condition of Northern Atlantic wet heaths with *Erica tetralix* in Bellacorick Bog 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	Northern Atlantic wet heaths with <i>Erica tetralix</i> has not been mapped in detail for Bellacorick Bog Complex SAC, but from current available data the total area of the qualifying habitat is estimated to be approximately 187ha, covering 2% of the SAC (NPWS internal files). Further details on this and the following attributes can be found in the Bellacorick Bog Complex SAC conservation objectives supporting document for blanket bogs and associated habitats
Habitat distribution	Occurrence	No decline, subject to natural processes	The habitat occurs occasionally on sloping ground and on elevated mounds of mineral soil that are scattered throughout the lowland blanket bog-covered plains. These are particularly evident in the Owenboy Nature Reserve and along some of the steeper stream valley sides (NPWS internal files). Further information can be found within Foss and McGee (1987), NPWS internal files and the blanket bogs and associated habitats supporting document
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil nutrient status within natural range	See the blanket bogs and associated habitats supporting document for further details
Community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	Wet heath vegetation communities have been recorded in this SAC (Douglas et al., 1989; NPWS internal files), one of which corresponds to a community recorded in the National Survey of Upland Habitats and listed in the provisional list of vegetation communities described in Perrin et al. (2014). Further information on vegetation communities associated with this habitat is presented in Perrin et al. (2014)
Vegetation composition: cross-leaved heath	Occurrence within 20m of a representative number of monitoring stops	Cross-leaved heath ( <i>Erica tetralix</i> ) present within a 20m radius of each monitoring stop	Attribute and target based on Perrin et al. (2014)
Vegetation composition: positive indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of positive indicator species at least 50%	Attribute and target based on Perrin et al. (2014), where the list of positive indicator species for this habitat is also presented
Vegetation composition: lichens and bryophytes	Percentage cover at a representative number of 2m x 2m monitoring stops	Total cover of <i>Cladonia</i> and <i>Sphagnum</i> species, <i>Racomitrium lanuginosum</i> and pleurocarpous mosses at least 10%	Attribute and target based on Perrin et al. (2014)
Vegetation composition: ericoid species and crowberry	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of ericoid species and crowberry ( <i>Empetrum nigrum</i> ) at least 15%	Attribute and target based on Perrin et al. (2014)
Vegetation composition: dwarf shrub species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of dwarf shrubs less than 75%	Attribute and target based on Perrin et al. (2014)
Vegetation composition: negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Total cover of negative indicator species less than 1%	Attribute and target based on Perrin et al. (2014), where the list of negative indicator species for this habitat is also presented

Vegetation composition: non-native species	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of non-native species less than 1%	Attribute and target based on Perrin et al. (2014)
Vegetation composition: native trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of scattered native trees and shrubs less than 20%	Attribute and target based on Perrin et al. (2014)
Vegetation composition: bracken	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of bracken ( <i>Pteridium aquilinum</i> ) less than 10%	Attribute and target based on Perrin et al. (2014)
Vegetation composition: soft rush	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of soft rush ( <i>Juncus effusus</i> ) less than 10%	Attribute and target based on Perrin et al. (2014)
Vegetation structure: <i>Sphagnum</i> condition	Condition at a representative number of 2m x 2m monitoring stops	Less than 10% of the <i>Sphagnum</i> cover is crushed, broken and/or pulled up	Attribute and target based on Perrin et al. (2014)
Vegetation structure: signs of browsing	Percentage of shoots browsed at a representative number of 2m x 2m monitoring stops	Less than 33% collectively of the last complete growing season's shoots of ericoids, crowberry ( <i>Empetrum nigrum</i> ) and bog-myrtle ( <i>Myrica gale</i> ) showing signs of browsing	Attribute and target based on Perrin et al. (2014)
Vegetation structure: burning	Occurrence in local vicinity of a representative number of monitoring stops	No signs of burning in sensitive areas, into the moss, liverwort or lichen layer or exposure of peat surface due to burning	Attribute and target based on Perrin et al. (2014), where the list of sensitive areas for this habitat is also presented
Physical structure: disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of disturbed bare ground less than 10%	Attribute and target based on Perrin et al. (2014)
Physical structure: drainage	Percentage area in local vicinity of a representative number of monitoring stops	Area showing signs of drainage from heavy trampling, tracking or ditches less than 10%	Attribute and target based on Perrin et al. (2014)
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	This includes species listed in the Flora (Protection) Order, 2015 and/or the red data lists (Lockhart et al., 2012; Wyse Jackson et al., 2016)

## Conservation Objectives for : Bellacorick Bog Complex SAC [001922]

### 7130 Blanket bogs (\* if active bog)

**To restore the favourable conservation condition of Blanket bogs (\* if active bog) in Bellacorick Bog 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	Blanket bog has not been mapped in detail for Bellacorick Bog Complex SAC, but from current available data the total area of the qualifying habitat is estimated to be approximately 6,286ha, covering 66% of the SAC (NPWS internal files). Further details on this and the following attributes can be found in the Bellacorick Bog Complex SAC conservation objectives supporting document for blanket bogs and associated habitats
Habitat distribution	Occurrence	No decline, subject to natural processes	The habitat is documented to occur throughout the SAC. Further information can be found within Foss and McGee (1987), Douglas et al. (1989), NPWS internal files and the blanket bogs and associated habitats supporting document
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil nutrient status within natural range	See the blanket bogs and associated habitats supporting document for further details
Ecosystem function: peat formation	Active blanket bog as a proportion of the total area of Annex I blanket bog habitat	At least 99% of the total Annex I blanket bog area is active	See the blanket bogs and associated habitats supporting document for further details
Ecosystem function: hydrology	Flow direction, water levels, occurrence of drains and erosion gullies	Natural hydrology unaffected by drains and erosion	Further details and a brief discussion of restoration potential is presented in the blanket bogs and associated habitats supporting document
Community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	A variety of blanket bog vegetation communities have been recorded in this SAC (Foss and McGee, 1987; Douglas et al., 1989; NPWS internal files), five of which correspond to communities recorded in the National Survey of Upland Habitats and listed in the provisional list of vegetation communities described in Perrin et al. (2014). Further information on vegetation communities associated with this habitat is presented in Perrin et al. (2014)
Vegetation composition: positive indicator species	Number of species at a representative number of 2m x 2m monitoring stops	Number of positive indicator species present at each monitoring stop is at least seven	Attribute and target based on Perrin et al. (2014), where the list of positive indicator species for this habitat is also presented
Vegetation composition: lichens and bryophytes	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of bryophytes or lichens, excluding <i>Sphagnum fallax</i> , at least 10%	Attribute and target based on Perrin et al. (2014)
Vegetation composition: potential dominant species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of each of the potential dominant species less than 75%	Attribute and target based on Perrin et al. (2014). See the blanket bogs and associated habitats supporting document for the list of potential dominant species
Vegetation composition: negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Total cover of negative indicator species less than 1%	Attribute and target based on Perrin et al. (2014), where the list of negative indicator species for this habitat is also presented
Vegetation composition: non-native species	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of non-native species less than 1%	Attribute and target based on Perrin et al. (2014). <i>Rhododendron</i> ( <i>Rhododendron ponticum</i> ) occurs within this habitat in the SAC (NPWS internal files)

Vegetation composition: native trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of scattered native trees and shrubs less than 10%	Attribute and target based on Perrin et al. (2014)
Vegetation structure: <i>Sphagnum</i> condition	Condition at a representative number of 2m x 2m monitoring stops	Less than 10% of the <i>Sphagnum</i> cover is crushed, broken and/or pulled up	Attribute and target based on Perrin et al. (2014)
Vegetation structure: signs of browsing	Percentage of shoots browsed at a representative number of 2m x 2m monitoring stops	Last complete growing season's shoots of ericoids, crowberry ( <i>Empetrum nigrum</i> ) and bog-myrtle ( <i>Myrica gale</i> ) showing signs of browsing collectively less than 33%	Attribute and target based on Perrin et al. (2014)
Vegetation structure: burning	Occurrence in local vicinity of a representative number of monitoring stops	No signs of burning in sensitive areas, into the moss, liverwort or lichen layer or exposure of peat surface due to burning	Attribute and target based on Perrin et al. (2014), where the list of sensitive areas for this habitat is also presented
Physical structure: disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of disturbed bare ground less than 10%	Attribute and target based on Perrin et al. (2014)
Physical structure: drainage	Percentage area in local vicinity of a representative number of monitoring stops	Area showing signs of drainage from heavy trampling, tracking or ditches less than 10%	Attribute and target based on Perrin et al. (2014)
Physical structure: erosion	Percentage area in local vicinity of a representative number of monitoring stops	Less than 5% of the greater bog mosaic comprises erosion gullies and eroded areas	Attribute and target based on Perrin et al. (2014)
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	This includes species listed in the Flora (Protection) Order, 2015 and/or the red data lists (Lockhart et al., 2012; Wyse Jackson et al., 2016). The Near Threatened brown beak-sedge ( <i>Rhynchospora fusca</i> ) (Wyse Jackson et al., 2016) was recorded from the Bellacorick Bog area (Douglas et al., 1989), but this species cannot be assigned specifically to blanket bog

## Conservation Objectives for : Bellacorick Bog Complex SAC [001922]

### 7150 Depressions on peat substrates of the Rhynchosporion

**To restore the favourable conservation condition of Depressions on peat substrates of the Rhynchosporion in Bellacorick Bog 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	Depressions on peat substrates of the Rhynchosporion has not been mapped in detail for Bellacorick Bog Complex SAC and thus the total area of the qualifying habitat in the SAC is unknown. Further details on this and the following attributes can be found in the Bellacorick Bog Complex SAC conservation objectives supporting document for blanket bogs and associated habitats
Habitat distribution	Occurrence	No decline, subject to natural processes	The habitat occurs in locations supporting pools and wet quaking peat (NPWS internal files). Further information can be found within the blanket bogs and associated habitats supporting document
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil nutrient status within natural range	See the blanket bogs and associated habitats supporting document for further details
Vegetation composition: positive indicator species	Number of species at a representative number of 2m x 2m monitoring stops	Number of positive indicator species at each monitoring stop is at least five	Attribute and target based on Perrin et al. (2014), where the list of positive indicator species for this habitat is also presented
Vegetation composition: <i>Rhynchospora</i> spp.	Percentage cover at a representative number of 2m x 2m monitoring stops	Total cover of white beaked sedge ( <i>Rhynchospora alba</i> ) and brown beaked sedge ( <i>R. fusca</i> ) at least 10%	Attribute and target based on Perrin et al. (2014)
Vegetation composition: potential dominant species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of each of the potential dominant species individually less than 35%	Attribute and target based on Perrin et al. (2014). See the blanket bogs and associated habitats supporting document for the list of potential dominant species
Vegetation composition: negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Total cover of negative indicator species less than 1%	Attribute and target based on Perrin et al. (2014), where the list of negative indicator species for this habitat is also presented
Vegetation composition: non-native species	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of non-native species less than 1%	Attribute and target based on Perrin et al. (2014)
Vegetation composition: native trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of scattered native trees and shrubs less than 10%	Attribute and target based on Perrin et al. (2014)
Vegetation structure: <i>Sphagnum</i> condition	Condition at a representative number of 2m x 2m monitoring stops	Less than 10% of the <i>Sphagnum</i> cover is crushed, broken and/or pulled up	Attribute and target based on Perrin et al. (2014)
Vegetation structure: signs of browsing	Percentage of shoots browsed at a representative number of 2m x 2m monitoring stops	Last complete growing season's shoots of ericoids, crowberry ( <i>Empetrum nigrum</i> ) and bog-myrtle ( <i>Myrica gale</i> ) showing signs of browsing collectively less than 33%	Attribute and target based on Perrin et al. (2014)
Vegetation structure: burning	Occurrence in local vicinity of a representative number of monitoring stops	No signs of burning in sensitive areas, into the moss, liverwort or lichen layer or exposure of peat surface due to burning	Attribute and target based on Perrin et al. (2014), where the list of sensitive areas for this habitat is also presented

Physical structure: disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of disturbed bare ground less than 10%	Attribute and target based on Perrin et al. (2014)
Physical structure: drainage	Percentage area in local vicinity of a representative number of monitoring stops	Area showing signs of drainage from heavy trampling, tracking or ditches less than 10%	Attribute and target based on Perrin et al. (2014)
Physical structure: erosion	Percentage area in local vicinity of a representative number of monitoring stops	Less than 5% of the greater bog mosaic comprises erosion gullies and eroded areas	Attribute and target based on Perrin et al. (2014)
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	This includes species listed in the Flora (Protection) Order, 2015 and/or the red data lists (Lockhart et al., 2012; Wyse Jackson et al., 2016). The Near Threatened brown beak-sedge ( <i>Rhynchospora fusca</i> ) (Wyse Jackson et al., 2016) was recorded from the Bellacorick Bog area (Douglas et al., 1989), but this species cannot be assigned specifically to this habitat

## Conservation Objectives for : Bellacorick Bog Complex SAC [001922]

7230

### Alkaline fens

**To restore the favourable conservation condition of Alkaline fens in Bellacorick Bog 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	Alkaline fens has not been mapped in detail for Bellacorick Bog Complex SAC and thus the total area of the qualifying habitat in the SAC is unknown. Further details on this and the following attributes can be found in the Bellacorick Bog Complex SAC conservation objectives supporting document for blanket bogs and associated habitats
Habitat distribution	Occurrence	No decline, subject to natural processes	The habitat is documented to occur throughout the SAC, but is most well-developed along the eastern margin. Further information can be found within Foss and McGee (1987), Douglas et al. (1989), NPWS internal files and the blanket bogs and associated habitats supporting document
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil nutrient status within natural range	See the blanket bogs and associated habitats supporting document for further details
Ecosystem function: peat formation	Flood duration	Maintain active peat formation, where appropriate	In order for peat to form, water levels need to be slightly below or above the soil surface for c.90% of the time (Jim Ryan, pers. comm.)
Ecosystem function: hydrology	Metres	Maintain appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat	Maintenance of groundwater, surface water flows and water table levels within natural ranges is essential for this wetland habitat
Ecosystem function: water quality	Water chemistry measures	Maintain appropriate water quality, particularly nutrient levels, to support the natural structure and functioning of the habitat	Fens receive natural levels of nutrients (e.g. iron, magnesium and calcium) from water sources. However, they are generally poor in nitrogen and phosphorus, with the latter tending to be the limiting nutrient
Community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	The diversity of alkaline fen habitats in this SAC is unknown. Further information on vegetation communities associated with this habitat is presented in Perrin et al. (2014)
Vegetation composition: number of positive indicator species (brown mosses)	Number of species at a representative number of 2m x 2m monitoring stops	Number of brown moss species present at each monitoring stop is at least one	Attribute and target based on Perrin et al. (2014), where the list of positive indicator species for this habitat is also presented
Vegetation composition: number of positive indicator species (vascular plants)	Number of species at a representative number of 2m x 2m monitoring stops	Number of positive vascular plant indicator species present at each monitoring stop is at least two for small-sedge flushes and at least three for black bog-rush ( <i>Schoenus nigricans</i> ) flush and bottle sedge ( <i>Carex rostrata</i> ) fen	Attribute and target based on Perrin et al. (2014), where the list of positive indicator species for this habitat is also presented
Vegetation composition: cover of positive indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Total cover of brown moss species and positive vascular plant indicator species at least 20% for small-sedge flushes and at least 75% cover for black bog-rush ( <i>Schoenus nigricans</i> ) flush and bottle sedge ( <i>Carex rostrata</i> ) fen	Attribute and target based on Perrin et al. (2014), where the list of positive indicator species for this habitat is also presented

Vegetation composition: negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Total cover of negative indicator species less than 1%	Attribute and target based on Perrin et al. (2014), where the list of negative indicator species for this habitat is also presented
Vegetation composition: non-native species	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of non-native species less than 1%	Attribute and target based on Perrin et al. (2014)
Vegetation composition: native trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of scattered native trees and shrubs less than 10%	Attribute and target based on Perrin et al. (2014)
Vegetation composition: soft rush and common reed cover	Percentage cover in local vicinity of a representative number of monitoring stops	Total cover of soft rush ( <i>Juncus effusus</i> ) and common reed ( <i>Phragmites australis</i> ) less than 10%	Attribute and target based on Perrin et al. (2014)
Vegetation structure: height	Percentage of leaves/shoots at a representative number of 2m x 2m monitoring stops	Proportion of live leaves and/or flowering shoots of vascular plants that are more than 5cm above the ground surface should be at least 50%	Attribute and target based on Perrin et al. (2014)
Physical structure: disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of disturbed bare ground less than 10%	Attribute and target based on Perrin et al. (2014)
Physical structure: drainage	Percentage area in local vicinity of a representative number of monitoring stops	Area showing signs of drainage from heavy trampling, tracking or ditches less than 10%	Attribute and target based on Perrin et al. (2014)
Physical structure: tufa formations	Percentage cover in local vicinity of a representative number of 2m x 2m monitoring stops	Disturbed proportion of vegetation cover where tufa is present is less than 1%	Attribute and target based on Perrin et al. (2014)
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	This includes species listed in the Flora (Protection) Order, 2015 (FPO) and/or the red data lists (Lockhart et al., 2012; Wyse Jackson et al., 2016). The FPO listed and Near Threatened marsh saxifrage ( <i>Saxifraga hirculus</i> ) (Wyse Jackson et al., 2016) is present within the SAC (Muldoon et al., 2015), but this species cannot be assigned specifically to alkaline fens. Bryophytes present include the FPO and Critically Endangered moss <i>Paludella squarrosa</i> , the FPO and Endangered liverwort <i>Leiocolea rutheana</i> , the Vulnerable mosses <i>Tomentypnum nitens</i> and <i>Sphagnum warnstorffii</i> , and the Near Threatened moss <i>Sphagnum teres</i> (Lockhart et al., 2012), but again these species cannot be assigned specifically to alkaline fens. Further information can be found within Foss and McGee (1987), Douglas et al. (1989) and NPWS internal files



## Conservation Objectives for : Bellacorick Bog Complex SAC [001922]

### 1013 Geyer's Whorl Snail *Vertigo geyeri*

**To maintain the favourable conservation condition of Geyer's Whorl Snail in Bellacorick Bog Complex SAC, which is defined by the following list of attributes and targets:**

Attribute	Measure	Target	Notes
Distribution: occupied sites	Number	No decline. There are three known sites for this species in the SAC within the 1km grid squares G0522, G0718 and G0818. See map 4	There have been records of Geyer's whorl snail ( <i>Vertigo geyeri</i> ) from three 1km grid squares within the Bellacorick Bog Complex SAC boundary (G0522, G0718 and G0818). This corresponds to the three discrete occupied parts of the SAC at Fermoyale (G0522; site code VgCAM16 in Moorkens and Killeen (2011)); Coolturk (G0718; Holyoak (2005)) and Brackloon (G0818; site code VgCAM3 in Moorkens and Killeen (2011))
Occurrence in suitable habitat	Percentage positive records in a representative number of samples	No decline. A minimum of 50% positive samples in optimum habitat areas; 25% in areas described as sub-optimal	Positive samples mean the confirmed presence of snails (living or recently dead adults and/or juveniles). 50% of samples taken from optimal habitat polygons and 25% of sample from sub-optimal polygons should be positive for the species. Samples should be spread throughout the sub-sites with a minimum of eight in Fermoyale and four in Brackloon. Note that as Coolturk has not been surveyed in detail, no minimum sampling level has been specified. The habitats occupied by Geyer's whorl snail ( <i>Vertigo geyeri</i> ) in this SAC are areas of fen and flush. See the notes on habitat area below for definitions of optimal and sub-optimal habitats at Fermoyale and at Brackloon. See also Moorkens and Killeen (2011)
Habitat area - Fermoyale	Hectares	Stable or increasing, subject to natural processes. No less than 25.0ha of at least sub-optimal habitat	Suitable conditions for the species can be found throughout the southern portion of the SAC, with the largest known extent in the fen at Fermoyale. Moorkens and Killeen (2011) give a target figure of 25.0ha of habitat in at least sub-optimal condition, and describe the methodology that should be used to assess the target. Optimal habitat is defined for Fermoyale as flush areas of fen and bog with <i>Schoenus nigricans</i> , <i>Carex viridula</i> , <i>C. pulicaria</i> , other low carices, <i>C. rostrata</i> , <i>Menyanthes trifoliata</i> , <i>Campyllum stellatum</i> , <i>Juncus articulatus</i> , <i>Eriophorum angustifolium</i> and orchids. Vegetation height mostly 10-30cm with higher <i>S. nigricans</i> tussocks. During sampling the water table should be between 0-5cm of the soil surface, but not above ground level. Sub-optimal habitat is defined as above but with more <i>S. nigricans</i> tussocks with mosses between them, or overall sward height is >30cm, or the water table is <5cm or ground is flooded at the time of sampling
Habitat area - Brackloon	Hectares	Stable or increasing, subject to natural processes. No less than 0.6ha of at least sub-optimal habitat	The amount of suitable habitat at Brackloon is not precisely known, but Moorkens and Killeen (2011) give a target figure of 0.6ha of habitat for this sub-site in at least sub-optimal condition, and describe the methodology that should be used to assess the target. Optimal habitat is defined for Brackloon as a mosaic of spring flush vegetation 5-55cm tall, containing species such as <i>Carex viridula</i> , <i>Equisetum</i> spp., <i>Menyanthes trifoliata</i> , <i>Platanthera bifolia</i> and mosses, with scattered tussocks of <i>Schoenus nigricans</i> no greater than 50cm tall. During sampling the water table should be between 0-5cm of the soil surface, but not above ground level. Sub-optimal habitat is defined as above (or with <i>Myrica gale</i> , <i>Hydrocotyle vulgaris</i> , <i>Eriophorum angustifolium</i> , <i>Drosera rotundifolia</i> and <i>D. intermedia</i> ), but either vegetation height is greater than 50cm, or the water table is below 5cm or ground is flooded at the time of sampling

Habitat area - Coolturk	Hectares	Stable or increasing, subject to natural processes	The amount of suitable habitat at Coolturk is currently unknown
Habitat quality: soil wetness	Percentage of a representative number of monitoring stops	At each sub-site, at least 67% of a representative number of sampling stops in areas of optimal habitat should be classified as optimal wetness as defined by Moorkens and Killeen (2011); at least 25% in areas of sub-optimal habitat	The soil wetness should be assessed using the methodology described in Moorkens and Killeen (2011). In optimal areas, 67% of stops should meet the soil wetness criterion of Moorkens and Killeen (2011); in sub-optimal habitat at least 25% should be optimal wetness

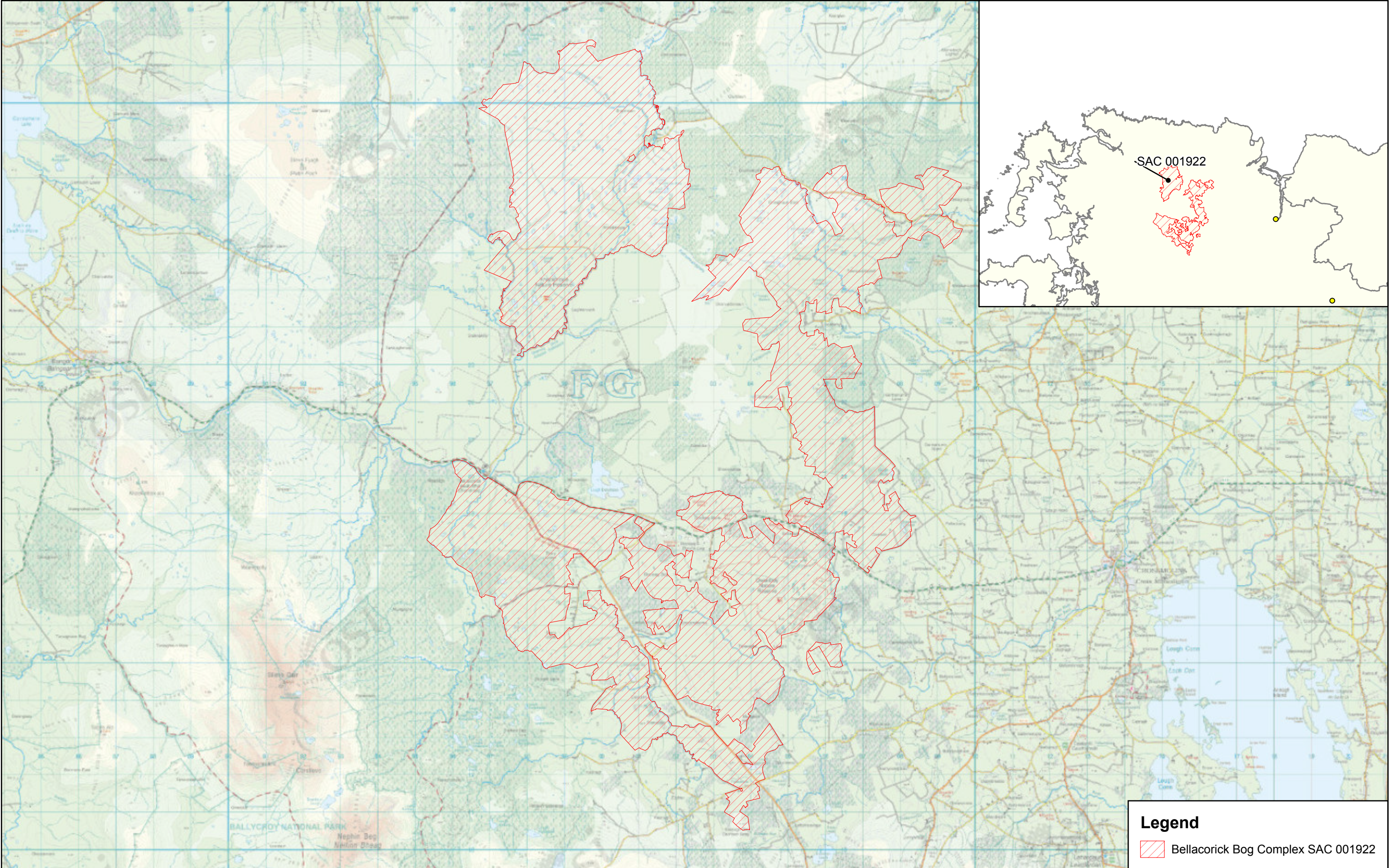
## Conservation Objectives for : Bellacorick Bog Complex SAC [001922]

### 1528 Marsh Saxifrage *Saxifraga hirculus*

**To maintain the favourable conservation condition of Marsh Saxifrage in Bellacorick Bog Complex SAC, which is defined by the following list of attributes and targets:**

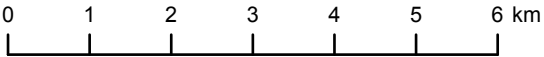
Attribute	Measure	Target	Notes
Distribution	Number and geographical spread of populations	No loss in geographical spread and number of populations, subject to natural processes	The known populations of marsh saxifrage ( <i>Saxifraga hirculus</i> ) in Bellacorick Bog Complex SAC occur in five flushes: Formoyle, Sheskin A, Sheskin B, Sheskin C and Croaghaun East. See Muldoon (2011) and Muldoon et al. (2015) for further details. The exact locations are not mapped here on account of the presence of sensitive associated species
Population size: number of rosettes	Number	Maintain the size of the known populations, subject to natural processes. The target numbers of rosettes are: at least 136 in Formoyle, at least 288 in Sheskin A, at least 93 in Sheskin B, at least 800 in Sheskin C and at least 1,600 in Croaghaun East	The number of rosettes recorded were: 170 in Formoyle, 360 in Sheskin A, 116 in Sheskin B (Muldoon, 2011), 1,000 in Sheskin C and 2,000 in Croaghaun East (NPWS internal files). The target figures are a c.20% reduction of the recorded numbers to allow a margin of error and variability over monitoring seasons. See Muldoon et al. (2015) for further details
Population size: area of occupancy	Hectares	Maintain the areas of occupancy of the known populations, subject to natural processes. The target areas are: at least 0.0066ha in Formoyle, at least 0.0014ha in Sheskin A, at least 0.0071ha in Sheskin B, at least 0.09ha in Sheskin C and at least 0.1093ha in Croaghaun East	The areas of occupancy were estimated as: 73m <sup>2</sup> (0.0073ha) in Formoyle, 16m <sup>2</sup> (0.0016ha) in Sheskin A, 79.4m <sup>2</sup> (0.0079ha) in Sheskin B (Muldoon, 2011), 1,000m <sup>2</sup> (0.1ha) in Sheskin C and 1,214m <sup>2</sup> (0.1214ha) in Croaghaun East (NPWS internal files). The target area figures are a 10% reduction of the recorded areas to allow for a margin of error. See Muldoon et al. (2015) for further details
Hydrological conditions: water level	Occurrence of high or fluctuating water levels	Maintain the appropriate natural hydrological regime necessary to support the habitat for the species	In Ireland, marsh saxifrage ( <i>Saxifraga hirculus</i> ) is now restricted to mineral flushes in blanket bog where rising groundwater forms small streams and seepage areas suitable for the species. Based on Muldoon (2011) and Muldoon et al. (2015)
Vegetation composition: positive indicator species	Occurrence in a representative number of 1m x 1m monitoring stops	Knotted pearlwort ( <i>Sagina nodosa</i> ) should be present in at least two of five 1m x 1m monitoring stops	The presence of the positive indicator species knotted pearlwort ( <i>Sagina nodosa</i> ) should be maintained (Muldoon, 2011; Muldoon et al., 2015)
Vegetation composition: negative indicator species	Mean percentage cover in five 1m x 1m monitoring stops	Mean percentage cover of purple moor-grass ( <i>Molinia caerulea</i> ) should not exceed 5%; mean percentage cover of Yorkshire fog ( <i>Holcus lanatus</i> ) should not exceed 15%	Low cover of the negative indicator species purple moor-grass ( <i>Molinia caerulea</i> ) and Yorkshire fog ( <i>Holcus lanatus</i> ) should be maintained. See Muldoon (2011) and Muldoon et al. (2015) for further details
Vegetation structure: grazing level	Evidence of grazing	Maintain grazing at light to moderate levels to ensure an open vegetation structure and to allow flowering to occur	Undergrazing is a minor issue at Sheskin A and Sheskin B. See Muldoon (2011) and Muldoon et al. (2015) for further details



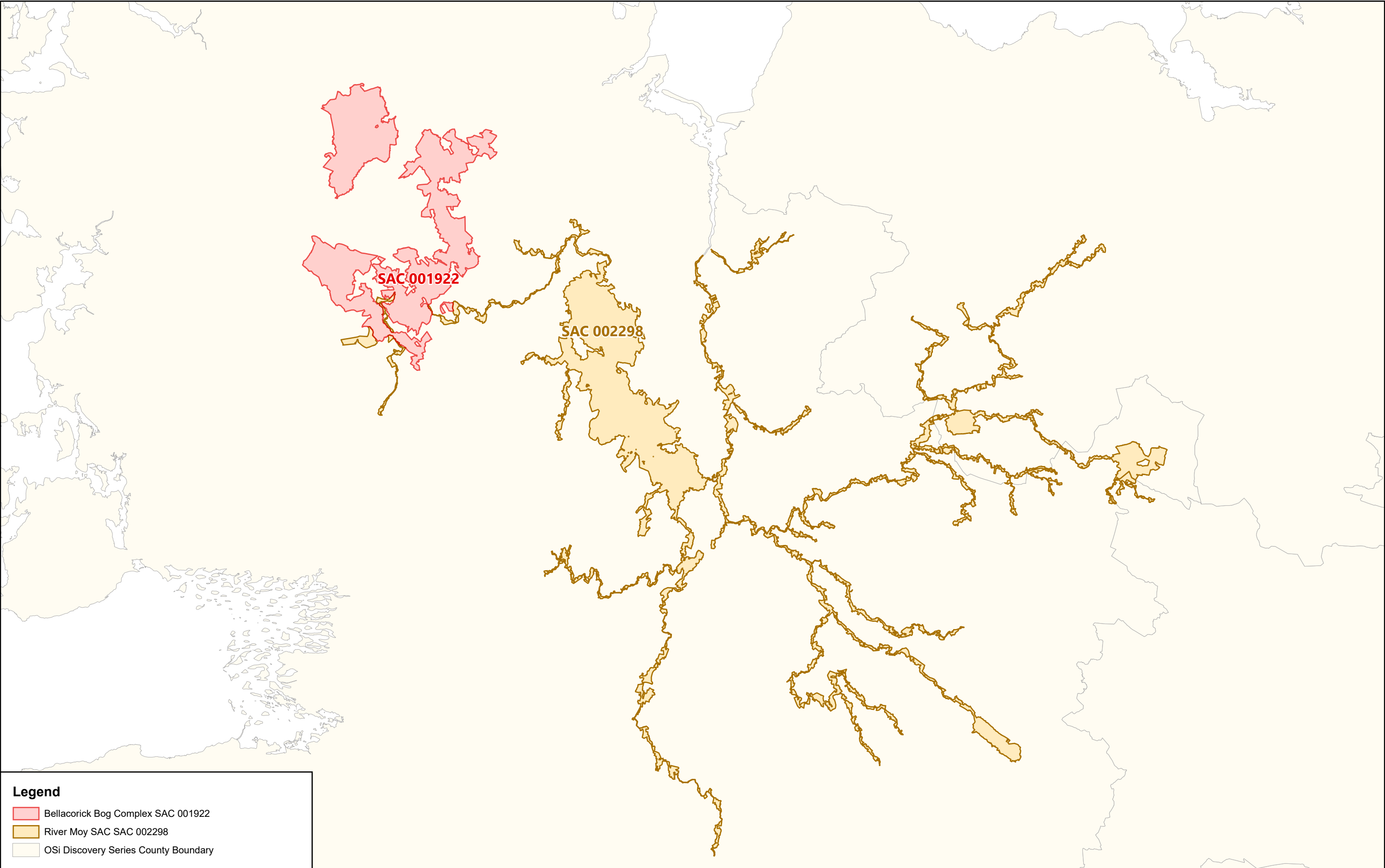


**Legend**



 Bellacorick Bog Complex SAC 001922








**Legend**

-  Bellacorick Bog Complex SAC 001922
-  River Moy SAC SAC 002298
-  OSi Discovery Series County Boundary




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

**MAP 2:**  
**BELLACORICK BOG COMPLEX SAC**  
**CONSERVATION OBJECTIVES**  
**ADJACENT, ADJOINING AND**  
**OVERLAPPING DESIGNATIONS**

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

**SITE CODE: SAC 001922; version 3.**  
**SAC 002298; version 1.14, 1.09, 1.03**  
**CO. MAYO, CO. SLIGO, CO. ROSCOMMON**

0 4 8 12 16 km

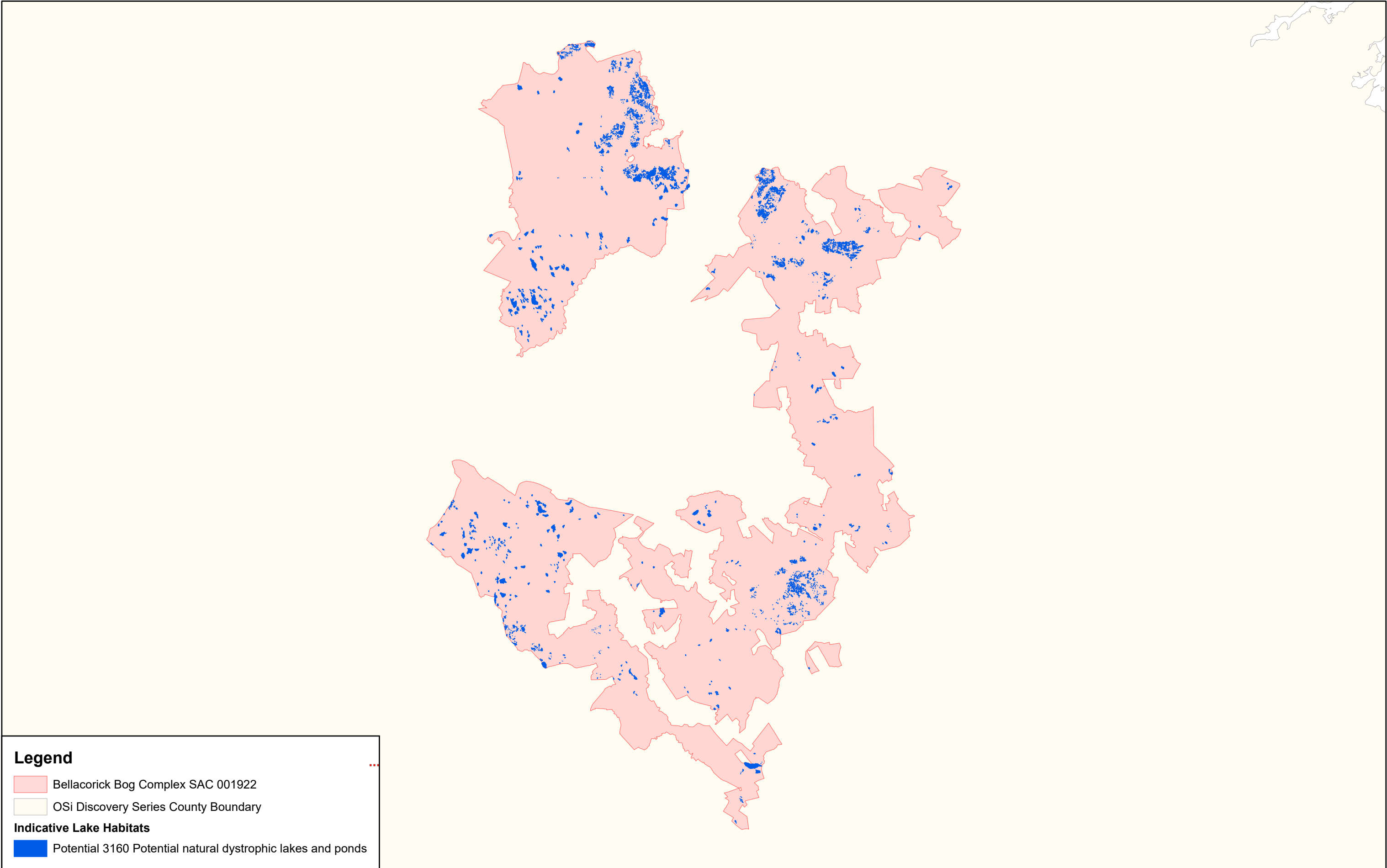


The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision.  
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Níl sna teorainneacha ar na léarscáileanna ach nod garshuíomhach ginearálta. Féadfar athbhreithnithe a déanamh ar theorainneacha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



**Map Version 1**  
**Date: Sept 2017**



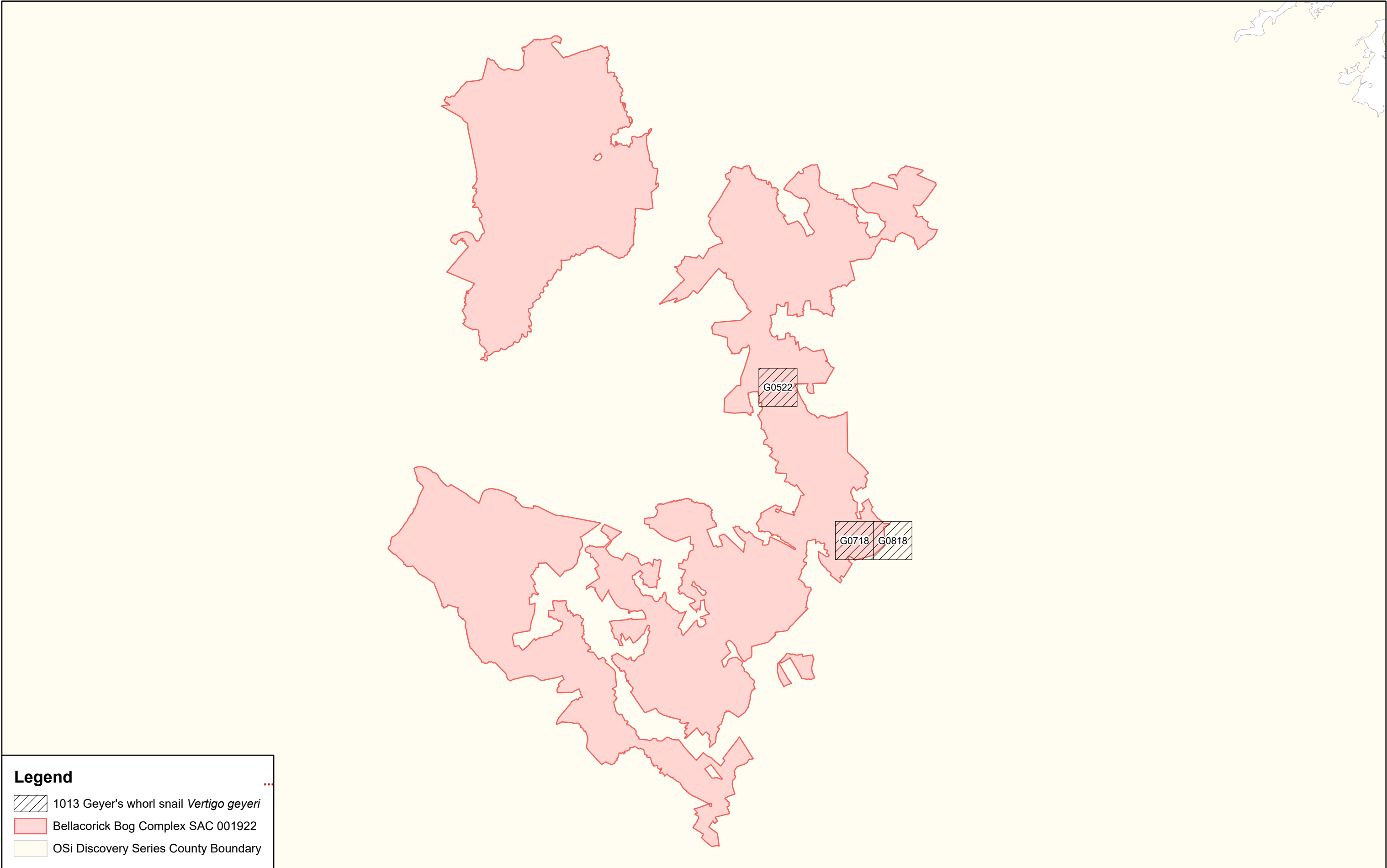
**Legend**

Bellacorick Bog Complex SAC 001922




OSi Discovery Series County Boundary

**Indicative Lake Habitats**

Potential 3160 Potential natural dystrophic lakes and ponds



**Legend**

-  1013 Geyer's whorl snail *Vertigo geyeri*
-  Bellacorick Bog Complex SAC 001922
-  OSi Discovery Series County Boundary