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Conservation Objectives Series

Templehouse and Cloonacleigha Loughs SAC 000636

An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
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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.

000636 Templehouse and Cloonacleigha Loughs SAC

3140	Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation

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 :	Owenmore River Catchment. Proposed Arterial Drainage Environmental Impact Assessment - Botanical and Ornithological Surveys.
Author :	Goodwillie, R.N.; Buckley, P.; Douglas, C.
Series :	Unpublished report
Year :	2013
Title :	A survey of the benthic macrophytes of three hard-water lakes: Lough Bunny, Lough Carra and Lough Owel
Author :	Roden, C.; Murphy, P.
Series :	Irish Wildlife Manuals, No. 70
Year :	2013
Title :	The status of EU protected habitats and species in Ireland. Volume 2. Habitats assessments
Author :	NPWS
Series :	Conservation assessments
Year :	2015
Title :	Habitats Directive Annex I lake habitats: a working interpretation for the purposes of site-specific conservation objectives and Article 17 reporting
Author :	O Connor, Á.
Series :	Unpublished document by NPWS
Year :	2019
Title :	The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments
Author :	NPWS
Series :	Conservation assessments
Year :	2020
Title :	Marl Lake (Habitat 3140) Survey and Assessment Methods Manual
Author :	Roden, C.; Murphy, P.; Ryan, J.; Doddy, P.
Series :	Irish Wildlife Manuals, No. 125
Year :	2020
Title :	Benthic vegetation in Irish marl lakes: monitoring habitat 3140 condition 2011 to 2018
Author :	Roden, C.; Murphy, P.; Ryan, J.
Series :	Irish Wildlife Manuals, No. 124
Year :	2020
Title :	Benthic vegetation in Irish marl lakes: monitoring habitat 3140 condition 2011 to 2018. Appendix III, Site Reports
Author :	Roden, C.; Murphy, P.; Ryan, J.
Series :	Irish Wildlife Manuals, No. 124

Other References

Year :	1982
Title :	Eutrophication of waters. Monitoring assessment and control
Author :	OECD
Series :	OECD, Paris

Year :	1993
Title :	Notes on the flora of the Owenmore Catchment Cos Sligo (H28) and East Mayo (H26)
Author :	Douglas, C.; Goodwillie, R.; Mooney, E.
Series :	Irish Naturalists' Journal, 24(5): 218-220
Year :	2003
Title :	Ecology of watercourses characterised by Ranunculion fluitantis and Callitricho-Batrachion vegetation
Author :	Hatton-Ellis, T.W.; Grieve, N.
Series :	Conserving Natura 2000 Rivers Ecology Series No. 11. English Nature, Peterborough
Year :	2006
Title :	A reference-based typology and ecological assessment system for Irish lakes. Preliminary investigations. Final report. Project 2000-FS-1-M1 Ecological assessment of lakes pilot study to establish monitoring methodologies EU (WFD)
Author :	Free, G.; Little, R.; Tierney, D.; Donnelly, K.; Coroni, R.
Series :	Environmental Protection Agency, Wexford
Year :	2009
Title :	The marl lakes of the British Isles
Author :	Pentecost, A.
Series :	Freshwater Reviews, 2(1): 167-197
Year :	2010
Title :	Water Quality in Ireland 2007-2009
Author :	McGarrigle, M.; Lucey, J.; Ó Cinnéide, M.
Series :	Environmental Protection Agency, Wexford
Year :	2013
Title :	Management strategies for the protection of high status water bodies
Author :	Ní Chatháin, B.; Moorkens, E.; Irvine, K.
Series :	Strive Report Series No. 99. EPA, Wexford
Year :	2013
Title :	Interpretation manual of European Union habitats- Eur 28
Author :	European Commission- DG Environment
Series :	European Commission
Year :	2015
Title :	Water Quality in Ireland 2010-2012
Author :	Bradley, C.; Byrne, C.; Craig, M.; Free, G.; Gallagher, T.; Kennedy, B.; Little, R.; Lucey, J.; Mannix, A.; McCreesh, P.; McDermott, G.; McGarrigle, M.; Ní Longphuirt, S.; O'Boyle, S.; Plant, C.; Tierney, D.; Trodd, W.; Webster, P.; Wilkes, R.; Wynne, C.
Series :	Environmental Protection Agency, Wexford
Year :	2016
Title :	A narrative for conserving freshwater and wetland habitats in England
Author :	Mainstone, C.; Hall, R.; Diack, I.
Series :	Natural England Research Reports Number 064
Year :	2016
Title :	Lake ecological assessment metrics in Ireland: relationships with phosphorus and typology parameters and the implications for setting nutrient standards
Author :	Free, G.; Tierney, D.; Little, R.; Kelly, F.L.; Kennedy, B.; Plant, C.; Trodd, W.; Wynne, C.; Caroni R.; Byrne, C.
Series :	Biology and Environment: Proceedings of the Royal Irish Academy, 116B: 191-204

Year :	2017
Title :	Water Quality in Ireland 2010-2015
Author :	Fanning, A.; Craig, M.; Webster, P.; Bradley, C.; Tierney, D.; Wilkes, R.; Mannix, A.; Treacy, P.; Kelly, F.; Geoghegan, R.; Kent, T.; Mageean, M.
Series :	Environmental Protection Agency, Wexford
Year :	2019
Title :	Water Quality in Ireland 2013-2018
Author :	O'Boyle, S.; Trodd, W.; Bradley, C.; Tierney, D.; Wilkes, R.; Ní Longphuirt, S.; Smith, J.; Stephens, A.; Barry, J.; Maher, P.; McGinn, R.; Mockler, E.; Deakin, J.; Craig, M.; Gurrie, M.
Series :	Environmental Protection Agency, Wexford

Spatial data sources

Year :	2021
Title :	OSi Prime 2 water polygon file
GIS Operations :	WaterPolygons feature class clipped to the SAC boundary. Expert opinion used to identify Annex I habitat and to resolve any issues arising
Used For :	3140 (map 2)

3140 Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.

To restore the favourable conservation condition of Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. in Templehouse and Cloonacleigha Loughs 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	Templehouse and Cloonacleigha Loughs are hard water or marl lakes (Annex I lake habitat 3140) on the Owenmore River and were surveyed by Goodwillie et al. (1992). The habitat may also occur in Killawee Lake. Much of the Owenmore River was arterially drained between 1927-36 under the Owenmore Drainage District, 1926 Act, resulting in the levels of Cloonacleigha and Templehouse lakes being significantly lowered (by up to 1.5m), exposing former lake bed that still floods (Goodwillie et al., 1992). The surface area of the lake is the simplest measure of extent and should be stable or increasing. It may also be possible to estimate the area of the vegetation communities/zones that typify the habitat. Further information relating to all attributes is provided in Roden et al. (2020) and O Connor (2015). See also Pentecost (2009) and Roden et al. (2020) for an overview of marl lakes in Britain and Ireland
Habitat distribution	Occurrence	No decline, subject to natural processes	Lake habitat 3140 occurs in Templehouse and Cloonacleigha Lakes in the SAC, and may also be present in Killawee Lough. See map 2
Vegetation composition: typical species	Occurrence	Typical species present, in good condition, and demonstrating typical abundances and distribution	While five charophyte species were recorded in 1988/9 (Goodwillie et al., 1992), they did not dominate the vegetation of Cloonacleigha Lough and the abundance of vascular plants was indicative of habitat degradation. *Chara aspera, Chara contraria, Chara rudis, Chara virgata, Chara vulgaris, Cladophora* balls, *Scorpidium scorpioides, Elodea canadensis, Hippuris vulgaris, Menyanthes trifoliata, Myriophyllum spicatum, Nuphar lutea, Potamogeton crispus* and *P. perfoliatus* were recorded at Cloonacleigha Lough. For lists of typical species for lake habitat 3140 (cyanobacteria, algae, higher plants and water beetles), see the habitat 3140 Article 17 assessments (NPWS, 2013, 2019) and O Connor (2015). Roden et al. (2020) list species present in marl lakes in good condition, as well as other widespread and local/rare species
Vegetation composition: characteristic zonation	Occurrence	Restore characteristic charophyte and crust zones	Goodwillie et al. (1992) provided some information on aquatic vegetation zones at Cloonacleigha. The characteristic zonation of 3140 in marl lakes was described in Roden and Murphy (2013) and updated by Roden et al. (2020). Marl lakes in good condition should have four or more characteristic vegetation zones present, typically including a cyanophyte crust zone with occasional *Chara virgata* var. *annulata*, a *Chara curta* zone, a *Chara rudis* zone, a *Chara virgata* zone and, in some lakes, a *Chara denudata* or *Nitella flexilis* zone (Roden et al., 2020). Roden et al. (2020) also provide methods for assessing the condition of the cyanophyte crust (three metrics) and a novel indicator (C&K score) of good structure and function

Vegetation distribution: maximum depth	Metres	Restore maximum depth of vegetation (euphotic depth), subject to natural processes	The Environmental Protection Agency (EPA) recorded maximum depth of vegetation colonisation at Templehouse of 2.1m in 2011 and 2.3m in 2014. As Templehouse and Cloonacleigha lakes are shallow, vegetation depth may be limited by water depth; however, the target for maximum depth of vegetation colonisation (euphotic depth) in marl lakes is >7m (Roden et al., 2020). Euphotic depth is considered to be a key measure of the structure and functions of marl lake vegetation and has been found to exceed 10m in some Irish marl lakes (Roden et al., 2020)
Hydrological regime: water level fluctuations	Metres	Maintain/restore appropriate hydrological regime necessary to support the habitat	The levels of Cloonacleigha and Templehouse lakes were lowered between 1927-36 and Templehouse has large fluctuations, with its former lake bed inundated once to several time per year (Goodwillie et al., 1992). The peatland adjacent to the SAC's water bodies has also been heavily drained. Fluctuations in lake water level can be amplified by activities such as abstraction and drainage. In undisturbed marl lakes, fluctuations follow predictable seasonal trends and relationships exist with the vegetation zones (Roden et al., 2020). In summer, more than 90% of the crust zone should be covered and water level should never be lower than the top of the *Chara curta* zone; in winter, all zones should be submerged (Roden et al., 2020). Groundwater normally exerts a strong influence on the hydrology of marl lakes. Increased water level fluctuations can increase wave action, up-root vegetation, increase turbidity, alter the substratum and lead to release of nutrients from the sediment
Lake substratum quality	Various	Maintain appropriate substratum type, extent and chemistry to support the vegetation	In general, marl lakes are dominated by limestone bedrock, calcareous silt and sand, and loose stones (Roden et al., 2020). Deposited peat may indicate excessive sediment inputs and sediment can accumulate phosphorus and release it into the water column (Roden et al., 2020). Further research into acceptable sediment phosphorus concentrations and other aspects of substratum quality in marl lakes would be beneficial
pH and Alkalinity	pH units, mg/l	Maintain appropriate water and sediment pH, alkalinity and cation concentrations to support the habitat, subject to natural processes	Free et al. (2006) reported alkalinity of 213.8mg/l at Templehouse. The lower alkalinity boundary may lie between 80 and 100mg/l; however, alkalinity is far higher in most Irish marl lakes, exceeding 200mg/l in some cases (Roden et al., 2020). Acidification is not considered a threat to lake habitat 3140; however, eutrophication can lead to at least temporary increases in pH to toxic levels (>9/9.5 pH units). Maximum pH should be <9.0 pH units, in line with the surface water standards (The European Communities Environmental Objectives (Surface Waters) (Amendment) Regulations 2019). Further study of the sediment pH, alkalinity and cation concentration may assist in understanding of nutrient cycling

Nutrients	mg/l P; mg/l N	Restore the concentration of nutrients in the water column to sufficiently low levels to support the habitat and its typical species	The EPA reported Moderate nutrient status in Templehouse Lake 2010-2015, with average total phosphorus (TP) of 0.040mg/l in 2010-12 and 0.035mg/l in 2013-15. Roden et al. (2020) found that the majority of marl lakes in good condition have TP ≤0.01mg/l. While vegetation attributes determine the conservation condition of the habitat and some good condition marl lakes have higher TP concentrations, ≤0.01mg/l is the target for good condition proposed by Roden et al. (2020). The ≤0.01mg/l TP target is equivalent to oligotrophic (OECD, 1982) and Water Framework Directive (WFD) High Status (The European Communities Environmental Objectives (Surface Waters) (Amendment) Regulations 2019). WFD High Status targets for total ammonia (annual average ≤0.04mg/l N and annual 95th percentile ≤0.09mg/l N) may also be appropriate. See also Free et al. (2016), McGarrigle et al. (2010), Bradley et al. (2015), Fanning et al. (2017) and O'Boyle et al. (2019)
Water colour	mg/l PtCo	Restore appropriate water colour to support the habitat	Free et al. (2006) reported colour of 75mg/l PtCo in Templehouse Lake. Roden et al. (2020) found that water colour (dissolved light-absorbing compounds) is negatively correlated with euphotic depth, charophyte species richness and cover, and positively correlated with vascular plant cover in marl lakes. Roden et al. (2020) set good condition at <15mg/l PtCo; however, it should be noted that the most important Irish marl lakes have very clear waters with colour of <5mg/l PtCo. Roden et al. (2020) also set a TP×Colour Index with a target of <0.1 for good condition. Increased colour decreases light penetration and reduces the area of macrophyte habitat, particularly at the lower euphotic depths. The primary source of increased colour in Ireland is peatland disturbance
Dissolved organic carbon (DOC)	mg/l	Restore appropriate organic carbon levels to support the habitat	Dissolved organic carbon (DOC) in the water column is linked to water colour. It can provide a substrate (food source) for heterotrophic organisms, which can impact directly (e.g. shading) and indirectly (e.g. nutrient release) on the characteristic lake communities. Damage and degradation of peatland, leading to decomposition of peat, is likely to be the predominant source of dissolved and particulate organic carbon in Ireland
Turbidity	Nephelometric turbidity units/ mg/l SS/ other appropriate unit	Maintain/restore appropriate turbidity to support the habitat	Turbidity can significantly affect the quantity and quality of light reaching rooted and attached vegetation and can, therefore, impact on lake habitats. The settlement of higher loads of inorganic or organic material on lake vegetation communities may also have impacts on sensitive, delicate species. Turbidity can increase as a result of re-suspension of material within the lake, higher loads entering the lake, or eutrophication. Turbidity measurement and interpretation is challenging. As a result, it is likely to be difficult to set habitat-specific targets for turbidity in lakes
Transparency	Metres	Restore appropriate Secchi transparency. There should be no decline in Secchi depth/transparency	Free et al. (2006) reported Secchi depth of 0.9m in Templehouse Lake. Transparency relates to light penetration and, hence, to the depth of colonisation of vegetation. Roden et al. (2020) advised it is preferable to measure euphotic depth directly by observation, but noted that a decreasing trend in Secchi depth indicates declining water quality. Transparency can be affected by phytoplankton blooms, water colour and turbidity. Secchi depth in marl lakes in good condition is generally >6m. The OECD fixed boundary system set transparency targets for oligotrophic lakes of ≥6m annual mean Secchi disk depth and ≥3m annual minimum Secchi disk depth

Attached algal biomass	Algal cover	Maintain trace/absent attached algal biomass (<5% cover)	Nutrient enrichment can favour epiphytic and epipelic algae that can out-compete the submerged vegetation. Roden et al. (2020) noted that occasional blooms of filamentous algae occur in marl lakes in the absence of excess nutrients, especially species of the orders Zygnematales or Oedogoniales. Drifting masses of *Cladophora* species may indicate a decline in water quality. In general, the cover abundance of attached algae in marl lakes (3140) should be trace/absent (<5% cover)
Fringing habitat: area and condition	Hectares	Maintain the area and condition of fringing habitats necessary to support the natural structure and functioning of lake habitat 3140	Reed swamp, marsh, fen, wet grassland and wet woodland occur around the lakes in the SAC. Extensive stands of the uncommon *Carex aquatilis* occurred on the former bed of Templehouse Lake, *C. acuta* and *Mentha arvensis* were found along its shore (Goodwillie et al., 1992; Douglas et al., 1993). The fringing habitats along lake shorelines intergrade with and support the structure and functions of the lake habitat. Equally, fringing habitats are dependent on the lake, particularly its water levels, and support wetland communities and species of conservation concern. Many of the fringing wetland habitats support higher invertebrate and plant species richness than the lake habitats themselves. See also Mainstone et al. (2016)

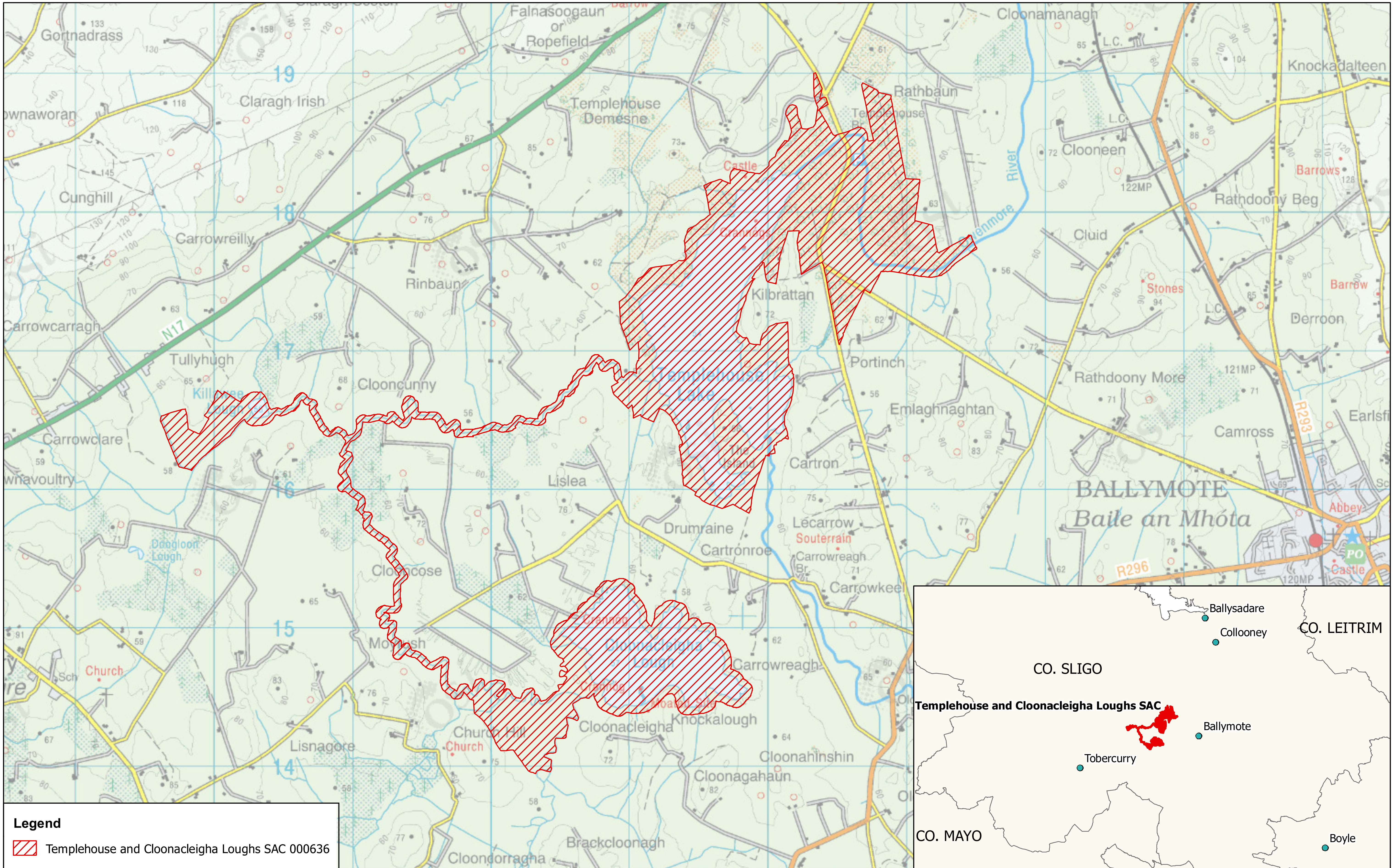
3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation

To maintain the favourable conservation condition of Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation in Templehouse and Cloonacleigha Loughs SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Kilometres	Area stable or increasing, subject to natural processes	Conservation objectives concentrate on the high conservation value sub-types of the habitat. Selection of Templehouse and Cloonacleigha Loughs SAC was based on the occurrence of slow-flowing river stretches with high abundance of submerged, floating-leaved and emergent species. Goodwillie et al. (1992) described the site in detail, including the river between Cloonacleigha and Templehouse Lakes, and the Owenmore and oxbow lake downstream of Templehouse Lake
Habitat distribution	Occurrence	No decline, subject to natural processes	As noted above, the rivers within the SAC are an unnamed river joining Cloonacleigha and Templehouse Loughs, which is joined by tributaries, including one from Killawee Lough, and a c.2.5km stretch of the Owenmore flowing out of Templehouse Lake. The meandering river between the main lakes flows through alluvial sediments and peat. Further study of Irish rivers is needed to interpret the broad description of habitat 3260 which covers from upland bryophyte/macroalgal dominated to lowland depositing rivers with pondweeds and starworts (European Commission, 2013)
Hydrological regime: river flow	Metres per second	Maintain appropriate hydrological regimes	The rivers in the SAC are naturally slow-flowing and meandering, and an oxbow lake occurs at Kilbrattan. Much of the Owenmore was arterially drained between 1927-36 under the Owenmore Drainage District, 1926 Act, when stretches of channel with loose sediments were deepened, resulting in the levels of Cloonacleigha and Templehouse lakes being significantly lowered (Goodwillie et al., 1992). The peatland adjacent to the rivers has also been heavily drained. As a result, the hydrological regime of the rivers in the SAC are significantly altered and natural channel dynamics are constrained. A natural flow regime is required for both plant communities and channel geomorphology to be in favourable condition and exhibiting typical dynamics for the river type (Hatton-Ellis and Grieve, 2003)
Hydrological regime: groundwater discharge	Metres per second	Maintain appropriate hydrological regime	Carboniferous limestone dominates the Owenmore catchment and, as a result, groundwater is likely to make a significant contribution to the rivers in the SAC. It is essential that the appropriate groundwater contributions necessary for the natural functioning of the habitat be maintained and that there is no significant disturbance of the catchments' groundwater regimes

Substratum composition: particle size range	Millimetres	Maintain appropriate substratum particle size range, quantity and quality, subject to natural processes	Goodwillie et al. (1992) described the river between Cloonacleigha and Templehouse Lakes as flowing through river sediments and peat. Fine particles are likely to dominate the slow-flowing rivers in the SAC. Although many high conservation value sub-types are dominated by coarse substrata and bedrock, certain sub-types, notably those associated with lake inflows/outflows and peatlands, such as those in the SAC, are dominated by fine substrata. The size and distribution of particles is largely determined by the river flow and geology. The chemical composition (particularly minerals and nutrients) of the substratum is also important. The quality of finer sediment particles is a notable driver of rooted plant communities
Water quality	Various	Maintain/restore appropriate water quality to support the natural structure and functioning of the habitat	Goodwillie et al. (1992) described the Owenmore as generally eutrophic receiving both agricultural and creamery effluents. Templehouse Bridge, a Water Framework Directive (WFD) monitoring site on the Owenmore within the SAC, had WFD Poor Status (Q3) in 2018 and Moderate Status (Q3-4) from 2006 -12. The specific water quality targets vary among sub-types and WFD Good Status may be sufficient for rivers in the SAC. See also The European Communities Environmental Objectives (Surface Waters) (Amendment) Regulations 2019, Environmental Protection Agency (EPA) river water quality reports (e.g. McGarrigle, 2010; Bradley et al., 2015; Fanning et al., 2017; O'Boyle et al., 2019) and Ní Chatháin et al. (2013)
Typical species	Occurrence	Typical species of the relevant habitat sub-type should be present and in good condition	Typical species have not been fully defined but may include higher plants, bryophytes, algae and invertebrates. Goodwillie et al. (1992) and Douglas et al. (1993) recorded river vegetation between the lakes: abundant submerged and floating-leaved species included *Elodea canadensis, Alisma plantago-aquatica, Nuphar lutea, Oenanthe fluviatilis, Sparganium emersum, Potamogeton natans, P. crispus, Callitriche* spp.; emergents included *Sparganium erectum, Rumex hydrolapathum*, abundant *Mimulus guttatus* and *Schoenoplectus lacustris*. Extensive stands of *Carex aquatilis* occurred on the Owenmore and *Lathyrus palustris* in the oxbow lake. The BSBI Aquatic Plant Project 2019 recorded, amongst others, at Templehouse Bridge: *Callitriche obtusangula, Elodea canadensis, Hippuris vulgaris, Hypochaeris radicata, Lemna trisulca, Nuphar lutea, Oenanthe fluviatilis, Potamogeton berchtoldii, P. lucens, Sparganium erectum, Utricularia vulgaris* agg.
Floodplain connectivity: area	Hectares	Maintain/restore the area of active floodplain at and upstream of the habitat	As noted above, the Owenmore system was subject to arterial drainage and there is extensive peatland and agricultural drainage in/adjacent to the SAC. As a result, lateral connectivity was reduced and wetland habitats were damaged; however, extensive areas of fen, freshwater marsh and wet grassland occur, particularly in former lake beds (Goodwillie et al., 1992). River connectivity with the floodplain is important for the functioning of this habitat. Channels with a naturally functioning floodplain are better able to maintain habitat and water quality (Hatton-Ellis and Grieve, 2003). Floodplain connectivity is particularly important in terms of sediment sorting and nutrient deposition. High conservation value rivers are intimately connected to floodplain habitats and function as important wildlife corridors, connecting otherwise isolated or fragmented habitats in the wider countryside (Hatton-Ellis and Grieve, 2003; Mainstone et al., 2016)

Riparian habitat: area and condition	Hectares	Maintain the area and condition of fringing habitats necessary to support the habitat and its sub-types	Goodwillie et al. (1992) recorded reedbeds along the rivers as well as fen, wet grassland, tall-herb, marsh and woodland communities. The best willow carr was along the Owenmore north of the oxbow lake. The BSBI Aquatic Plant Project recorded *Alnus glutinosa, Prunus padus, Salix cinerea* subsp. *oleifolia, S. viminalis, Caltha palustris, Equisetum fluviatile, E. palustre* and others at Templehouse Bridge. Riparian habitats are integral to the structure and functioning of rivers, even where not part of a floodplain. Fringing habitats contribute to the aquatic food web and to nutrient cycling, provide habitat for life-stages of fish, birds and aquatic invertebrates, aid in the settlement of fine sediments and protect banks from erosion. Shade may suppress algal growth and moderate temperatures. Equally, fringing habitats are dependent on rivers, particularly their water levels, and support wetland communities and species of conservation concern. See Mainstone et al. (2016)



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

MAP 1:
TEMPLEHOUSE AND CLOONACLEIGHA LOUGHS SAC
CONSERVATION OBJECTIVES
SAC DESIGNATION

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

SITE CODE:
SAC 000636; version 3.02.
CO. SLIGO

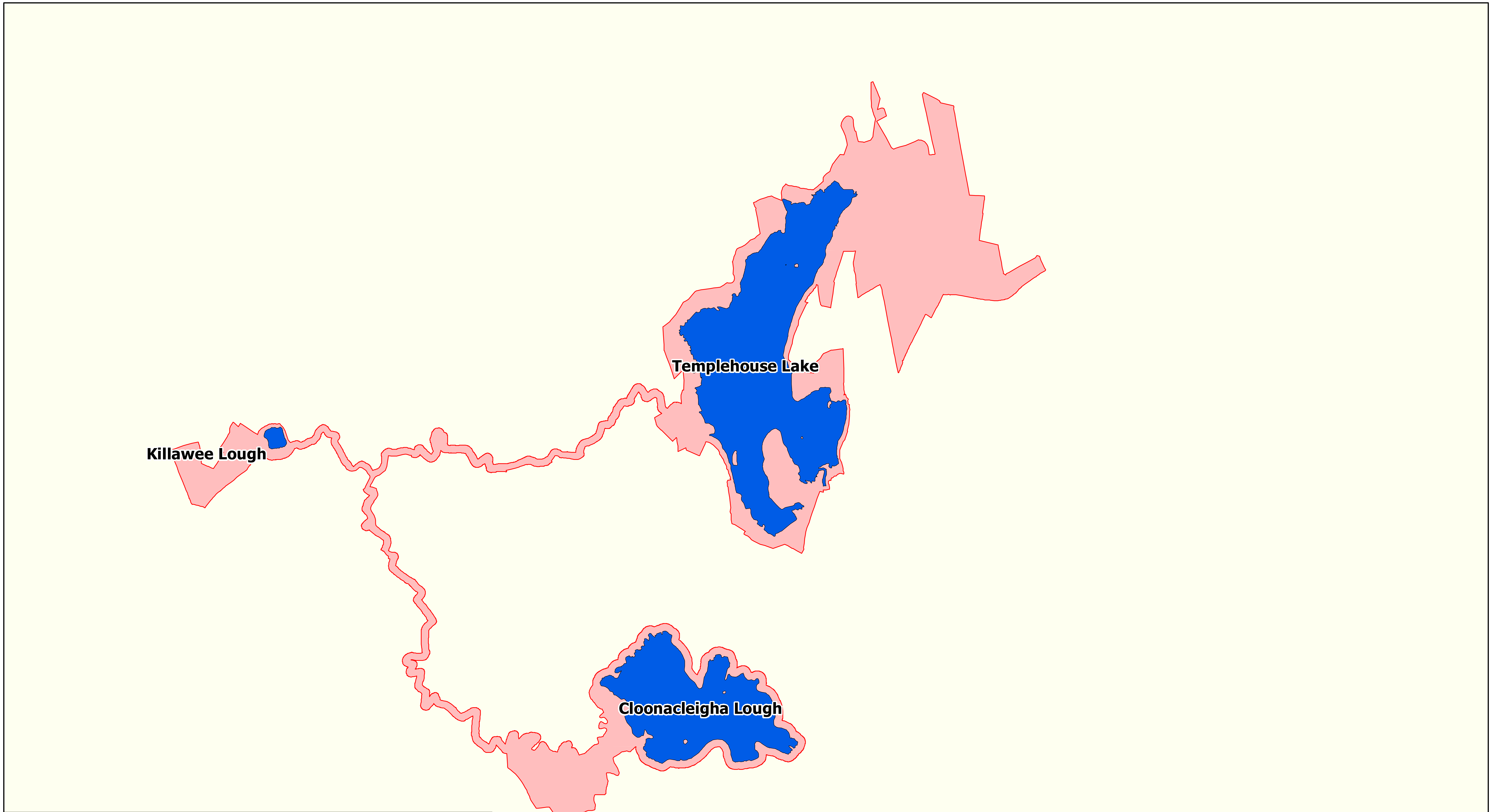
0 0.25 0.5 1 Kilometre

The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision.

Níl sna teorainneacha ar na léarscáileanna ach nod garshuiomhach ginearálta. Féadfar athbhreithnithe a déanamh ar theorainneacha na gceantar comharthaithe.

N

Date: October 2021



Legend

- 3140 Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.
- Templehouse and Cloonacleigha Loughs SAC 000636
- OSI Discovery Series County Boundary

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

MAP 2:
TEMPLEHOUSE AND CLOONACLEIGHA LOUGHS SAC
CONSERVATION OBJECTIVES
INDICATIVE LAKE HABITATS

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

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0 0.25 0.5 1 Kilometre

Date: October 2021