

National Parks and Wildlife Service

Conservation Objectives Series

Ardkill Turlough SAC 000461



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

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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*

000461 Ardkill 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 :	2015
Title :	Turlough hydrology, ecology and conservation (Part 1)
Author :	Waldren, S. (ed.)
Series :	Unpublished report to NPWS
Year :	2017
Title :	Conservation objectives supporting document: Turloughs* and Rivers with muddy banks with <i>Chenopodium rubri</i> p.p. and <i>Bidention</i> p.p. vegetation
Author :	O Connor, Á.
Series :	Conservation objectives supporting document

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 :	2011
Title :	The hydrology and hydroecology of turloughs
Author :	Naughton, O.
Series :	Unpublished Ph.D. Thesis, Trinity College Dublin
Year :	2012
Title :	Groundwater flooding in Irish karst: The hydrological characterisation of ephemeral lakes (turloughs)
Author :	Naughton, O.; Johnston, P.M.; Gill, L.W.
Series :	Journal of Hydrology, 470-471: 82-97

Spatial data sources

Year : 2015

Title : Turlough hydrology, ecology and conservation

GIS Operations : Dataset clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising

Used For : 3180 (map 2)

Conservation Objectives for : Ardkill Turlough SAC [000461]

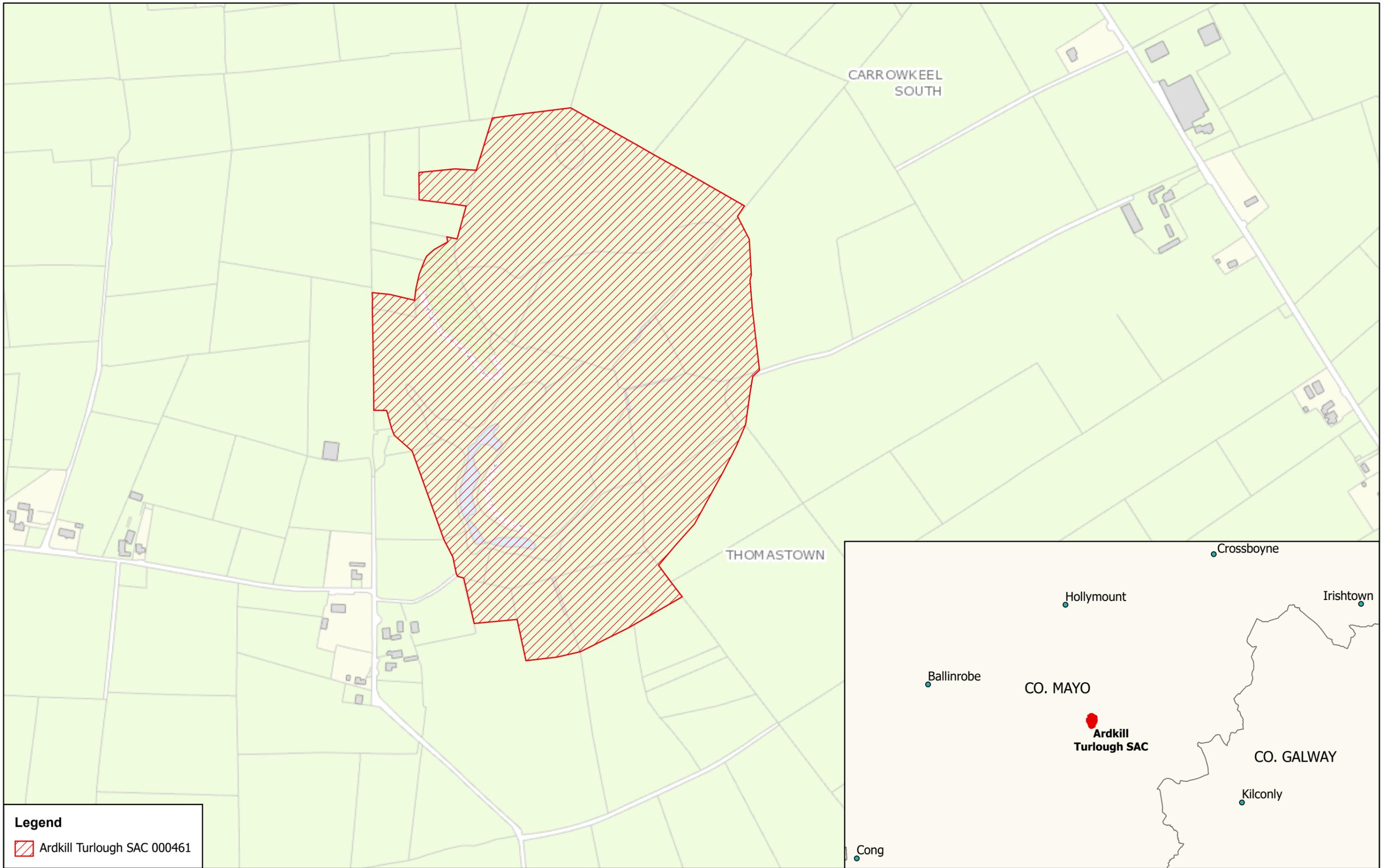
3180 Turloughs*

To restore the favourable conservation condition of Turloughs in Ardkill 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	Ardkill Turlough is a relatively well-studied Irish turlough (Coxon, 1986; Goodwillie, 1992; Naughton, 2011; Waldren, 2015). The turlough area in the SAC has been calculated as 19.8ha based on Waldren (2015). See map 2 for known extent. Goodwillie (1992) categorised Ardkill Turlough as being of national ecological importance. Ardkill Turlough was assessed as being in Bad conservation condition by Waldren (2015). 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). Ardkill is hydrologically linked to Skealaghan and Kilglassaun turloughs and its hydrology is well studied (Coxon, 1986; Goodwillie, 1992; Naughton, 2011; Naughton et al., 2012; Waldren, 2015). Ardkill was characterised by Waldren (2015) as a deep turlough (maximum depth 7.7m) with a long hydroperiod of 293 days. Waldren (2015) assessed the hydrological regime at Ardkill Turlough as Good as there were no drains in the zones of groundwater contribution that were considered to be significantly impacting the functioning of the turlough
Soil type	Hectares	Maintain variety, area and extent of soil types necessary to support turlough vegetation and other biota	Ardkill Turlough has extensive areas of fen peat; shallow well-drained organic soils occupy the upper slopes, and there is a relatively high proportion of shell marl subsoil (Waldren, 2015). For further information on soil type in the Ardkill Turlough, see Goodwillie (1992) and Waldren (2015)
Soil nutrient status: nitrogen and phosphorus	N and P concentration in soil	Maintain nutrient status appropriate to soil types and vegetation communities	Waldren (2015) recorded relatively high mean total nitrogen (TN) within the soils at Ardkill Turlough of 15,400mg/kg TN and a mean total phosphorus (TP) of 844mg/kg TP that was close to the median figure for turloughs studied by Waldren (2015)
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	Soils had a high calcium carbonate content of 32.8% (Waldren, 2015) at Ardkill Turlough
Active peat formation	Flood duration	Maintain active peat formation	Peat is a significant feature of the turlough habitat in this SAC with a high (36.2%) mean organic matter content recorded (Waldren 2015)

Water quality	Various	Restore 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. Ardkill Turlough had high alkalinity, high colour, high total phosphorus (mean of 82.1µg/l TP), and high total nitrogen (mean of 1.7 mg/l TN) (Waldren, 2015). Mean chlorophyll <i>a</i> was 12.7µg/l and the maximum was 52.4µg/l. Extensive cover (≥2%) of algal mats was observed in 2009 (Waldren, 2015). According to the Working Group on Groundwater (Turlough sub-committee) (2005), Ardkill Turlough should, typically, be naturally oligotrophic and requires targets of ≤20µg/l TP and trace/absent epiphyton as algal mats (<2% cover) to reach favourable condition
Vegetation composition: area of vegetation communities	Hectares	Maintain area of sensitive and high conservation value vegetation communities/units	The vegetation of Ardkill Turlough is diverse and of the vegetation communities mapped by Waldren (2015), <i>Lolium</i> grassland and <i>Polygonum amphibium</i> were the most extensive types, with a small area of a vegetation community of high conservation value, the <i>Filipendula ulmaria-Potentilla erecta-Viola</i> sp. community, recorded. Waldren (2015) reported that parts of the turlough were heavily grazed, with consequent poaching and damage to vegetation. If these high grazing levels continue for a significant period of time they could negatively impact the vegetation composition of Ardkill Turlough. See Goodwillie (1992) and Waldren (2015) for further information on vegetation communities in Ardkill Turlough
Vegetation composition: vegetation zonation	Distribution	Maintain vegetation zonation/mosaic characteristic of the turlough	According to Waldren (2015), the upper vegetation zone at Ardkill Turlough was dominated by <i>Lolium</i> grassland, with <i>Agrostis stolonifera</i> communities also common. At the lowest level of the turlough the <i>Polygonum amphibium</i> community was common, with peaty ponds also a notable feature. Charophytes have been recorded within Ardkill Turlough (Goodwillie, 1992). See Goodwillie (1992) and Waldren (2015) for further information on vegetation communities in Ardkill Turlough
Vegetation structure: sward height	Centimetres	Restore sward heights appropriate to the vegetation unit, and a variety of sward heights across the turlough	Waldren (2015) reported that parts of the turlough were heavily grazed, with consequent poaching and damage to vegetation. See Goodwillie (1992) and Waldren (2015) for further information on vegetation communities in Ardkill Turlough
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). One rare and notable plant species found in Ardkill Turlough is <i>Thalictrum flavum</i> , one of only two known records for the species in Co. Mayo (Goodwillie, 1992). This plant species was not re-found by Waldren (2015). The turlough is also important for invertebrates including a parasitic wasp (<i>Mesoleptus hibernica</i>) that was only discovered in 2008 and is new to science (NPWS internal files). NPWS internal files also note that several pairs of breeding Lapwing have been reported from the site
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	A small area of scrub, with no specific tree species listed, is noted on the edge of Ardkill Turlough and on the central part of the island within the turlough (Goodwillie, 1992; Waldren, 2015). <i>Rhamnus cathartica</i> was recorded within the turlough site by Goodwillie (1992) but the species was not recorded by Waldren (2015)
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Legend

 Ardkill Turlough SAC 000461



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**MAP 1:
ARDKILL TURLOUGH SAC
CONSERVATION OBJECTIVES
SAC DESIGNATION**

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

**SITE CODE:
SAC 000461; version 3.01. CO. MAYO**

0 50 100 150 200 Metres

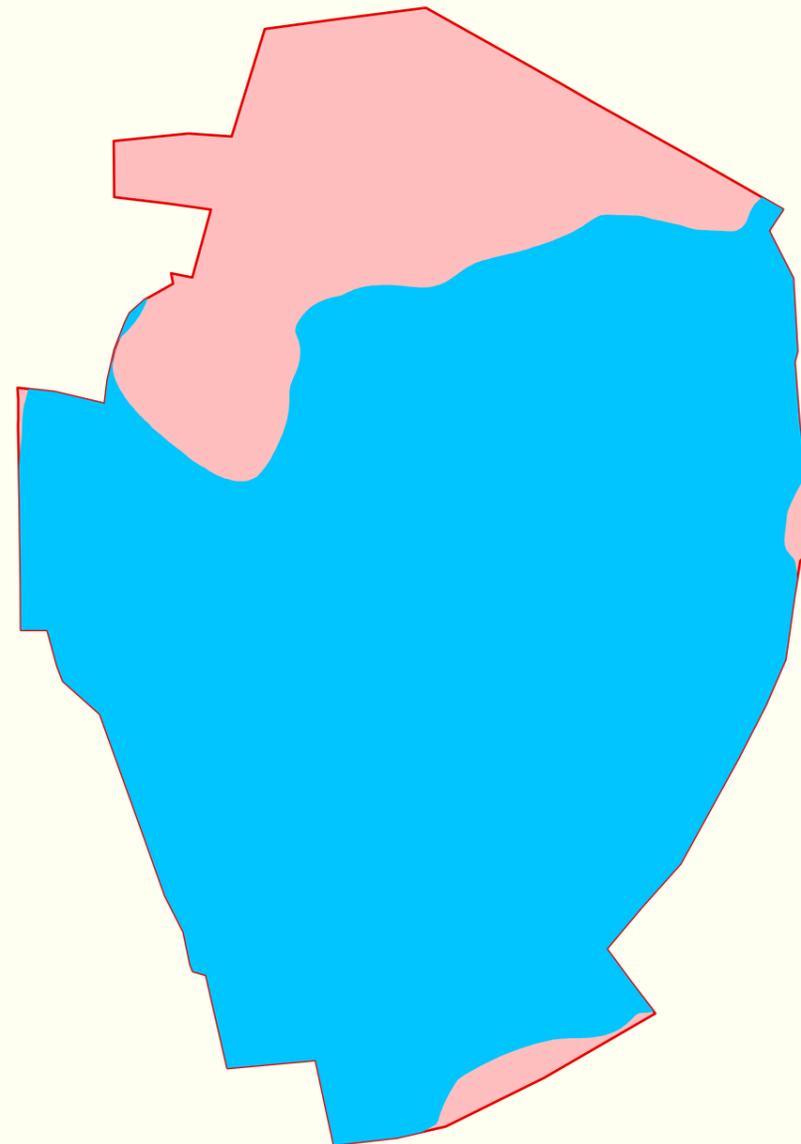


The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision.
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Map Version 1
Date: November 2020



Legend

- 3180 Turloughs*
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**MAP 2:
ARDKILL TURLOUGH SAC
CONSERVATION OBJECTIVES
TURLOUGHs**

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

**SITE CODE:
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**Map Version 1
Date: November 2020**