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Conservation Objectives Series

Shrule Turlough SAC 000525

An Roinn Tithíochta,
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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***

000525	Shrule Turlough SAC

3180	Turloughs*

Supporting documents, relevant reports & publications

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

NPWS Documents

Year :	1992
Title :	Turloughs over 10ha - Vegetation survey and evaluation
Author :	Goodwillie, R.N.
Series :	Unpublished report to NPWS
Year :	2017
Title :	Conservation objectives supporting document: Turloughs* and Rivers with muddy banks with Chenopodion rubri p.p. and Bidention p.p. vegetation
Author :	O Connor, Á.
Series :	Conservation objectives supporting document
Year :	2019
Title :	The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments
Author :	NPWS
Series :	Conservation assessments

Other References

Year :	1986
Title :	A study of the geology, hydrology and geomorphology of turloughs
Author :	Coxon, C.
Series :	Unpublished Ph.D. Thesis, Trinity College Dublin
Year :	2005
Title :	Guidance on the Pressures and Impacts on Groundwater Dependent Terrestrial Ecosystems. Risk Assessment Sheet GWDTERA2a - Turloughs
Author :	Working Group on Groundwater (Turlough sub-committee)
Series :	Water Framework Directive Pressures and Impact Assessment Methodology - Guidance Document No. GW9
Year :	2009
Title :	Teagasc EPA soil and subsoils mapping project-final report. Volume II
Author :	Fealy, R. M.; Green, S.; Loftus, M.; Meehan, R.; Radford, T.; Cronin, C.; Bulfin, M.
Series :	Teagasc, Dublin
Year :	2010
Title :	A study of the vegetation and management of Shrule Turlough, Co. Mayo
Author :	Murphy, S.
Series :	Unpublished B.Sc. Thesis, National University of Ireland, Galway
Year :	2013
Title :	Birds of conservation concern in Ireland 2014-2019
Author :	Colhoun, K.; Cummins, S.
Series :	Irish Birds 9: 523-544
Year :	2014
Title :	Interim classification, harmonisation and generalisation of county soil maps of Ireland. Irish soil information system final technical report 1
Author :	Jones, R.J.A.; Hannam, J.A.; Palmer, R.C.; Truckell, I.G.; Creamer, R.E.; McDonald, E.
Series :	Report for the EPA prepared by Teagasc and Cranfield University

Year :	2018
Title :	Irish Vegetation Classification: Technical Progress Report No. 4
Author :	Perrin, P.
Series :	Report submitted to National Biodiversity Data Centre

Spatial data sources

Year :	2020
Title :	Goodwillie (1992). Turloughs over 10 hectares: Vegetation survey and evaluation
GIS Operations :	Goodwillie map scanned and georectified. Turlough as outlined on map digitised. New turlough dataset clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
Used For :	3180 (map 2)

3180 Turloughs*

To maintain the favourable conservation condition of Turloughs in Shrule Turlough 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	Shrule Turlough SAC was studied by Coxon (1986), Goodwillie (1992) and Murphy (2010). The turlough area in the SAC has been calculated as 121.0ha based on Goodwillie (1992). See map 2 for known extent. Goodwillie (1992) regarded this turlough as being of international ecological importance. See O Connor (2017) for information on all attributes and targets
Habitat distribution	Occurrence	No decline, subject to natural processes	See map 2
Hydrological regime	Various	Maintain appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat	Hydrological regime is sub-divided into more detailed attributes (groundwater contribution, flood duration, frequency, area and depth, and permanently flooded/wet areas) and targets in O Connor (2017). The hydrology of this turlough was studied by Coxon (1986) and Goodwillie (1992). Goodwillie (1992) described the turlough as being in a natural hollow with no overground outflow. He identified three swallow holes occuring along the southern shore, which had all been enlarged and fenced. Channels had been cut into them, with the water draining southwards, but a median drain had also been cut in the peat and this ran through till into a more permanent lake to the west. Goodwillie noted that water seemed to flow into the basin from the west but that the flow might be reversed at times. At the eastern end there was a connection to the Black River. Despite all these drainage attempts, according to Goodwillie (1992), the turlough still seemed to flood regularly
Soil type	Hectares	Maintain variety, area and extent of soil types necessary to support turlough vegetation and other biota	Goodwillie (1992) described the greater part of the Shrule Turlough basin as covered by peat, which had been partly cut away. The Teagasc/EPA soils map by Fealy et al. (2009) and later by Jones et al. (2014) bear out this description. Additionally, Goodwillie (1992) described findings by Coxon (1986) of a section in the site without peat, which showed significant deposition of marl, reflecting its varied history of flooding and peat growth in the past. Pockets of soil around the edges of the turlough were mapped by Fealy et al. (2009) as basic, poorly-drained mineral soil over limestone tills, with Goodwillie (1992) noting that the southern edge of the turlough in particular had less in the way of peat deposits than the rest of the turlough
Soil nutrient status: nitrogen and phosphorus	N and P concentration in soil	Maintain nutrient status appropriate to soil types and vegetation communities	
Physical structure: bare ground	Presence	Maintain sufficient wet bare ground, as appropriate	
Chemical processes: calcium carbonate deposition and concentration	Calcium carbonate deposition rate/soil concentration	Maintain appropriate calcium carbonate deposition rate and concentration in soil	Goodwillie (1992) noted that the floodwaters of the turlough appeared to be lime-rich. The areas of marl reported by Coxon (1986) would be expected to have a high calcium carbonate content
Active peat formation	Flood duration	Maintain active peat formation	The main substrate of this turlough is peat, some of it former cutover (Goodwillie, 1992; Fealy et al., 2009; Jones et al., 2014)

Water quality	Various	Maintain appropriate water quality to support the natural structure and functioning of the habitat	Water quality is sub-divided into more detailed attributes (nutrients, colour, phytoplankton and epiphyton biomass) and targets in O Connor (2017). See also The European Communities Environmental Objectives (Surface Waters) (Amendment) Regulations 2019. According to Working Group on Groundwater (Turlough sub-committee) (2005), Shrule Turlough is currently classed as having an extremely high sensitivity to enrichment (i.e. highly oligotrophic) and is considered to be naturally highly oligotrophic. This turlough therefore has targets of ≤10µg/l for mean total phosphorus and trace/absent epiphyton as algal mats (<2% cover) for favourable conservation condition
Vegetation composition: area of vegetation communities	Hectares	Maintain area of sensitive and high conservation value vegetation communities/units	Goodwillie (1992) noted a high level of physical and vegetation diversity for this turlough, with the second highest number of plant communities and largest extent of *Cladium mariscus* fen and *Schoenus nigricans* fen of all turloughs in his survey. These two communities covered half of the area mapped for the site. Other communities identified by Goodwillie (1992) were a tall sedge fen, with *Carex elata, C. lasiocarpa, Menyanthes trifoliata* and *Caltha palustris*, and a *Carex viridula* community with *C. panicea, Hydrocotyle vulgare* and *Ranunculus flammula*. Plots recorded by Murphy (2010) were run through ERICA (Perrin, 2018) to determine their IVC community. Most were in FE3A *Carex nigra-Ranunculus flammula*, with the FE3B *Carex nigra-Potentilla anserina* community also common. FE1B *Schoenus nigricans-Succisa pratensis* was also recorded, and an aquatic FW3C *Carex rostrata*/fen community
Vegetation composition: vegetation zonation	Distribution	Maintain vegetation zonation/mosaic characteristic of the turlough	From Goodwillie's (1992) description, vegetation varied depending on substrate type, substrate wetness and alkalinity of inflowing water. For example, *Cladium* fen dominated the wetter alkaline peats and *Schoenus* fen was more developed on drier peat. A seldom-flooded area in the south side graded to a peaty grassland. Ponds and ditches in the peat had their own community of aquatic macrophytes. Water entering the turlough from the west altered the pH to create a small patch of *Carex elata* and *C. lasiocarpa* with *Menyanthes trifoliata* and *Caltha palustris*. The northern and southern edges of the basin were different in character, with exposed limestone to the north, and thinner peat (or none) to the south. Patches of *Polygonum amphibium* occurred near the swallow holes
Vegetation structure: sward height	Centimetres	Maintain sward heights appropriate to the vegetation unit, and a variety of sward heights across the turlough	When surveyed by Goodwillie (1992), most of the turlough was very lightly grazed because of the amount of peat, but it was still divided into fields by ditches. Around the margins some of the peat had been reclaimed and was grazed by cattle. The southern side was similarly grazed and the cattle concentrated around the swallow holes. See O Connor (2017) for information on all attributes and targets
Typical species	Presence	Maintain typical species within the turlough	Typical species is sub-divided into more detailed attributes (terrestrial, wetland and aquatic plants, invertebrates and birds) and targets in O Connor (2017). Goodwillie (1992) recorded a number of plant species that he described as quite rare in turloughs, among them *Myriophyllum verticillatum, Sparganium minimum, Utricularia vulgaris* and *Rorippa sylvestris*. At the time of Goodwillie's (1992) survey, snipe and lapwing nested in the turlough, the latter a red-listed bird species in Colhoun and Cummins (2013)

Fringing habitats: area	Hectares	Maintain marginal fringing habitats that support turlough vegetation, invertebrate, mammal and/or bird populations	
Vegetation structure: turlough woodland	Species diversity and woodland structure	Maintain appropriate turlough woodland diversity and structure	Woodland does not appear to be a significant feature of this turlough, with Goodwillie (1992) only mentioning that *Euonymus europaeus, Solanum dulcamara* and *Malus sylvestris* grew at an area of exposed limestone on the northern edge of the turlough basin

Pollnabunny
Cahermalick
Kill
Friary
Moorgagagh
Tobernadarry
N84
Ballybackagh
Castle
Mocollagan
Brodullagh
Gortee
Ballinrobe
Kilconly
CO. MAYO
Cong
Shrule Turlough SAC
Tuam
Headford
CO. GALWAY
Oughterard

Legend

Shrule Turlough SAC 000525

An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

MAP 1:
SHRULE TURLOUGH SAC
CONSERVATION OBJECTIVES
SAC DESIGNATION

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

SITE CODE:
SAC 000525; version 3.01. CO. MAYO

0 125 250 375 500 Metres

N

Map Version 1
Date: November 2020

Legend

- 3180 Turloughs*
- Shrule Turlough SAC 000525

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Department of Housing, Local Government and Heritage

MAP 2:
SHRULE TURLOUGH SAC
CONSERVATION OBJECTIVES
TURLOUGHS

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

SITE CODE:
SAC 000525; version 3.01. CO. MAYO

0 125 250 375 500 Metres

N

Map Version 1
Date: November 2020