

National Parks and Wildlife Service

Conservation Objectives Series

Kilglassan/Cahevavoostia Turlough Complex SAC
000504



An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreacht
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*

000504 Kilglassan/Caheravoostia Turlough Complex SAC

3180 Turloughs*

Please note that this SAC is adjacent to Greaghans Turlough SAC (000503). 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

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
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 :	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
Year :	2014
Title :	Establishment of groundwater source protection zones, Kilmaine public water supply scheme
Author :	Kelly, C.; Moe, H.; Smietanka, M.; Drew, D.; Hickey, C.
Series :	Report to the EPA

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 3)
<hr/>	
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 3)
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Year :	2020
Title :	ArcGIS world imagery layer (dated 26.11.2016)
GIS Operations :	Flood extent digitised and clipped to SAC boundary to provide indicative turlough boundary. Expert opinion used as necessary to resolve any issues arising. Expert opinion used as necessary to resolve any issues arising
Used For :	3180 (map 3)
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Conservation Objectives for : Kilglassan/Caheravoostia Turlough Complex SAC [000504]

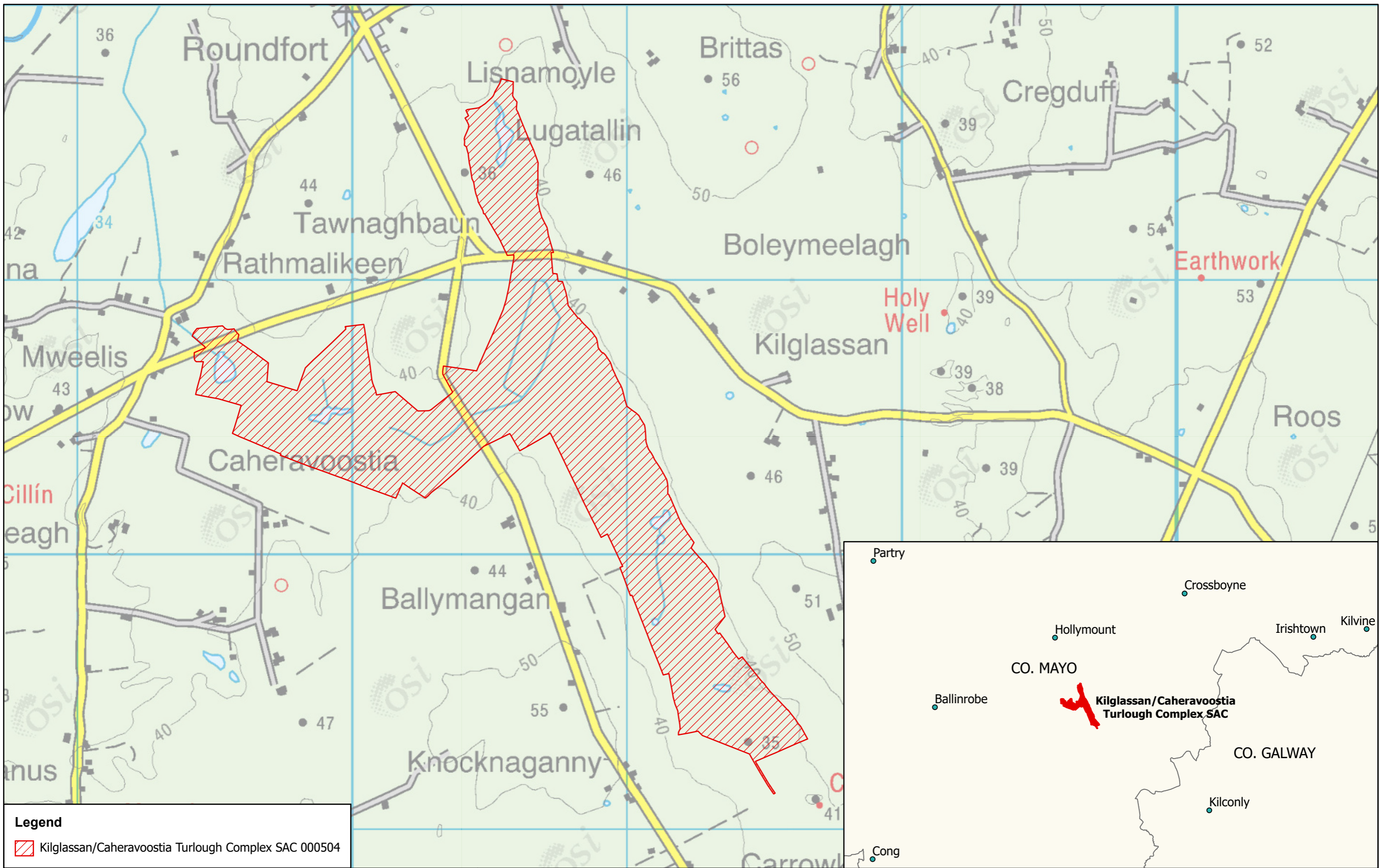
3180 Turloughs*

To restore the favourable conservation condition of Turloughs in Kilglassan/Caheravoostia Turlough 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	The Kilglassan/Caheravoostia turlough complex has been well studied (Coxon, 1986; Goodwillie, 1992; Naughton, 2011; Kelly et al., 2014; Waldren, 2015). The studies of Naughton (2011) and Waldren (2015) relate to Kilglassan Turlough only. The turlough area in the SAC has been calculated as 63.7ha based on Goodwillie (1992) and Waldren (2015), with an additional 6.2ha of potential turlough habitat, mapped as indicative, based on flood extent. See map 3. Kilglassan Turlough was assessed as being in Bad conservation condition, mostly due to the impacts of drainage, by Waldren (2015). Goodwillie (1992) assessed Kilglassan Turlough as of regional ecological importance, and Caheravoostia Turlough as of local importance. See O Connor (2017) for information on all attributes and targets
Habitat distribution	Occurrence	No decline, subject to natural processes	As noted above, the SAC contains two turloughs and potentially a third area in the southern part of the SAC, as indicated by flood extent. See map 3
Hydrological regime	Various	Restore 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 complex is well studied (Coxon, 1986; Goodwillie, 1992; Naughton, 2011; Naughton et al., 2012; Kelly et al., 2014; Waldren, 2015). Waldren (2015) described Kilglassan Turlough's hydrological function as bad, due to drainage. The hydrological regime is non-flashy and drainage capacity is average (Waldren, 2015). It is hydrologically linked with Skealaghan and Ardkill turloughs. Goodwillie (1992) noted an obvious spring in the northern part of Kilglassan, and a number of swallow holes. In Caheravoostia Turlough, Goodwillie (1992) noted a semi-permanent lake in the middle of the main basin associated with deep ditches. The main obvious swallow holes were in the north-west corner close to the road. At that time there was no evidence of effective drainage
Soil type	Hectares	Maintain variety, area and extent of soil types necessary to support turlough vegetation and other biota	Kilglassan has extensive areas of fen peats, mostly in the centre, with approximately one third being very shallow, well-drained organic soils (Waldren, 2015). This matches Goodwillie's (1992) description. In addition, Goodwillie (1992) noted findings by Coxon (1986) that at the north end of the southern section there was 2m peat over till with, towards the centre, layers of peat, pure marl, impure marl and silt/clay. Caheravoostia Turlough's soil was described by Goodwillie (1992). He noted that significant amounts of peat had built up in the lower parts of the turlough but that there was an input of silt also. He described findings of Coxon (1986) of layering of different soil types in Caheravoostia Turlough - brown silty clay, fen peat, marl, peat, peaty marl, dark grey silt - indicating a complex hydrological history. For further information on soil type in the Kilglassan/Caheravoostia turlough complex, see Coxon (1986), Goodwillie (1992) and Waldren (2015)

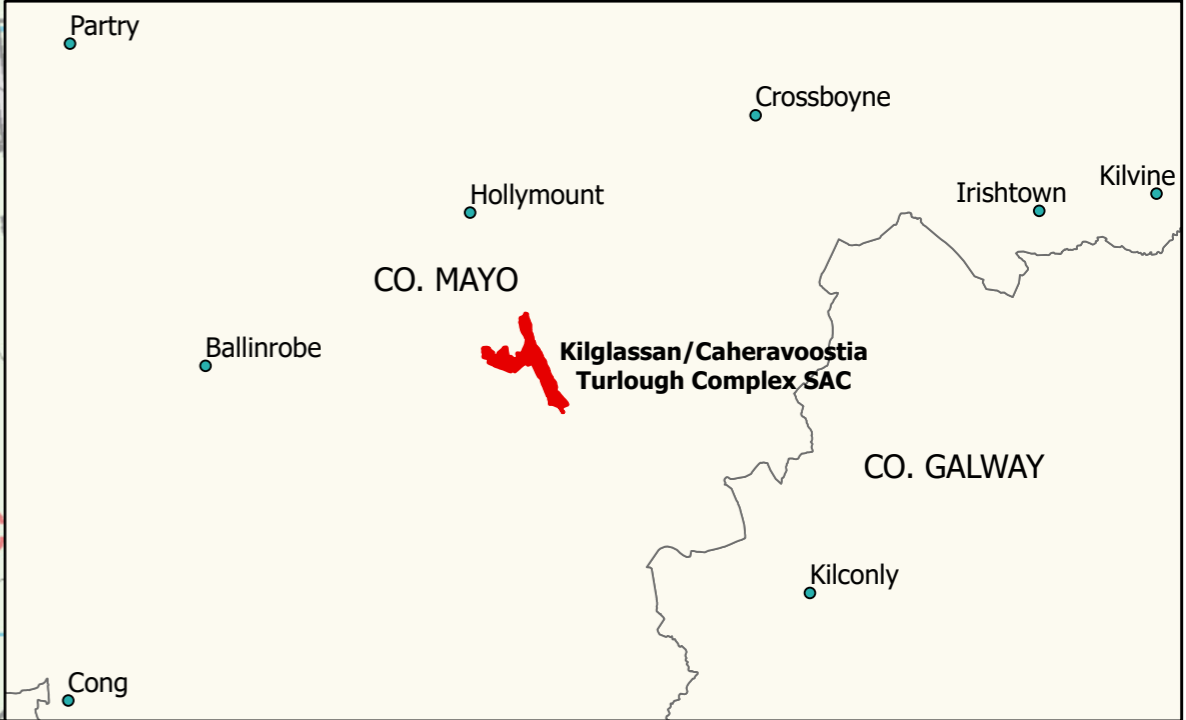
Soil nutrient status: nitrogen and phosphorus	N and P concentration in soil	Restore nutrient status appropriate to soil types and vegetation communities	Waldren (2015) recorded a relatively high mean total nitrogen (TN) within the soils at Kilglassan Turlough of 17,450mg/kg TN and a relatively high mean total phosphorus (TP) of 1,226mg/kg TP
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 21.5% (Waldren, 2015) at Kilglassan Turlough. Goodwillie (1992) noted about Caheravoostia that the floodwaters seemed relatively poor in lime judging by the lack of deposit on the vegetation
Active peat formation	Flood duration	Maintain/restore active peat formation	Peat soils are the dominant soil type at both turloughs. Waldren (2015) estimated that approximately two-thirds of the substrate at Kilglassan was fen peat. Goodwillie (1992) noted for Kilglassan that peat cutting had stopped there about 20 years previously. For Caheravoostia, Goodwillie (1992) noted that significant amounts of peat had built up in the lower parts of the turlough
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. Waldren (2015) found Kilglassan Turlough had mean total phosphorus of 22.2µg/l, mean total nitrogen of 1.5 mg/l, mean and maximum chlorophyll <i>a</i> of 5.0µg/l and 10.6µg/l, respectively; algal mats were observed but not extensive. The Working Group on Groundwater (Turlough sub-committee) (2005) classified both Kilglassan and Caheravoostia as highly sensitive to enrichment, but given the extent of peat, both may have had naturally extremely-high sensitivity. In consequence, a target of ≤20µg/l TP may be insufficient to support the natural structure and functioning of the turlough habitat and ≤10µg/l TP and trace/absent epiphyton as algal mats (<2% cover) may be necessary to reach favourable condition
Vegetation composition: area of vegetation communities	Hectares	Restore area of sensitive and high conservation value vegetation communities/units	A diversity of vegetation types was mapped in Kilglassan Turlough by Waldren (2015), the dominant communities being <i>Potentilla anserina-Carex nigra</i> , <i>Polygonum amphibium</i> , <i>C. nigra-C. panicea</i> and the high-conservation-value community <i>Filipendula ulmaria-Potentilla erecta-Viola</i> sp. In Caheravoostia, according to Goodwillie (1992), much of the floor of the basin around the lake was covered with <i>P. amphibium</i> and a wet <i>C. nigra</i> community in most other places. The lake had a central patch of <i>Equisetum fluviatile</i> , <i>Menyanthes trifoliata</i> and <i>P. amphibium</i> surrounded by <i>Oenanthe aquatica</i> , <i>Apium inundatum</i> and <i>Sparganium emersum</i> . <i>Rorippa amphibium</i> was found in the depression at the north-west end. At the eastern end, a fringe of sedge heath extended in patches around much of the turlough, changing to sedge fen with <i>Carex hostiana</i> on the south-west side. See Goodwillie (1992) and Waldren (2015) for further information

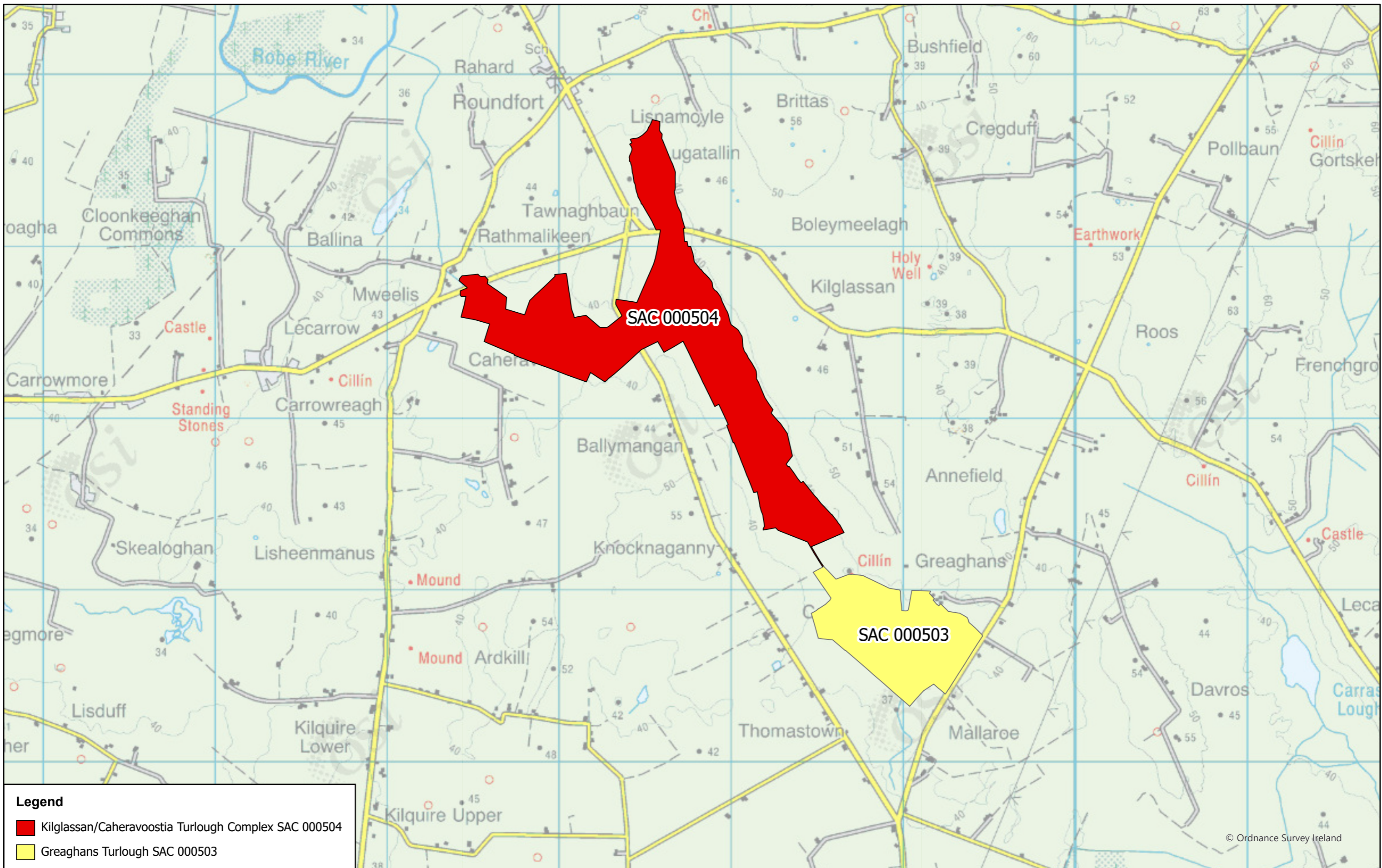
Vegetation composition: vegetation zonation	Distribution	Maintain/restore vegetation zonation/mosaic characteristic of the turlough	Waldren's (2015) vegetation map of Kilglassan Turlough clearly shows zonation from the wet centre of the basin, with <i>Polygonum amphibium</i> , up through a <i>Potentilla anserina-Carex nigra</i> community along the turlough sides, to a <i>C. nigra-C. panicea</i> community at the turlough edge. Other communities form a mosaic throughout. At Caheravoostia, zonation was also described by Goodwillie (1992). The lake itself showed zonation, with a central <i>Equisetum fluviatile</i> community giving way to a fringing <i>Oenanthe aquatica</i> community. A wet <i>Polygonum amphibium</i> community on the bottom of the turlough basin around the lake gave way to a wet <i>C. nigra</i> community away from the lake. In drier areas, communities of sedge heath, sedge fen and grassland also occurred. See Goodwillie (1992) and Waldren (2015) for further information on vegetation communities in these turloughs
Vegetation structure: sward height	Centimetres	Maintain/restore sward heights appropriate to the vegetation unit, and a variety of sward heights across the turlough	The grazing regime at Kilglassan Turlough was reported by Waldren (2015) as intensive cattle grazing, occurring across the whole turlough. Goodwillie (1992) also reported cattle grazing at Caheravoostia Turlough in 1992
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). Two charophytes, <i>Chara hispida</i> and <i>C. vulgaris</i> , were recorded from Caheravoostia in 1991 (NPWS internal files). Goodwillie (1992) regarded the presence of <i>Oenanthe fistulosa</i> at Caheravoostia as of interest as it is rare west of the Shannon and is not usually a turlough species. Waldren (2015) noted <i>Alonella excisa</i> as an important aquatic invertebrate for Kilglassan Turlough. NPWS internal files note that breeding snipe, redshank and lapwing have been recorded in the SAC
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	Turlough woodland is not a significant feature of this turlough complex



Legend

 Kilglassan/Caheravoostia Turlough Complex SAC 000504

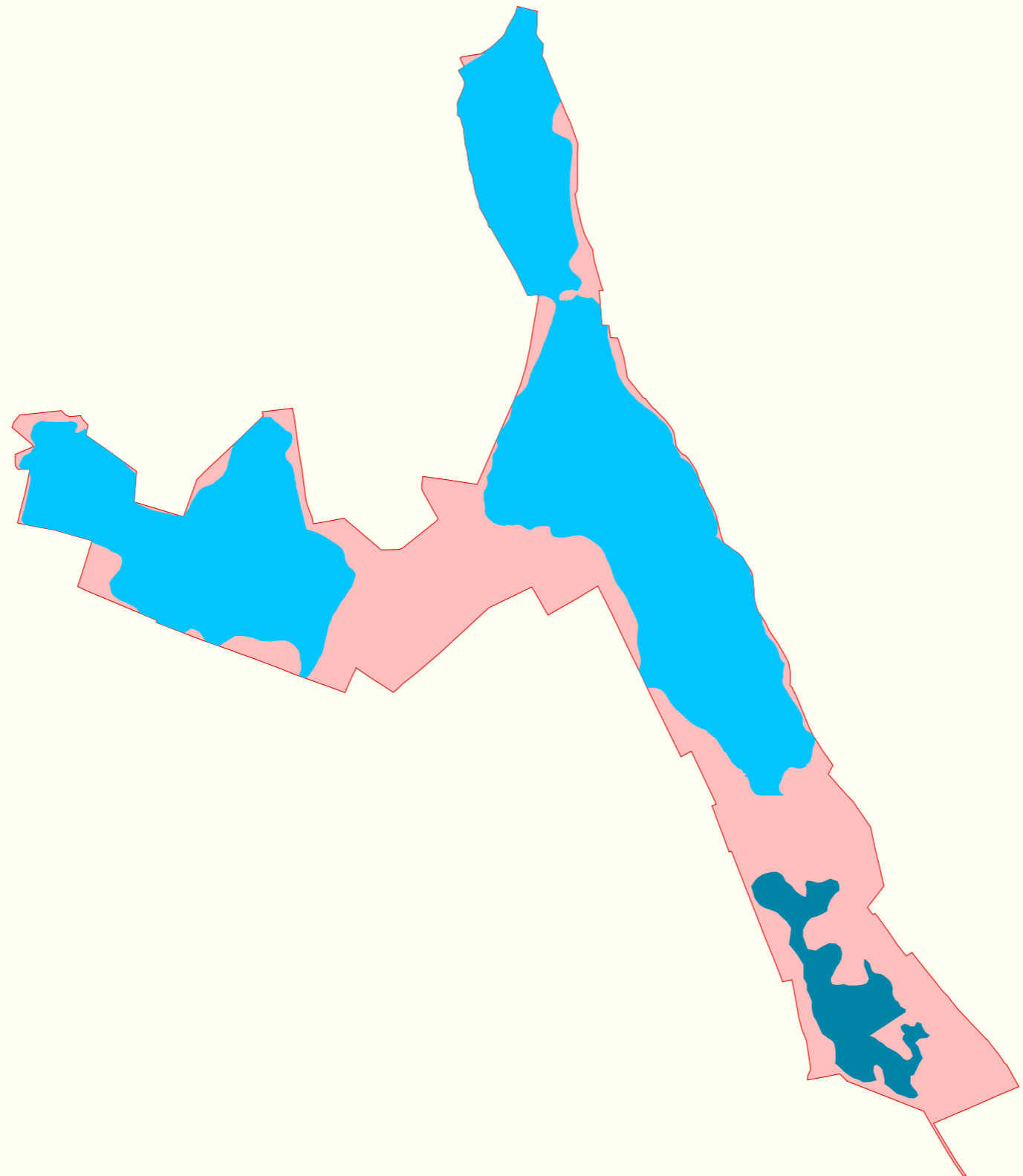




Legend

- Kilglassan/Cahevavostia Turlough Complex SAC 000504
- Greaghans Turlough SAC 000503

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Legend

- 3180 Turloughs*
- Indicative turlough boundary based on flood extent
- Kilglassan/Caheravoostia Turlough Complex SAC 000504