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National Parks and Wildlife Service

Conservation Objectives Series

Ballymore Fen SAC 002313

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***

002313	Ballymore Fen SAC

7140	Transition mires and quaking bogs

Supporting documents, relevant reports & publications

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

NPWS Documents

Year :	2012
Title :	Ireland Red List No. 8: Bryophytes
Author :	Lockhart, N.; Hodgetts, N.; Holyoak, D.
Series :	Ireland Red List series, NPWS
Year :	2013
Title :	The status of EU protected habitats and species in Ireland. Volume 2. Habitats assessments
Author :	NPWS
Series :	Conservation assessments
Year :	2013
Title :	Conservation status assessments for three fen habitat types - 7230, 7210 and 7140
Author :	Kimberley, S.
Series :	Unpublished report to NPWS
Year :	2014
Title :	Guidelines for a national survey and conservation assessment of upland vegetation and habitats in Ireland, Version 2.0
Author :	Perrin, P.M.; Barron, S.J.; Roche, J.R.; O'Hanrahan, B.
Series :	Irish Wildlife Manual No. 79
Year :	2016
Title :	Ireland Red List No. 10: Vascular Plants
Author :	Wyse Jackson, M.; FitzPatrick, Ú.; Cole, E.; Jebb, M.; McFerran, D.; Sheehy Skeffington, M.; Wright, M.
Series :	Ireland Red Lists series, NPWS

Other References

Year :	2004
Title :	Common Standards Monitoring guidance for lowland wetland habitats
Author :	JNCC
Series :	Joint Nature Conservation Committee, Peterborough
Year :	2011
Title :	Review and revision of empirical critical loads and dose-response relationships. Proceedings of an expert workshop, Noordwijkerhout, 23-25 June 2010
Author :	Bobbink, R.; Hettelingh, J.P.
Series :	RIVM report 680359002, Coordination Centre for Effects, National Institute for Public Health and the Environment (RIVM)
Year :	2017
Title :	Eco-hydrological investigation of Ballymore Fen SAC, Co. Westmeath
Author :	Regan, S.; Conaghan, J.
Series :	Unpublished report to The Office of Public Works

Spatial data sources

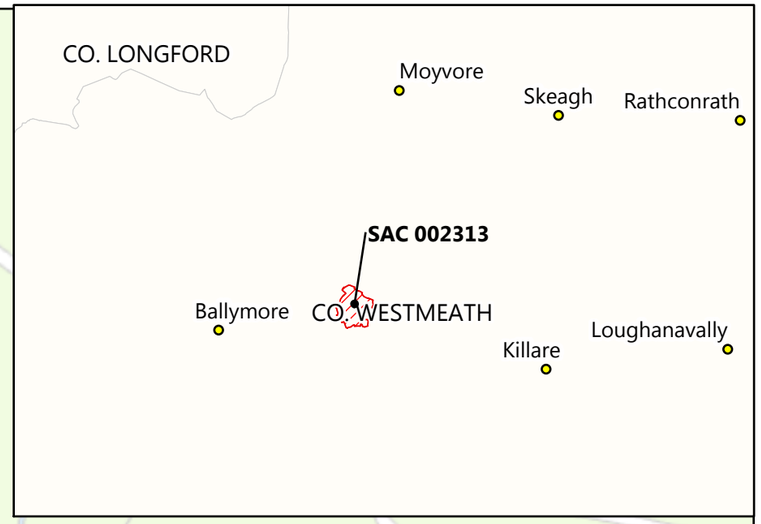
Year :	2017
Title :	Eco-hydrological Investigation of Ballymore Fen SAC, Co. Westmeath
GIS Operations :	Dataset clipped to the SAC boundary. QI identified. Expert opinion used as necessary to resolve any issues arising
Used For :	7140 (map 2)

7140 Transition mires and quaking bogs

To maintain the favourable conservation condition of Transition mires and quaking bogs in Ballymore Fen 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	Transition mires and quaking bogs habitat in Ballymore Fen SAC was surveyed by Regan and Conaghan (2017). The indicative area of the qualifying habitat in the SAC is c.11.0ha which includes c.4.8ha of the habitat in mosaic with alkaline fen. In places, the transition mire also grades into raised bog vegetation occurring in the SAC (Regan and Conaghan, 2017)
Habitat distribution	Occurrence	No decline, subject to natural processes	Distribution based on Regan and Conaghan (2017). See map 2 which shows the indicative area of transition mires and quaking bogs, including in mosaic with alkaline fen, in the SAC
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil pH and nutrient status within natural ranges	Relevant nutrients and their natural ranges are yet to be defined. However, nitrogen deposition is noted as being relevant to this habitat in NPWS (2013). See also Bobbink and Hettelingh (2011)
Ecosystem function: peat formation	Percentage cover of peat-forming vegetation and water table levels	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
Ecosystem function: hydrology - water levels	Centimetres; duration of water levels	Maintain appropriate water levels necessary to support the natural structure and functioning of the habitat	Maintenance of a permanently high water level, remaining close to the peat surface all year, with water level fluctuations within natural ranges, is required for this wetland habitat. See Kimberley (2013). In this SAC, the main source of water in the transition mire area is from upwelling mineral groundwater and springs (Regan and Conaghan, 2017). See Regan and Conaghan (2017) for further details on the hydrology of Ballymore Fen SAC
Ecosystem function: hydrology - flow patterns	Flow direction	Maintain appropriate topography and water movement regime necessary to support the natural structure and functioning of the habitat	Maintenance, both within and surrounding the habitat, of topography and flow patterns within natural ranges is essential in order to ensure the hydrological integrity of this wetland habitat. Regan and Conaghan (2017) state that groundwater flow in the SAC appears to be predominantly from the east and north-east, though flows from the west and south-west also maintain groundwater levels. See Regan and Conaghan (2017) for further details on the hydrology of Ballymore Fen SAC
Ecosystem function: water quality	Water chemistry measures	Maintain appropriate water quality to support the natural structure and functioning of the habitat	The surface water conditions necessary to maintain transition mires range from acidic to slightly base-rich. The vegetation typically has intimate mixtures of species considered to be acidophile and others considered calciphile. In other cases, these intermediate properties may reflect the actual process of succession, as peat accumulates in groundwater-fed fen or open water to produce rainwater-fed bog isolated from groundwater influence. In this SAC, the influence of base-rich upwelling groundwater is clearly evident in some pools in the habitat where there is an extensive covering of marl (Regan and Conaghan, 2017)
Community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	See Regan and Conaghan (2017) for details on the vegetation communities in Ballymore Fen SAC. Information on vegetation communities associated with this habitat in the uplands is presented in Perrin et al. (2014)

Vegetation composition: typical vascular plants and bryophytes	Percentage cover at a representative number of 2m x 2m monitoring stops	Maintain adequate cover of typical vascular plant and bryophyte species	For lists of typical plant species see the Article 17 conservation status assessment for transition mires and quaking bogs (NPWS, 2013) and the fen habitats supporting document (Kimberley, 2013). See also Perrin et al. (2014) and JNCC (2004). In this SAC, typical species recorded by Regan and Conaghan (2017) in the habitat include bogbean (*Menyanthes trifoliata*), lesser tussock-sedge (*Carex diandra*), bottle sedge (*C. rostrata*), common cottongrass (*Eriophorum angustifolium*), marsh willowherb (*Epilobium palustre*), marsh pennywort (*Hydrocotyle vulgaris*), marsh bedstraw (*Galium palustre*), marsh cinquefoil (*Comarum palustre*), creeping bent-grass (*Agrostis stolonifera*), lesser spearwort (*Ranunculus flammula*) and the bryophytes *Bryum pseudotriquetrum, Calliergonella cuspidata, Campylium stellatum* and *Scorpidium scorpioides*
Vegetation composition: native negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Native negative indicator species at insignificant levels	Negative indicators include species not characteristic of the habitat and species indicative of undesirable impacts such as overgrazing, undergrazing, nutrient enrichment, agricultural improvement or impacts on hydrology. Native negative indicator species that could suggest drying out include ling (*Calluna vulgaris*) and birch (*Betula pubescens*)
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). Non-native species can be invasive and have deleterious effects on native vegetation. A low target is set as non-native species can spread rapidly and are most easily dealt with when still at lower abundances
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). Drainage can result in loss of characteristic species and transition to drier habitats. One main drain, the 'fen-drain', which originates as a spring in the north-eastern part of Ballymore Fen SAC and flows westwards, traverses the fen/mire area in the SAC (Regan and Conaghan, 2017). This fen-drain is joined by a southerly flowing drain, which originates as a series of springs/groundwater seepages in the central region of the SAC, and then flows southwards before draining into the arterial drain on the southern boundary of the SAC. Regan and Conaghan (2017) found that the fen-drain exerts minimal influence on the groundwater levels within the fen/mire habitat. See Regan and Conaghan (2017) for further details
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 not more than 10%	Attribute and target based on Perrin et al. (2014). Disturbance can include hoof marks, wallows, human footprints, vehicle and machinery tracks. Excessive disturbance can result in loss of characteristic species and presage erosion for peatlands
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; maintain features of local distinctiveness, subject to natural processes	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). A large population of the Near Threatened round-leaved wintergreen (*Pyrola rotundifolia*) (Wyse Jackson et al., 2016) occurs in the habitat in the SAC (Regan and Conaghan, 2017; NPWS internal flies). The Near Threatened fibrous tussock-sedge (*Carex appropinquata*) (Wyse Jackson et al., 2016) has also been recorded in the habitat in the SAC (NPWS internal files)



RATHSKEAGH UPPER

Ordnance Survey Ireland 2018

Legend

Ballymore Fen SAC 002313

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MAP 1:
BALLYMORE FEN SAC
CONSERVATION OBJECTIVES
SAC DESIGNATION

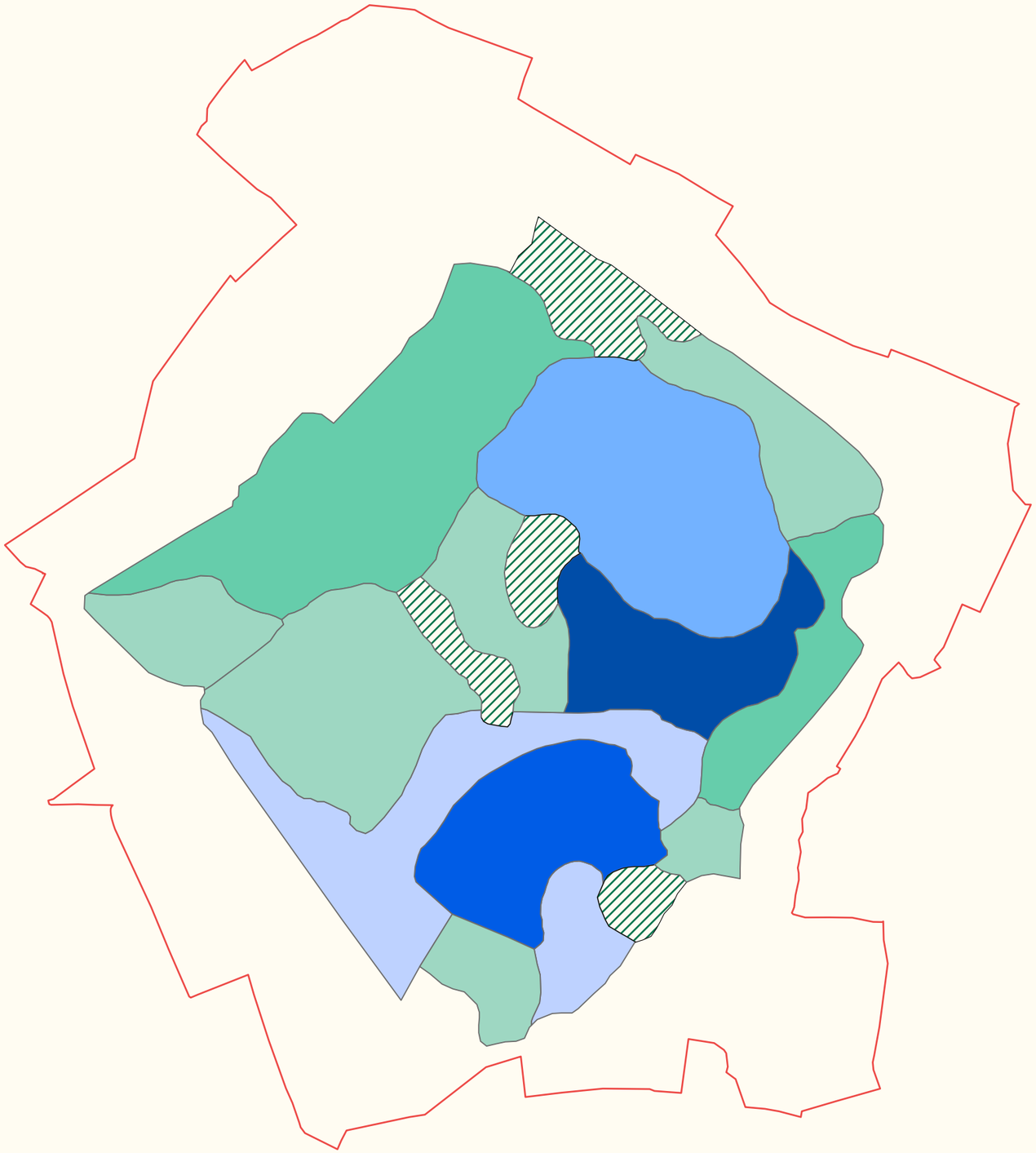
Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 002313; version 3. CO. WESTMEATH

0 40 80 120 160 200 Meters

N

Map Version 1
Date: July 2018



Legend

- OSi Discovery Series County Boundary
- Ballymore Fen SAC 002313

Annex I Qualifying Interest

- 7140 Transition mires and quaking bogs
- 7230/7140 Alkaline fen/Transition mires and quaking bogs

Annex I Non - Qualifying Interest

- 7230 Alkaline fen

Associated Wetland Habitats (Fossitt 2000)

- GM1 Marsh
- PB1 Raised bog
- WS1/GS2 Scrub/Dry meadows and grassy verges
- WS1/PB4 Scrub/Cutover bog

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MAP 2:
BALLYMORE FEN SAC
CONSERVATION OBJECTIVES
INDICATIVE FEN HABITATS

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

SITE CODE:
SAC 002313; version 3. CO. WESTMEATH

0 0.04 0.09 0.14 0.18 Kilometers

N

Map Version 1
Date: July 2018