ISSN 2009-4086

National Parks and Wildlife Service

Conservation Objectives Series

Bellacorick Iron Flush SAC 000466

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

National Parks and Wildlife Service,
Department of Culture, Heritage and the Gaeltacht,

90 King Street North, Dublin 7, D07 N7CV, Ireland.

Web: www.npws.ie
E-mail: nature.conservation@chg.gov.ie

Citation:

NPWS (2019) Conservation Objectives: Bellacorick Iron Flush SAC 000466. Version 1. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

Series Editor: Rebecca Jeffrey
ISSN 2009-4086

Introduction

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

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

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

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

Favourable conservation status of a habitat is achieved when:

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

The favourable conservation status of a species is achieved when:

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

Notes/Guidelines:

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

Qualifying Interests

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

000466	Bellacorick Iron Flush SAC

1528	Marsh Saxifrage *Saxifraga hirculus*

Supporting documents, relevant reports & publications

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

NPWS Documents

Year :	2015
Title :	Monitoring recommendations for Marsh Saxifrage (*Saxifraga hirculus* L.) in the Republic of Ireland
Author :	Muldoon, C.S.; Waldren, S.; Lynn, D.
Series :	Irish Wildlife Manuals, No. 88
Year :	2019
Title :	Results of a monitoring survey of the Annex II species *Saxifraga hirculus* (Marsh Saxifrage) in Ireland 2015–2018
Author :	O'Neill, F.H.; Hodd, R.L; Long, M.P.
Series :	Irish Wildlife Manuals, No. 112

Other References

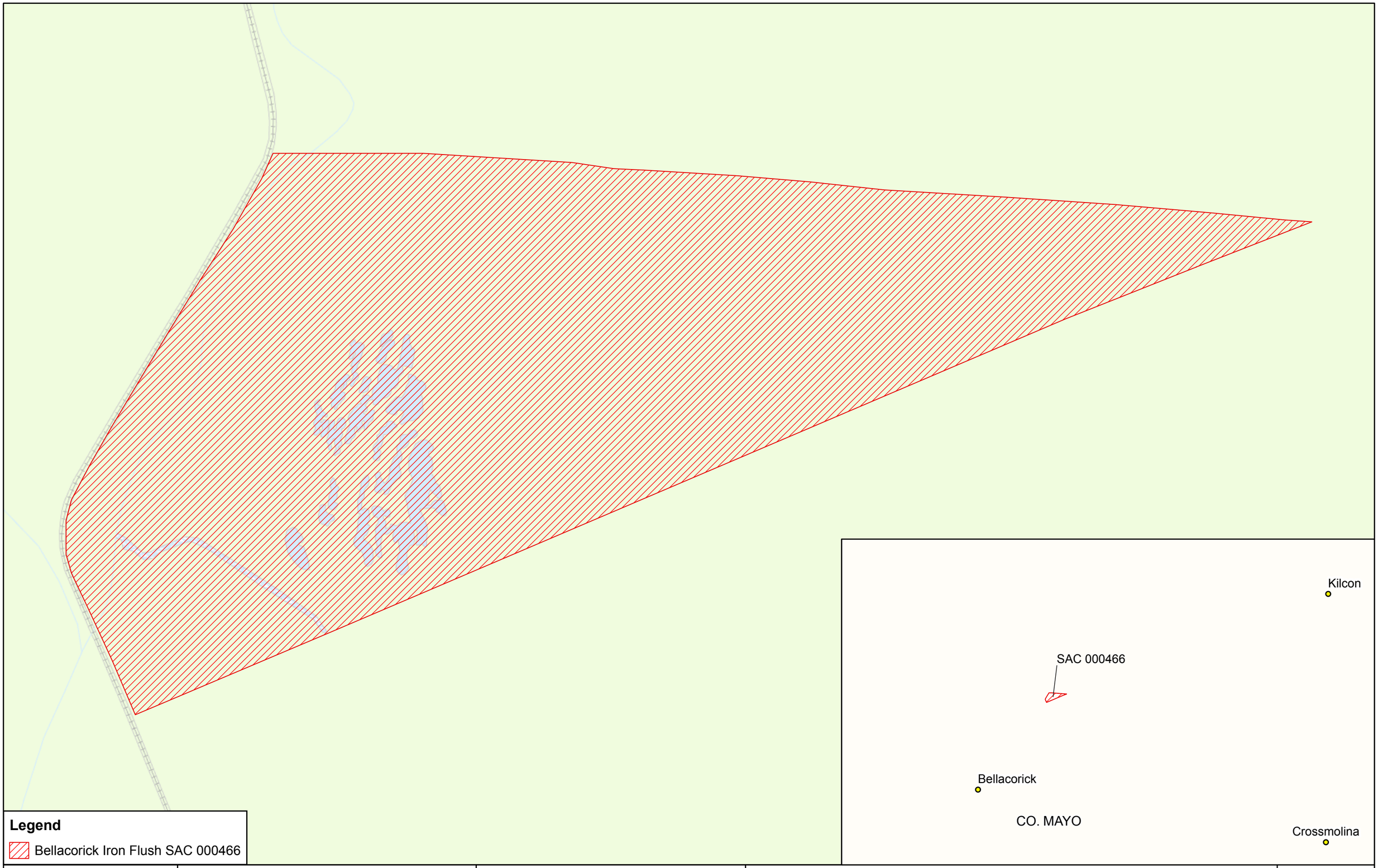
Year :	1958
Title :	*Saxifraga hirculus* in Co. Mayo (Dooleeg)
Author :	Scannell, M.J.P.
Series :	Irish Naturalists' Journal, 12: 248
Year :	1960
Title :	Notes on the vegetation of a mineral flush in Co. Mayo
Author :	King, A.L.K.; Scannell, M.J.P.
Series :	Irish Naturalists' Journal, 13: 137-140
Year :	1988
Title :	International Mires Research Group Field Excursion To Ireland 1988
Author :	Fojt, W.
Series :	Nature Conservancy Council
Year :	1991
Title :	Phytosociological and ecological studies of lowland blanket bog flushes in West Galway and North Mayo
Author :	Lockhart, N.D.
Series :	Unpublished Ph.D. Thesis, National University of Ireland, Galway
Year :	2011
Title :	Conservation biology of *Saxifraga hirculus* L. in Ireland
Author :	Muldoon, C.S.
Series :	Unpublished Ph.D. Thesis, Trinity College Dublin
Year :	2012
Title :	Bellacorick Iron Flush vegetation study as part of hydro-geological investigations
Author :	BES (Biosphere Environmental Services)
Series :	Unpublished report for ESB International

1528 Marsh Saxifrage *Saxifraga hirculus*

To restore the favourable conservation condition of Marsh Saxifrage in Bellacorick Iron Flush 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 known populations, subject to natural processes	The known population of marsh saxifrage (*Saxifraga hirculus*) in Bellacorick Iron Flush SAC occurs in a rich flush. The SAC is surrounded by drains and extensive areas of mechanically-cut peat. The population was surveyed by O'Neill et al. (2019; site SH03 Bellacorick) in 2018; previous surveys include Muldoon (2011), BES (2012) and an NPWS commissioned rare plant survey in 1995 (NPWS internal files). Surveys of the flush also include Fojt (1988) and Lockhart (1991). See also Scannell (1958) and King and Scannell (1960)
Number of rosettes	Number	No decline in number of rosettes, subject to natural processes	See Muldoon et al. (2015) and O'Neill et al. (2019) for full details on methodology used to calculate number of rosettes. Muldoon (2011) recorded 700 rosettes at Bellacorick and a target of 560 rosettes was set, i.e. 80% of that recorded to allow a margin of error over monitoring seasons (Muldoon et al., 2015). O'Neill et al. (2019) recorded a total count of 23 rosettes. While a decline of 97% is suggested from these figures, differences in survey intensity and weather conditions may play a role. Previous survey numbers have fluctuated, e.g. a count of 27–30 flowering stalks plus many vegetative rosettes was recorded in 1995 (NPWS internal files), an estimate of 300 individuals was made in 1999 (NPWS internal files) and 40 flowering heads (no individual rosette counts made) were recorded in 2012 (BES, 2012). Overall, however, the population may have reached an equilibrium with the conditions prevailing in the SAC (Lockhart, pers. comm.). See O'Neill et al. (2019) for further details
Density of rosettes (rosettes/square metre)	Mean number of rosettes in a representative number of 1m x 1m monitoring stops	No decline in density of rosettes, subject to natural processes	See Muldoon et al. (2015) and O'Neill et al. (2019) for full details on methodology used to calculate density of rosettes. Density of rosettes calculation was not undertaken by O'Neill et al. (2019) at Bellacorick (site code SH03) as the species occurs as isolated clumps. However, a total count of rosettes was conducted (O'Neill et al., 2019)
Number of flowering heads	Number	No decline in number of flowering heads, subject to natural processes	Number of flowering heads is estimated as an order of magnitude (10s, 100s, 1,000s, or 10,000s). See Muldoon et al. (2015) and O'Neill et al. (2019) for full details on methodology used to calculate number of flowering heads
Area of occupancy	Square metres	No decline in the area occupied by the population, subject to natural processes	See Muldoon et al. (2015) and O'Neill et al. (2019) for full details on methodology used to estimate area of occupancy. An area of occupancy of 950m² was recorded by Muldoon (2011) and a target of 855m² was set, i.e. 90% of that recorded to allow a margin of error over monitoring seasons (Muldoon et al., 2015). An area of occupancy of c.156m² was recorded by O'Neill et al. (2019) at Bellacorick in 2018. However, the core area of the population has remained largely unchanged since its discovery in the 1950s; see O'Neill et al. (2019) for further details

Hydrological conditions: wetness of substrate	Light pressure from hand onto substrate in a representative number of 1m x 1m monitoring stops	Water from the soil or peat substrate should cover the fingers of hand in at least 40% of monitoring stops	Marsh saxifrage (*Saxifraga hirculus*) requires the presence of groundwater close to the surface, but the species will not tolerate long periods of flooding and the water should be moving or flowing to some extent. Attribute and target based on O'Neill et al. (2019). At Bellacorick, this attribute failed when surveyed after a period of drought in August 2018 and no standing water or water visible with pressure was noted by O'Neill et al. (2019). While active drainage is not currently an issue at Bellacorick, significant drainage had occurred in the past (beginning in the 1950s for peat extraction) and water levels have not recovered (O'Neill et al., 2019)
Vegetation composition: positive indicator species	Occurrence in a representative number of 1m x 1m monitoring stops	Knotted pearlwort (*Sagina nodosa*) should be present in at least 40% of monitoring stops	Attribute and target based on O'Neill et al. (2019). Knotted pearlwort (*Sagina nodosa*) was absent from all monitoring stops at Bellacorick (O'Neill et al., 2019)
Vegetation composition: negative indicator species	Percentage cover in a representative number of 1m x 1m monitoring stops	Mean percentage cover of purple moor-grass (*Molinia caerulea*) should not exceed 5%	Attribute and target based on Muldoon et al. (2015) and O'Neill et al. (2019)
Vegetation composition: negative indicator species	Percentage cover in a representative number of 1m x 1m monitoring stops	Mean percentage cover of Yorkshire-fog (*Holcus lanatus*) should not exceed 15%	Attribute and target based on Muldoon et al. (2015) and O'Neill et al. (2019)
Vegetation structure: mean vegetation height	Centimetres in a representative number of 1m x 1m monitoring stops	Mean vegetation height should not exceed 20cm	See O'Neill et al. (2019) for full details on methodology used to calculate mean vegetation height (cm). At Bellacorick, O'Neill et al. (2019) recorded a mean vegetation height of 42cm and noted insufficient grazing, with tall, rank vegetation a feature of the habitat for the species
Vegetation structure: grazing level	Level in a representative number of 1m x 1m monitoring stops	Grazing should be at light to moderate levels (26-50%) to ensure an open vegetation structure and to allow flowering to occur	At each monitoring stop, grazing levels are assigned to one of four categories 0-25% (little/no grazing), 26-50%, 51-75% and 76-100% (heavy overgrazing). The median of each category is calculated and averaged among all stops to assign the grazing level to one of the four categories. See Muldoon et al. (2015) and O'Neill et al. (2019) for full details on methodology. At Bellacorick, grazing levels were found to be too low (0-25%) when surveyed by Muldoon (2011; see also Muldoon et al., 2015). In 2018, an insufficient level of grazing was recorded as a negative impact at Bellacorick (O'Neill et al., 2019). O'Neill et al. (2019) noted that it was probable that sheep grazing was being further discouraged by construction roads and traffic associated with a nearby wind farm development



Legend

Bellacorick Iron Flush SAC 000466

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

MAP 1:
BELLACORICK IRON FLUSH SAC
CONSERVATION OBJECTIVES
SAC DESIGNATION

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

SITE CODE:
SAC 000466; version 3.01. CO. MAYO

0 30 60 90 120 Meters

N

Map Version 1
Date: May 2019