

# National Parks and Wildlife Service

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## *Conservation Objectives Series*

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Lough Fingall Complex SAC 000606



An Roinn Cultúir,  
Oidhreacht agus Gaeltachta  
Department of Culture,  
Heritage and the Gaeltacht

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**Citation:**

**NPWS (2019) Conservation Objectives: Lough Fingall Complex SAC 000606.  
Version 1. National Parks and Wildlife Service, Department of Culture, Heritage  
and the Gaeltacht.**

**Series Editor: Rebecca Jeffrey  
ISSN 2009-4086**

## 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

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000606	Lough Fingall Complex SAC
1303	Lesser Horseshoe Bat <i>Rhinolophus hipposideros</i>
3180	TurloughsE
4060	Alpine and Boreal heaths
5130	* <i>Festuca ovina</i> ssp. <i>ovina</i> formations on heaths or calcareous grasslands
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)
7210	Calcareous fens with <i>Cladonia</i> ssp. <i>cladonia</i> and species of the Caricion davallianaeE
8240	Limestone pavementsE

## Supporting documents, relevant reports & publications

Supporting documents, NPWS reports and publications are available for download from: [www.npws.ie/Publications](http://www.npws.ie/Publications)

### NPWS Documents

<b>Year :</b>	1981
<b>Title :</b>	A survey of the wetlands of the Fergus catchment and adjoining areas
<b>Author :</b>	Curtis, T.G.F.; McGough, H.N.
<b>Series :</b>	Unpublished report
<b>Year :</b>	1992
<b>Title :</b>	Turloughs over 10ha - Vegetation survey and evaluation
<b>Author :</b>	Goodwillie, R.N.
<b>Series :</b>	Unpublished report to NPWS
<b>Year :</b>	2006
<b>Title :</b>	Bat mitigation guidelines for Ireland
<b>Author :</b>	Kelleher, C.; Marnell, F.
<b>Series :</b>	Irish Wildlife Manuals, No. 25
<b>Year :</b>	2007
<b>Title :</b>	Grasslands monitoring project 2006
<b>Author :</b>	Dwyer, R.; Crowley, W.; Wilson, F.
<b>Series :</b>	Unpublished report to NPWS
<b>Year :</b>	2008
<b>Title :</b>	National survey of native woodlands 2003-2008
<b>Author :</b>	Perrin, P.M.; Martin, J.; Barron, S.; O'Neill, F.H.; McNutt, K.E.; Delaney, A.
<b>Series :</b>	Unpublished report to NPWS
<b>Year :</b>	2009
<b>Title :</b>	Irish Red List No. 1 - Water beetles
<b>Author :</b>	Foster, G.N.; Nelson, B.H.; O Connor, Á.
<b>Series :</b>	Ireland Red List Series, NPWS
<b>Year :</b>	2012
<b>Title :</b>	The conservation status of juniper formations in Ireland
<b>Author :</b>	Cooper, F.; Stone, R.E.; McEvoy, P.; Wilkins, T.; Reid, N.
<b>Series :</b>	Irish Wildlife Manuals, No. 63
<b>Year :</b>	2012
<b>Title :</b>	Ireland Red List No. 8: Bryophytes
<b>Author :</b>	Lockhart, N.; Hodgetts, N.; Holyoak, D.
<b>Series :</b>	Ireland Red Lists series, NPWS
<b>Year :</b>	2013
<b>Title :</b>	Irish semi-natural grasslands survey 2007-2012
<b>Author :</b>	O'Neill, F.H.; Martin, J.R.; Devaney, F.M.; Perrin, P.M.
<b>Series :</b>	Irish Wildlife Manuals, No. 78
<b>Year :</b>	2013
<b>Title :</b>	National survey of limestone pavement and associated habitats in Ireland
<b>Author :</b>	Wilson, S.; Fernandez, F.
<b>Series :</b>	Irish Wildlife Manuals, No. 73

<b>Year :</b>	2013
<b>Title :</b>	The status of EU protected habitats and species in Ireland. Volume 2. Habitats assessments
<b>Author :</b>	NPWS
<b>Series :</b>	Conservation assessments
<b>Year :</b>	2013
<b>Title :</b>	Conservation status assessments for three fen habitat types - 7230, 7210 and 7140
<b>Author :</b>	Kimberley, S.
<b>Series :</b>	Unpublished report to NPWS
<b>Year :</b>	2014
<b>Title :</b>	Guidelines for a national survey and conservation assessment of upland vegetation and habitats in Ireland, Version 2.0
<b>Author :</b>	Perrin, P.M.; Barron, S.J.; Roche, J.R.; O'Hanrahan, B.
<b>Series :</b>	Irish Wildlife Manuals, No. 79
<b>Year :</b>	2015
<b>Title :</b>	Turlough hydrology, ecology and conservation (Part 1)
<b>Author :</b>	Waldren, S. (ed.)
<b>Series :</b>	Unpublished report to NPWS
<b>Year :</b>	2015
<b>Title :</b>	Turlough hydrology, ecology and conservation (Part 2)
<b>Author :</b>	Waldren, S. (ed.)
<b>Series :</b>	Unpublished report to NPWS
<b>Year :</b>	2016
<b>Title :</b>	Ireland Red List No. 10: Vascular Plants
<b>Author :</b>	Wyse Jackson, M.; FitzPatrick, Ú.; Cole, E.; Jebb, M.; McFerran, D.; Sheehy Skeffington, M.; Wright, M.
<b>Series :</b>	Ireland Red List Series, NPWS
<b>Year :</b>	2017
<b>Title :</b>	Conservation objectives supporting document: Turloughs* and Rivers with muddy banks with <i>Chenopodium rubri</i> p.p. and <i>Bidenton</i> p.p. vegetation
<b>Author :</b>	O Connor, Á.
<b>Series :</b>	Conservation objectives supporting document
<b>Year :</b>	2018
<b>Title :</b>	Conservation objectives supporting document – lesser horseshoe bat ( <i>Rhinolophus hipposideros</i> )
<b>Author :</b>	NPWS
<b>Series :</b>	Conservation objectives supporting document
<b>Year :</b>	2018
<b>Title :</b>	The Irish Juniper Monitoring Survey 2017
<b>Author :</b>	O'Neill, F.H.; Martin, J.R.
<b>Series :</b>	Irish Wildlife Manuals, No. 101
<b>Year :</b>	2018
<b>Title :</b>	The Irish Juniper Monitoring Survey 2017 - Appendices
<b>Author :</b>	O'Neill, F.H.; Martin, J.R.
<b>Series :</b>	Irish Wildlife Manuals, No. 101
<b>Year :</b>	2018
<b>Title :</b>	The monitoring and assessment of three EU Habitats Directive Annex I grassland habitats
<b>Author :</b>	Martin, J.R.; O'Neill, F.H.; Daly, O.H.
<b>Series :</b>	Irish Wildlife Manuals, No. 102

## Other References

<b>Year :</b>	1986
<b>Title :</b>	A study of the geology, hydrology and geomorphology of turloughs
<b>Author :</b>	Coxon, C.
<b>Series :</b>	Unpublished Ph.D. Thesis, Trinity College Dublin
<b>Year :</b>	1992
<b>Title :</b>	Red Data Books of Britain and Ireland, Charophytes
<b>Author :</b>	Stewart, N.F.; Church, J.M.
<b>Series :</b>	Joint Nature Conservation Committee and Office of Public Works
<b>Year :</b>	1997
<b>Title :</b>	An Investigation of the Flooding Problems in the Gort–Ardrahan Area of South Galway. Ecology Baseline Study. Vols I and II.
<b>Author :</b>	Southern Water Global and Jennings O'Donovan and Partners (eds)
<b>Series :</b>	The Office of Public Works, Dublin
<b>Year :</b>	2004
<b>Title :</b>	Common Standards Monitoring guidance for lowland wetland habitats
<b>Author :</b>	JNCC
<b>Series :</b>	Joint Nature Conservation Committee, Peterborough
<b>Year :</b>	2005
<b>Title :</b>	An investigation of the plant, carabid, and staphylinid communities of turloughs in southeast Galway/north Clare, Ireland
<b>Author :</b>	Regan, E.C.
<b>Series :</b>	Unpublished Ph.D. Thesis, National University of Ireland, Galway
<b>Year :</b>	2005
<b>Title :</b>	Further records of carabid beetles from turloughs
<b>Author :</b>	Regan, E.C.
<b>Series :</b>	Irish Naturalists' Journal, 28(2): 59–61
<b>Year :</b>	2007
<b>Title :</b>	Wetland plant communities of turloughs in southeast Galway/north Clare, Ireland in relation to environmental factors
<b>Author :</b>	Regan, E.C.; Sheehy Skeffington, M.; Gormally, M.J.
<b>Series :</b>	Aquatic Botany, 87(1): 22-30
<b>Year :</b>	2008
<b>Title :</b>	The lesser horseshoe bat conservation handbook
<b>Author :</b>	Schofield, H.W.
<b>Series :</b>	The Vincent Wildlife Trust
<b>Year :</b>	2009
<b>Title :</b>	Importance of night roosts for bat conservation: roosting behaviour of the lesser horseshoe bat <i>Rhinolophus hipposideros</i>
<b>Author :</b>	Knight, T.; Jones, G.
<b>Series :</b>	Endangered Species Research, 8: 79-86
<b>Year :</b>	2011
<b>Title :</b>	The hydrology and hydroecology of turloughs
<b>Author :</b>	Naughton, O.
<b>Series :</b>	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

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**Year :** 2013  
**Title :** Modeling a network of turloughs in lowland karst  
**Author :** Gill, L.W.; Naughton, O.; Johnston, P.M.  
**Series :** Water Resources Research, 49: 3487-3503

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**Year :** 2014  
**Title :** Orchid Ireland Survey 2014  
**Author :** Curtis, T.; Wilson, F.  
**Series :** Report to National Museums Northern Ireland

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**Year :** 2014  
**Title :** Plant Crib 3. *Taraxacum* section *Palustria*  
**Author :** Rich, T.C.G.  
**Series :** Botanical Society of the British Isles

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**Year :** 2017  
**Title :** Groundwater flood hazards and mechanisms in lowland karst terrains  
**Author :** Naughton, O.; McCormack, T.; Gill, L.; Johnston, P.  
**Series :** Geological Society, London, Special Publications, 466

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**Year :** 2017  
**Title :** Groundwater flood risk mapping and management: examples from a lowland karst catchment in Ireland  
**Author :** Naughton, O.; Johnston, P.M.; McCormack, T.; Gill, L.W.  
**Series :** Journal of Flood Risk Management, 10(1): 53-64

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## Spatial data sources

<b>Year :</b>	2018
<b>Title :</b>	Internal NPWS data
<b>GIS Operations :</b>	Dataset clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
<b>Used For :</b>	5130 (map 2)
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<b>Year :</b>	2018
<b>Title :</b>	Grassland Monitoring Survey 2015-2017
<b>GIS Operations :</b>	Dataset clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
<b>Used For :</b>	6210 (map 3)
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<b>Year :</b>	2013
<b>Title :</b>	National Survey of Limestone Pavement and Associated Habitats in Ireland distribution data
<b>GIS Operations :</b>	QIs selected; clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
<b>Used For :</b>	6210, 8240 (maps 3 and 4)
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<b>Year :</b>	2018
<b>Title :</b>	NPWS lesser horseshoe bat database
<b>GIS Operations :</b>	Roost identified, clipped to SAC boundary. Expert opinion used as necessary to resolve any issues arising
<b>Used For :</b>	1303 (map 5)
<hr/>	
<b>Year :</b>	2007
<b>Title :</b>	Forest Inventory and Planning System, (FIPS)
<b>GIS Operations :</b>	Dataset clipped to 2.5km buffer centred on roost location
<b>Used For :</b>	1303 (map 5)
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## Conservation Objectives for : Lough Fingall Complex SAC [000606]

### 3180 Turloughs

**To restore the favourable conservation condition of Turloughs\* in Lough Fingall 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	Lough Fingall Complex SAC is one of the most important Irish SACs for Turloughs*. There is significant hydrological and trophic variation among turloughs in the SAC, although most have some permanent saturation and are highly oligotrophic. Ten of the Goodwillie et al. (1997 in Southern Water Global and Jennings O'Donovan and Partners (SWG and JODP), 1997) sites are in the SAC: Cloghballymore Lough, Ballinderreen, Cuildoosh, Frenchpark, Lough Fingall, Carraghadoo, Cahernalinsky West and East, Tullaghnafrankagh, Dereen. Waldren (2015) covered Ballinderreen and Tullaghnafrankagh (both Inadequate conservation status). Goodwillie (1992) and Coxon (1986) studied Ballinderreen. Regan (2005) studied vegetation and wetland beetles at Ballinderreen, Frenchpark East and Cuildoosh. Goodwillie (1992) categorised Ballinderreen as of international ecological importance (3rd place). The mosaics of vegetation communities within and surrounding the turloughs are of particularly high conservation value
Habitat distribution	Occurrence	No decline, subject to natural processes	The full range of the habitat within the SAC has not yet been mapped, although Goodwillie et al. (1997 in SWG and JODP, 1997) mapped the vegetation of at least ten turlough areas, and NPWS (2013) also used at least ten turlough points for Article 17 distribution mapping. See O Connor (2017) for information on all attributes and targets
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 the SAC is highly complex and variable. See the following for further information: Coxon (1986); Goodwillie (1992); SWG and JODP (1997); Naughton (2011); Naughton et al. (2012). Naughton et al. (2017) and Gill et al. (2013) may also contain useful information. Waldren (2015) assessed the hydrological regime at Tullaghnafrankagh as 'intermediate' owing to borehole abstraction, while past drainage was noted in Ballinderreen. Goodwillie et al. (1997 in SWG and JODP, 1997) documented other drainage in the SAC. Many areas have permanent or long-lasting pools, while at high water levels individual turloughs can become linked above ground
Soil type	Hectares	Maintain variety, area and extent of soil types necessary to support turlough vegetation and other biota	The turlough habitat in Lough Fingall Complex SAC has a range of soils, notable amongst which are peat, marl and outcropping rock. See Goodwillie et al. (1997 in SWG and JODP, 1997) for further information on many areas, and Goodwillie (1992) and Waldren (2015) for information on soils at Ballinderreen and Tullaghnafrankagh
Soil nutrient status: nitrogen and phosphorus	N and P concentration in soil	Maintain nutrient status appropriate to soil types and vegetation communities	See Waldren (2015) for information on total nitrogen and total phosphorus (TP) at Ballinderreen and Tullaghnafrankagh
Physical structure: bare ground	Presence	Maintain sufficient wet bare ground, as appropriate	See O Connor (2017) for further details on this and all attributes

Chemical processes: calcium carbonate deposition and concentration	Calcium carbonate deposition rate/soil concentration	Maintain appropriate calcium carbonate deposition rate and concentration in soil	Soils in the turloughs in the SAC generally have high calcium carbonate content (see Goodwillie et al., 1997 in SWG and JODP, 1997; 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). Tullaghnafrankagh had high total phosphorus (mean of 33µg/l TP) and very high chlorophyll <i>a</i> (mean 18.4µg/l, maximum 69.4µg/l) (Waldren, 2015). Trophic status was also higher than expected at Ballinderreen (mean 12.4µg/l TP; chlorophyll <i>a</i> mean 3µg/l and max 8.8µg/l) (Waldren, 2015). Turloughs in the SAC should, typically, be naturally highly oligotrophic and require targets of ≤10µg/l TP, annual mean <2.5µg/l chlorophyll <i>a</i> and maximum ≤8µg/l chlorophyll <i>a</i> to reach favourable condition
Active peat formation	Flood duration	Maintain active peat formation	Peat is a significant feature of the turlough habitat in this SAC
Vegetation composition: area of vegetation communities	Hectares	Maintain/restore area of sensitive and high conservation value vegetation communities/units	See Goodwillie (1992), Goodwillie et al. (1997 in SWG and JODP, 1997), Regan (2005), Regan et al. (2007) and Waldren (2015) for information on vegetation communities in the turloughs in the SAC. Waldren (2015) stated Tullaghnafrankagh had rather uniform vegetation diversity and moderate cover of negative indicators. The SAC is composed of a complex mosaic of habitats and the turloughs themselves contain or intergrade with a variety of vegetation communities, from probable hard water lake (habitat code 3140) to Alkaline fen (7230) and <i>Cladium fen*</i> (7210), <i>Cladium</i> swamp and reedbeds to scrub and woodland
Vegetation composition: vegetation zonation	Distribution	Maintain/restore vegetation zonation/mosaic characteristic of the site	See Goodwillie (1992), Goodwillie et al. (1997 in SWG and JODP, 1997), Regan (2005), Regan et al. (2007) and Waldren (2015) for information on vegetation in the turloughs in the SAC
Vegetation structure: sward height	Centimetres	Maintain/restore sward heights appropriate to the vegetation unit, and a variety of sward heights across the turlough	See Goodwillie (1992), Goodwillie et al. (1997 in SWG and JODP, 1997), Regan (2005), Regan et al. (2007) and Waldren (2015) for information on vegetation in the turloughs of the SAC. Waldren (2015) noted the need for grazing to improve vegetation diversity at Tullaghnafrankagh
Typical species (terrestrial, wetland and aquatic plants, invertebrates and birds)	Presence	Maintain/restore typical species within and across the turlough	Typical species is sub-divided into more detailed attributes and targets in O Connor (2017). A number of rare and notable plant species are found in the turloughs in the SAC, including <i>Viola persicifolia</i> and <i>Thelypteris palustris</i> , both Near Threatened (Wyse Jackson et al., 2016), <i>Teucrium scordium</i> , <i>Chenopodium rubrum</i> , <i>Rorippa islandica</i> , turlough <i>Taraxacum amarellum (J webbia)</i> and <i>Nitella tenuissima</i> (Goodwillie, 1992; Stewart and Church, 1992; Goodwillie et al., 1997 in SWG and JODP, 1997; Rich, 2014; Waldren, 2015). Water beetles include the Endangered <i>Berosus signaticollis</i> , the Vulnerable species <i>Helophorus strigifrons</i> and <i>Hygrotus novemlineatus</i> and the Near Threatened species <i>Graptodytes bilineatus</i> and <i>Laccobius atratus</i> (Foster et al., 2009). The SAC is also important for a range of rare and threatened moths and other wetland beetles (see Bond, 1997 in SWG and JODP, 1997; Regan, 2005)
Fringing habitats: area	Hectares	Maintain/restore marginal fringing habitats that support turlough vegetation, invertebrate, mammal and/or bird populations	This SAC is of high conservation importance for its mosaic of Annex I and other habitats, particularly the transitions and gradations between habitats, e.g. between turloughs/lakes and limestone pavement, heath, calcareous, species-rich grassland, scrub and woodland. See also the conservation objectives for habitats 4060, 5130, 6210, 7210 and 8240 in this volume

Vegetation structure: turlough woodland

Species diversity and woodland structure

Maintain appropriate turlough woodland diversity and structure

There is much purging buckthorn (*Rhamnus cathartica*) scrub fringing turloughs in the SAC, as well as juniper (*Juniperus communis*) scrub in close association with lowland alpine heath. Alder buckthorn (*Frangula alnus*) also occurs. See also Goodwillie (1992), Goodwillie et al. (1997 in SWG and JODP, 1997) and the conservation objectives for habitats 4060 and 5130 in this volume

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## Conservation Objectives for : Lough Fingall Complex SAC [000606]

### 4060 Alpine and Boreal heaths

To maintain the favourable conservation condition of Alpine and Boreal heaths in Lough Fingall 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	Alpine and Boreal heath occurs in intimate association with other Annex I habitats in Lough Fingall Complex SAC: <i>Juniperus communis</i> formations on heaths or calcareous grasslands (habitat code 5130), Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) (6210) and Limestone pavements* (8240). Therefore, these Annex I habitats cannot easily be mapped or considered separately. Conservation objectives for all these habitats should be used in conjunction with each other as appropriate. Lowland Alpine and Boreal heath in the SAC is mainly concentrated in the area around Lough Fingall (NPWS internal files). The type of lowland Alpine and Boreal heath (lowland <i>Arctostaphylos-Dryas</i> heath) found in the SAC is a rare vegetation type confined to only a few areas in the Burren, the Lough Fingall region and the Moycullen area near Lough Corrib (Curtis and McGough, 1981; NPWS internal files)
Habitat distribution	Occurrence	No decline, subject to natural processes	See the notes for Habitat area above
Vegetation composition: positive indicator species	Number at a representative number of monitoring stops	At least seven positive indicator species present	The list of positive indicator species for the habitat identified by the National Survey of Limestone Pavement and Associated Habitats is presented in Wilson and Fernandez (2013). In this SAC, the habitat is characterised by the typical species bearberry ( <i>Arctostaphylos uva-ursi</i> ) and mountain avens ( <i>Dryas octopetala</i> ), with other typical species recorded including ling ( <i>Calluna vulgaris</i> ) and, in some areas, juniper ( <i>Juniperus communis</i> ) (NPWS internal files)
Vegetation composition: negative indicator species	Percentage cover at a representative number of monitoring stops	Negative indicator species collectively not more than 10% cover	Attribute and target based on Wilson and Fernandez (2013), where the list of negative indicator species for the habitat, as identified by Wilson and Fernandez (2013), is presented
Vegetation composition: non-native species	Percentage cover at a representative number of monitoring stops	Non-native species not more than 1% cover	Attribute and target based on Wilson and Fernandez (2013)
Vegetation composition: native trees and shrubs	Percentage cover at a representative number of monitoring stops	Cover of native trees and shrubs (except juniper ( <i>Juniperus communis</i> )) not more than 25% cover	Attribute and target based on Wilson and Fernandez (2013)
Physical structure: disturbance	Percentage cover at a representative number of monitoring stops	Less than 10% disturbed bare ground (excluding rocks/stones)	Attribute and target based on Wilson and Fernandez (2013)
Indicators of local distinctiveness	Occurrence	Indicators of local distinctiveness are maintained	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) and other rare or localised species, as well as archaeological and geological features, which often support distinctive species

## Conservation Objectives for : Lough Fingall Complex SAC [000606]

### 5130 Juniperus communis formations on heaths or calcareous grasslands

To maintain the favourable conservation condition of *Juniperus communis* formations on heaths or calcareous grasslands in Lough Fingall 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	<i>Juniperus communis</i> formations on heaths or calcareous grasslands occur in close association with other Annex I habitats in Lough Fingall Complex SAC: Alpine and Boreal heath (4060); Limestone pavements* (8240) and Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) (6210). Therefore, these habitats cannot be easily mapped or considered separately. Conservation objectives for all these habitats should be used in conjunction with each other as appropriate. As part of a national survey, Cooper et al. (2012) surveyed juniper ( <i>Juniperus communis</i> ) vegetation at two sub-sites, Cregballymore (site code GY20) and Sillhouse Lough (GY28). Both sites (GY20 and GY28) were resurveyed by NPWS field staff in 2015 (NPWS internal files). It is important to note that further unsurveyed areas of the habitat may be present within the SAC
Habitat distribution	Occurrence	No decline, subject to natural processes. Point locations of surveyed formations are shown on map 2	Distribution is based on NPWS internal files. Map 2 shows the locations of the juniper formations at Cregballymore (GY20) and Sillhouse Lough (GY28) surveyed by NPWS field staff in 2015 (NPWS internal files). It is important to note that further unsurveyed areas may be present within the SAC
Juniper formation size	Number and proximity of juniper plants	At least 50 juniper plants present with each plant separated by no more than 20m	Attribute and target based on O'Neill and Martin (2018). A juniper formation is defined by O'Neill and Martin (2018) as any cluster of ≥50 juniper plants where no plant is more than 20m from another. In practice, this means that juniper plants should achieve a minimum density of 25 plants per hectare to qualify as a formation
Vegetation structure: female fruiting plants	Percentage in a representative number of 5m x 5m monitoring stops or in an <i>ad hoc</i> count of 50 plants	Fruiting females comprise at least 10% of juniper plants rooted in plot in at least 50% of stops or in an <i>ad hoc</i> count of 50 plants	Attribute and target based on Cooper et al. (2012) and O'Neill and Martin (2018)
Vegetation structure: seedling recruitment	Presence in a representative number of 5m x 5m monitoring stops	At least one seedling recorded in at least one monitoring stop	Attribute and target based on O'Neill and Martin (2018). Juniper seedlings are defined as plants less than 15cm high that are still flexible and single-stemmed, or with only two branches at most
Vegetation structure: live juniper	Percentage in a representative number of 5m x 5m monitoring stops or across the site as a whole	At least 90% of juniper plants rooted in plot alive in at least 75% of stops or across the site as a whole	Attribute and target based on Cooper et al. (2012) and O'Neill and Martin (2018)
Vegetation composition: negative indicator species	Percentage in a representative number of 5m x 5m monitoring stops	Total cover of negative indicator species to be less than 10% in at least 50% of stops	Attribute and target based on O'Neill and Martin (2018) where the list of negative indicator species is also presented
Physical structure: germination niches	Percentage in a representative number of 5m x 5m monitoring stops	At least 5% bare soil and/or at least 5% bare rock in at least 50% of stops	Attribute and target based on O'Neill and Martin (2018). Bare soil is important as a germination micro-site and bare rock can also contribute, particularly at the soil-rock interface and in limestone pavement grikes
Formation structure: browning/die-back of plants	Percentage of juniper cover in a representative number of 5m x 5m monitoring stops	Browning or dead juniper branches (excluding fully dead plants) comprise no more than 20% of total juniper cover in plot in at least 75% of stops	Attribute and target based on O'Neill and Martin (2018)

Formation structure: evidence of browsing and bark stripping	Occurrence across a representative number of 5m x 5m monitoring stops	Recent browsing of juniper plants and bark stripping and trampling due to browsers evident in no more than 50% of stops	Attribute and target based on O'Neill and Martin (2018). This attribute concerns bark stripping by animals. Bark stripping or damage from abrasion by rock is not included here. It should be noted, however, that distinguishing between the two may be difficult
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	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)

## Conservation Objectives for : Lough Fingall Complex SAC [000606]

### 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (\* important orchid sites)

To restore the favourable conservation condition of Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (\* important orchid sites) in Lough Fingall 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 habitat occurs in intimate association with other Annex I habitats in Lough Fingall Complex SAC: Limestone pavements* (habitat code 8240), Alpine and Boreal heaths (4060) and <i>Juniperus communis</i> formations (5130). Therefore, these habitats cannot easily be mapped or considered separately. Conservation objectives for all these habitats should be used in conjunction with each other as appropriate. The Irish Semi-natural Grassland Survey (ISGS; O'Neill et al., 2013) surveyed the habitat in the sub-site Cartron (E.D. Drumacoo). As part of the Grassland Monitoring Survey (GMS; Martin et al., 2018), this sub-site (ISGS/GMS site ID 2307) was monitored and 2.6ha of the habitat was mapped. Wilson and Fernandez (2013) mapped 0.19ha of the habitat in the sub-site Cuildoosh (site code NSLP16) as part of the National Survey of Limestone Pavements and Associated Habitats. Dwyer et al. (2007) had surveyed the habitat in 2006. NB further unsurveyed areas may be present within the SAC
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 3	Distribution based on Wilson and Fernandez (2013) and Martin et al. (2018). It is important to note that further unsurveyed areas may be present within the SAC
Vegetation composition: positive indicator species	Number at a representative number of 2m x 2m monitoring stops; within 20m surrounding area of monitoring stops	At least 7 positive indicator species present in monitoring stop or, if 5–6 present in stop, additional species within 20m of stop; this includes at least two 'high quality' positive indicator species present in stop or within 20m of stop	Attribute and target based on O'Neill et al. (2013) and Martin et al. (2018), where the lists of positive indicator species, including high quality positive indicator species, are also presented. High quality indicators recorded in the habitat in the SAC include quaking-grass ( <i>Briza media</i> ), spring sedge ( <i>Carex caryophyllea</i> ), harebell ( <i>Campanula rotundifolia</i> ) (Martin et al., 2018) and the orchids marsh helleborine ( <i>Epipactis palustris</i> ), pyramidal orchid ( <i>Anacamptis pyramidalis</i> ), fragrant orchid ( <i>Gymnadenia conopsea</i> ), common twayblade ( <i>Neottia ovata</i> ) and early-purple orchid ( <i>Orchis mascula</i> ) (Curtis and Wilson, 2014; Martin et al., 2018). Fly orchid ( <i>Ophrys insectifera</i> ) and dense-flowered orchid ( <i>Neotinea maculata</i> ), both Near Threatened (Wyse Jackson et al., 2016), have also been recorded in the habitat in the SAC (NPWS internal files)
Vegetation composition: negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Negative indicator species collectively not more than 20% cover, with cover by an individual species not more than 10%	Attribute and target based on O'Neill et al. (2013), where the list of negative indicator species is also presented. The negative indicator species cock's-foot ( <i>Dactylis glomerata</i> ) and white clover ( <i>Trifolium repens</i> ) have been recorded in the habitat in the SAC (Wilson and Fernandez, 2013; Martin et al., 2018)
Vegetation composition: non-native species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of non-native species not more than 1%	Attribute and target based on O'Neill et al. (2013). Wilson and Fernandez (2013) list red valerian ( <i>Centranthus ruber</i> ) and cotoneaster ( <i>Cotoneaster</i> sp.) as non-native species particularly associated with this habitat and limestone pavement in the Burren



Vegetation composition: woody species and bracken	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of woody species (except certain listed species) and bracken ( <i>Pteridium aquilinum</i> ) not more than 5%	Woody species that can occur above 5% cover are juniper ( <i>Juniperus communis</i> ), burnet rose ( <i>Rosa spinosissima</i> ), mountain avens ( <i>Dryas octopetala</i> ) and hoary rock-rose ( <i>Helianthemum oelandicum</i> ). However, cover of these species above 25% may indicate transition to another Annex I habitat such as Alpine and Boreal heaths (4060) or <i>Juniperus communis</i> formations (5130). Attribute and target based on O'Neill et al. (2013)
Vegetation structure: broadleaf herb:grass ratio	Percentage at a representative number of 2m x 2m monitoring stops	Broadleaf herb component of vegetation between 40% and 90%	Attribute and target based on O'Neill et al. (2013). Broadleaf herb component of vegetation between 30% and 90% may be allowed to pass on expert judgement (Martin et al., 2018)
Vegetation structure: sward height	Percentage at a representative number of 2m x 2m monitoring stops	At least 30% of sward between 5cm and 40cm tall	Attribute and target based on O'Neill et al. (2013)
Vegetation structure: litter	Percentage cover at a representative number of 2m x 2m monitoring stops	Litter cover not more than 25%	Attribute and target based on O'Neill et al. (2013)
Physical structure: bare soil	Percentage cover at a representative number of 2m x 2m monitoring stops	Not more than 10% bare soil	Attribute and target based on O'Neill et al. (2013)
Physical structure: grazing or disturbance	Area in local vicinity of a representative number of monitoring stops	Area of the habitat showing signs of serious grazing or disturbance less than 20m <sup>2</sup>	Attribute and target based on O'Neill et al. (2013)

## Conservation Objectives for : Lough Fingall Complex SAC [000606]

### 7210 Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae

To maintain the favourable conservation condition of Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae\* in Lough Fingall 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	Calcareous fens with <i>Cladium mariscus</i> and species of the Caricion davallianae* has not been mapped in detail for Lough Fingall Complex SAC and thus the total current area of the qualifying priority habitat in the SAC is unknown. <i>Cladium</i> fen is documented to occur in several of the turlough areas in the SAC, particularly along the length of Lough Fingall, at Cahernalinsky Lough to the south of Lough Fingall, at Frenchpark and at Cloghballymore Lough, where the habitat is particularly extensive (NPWS internal files). In addition to the Annex I habitat Turloughs* (habitat code 3180), the habitat also occurs in association with other wetland habitats in the SAC, including common reed ( <i>Phragmites australis</i> ) beds (NPWS internal files)
Habitat distribution	Occurrence	No decline, subject to natural processes	See the notes for Habitat area above
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 - groundwater levels	Water levels (centimetres); duration of levels; hydraulic gradients	Maintain, or where necessary restore, appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat	Fen habitats require high groundwater levels (i.e. water levels at or above the ground surface) for a large proportion of the calendar year (i.e. duration of mean groundwater level). Fen groundwater levels are controlled by regional groundwater levels in the contributing catchment area (which sustain the hydraulic gradients of the fen groundwater table). Regional abstraction of groundwater may affect fen groundwater levels
Ecosystem function: hydrology - surface water flow	Drain density and form	Maintain, or where necessary restore, as close as possible to natural or semi-natural drainage conditions	Drainage, either within or surrounding the fen habitat, can result in the drawdown of the fen groundwater table. The depth, geometry and density of drainage (hydromorphology) will indicate the scale and impact on fen hydrology. Drainage can result in loss of characteristic species and transition to drier habitats
Ecosystem function: water quality	Water chemistry measures	Maintain appropriate water quality, particularly pH and nutrient levels, to support the natural structure and functioning of the habitat	Fens receive natural levels of nutrients (e.g. iron, magnesium and calcium) from water sources. However, they are generally poor in nitrogen and phosphorus, with the latter tending to be the limiting nutrient under natural conditions. Water supply should be also relatively calcium-rich
Vegetation composition: typical species	Percentage cover at a representative number of 2m x 2m monitoring stops	Maintain adequate cover of typical species including brown mosses and vascular plants	For lists of typical plant species, see the Article 17 conservation status assessment for <i>Cladium</i> fens (NPWS, 2013) and the Article 17 fen habitats supporting document (Kimberley, 2013). In the habitat in this SAC, great fen-sedge ( <i>Cladium mariscus</i> ) occurs in association with other typical species such as black bog-rush ( <i>Schoenus nigricans</i> ), many-stalked spike-rush ( <i>Eleocharis multicaulis</i> ), jointed rush ( <i>Juncus articulatus</i> ) and blunt-flowered rush ( <i>J. subnodulosus</i> ) (NPWS internal files)
Vegetation composition: native negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of 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. See JNCC (2004) and Kimberley (2013)

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
Vegetation composition: trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of scattered native trees and shrubs less than 10%	Attribute and target based on Perrin et al. (2014). Scrub and trees will tend to invade if fen conditions become drier
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%. Where tufa is present, disturbed bare ground not more than 1%	Attribute and target based on Perrin et al. (2014). While grazing may be appropriate in this habitat, excessive areas of disturbed bare ground may develop due to unsuitable grazing regimes. 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 on the Flora (Protection) Order, 2015 and/or the red data lists (Lockhart et al., 2012; Wyse Jackson et al., 2016)

## Conservation Objectives for : Lough Fingall Complex SAC [000606]

### 8240 Limestone pavements

To maintain the favourable conservation condition of Limestone pavements\* in Lough Fingall 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	Limestone pavements* occur in intimate association with other Annex I habitats in this SAC: Alpine and Boreal heaths (4060), <i>Juniperus communis</i> formations on heaths or calcareous grasslands (5130) and Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) (6210). Therefore, these habitats cannot easily be mapped or considered separately. Conservation objectives for all these habitats should be used in conjunction with each other as appropriate. Wilson and Fernandez (2013) mapped the indicative area of limestone pavement, including associated habitats, in the SAC as 233.2ha (map 4). As part of the National Survey of Limestone Pavement and Associated Habitats (Wilson and Fernandez, 2013), the sub-site Cuildoosh (site code NSLP16) was surveyed in detail. This survey should be consulted for further details
Habitat distribution	Occurrence	No decline. Map 4 shows the indicative distribution, including associated habitats	Distribution is based on Wilson and Fernandez (2013). See the notes for Habitat area above. This habitat is split into exposed pavement and wooded pavement. Both types occur in this SAC, but the majority is exposed pavement (NPWS internal files). Woodland on limestone pavement in the SAC was also surveyed as part of the National Survey of Native Woodlands (NSNW) within the sub-site Cregballymore (NSNW site code 1657) by Perrin et al. (2008)
Vegetation composition: positive indicator species	Number at a representative number of monitoring stops	At least seven positive indicator species present	Positive indicator species for exposed and wooded pavement are listed in Wilson and Fernandez (2013). Typical species recorded in exposed pavement in the SAC by Wilson and Fernandez (2013) include herb-robert ( <i>Geranium robertianum</i> ), wood sage ( <i>Teucrium scorodonia</i> ), wall lettuce ( <i>Mycelis muralis</i> ), blue moor-grass ( <i>Sesleria caerulea</i> ), wild thyme ( <i>Thymus polytrichus</i> ), the ferns <i>Asplenium ceterach</i> , <i>A. ruta-muraria</i> , <i>A. scolopendrium</i> and <i>A. trichomanes</i> and the bryophytes <i>Ctenidium molluscum</i> , <i>Fissidens dubius</i> and <i>Tortella tortuosa</i> . Mountain avens ( <i>Dryas octopetala</i> ) and the Near Threatened spring gentian ( <i>Gentiana verna</i> ) (Wyse Jackson et al., 2016) have also been recorded (NPWS internal files). Positive indicators of wooded pavement recorded by Wilson and Fernandez (2013) include hazel ( <i>Corylus avellana</i> ), ash ( <i>Fraxinus excelsior</i> ) and hawthorn ( <i>Crataegus monogyna</i> )
Vegetation composition: bryophyte layer	Percentage at a representative number of monitoring stops	Bryophyte cover at least 50% on wooded pavement	Attribute and target based on Wilson and Fernandez (2013)
Vegetation composition: negative indicator species	Percentage at a representative number of monitoring stops	Collective cover of negative indicator species on exposed pavement not more than 1%	Negative indicator species are listed in Wilson and Fernandez (2013). Negative indicator species for wooded pavement overlap with non-native species (below). The negative indicator species ( <i>Rubus fruticosus</i> agg.) was recorded on exposed pavement in the Cuildoosh sub-site (NSLP16)
Vegetation composition: non-native species	Percentage at a representative number of monitoring stops	Cover of non-native species not more than 1% on exposed pavement; on wooded pavement not more than 10% with no regeneration	Attribute and target based on Wilson and Fernandez (2013)

Vegetation composition: scrub	Percentage at a representative number of monitoring stops	Scrub cover no more than 25% of exposed pavement	Attribute and target based on Wilson and Fernandez (2013)
Vegetation composition: bracken cover	Percentage at a representative number of monitoring stops	Bracken ( <i>Pteridium aquilinum</i> ) cover no more than 10% on exposed pavement	Attribute and target based on Wilson and Fernandez (2013)
Vegetation structure: woodland canopy	Percentage at a representative number of monitoring stops	Canopy cover on wooded pavement at least 30%	Attribute and target based on Wilson and Fernandez (2013)
Vegetation structure: dead wood	Occurrence in a representative number of monitoring stops	Sufficient quantity of dead wood on wooded pavement to provide habitat for saproxylic organisms	Dead wood is a valuable resource and an integral part of a healthy, functioning woodland ecosystem
Physical structure: disturbance	Occurrence in a representative number of monitoring stops	No evidence of grazing pressure on wooded pavement	Attribute and target based on Wilson and Fernandez (2013)
Indicators of local distinctiveness	Occurrence	Indicators of local distinctiveness are maintained	This includes species listed in the Flora (Protection) Order, 2015 (FPO) and/or the red data lists (Lockhart et al., 2012; Wyse Jackson et al., 2016) and other rare or localised species, as well as archaeological and geological features, which often support distinctive species. The Near Threatened spring gentian ( <i>Gentiana verna</i> ) (Wyse Jackson et al., 2016) has been recorded in the habitat in the SAC (NPWS internal files)

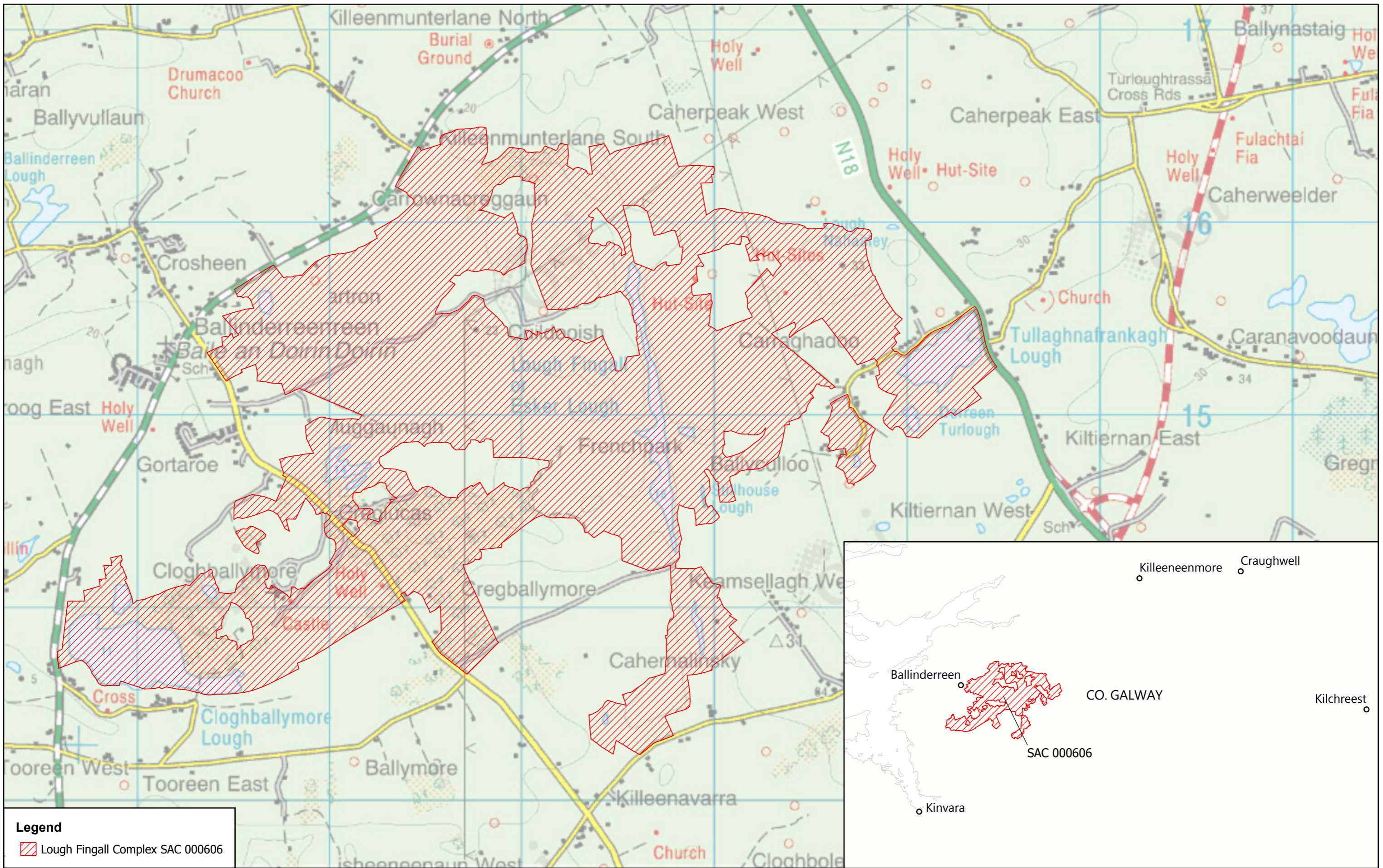
## Conservation Objectives for : Lough Fingall Complex SAC [000606]

### 1303 Lesser Horseshoe Bat *Rhinolophus hipposideros*


To maintain the favourable conservation condition of Lesser Horseshoe Bat in Lough Fingall Complex SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population per roost	Number	Minimum number of 180 bats for the summer roost (roost id. 244 in NPWS database). See map 5	A figure of 100 bats for summer roosts and 50 bats for winter roosts was set as a minimum qualifying standard (MQS) when SACs were being selected for lesser horseshoe bat ( <i>Rhinolophus hipposideros</i> ). NPWS conduct annual counts at each qualifying roost. Qualified means from the 2012-2016 summer data have been calculated whereby the year with the highest maximum count and the year with the lowest maximum count were removed and the mean of the remaining years was calculated. This mean is set as the target figure for the summer roost (roost id. 244 in NPWS database) in Lough Fingall Complex SAC. See the conservation objectives supporting document for lesser horseshoe bat (NPWS, 2018) for further information on all attributes and targets
Summer roosts	Condition	No decline	Lough Fingall Complex SAC has been selected for lesser horseshoe bat because of the presence of one internationally important summer roost (roost id. 244 in NPWS database). Damage or disturbance to the roost or to the habitat immediately surrounding it will lead to a decline in its condition (Kelleher and Marnell, 2006)
Auxiliary roosts	Number and condition	No decline	Lesser horseshoe bat populations will use a variety of roosts during the year besides the main summer maternity and winter hibernation roosts. Such additional roosts within the SAC may be important as night roosts, satellite roosts, etc. Night roosts are also considered an integral part of core foraging areas and require protection (Knight and Jones, 2009). In addition, in response to weather conditions for example, bats may use different seasonal roosts from year to year; this is particularly noticeable in winter. A winter roost that supports lesser horseshoe bats, but at numbers below the MQS figure, is known from Lough Fingall Complex SAC. A database of all known lesser horseshoe bat roosts is available on the National Biodiversity Data Centre website. NB further unrecorded roosts may also be present within this SAC
Extent of potential foraging habitat	Hectares	No significant decline within 2.5km of qualifying roost	Lesser horseshoe bats normally forage in woodlands/scrub within 2.5km of their roosts (Schofield, 2008). See map 5 which shows a 2.5km zone around the above roost and identifies potential foraging grounds
Linear features	Kilometres	No significant loss within 2.5km of qualifying roost. See map 5	This species follows commuting routes from its roost to its foraging grounds. Lesser horseshoe bats will not cross open ground. Consequently, linear features such as hedgerows, treelines and stone walls provide vital connectivity for this species within 2.5km around each roost (Schofield, 2008)
Light pollution	Lux	No significant increase in artificial light intensity adjacent to named roost or along commuting routes within 2.5km of the roost. See map 5	Lesser horseshoe bats are very sensitive to light pollution and will avoid brightly lit areas. Inappropriate lighting around roosts may cause abandonment; lighting along commuting routes may cause preferred foraging areas to be abandoned, thus increasing energetic costs for bats (Schofield, 2008)





**Legend**

 Lough Fingall Complex SAC 000606



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**MAP 1:  
LOUGH FINGALL COMPLEX SAC  
CONSERVATION OBJECTIVES  
SAC DESIGNATION**

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

**SITE CODE:  
SAC 000606; version 3.01. CO. GALWAY**

0 0.2 0.4 0.6 0.8 Kilometers

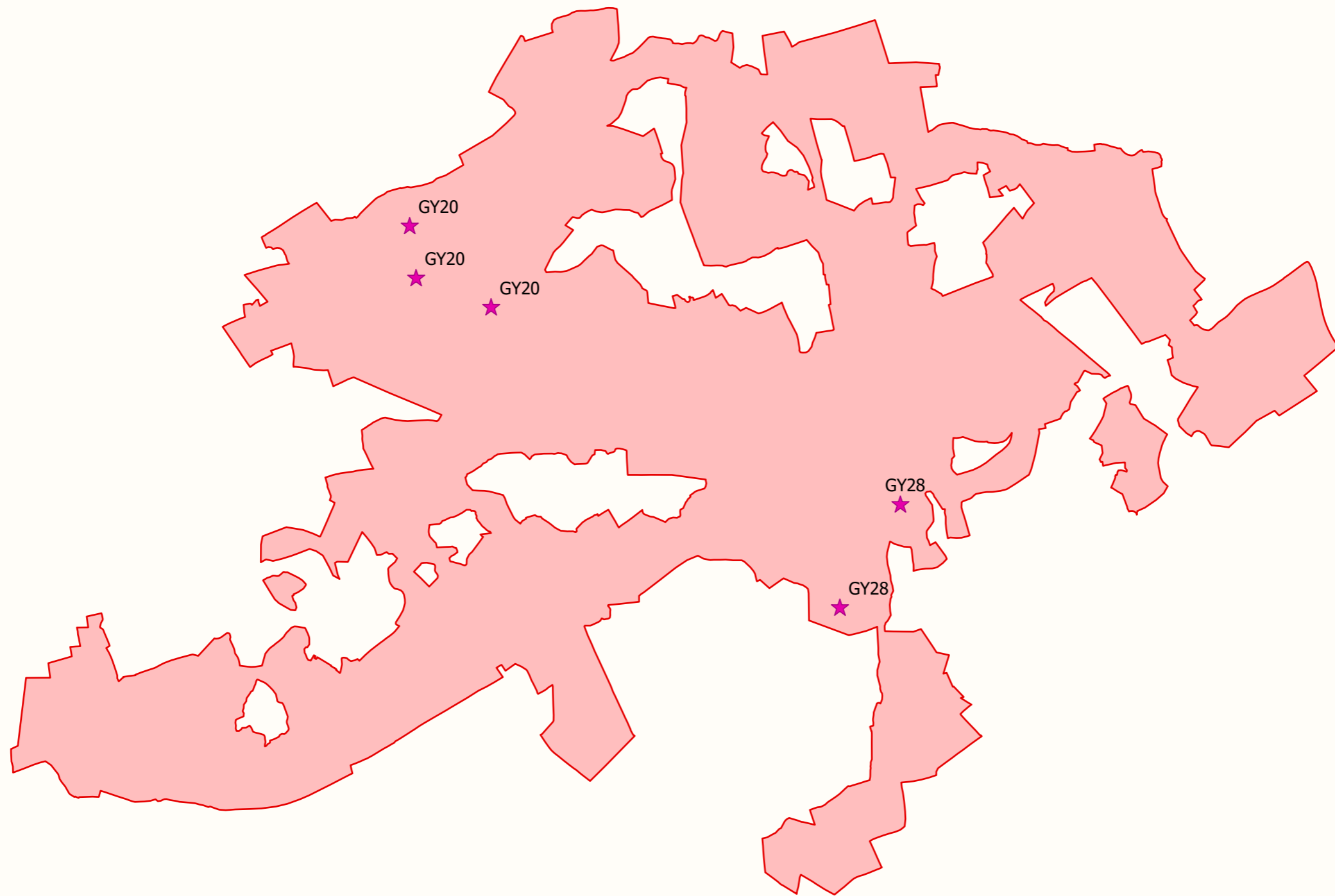
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**Map Version 1  
Date: Oct 2018**





**Legend**

- ★ 5130 *Juniperus communis* formations on heaths or calcareous grasslands
- Lough Fingall Complex SAC 000606
- OSi Discovery Series County Boundary

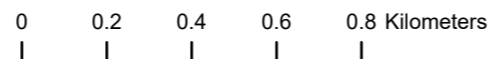


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**MAP 2:  
LOUGH FINGALL COMPLEX SAC  
CONSERVATION OBJECTIVES  
JUNIPER**

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

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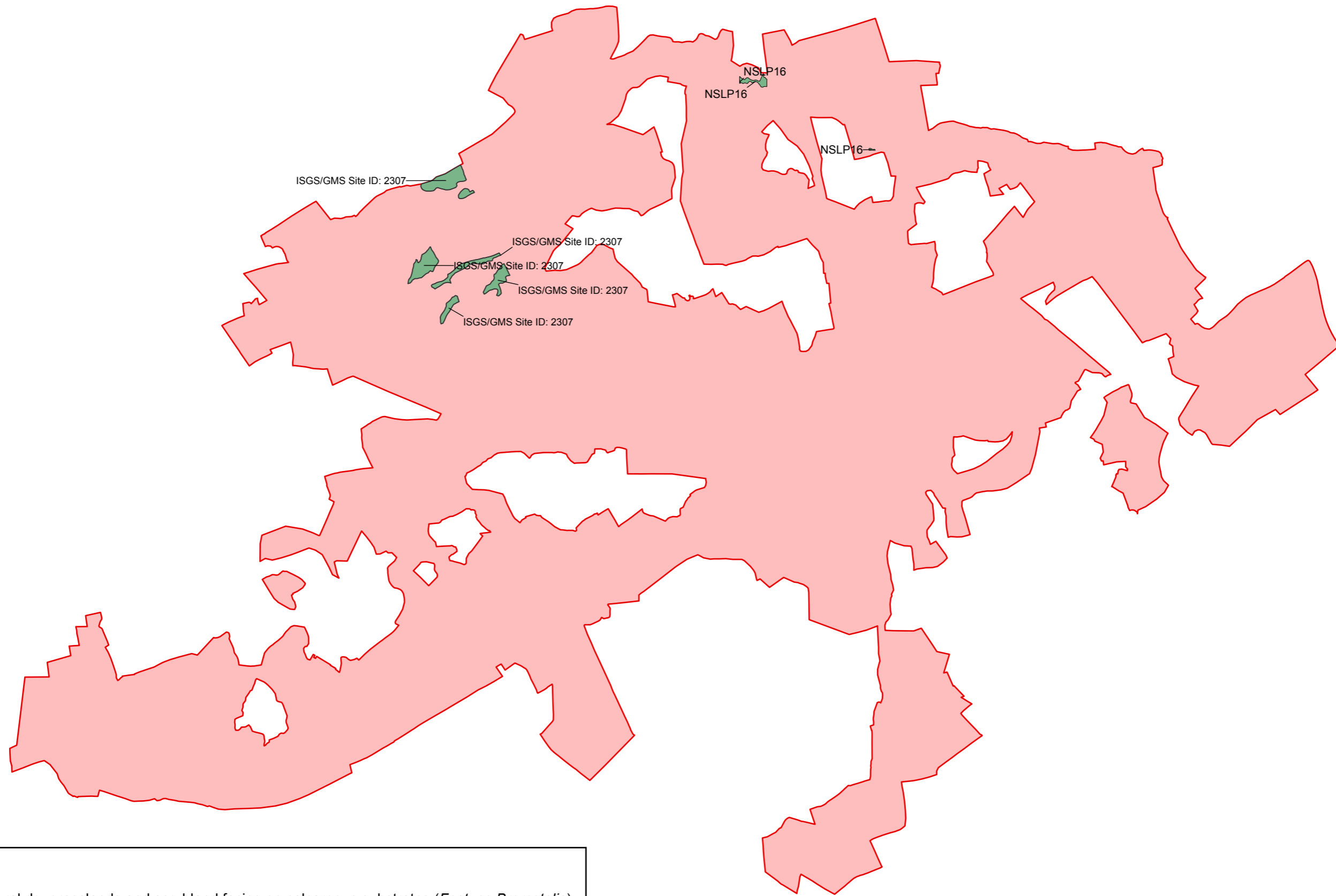
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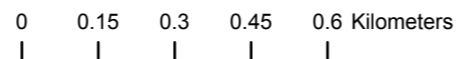
**Map Version 1  
Date: Oct 2018**

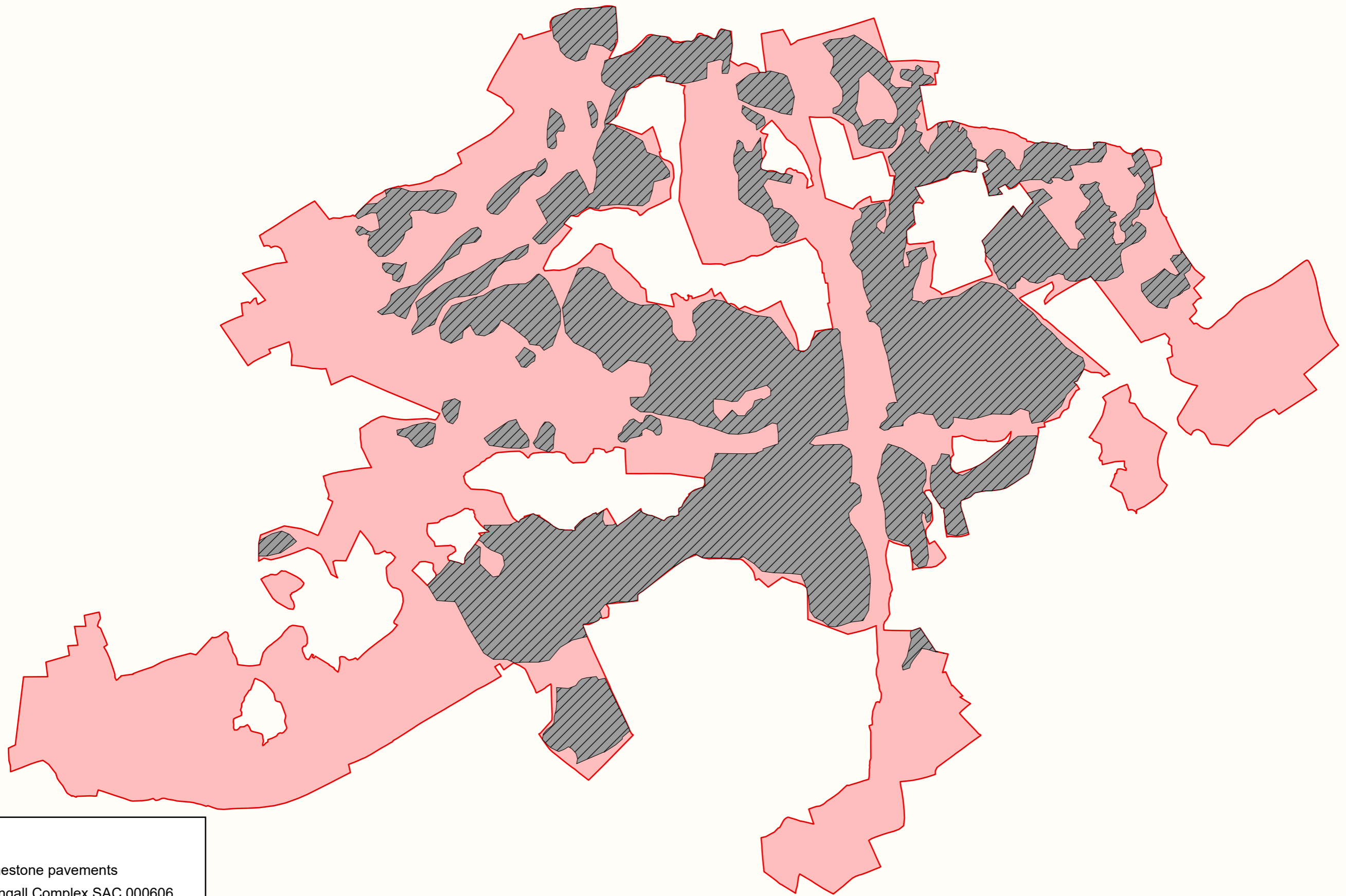







**Legend**

- 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco Brometalia*)
- Lough Fingall Complex SAC 000606
- OSi Discovery Series County Boundary





**Legend**

-  8240 Limestone pavements
-  Lough Fingall Complex SAC 000606
-  OSi Discovery Series County Boundary

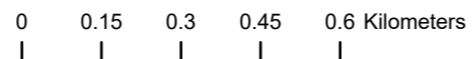


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**MAP 4:  
LOUGH FINGALL COMPLEX SAC  
CONSERVATION OBJECTIVES  
LIMESTONE PAVEMENTS**

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

**SITE CODE:  
SAC 000606; version 3.01. CO. GALWAY**

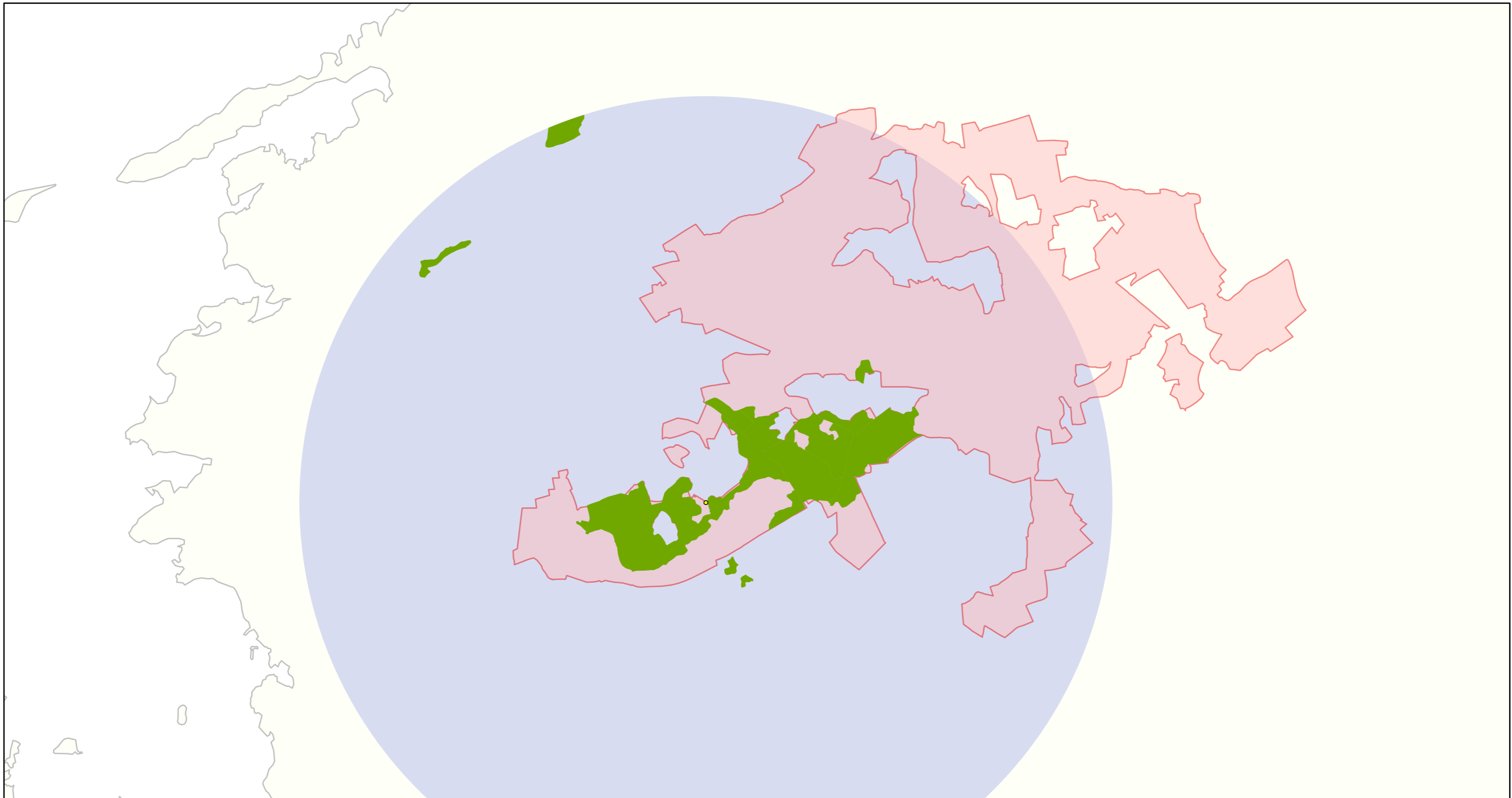


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**Map Version 1  
Date: Oct 2018**



**Legend**

- OSi Discovery Series County Boundary
- 1303 Lesser Horseshoe Bat *Rhinolophus hipposideros***
- Roost Location
- Roost ID 244 Foraging Range
- Potential Foraging Grounds
- Lough Fingall Complex SAC 000606