The Status of EU Protected

HABITATS AND SPECIES in Ireland

2013

An Roinn
Ealaíon, Oidhreachta agus Gaeltachta
Department of
Arts, Heritage and the Gaeltacht

The Status of EU Protected **HABITATS AND SPECIES** in Ireland

Conservation Status in Ireland of Habitats and Species listed in the European Council Directive on the Conservation of Habitats, Flora and Fauna 92/43/EEC

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NATIONAL PARKS AND WILDLIFE SERVICE
Department of Arts, Heritage & the Gaeltacht
2013

CONTENTS

HABITATS

SPECIES

VAGRANTS

FOREWORD

by Jimmy Deenihan T.D.
MINISTER FOR ARTS, HERITAGE & THE GAELTACHT

This is the second report on the assessment of the status of habitats and species that Ireland is required to protect under the EU Habitats Directive. The habitats make up much of our mountains, lakes, coasts, freshwaters and seas, and are a large part of our island territory and heritage. They provide us with water, food, clean air and many other services, are central to our tourism industry, and to our own enjoyment of the countryside we live in.

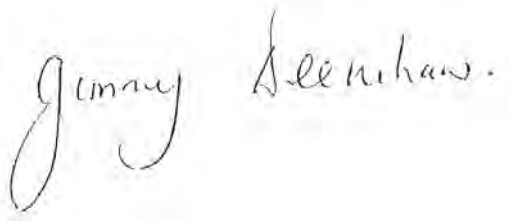
This report is based on a substantial body of scientific work, carried out over the past 6 years. In that time we have made significant progress in addressing key environmental issues, yet the report finds that there is still much more to do.

We have, for example, put great effort into protecting the best areas of raised bog remaining in Ireland, and with the help of landowners and many others we have made tangible constructive progress. However, these bogs will continue to decline unless we repair and maintain them. Our vision is that these and other wetland habitats are restored to fully functioning ecosystems, providing a home for their unique biodiversity as well as capturing and storing atmospheric carbon.

While many habitats are still in unfavourable status, the overall picture for plant and animal species is substantially better. It is encouraging that a wide range of species, from whales to tiny plants, have good numbers and prospects. Some species are still in trouble, especially the freshwater pearl mussel. It lives for up to 130 years but is particularly vulnerable to even the slightest pollution during its first few years, and so is a real challenge to conserve.

With regard to the implementation of the Habitats Directive my Department has prepared a Prioritised Action Framework for the protection of the "Natura 2000 Network", i.e. Special Areas of Conservation and Special Protection Areas. In consultation and partnership with stakeholders, we are continuing to work for the long-term wellbeing of our key habitats and species.

I want to thank all the staff of the National Parks and Wildlife Service in my Department, and many experts in other agencies and NGOs, for their input into this report.



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OVERVIEW

OVERVIEW

INTRODUCTION

The EU Directive on the Conservation of Habitats, Flora and Fauna (92/43/EEC), commonly known as "the Habitats Directive", was adopted in 1992, came into force in 1994 and was transposed into Irish law in 1997. The main aim of the Habitats Directive is to contribute towards the conservation of biodiversity by requiring Member States to take measures to maintain or restore natural habitats and wild species listed on the Annexes to the Directive at a favourable conservation status. These annexes list habitats (Annex I) and species (Annexes II, IV and V) which are considered threatened in the EU territory. The listed habitats and species represent a considerable proportion of biodiversity in Ireland and the Directive itself is one of the most important pieces of legislation governing the conservation of biodiversity in Europe.

Under Article 11 of the Directive, each member state is obliged to undertake surveillance of the conservation status of the natural habitats and species in the Annexes and under Article 17, to report to the European Commission every six years on their status and on the implementation of the measures taken under the Directive. In June 2013, Ireland submitted the second assessment of conservation status for 58 habitats and 61 species (including three overview assessments of species at a group level). A further 8 species are considered to be vagrant in Ireland.

THE LISTED HABITATS AND SPECIES

Annex I: Habitat types whose conservation requires the designation of Special Areas of Conservation. Priority habitats, which are in danger of disappearing within the EU territory, are highlighted with an asterisk.
Annex II: Animal and plant species whose conservation requires the designation of Special Areas of Conservation
Annex IV: Animal and plant species in need of strict protection.
Annex V: Animal and plant species whose taking in the wild and exploitation may be subject to management measures.

To assist users in identifying the listed habitats in the Directive, the EU Commission published an *Interpretation Manual of European Union Habitats*[1].

DEFINITIONS OF CONSERVATION STATUS

The conservation status of a habitat is defined in Article 1 of the Directive as the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- its natural range and areas 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 conservation status of a species is defined as the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory of the member states. The conservation status of a species will be taken as favourable 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, as sufficiently large habitat to maintain its populations on a long-term basis.

HOW CONSERVATION STATUS IS ASSESSED

Conservation status is assessed at a national level, not just in Special Areas of Conservation.

Guidelines for assessing the conservation status of habitats and species were updated in 2011 by the European Topic Centre on Biological Diversity (ETC/BD) in conjunction with the Member States represented on the Expert Reporting Group under the Nature Directives[2].

The assessment brings together information on four parameters for habitats and species:

HABITAT	SPECIES
Range	Range
Area	Population
Structures & Functions	Habitat for the species
Future Prospects	Future Prospects

[1] Commission of the European Communities. 2003. Interpretation Manual of European Union Habitats – EUR 25. DG-Environment – Nature and Biodiversity. Brussels. Commission of the European Communities.
[2] http://bd.eionet.europa.eu/article17/reference_portal

Favourable Reference Values are set as targets against which current values are judged. These reference values should be at least equal to the value when the Directive came into force unless this value is not deemed to be enough to ensure the long term survival of the habitat or species being assessed.

Favourable Reference Value for *Range* is the total geographical area within which all significant ecological variations of the habitat or species are included and which is sufficiently large to allow the long-term survival of the habitat or species. Favourable Reference Values for habitat *Area* and species *Population* are the minimum required for the long-term survival of the habitat or species in question.

For habitats, the assessment of *Structures & Functions* includes an assessment of the condition and the typical species that characterise the habitat.

For species, the extent and quality of suitable habitat is assessed to determine whether the long-term survival of the species is assured.

The major pressures and threats are also listed for each assessment. The impacts of these pressures and threats were used to determine the *Future Prospects*.

The rate of loss or the distance away from Favourable Reference Values are used to determine whether parameter is "favourable", "unfavourable – inadequate", "unfavourable – bad" or "unknown" following a rules based approach (see the 2011 guidelines for full details). For a "favourable" Overall Assessment all parameters must be assessed as "favourable" (with one "unknown" acceptable); if any one of the parameters is assessed as "bad", the Overall Assessment is also "bad"; any other combination would result in an "inadequate" Overall Assessment.

THE MAJOR CHANGES SINCE THE 2007 SUBMISSION

In 2007, distribution maps for many habitats were derived using expert judgement assisted by geology, soils, land use mapping and Ordnance survey maps. Many large scale habitat surveys have been undertaken in the intervening period. Following the collation of all available datasets, distribution maps were often, but not always, restricted to data where there was high confidence that the habitat was present. Therefore, in many cases, the 2013 maps are more refined than those produced in 2007. These maps may underestimate the true distribution but are less likely to overestimate the habitat distribution and extent.

Research and survey has lead to a better understanding of the distribution and ecology of many habitats or species and in some cases this has lead to a refinement of targets and potentially a change of status.

The 2011 guidelines refined the assessment methodologies and also modified certain elements of the assessment. For example, the use of qualifiers to determine whether each parameter was improving, declining, stable or unknown became mandatory, also a more detailed guidance was given for the selection of pressures/threats and for the assessment of Future Prospects. The 2007 standardised list of pressures and threats was updated.

Any changes to the assessment results from 2007 are therefore qualified with whether the changes are deemed to be genuine or arise as a result of improved knowledge, changes in interpretation or assessment approach although a combination of reasons may occur.

NOTE ON MAPS

The maps presented in this report give the known or best estimate of distribution, illustrated as hatched squares. The **range** is drawn as an envelope around the distribution using a standardised procedure. Horizontal or vertical gaps in the habitat distribution of 3 or more grid squares or oblique gaps of 2 or more squares are deemed enough to justify a break in the range. Where ecological conditions for the development of the habitat are deemed unsuitable, gaps of just 1 grid square may be also admitted.

The maps are derived using an Irish National Grid coordinate reference system projection for terrestrial assessments and an LAEA (ETRS89 Lambert Azimuthal Equal-Area) coordinate reference system projection for offshore marine assessments. All maps were transformed to the LAEA projection as part of the EU submission; transformations are not displayed as part of this report as they are not the best representation of the distribution data for Ireland.

WHO CARRIED OUT THE ASSESSMENTS?

The conservation assessments were carried out by staff of the National Parks and Wildlife Service (NPWS), in conjunction with external experts.

WHERE DID THE DATA COME FROM?

The data which informed the conservation assessments were collated from a number of sources, including NPWS of the Department of Arts, Heritage & the Gaeltacht and local authority biodiversity data sets. Additional data were sourced from Inland Fisheries Ireland (IFI) the Environmental Protection Agency (EPA), Marine Institute, Corine and Teagasc Land Cover maps, aerial photographs, and distribution information from the National Biodiversity Data Centre (NBDC). Scientific publications were also reviewed to capture relevant academic data.

WHAT THIS PUBLICATION PRESENTS

This publication provides a synopsis for each of the listed habitats and species occurring in Ireland (please note a shortened version of the official habitat name has been given). This publication also presents a map of the known distribution and range for each habitat and species and an overview of the assessment results. Summary statistics of the national dataset are presented in the Results section. Finally, the publication draws conclusions and indicates priorities for the next 5 years and beyond. The more detailed assessments for habitats and species are collated in Volumes 2 and 3 respectively; these volumes are available for download on the NPWS website[3].

WHERE HAS THE DATA BEEN SUBMITTED?

The data has been submitted to the ETC/BD. A summary report for biogeographic regions within the EU will be published in conjunction with the European Environment Agency in 2014.

WHAT WILL THE DATA BE USED FOR?

These data will be used to assess progress with targets under Ireland's National Biodiversity Plan[4], the EU Biodiversity Strategy[5] and the Strategic Plan for the Convention on Biological Diversity[6]. Updated national objectives for each habitat and species will be derived and these objectives will guide those set within the Natura network. The assessment results will also be included in the Prioritised Action Framework[7] which prioritises the work needed in Natura sites in the context of the development of a variety of operating programmes, including the Rural Development Plan.

[3] http://npws.ie/publications/article17assessments/
[4] http://www.npws.ie/legislationandconventions/nationalbiodiversityplan/
[5] http://ec.europa.eu/environment/nature/biodiversity/comm2006/2020.htm
[6] https://www.cbd.int/sp/
[7] http://www.npws.ie/news/name,14702,en.html

HABITATS

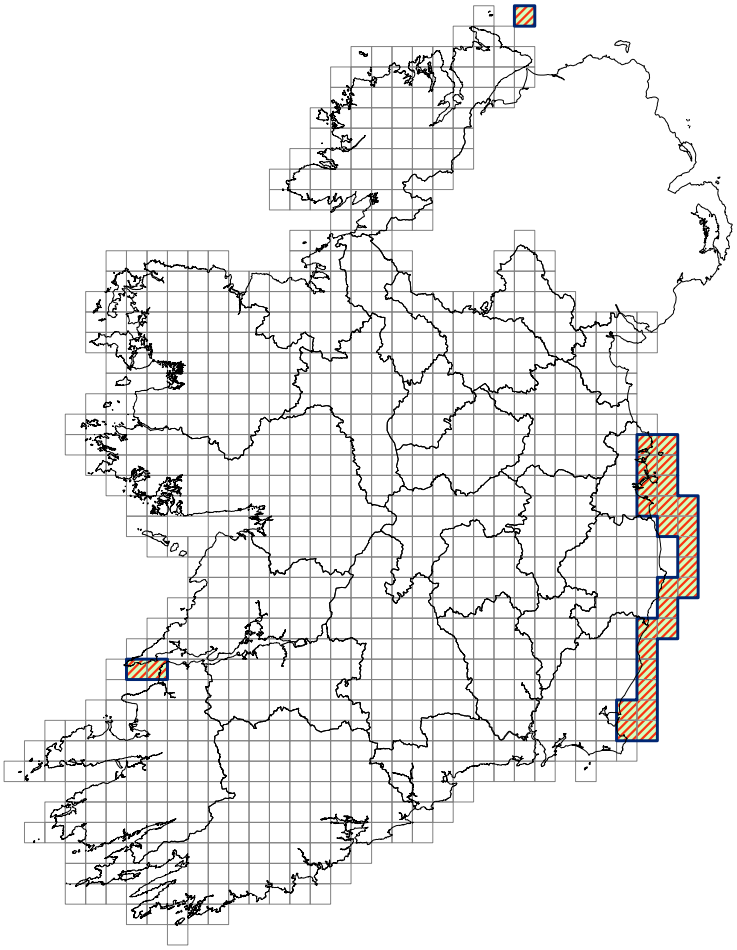
SANDBANKS

MERC

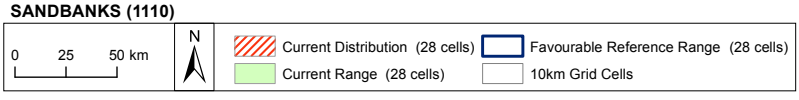
Sandbanks are distinct banks composed of gravel to fine sand that rise from horizontal or sloping plains of sediment. They are permanently covered by water, usually occurring at depths of less than 20m. The diversity and types of community associated with this habitat are determined by sediment type and a variety of other physical, chemical and hydrographical factors. There are currently 19 identified sandbank features in Ireland. These were originally identified through Admiralty Charts and supplemented by more recent acoustic seabed mapping.

The polychaete worm *Nephtys cirrosa* is a characteristic species of Irish sandbanks. Other common species include crustaceans *(Bathyporeia elegans, Urothoe brevicornis, Pontocrates altamarinus* and *Pisidia longicornis),* bristle worms *(Polygordius lacteus, Saccocirrus papillocercus, Pisione remota, Nephtys cirrosa, Magelona mirabilis, Eumida bahusiensis, Nephtys longosetosa, Spiophanes bombyx* and *Glycera lapidum)* and molluscs *(Donax vittatus, Fabulina fibula)*. The species found tend to be adapted to mobile substrates but all of the noted species recorded in Irish waters are frequently found in similar shallow coastal sediment habitats. There is also some indication that birds and marine mammals aggregate around sandbanks to exploit feeding opportunities.

It is considered that current pressures and future threats are unlikely to significantly impact this habitat and the Overall Status is therefore assessed as Favourable.



SANDBANKS (1110)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Favourable
Structures & Functions	Favourable	Favourable
Future Prospects	Inadequate	Favourable
Overall Status	Inadequate	Favourable
Reason for change	Genuine improvement	

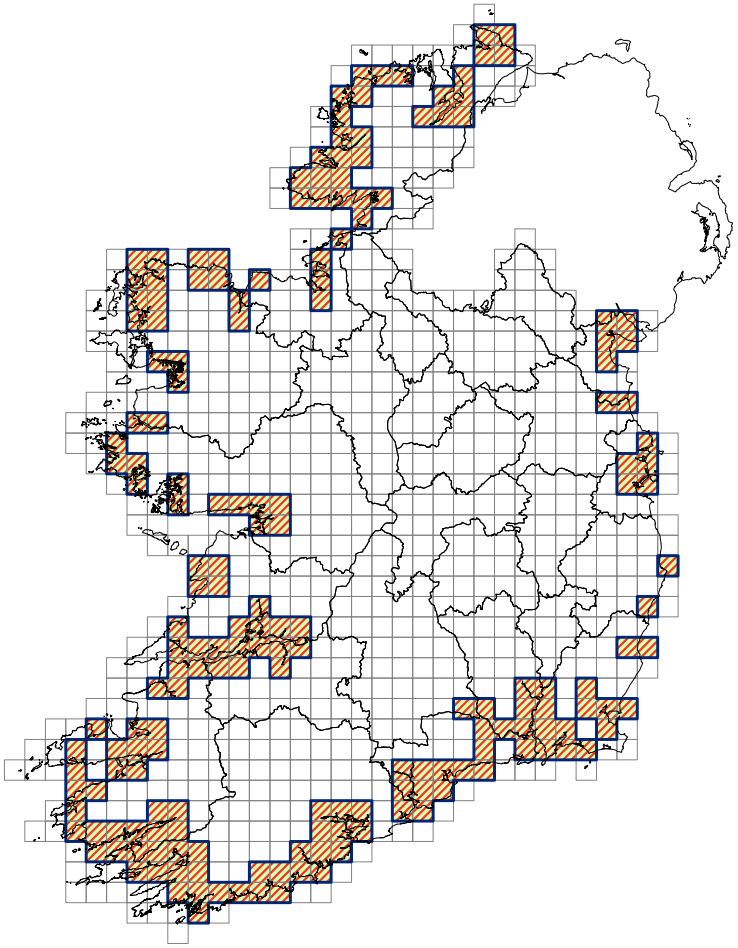
ESTUARIES

Estuaries are coastal inlets where there is a significant freshwater influence. The high water points of estuaries are often formed from boulders/ shingle and frequently by man-made margins in urban areas. The intertidal flanks can be composed of deposited material such as sand and mud/silt. The estuarine bed is often eroded to coarse material or bedrock. In faster flowing estuaries from shorter rivers little alluvium may aggregate, whereas in sites at the terminus of larger river basins a significant fringing mudflat or sandflat may accumulate. Finer sediments are often mobilised and removed in estuaries inundated with large swell driven waves. The degree of tidal range can effect mobilisation of finer fractions but may act to reduce downstream current velocities which cause the deposition of coarser material and may result in the formation of a delta.

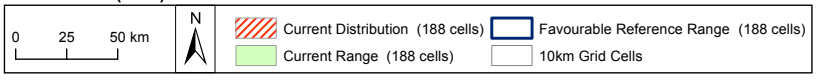
The composition of estuarine communities depend on the environmental conditions and sediment makeup with the most frequent Mud to Fine Sand community characterised by crustaceans *(Corophium volutator, Crangon crangon)* and bristle worms *(Eteone longa, Hediste diversicolor, Pygospio elegans, Scoloplos armiger, Spio martinensis, Tubificoides benedii* and *Tubificoides pseudogaster)*; and the Fine Sand to Sand community characterised by molluscs (e.g. *Angulus tenuis*) and worms *(Nephtys cirrosa, Scolelepis squamata, Scoloplos armiger* and *Spio martinensis, Tubificoides benedii,* and *Tubificoides pseudogaster)*. The remaining communities included Muddy Sands/Sandy Muds, subtidal faunal turf, intertidal fucoid and subtidal Laminaria reef, and mixed sediment.

Pollution and fishing/aquaculture related activities affect habitat quality, particularly in some highly sensitive areas. The Overall Status is assessed as Inadequate but improving. These improvements and the assessment of Future Prospects as Favourable are due to the fact that these pressures are declining and are not considered to be a threat to habitat quality in the future.

OSI



ESTUARIES (1130)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Favourable
Structures & Functions	Unknown	Inadequate ↑
Future Prospects	Inadequate	Favourable
Overall Status	Inadequate	Inadequate ↑
Reason for change	Genuine improvement	

HABITAT CODE: 1140

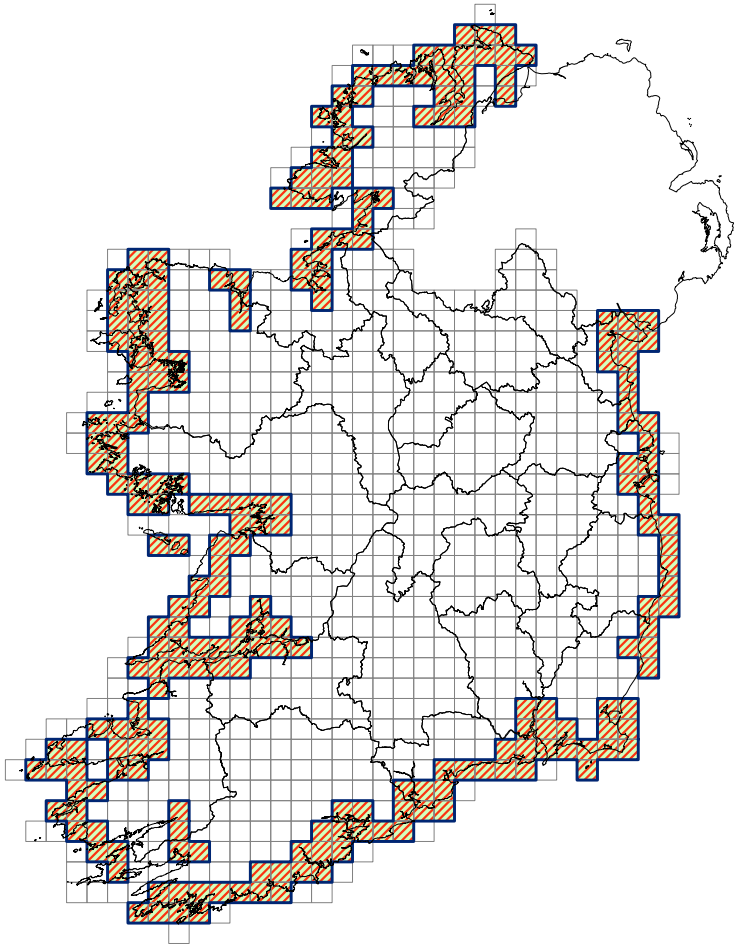
TIDAL MUDFLATS

Yvonne Leahy

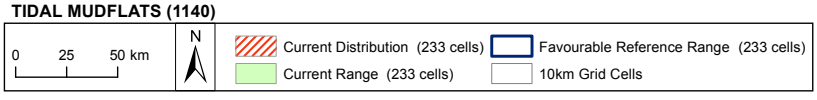
These sediment habitats are found between the low water and mean high water tide marks. The finer silt and clay sediments are dominant in mud flats and the larger sand particles are associated with areas exposed to greater wave forces. A range of physical pressures operate including significant changes in salinity, temperature, and exposure to air. The fine sediment of intertidal mudflats is usually deposited in estuaries. These sediments are often rich in nutrients but the depth of suitable habitat for fauna is limited by the access of oxygen rich seawater to buried mud. Where tide and wave exposure conditions are suitable the sediment can form into stable mixed sediment flats. In areas exposed to large waves with little riverine influence the habitat is lacking binding silt or mud and is mostly composed of larger sand grains.

The most frequent community is the Mud to Fine Sand community which is characterised by molluscs *(Angulus tenuis, Peringia ulvae)*, crustaceans *(Crangon crangon, Corophium volutator)* and bristle worms *(Eteone longa, Hediste diversicolor, Pygospio elegans, Scoloplos armiger, Spio martinensis,* and *Tubificoides benedii)*. The next most evident community type is the Fine Sand to Sand community characterised by molluscs (e.g. *Angulus tenuis*), crustaceans *(Bathyporeia pilosa, Pontocrates spp.)* and worms *(Nephtys cirrosa, Scolelepis mesnili, Scolelepis squamata,* and *Spio martinensis)*. Less commonly encountered communities include a Muddy sands/Sandy Muds Community, intertidal eelgrass beds, and a Mixed and Coarse Sediment community.

Pollution, fisheries/aquaculture and diverse use of the foreshore are likely to affect habitat quality, particularly eelgrass beds. Therefore the Overall Status is assessed as Inadequate but improving. These improvements and the assessment of Future Prospects as Favourable are due to the fact that these pressures are declining and are not considered to be a threat to habitat quality in the future.



TIDAL MUDFLATS (1140)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Favourable
Structures & Functions	Inadequate	Inadequate ↑
Future Prospects	Inadequate	Favourable
Overall Status	Inadequate	Inadequate ↑
Reason for change	Genuine improvement	

HABITAT CODE: 1150

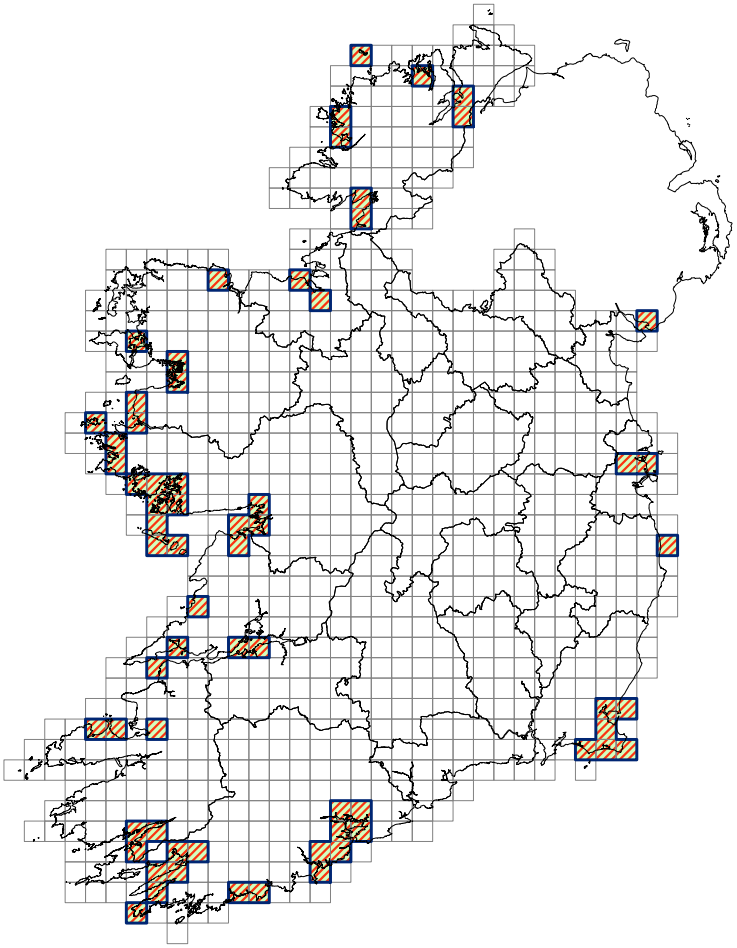
LAGOONS*

Coastal lagoons are expanses of shallow coastal salt water, of varying salinity or water volume, wholly or partially separated from the sea by sand banks or shingle, or, less frequently, by rocks. Salinity may vary from brackish water to hypersalinity depending on rainfall, evaporation and through the addition of fresh seawater from storms, temporary flooding by the sea in winter or tidal exchange. This habitat also includes artificial lagoons such as salt basins and salt ponds providing that they had their origin on a transformed old natural lagoon or on a salt marsh, and are not significantly exploited.

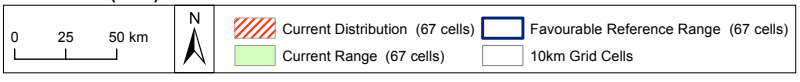
Plant species characteristic of coastal lagoons include algae *(Chaetomorpha linum, Cladophora battersii, Chara baltica, C. canescens, C. connivens, Lamprothamnium papulosum, Tolypella nidifica)* and ditch grass species *(Ruppia spp.)*. Animal species which are characteristic of this habitat include the hydroid *Cordylophora caspia*, sand shrimp *Gammarus chevreuxi*, gastropods including *Rissoa membranacea* and beetles such as *Enochrus bicolor* and *Notonecta viridis*.

The most damaging impact affecting habitat extent is the drainage of the previously largest lagoon for largely agricultural reasons. Further loss of habitat has occurred as a result of natural silting. These losses are now assessed under Structures and Functions as the lagoon landform is still present. The major impact affecting the quality of the habitat is water pollution in the form of excessive nutrient enrichment mostly from agricultural sources, but also due to domestic effluents from an increase in urbanisation and commercial and industrial activities. The Overall Status is assessed as Bad with no significant changes since 2007.

Robert Thompson



LAGOONS* (1150)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Inadequate	Favourable
Structures & Functions	Bad	Bad =
Future Prospects	Inadequate	Bad =
Overall Status	Bad	Bad =
Reason for change	No genuine change	

HABITAT CODE: 1160

LARGE SHALLOW INLETS AND BAYS

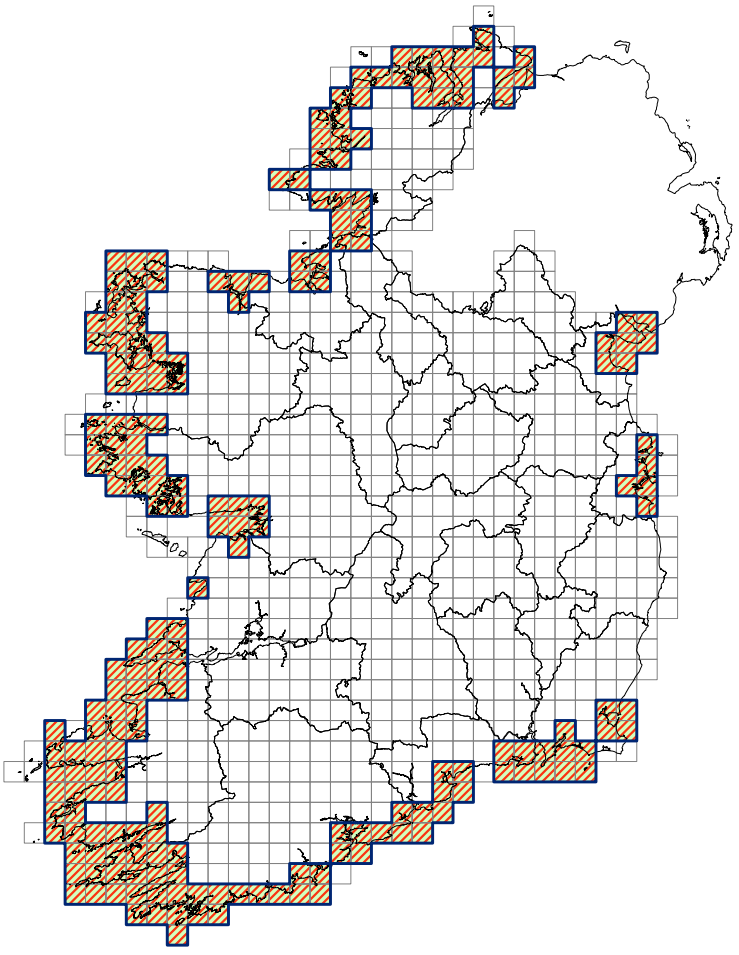
MERC

Large shallow inlets and bays are indentations of the coast where the influence of freshwater is generally limited. These inlets and bays are variously composed of fine sediments to bedrock, intertidally and subtidally, and are composed of a variety of sub-habitats which are highly productive and frequently diverse in terms of both species and communities.

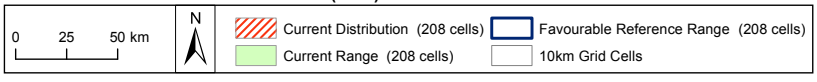
The most frequent community is a Fine Sand to Sand community characterised by molluscs *(Angulus tenuis, Fabulina fibula)*, bristle worms *(Arenicola marina, Chaetozone christiei, Nephtys cirrosa, Pygospio elegans, Scolelepis mesnili, Scolelepis squamata, Scoloplos armiger, Spio martinensis, Spiophanes bombyx)* and crustaceans *(Iphinoe trispinosa, Pontocrates arenarius)*; and a Muddy Sands/Sandy Muds Community characterised by molluscs *(Abra alba, Donax vittatus, Kurtiella bidentata, Nucula nucleus, Thyasira flexuosa)* and worms *(Chaetozone gibber, Euclymene oerstedii, Lumbrineris gracilis, Melinna palmata, Nephtys hombergii, Owenia fusiformis)*.

Intertidal and subtidal reefs also occur in inlets and bays and are usually dominated by brown algae with associated understory red algae and invertebrates. In deeper reef habitats, algal growth is suppressed and sponge and anemone species become the dominant species. In reefs a diverse number of polychaetes, molluscs, bryozoans, tunicates, crustaceans and fish species are common.
A very significant proportion of some less frequently encountered species in Ireland have been found within this habitat including maërl *(Lithothamnion corallioides* and *Phymatolithon calcareum)* and eel grass *(Zostera marina* and *Z. noltii)*.

Fishing and aquaculture related activities are likely to affect habitat quality, particularly for some highly sensitive species such as maërl and eel grass. The Overall Status is assessed as Inadequate but improving. These improvements and the assessment of Future Prospects as Favourable are due to the fact that these pressures are declining and are not considered to be a threat to habitat quality in the future.



LARGE SHALLOW INLETS AND BAYS (1160)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Favourable
Structures & Functions	Unknown	Inadequate ↑
Future Prospects	Inadequate	Favourable
Overall Status	Inadequate	Inadequate↑
Reason for change	Genuine improvement	

REEFS

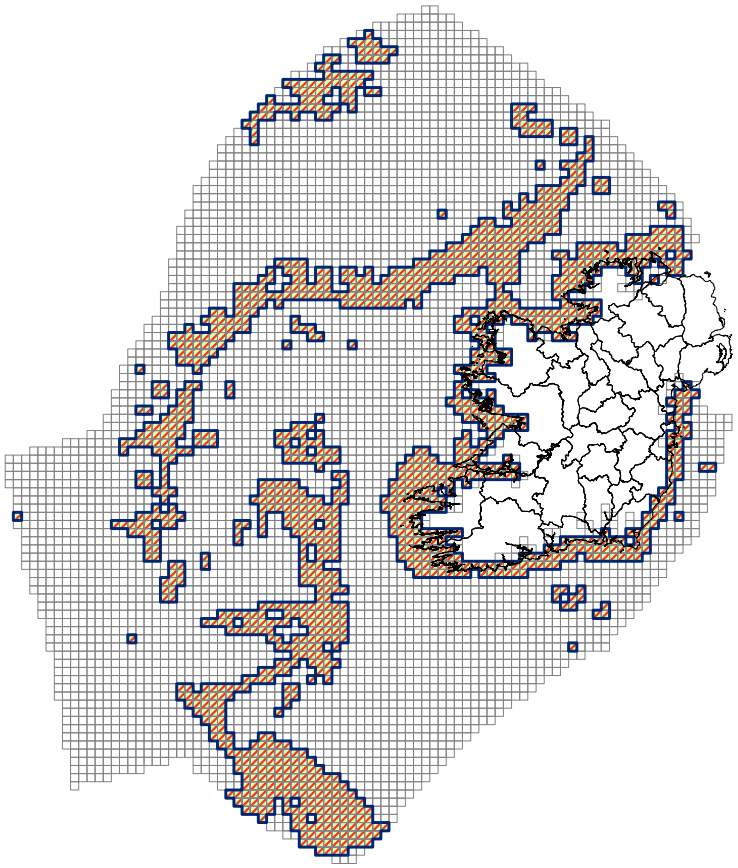
Reef habitats are widespread marine features with stable hard substrate available for colonisation by plants and animals. Irish reefs range from the intertidal to 4500m below the sea surface and more than 400km from the coast.

Intertidal and shallow subtidal reefs are dominated by red and brown algal species. Near shore reef invertebrate species commonly include sponges (*Halichondria panicea, Cliona celata, Pachymatisma johnstonia*), anemones (*Anemonia viridis, Actinia equina, Sagartia elegans, Corynactis viridis, Alcyonium digitatum, Metridium spp.*), bristle worms (*Sabellaria alveolata*), crustaceans (*Balanus spp., Semibalanus balanoides, Carcinus maenas, Necora puber, Pagurus bernhardus, Galathea spp.*), molluscans (*Gibbula spp., Littorina spp., Nucella lapillus, Patella spp., Calliostoma zizyphinum, Mytilus edulis*), and echinoderms (*Echinus esculentus, Marthasterias glacialis, Holothuria forskali, Aslia lefevrei*). A range of fish species are also commonly found including *Pholis gunnellus, Lotidae* spp., *Nerophis lumbriciformis, Pollachius* spp., *Conger conger*, and *Labridae* spp.

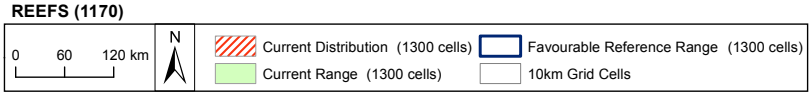
MERC

Deep-water reefs harbour a range of species including stony corals (*Lophelia pertusa, Madrepora oculata, Solenosmilia variabilis, Desmophyllum dianthus*), black corals (*Cirrhipathes* sp., *Leiopathes* sp., *Parantipathes* sp., *Stichopathes gravieri*), soft corals (*Anthomastus grandiflorus, Paragorgia arborea, Paramuricea* spp., *Anthothela* spp. and isididaen bamboo corals), sea pens (*Pennatula phosphorea, Kophobelemnon* spp.), anemones (*Bolocera* spp.), sponges (*Aphrocallistes* spp., *Hexactinellid* spp., *Pheronema* spp.), echinoderms (*Brisingella coronata, Pseudarchaster* spp., *Psolus squamatus, Cidaris cidaris, Koehlermetra porrecta*), crustaceans (*Bathynectes* spp., *Chirostylus* spp., *Chaecon* spp., *Neolithoides* spp.) and fish (*Chimaera monstrosa, Lepidion eques, Synaphobranchus* spp., *Coryphaenoides rupestris*).

The resilience or recoverability of some of the reef resource, particularly offshore rocky and coral reefs, is low and even small levels of pressure, particularly from fishing, have the potential to affect ecological quality. Given the low tolerance of this habitat in deeper waters the Overall Status is assessed as Bad with an ongoing decline.



REEFS (1170)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Unknown	Favourable
Structures & Functions	Inadequate	Bad ↓
Future Prospects	Inadequate	Bad ↓
Overall Status	Inadequate	Bad ↓
Reason for change	Genuine decline	

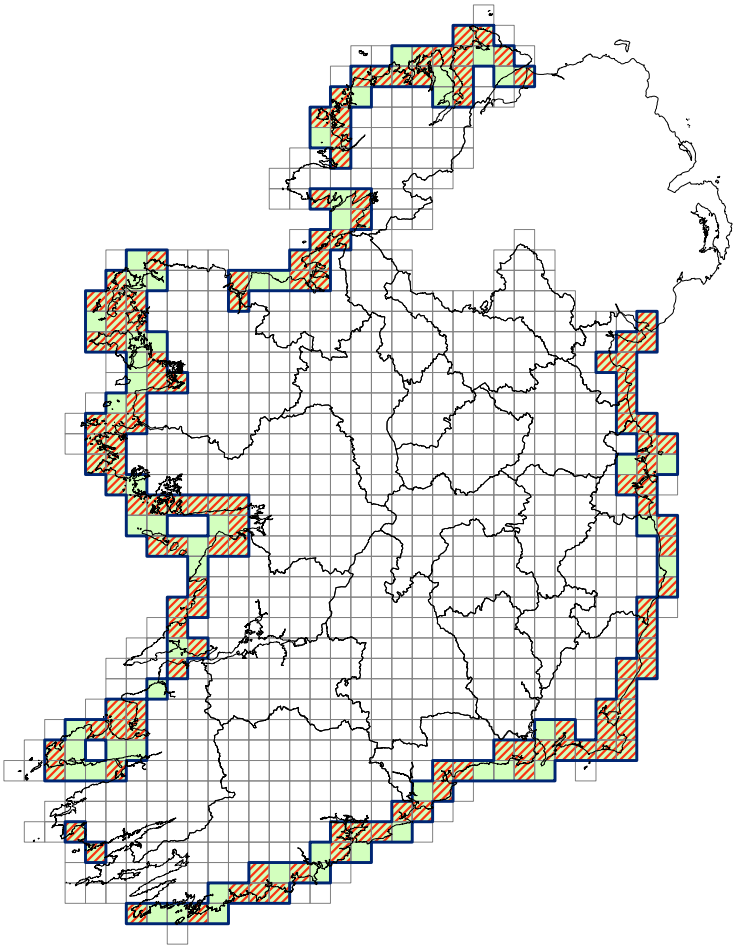
HABITAT CODE: 1210

DRIFT LINES

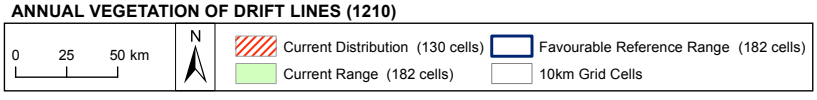
Kieran Connolly

This type of vegetation occurs around the high tide mark at the upper part of the strand, where tidal litter accumulates. Tidal litter contains marine organic matter including seaweed, which provides nutrients for strandline vegetation. The vegetation predominantly consists of annual species, such as orache species (*Atriplex* spp.), sea rocket *(Cakile maritima)* and prickly saltwort *(Salsola kali)*. These species are highly specialised to deal with the harsh conditions of high salinity, wind exposure and drought. This habitat is generally very species-poor, fragmented and does not occupy large areas due to its narrow, linear nature. It exists in a state of instability and may be absent in some years due to natural and/or anthropogenic causes. In Ireland, the habitat includes drift line vegetation on sandy substrates as well as drift line vegetation dominated by annuals found on shingle.

The Overall Status is assessed as Inadequate due to pressures associated with recreation (notably beach cleaning) and coastal defences, which can interfere with sediment dynamics. The trend is declining due to on-going losses.



ANNUAL VEGETATION OF DRIFT LINES (1210)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Inadequate	Inadequate ↓
Structures & Functions	Favourable	Inadequate ↓
Future Prospects	Inadequate	Inadequate =
Overall Status	Inadequate	Inadequate ↓
Reason for change	Genuine decline	

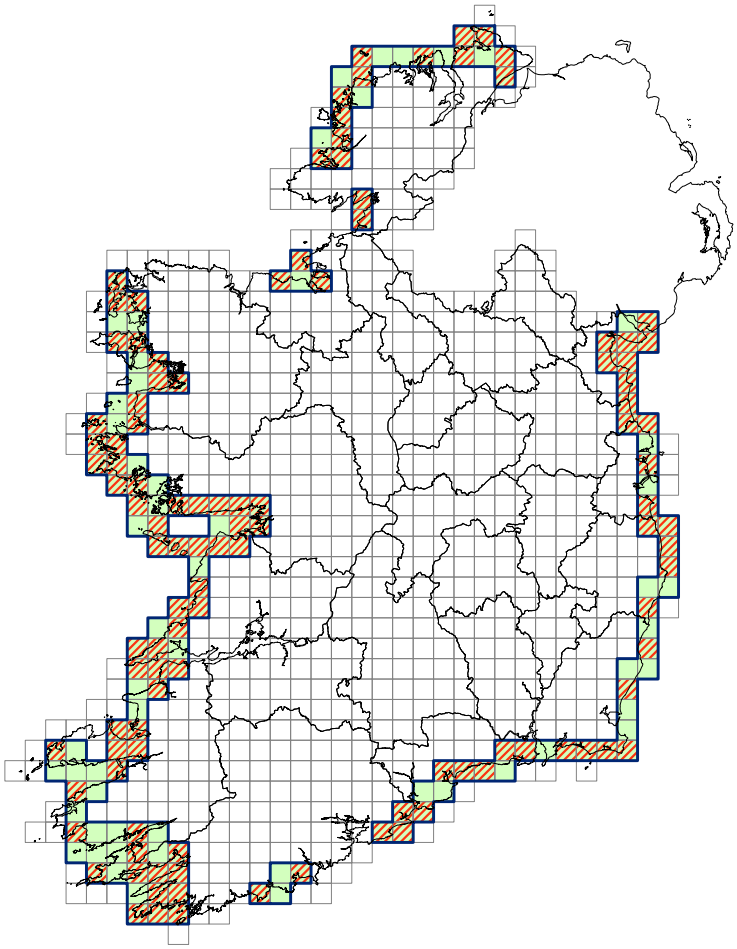
HABITAT CODE: 1220

PERENNIAL VEGETATION OF STONY BANKS

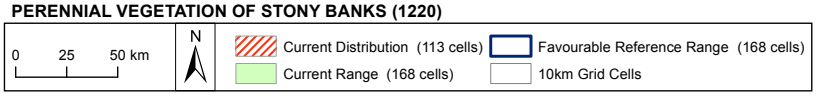
This habitat occurs along the coast where shingle (cobbles and pebbles) and gravel have accumulated to form elevated ridges or banks above the high tide mark. Most of the rocky material should be less than 250mm in diameter to be considered in this habitat category. The vegetation tends to be dominated by perennial species, typically including sea sandwort *(Honckenya peploides)*, curled dock *(Rumex crispus)*, sea beet *(Beta vulgaris* ssp. *maritima)*, rock samphire *(Crithmum maritimum)* and sea mayweed *(Tripleurospermum maritimum)*. Species diversity is determined by the degree of exposure and by substrate stability, coarseness and size. The presence of lichens indicates long term stability.

The Overall Status is assessed as Inadequate due to pressures associated with recreation and coastal defences, which can interfere with sediment dynamics. The assessment was largely based on marginal sites associated with sand dune systems, and did not include large shingle banks. A more comprehensive assessment of shingle systems is required in the future to give a more reliable account of the total national resource and the conservation status of the habitat.

Aoife Delaney



PERENNIAL VEGETATION OF STONY BANKS (1220)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Inadequate	Inadequate =
Structures & Functions	Inadequate	Inadequate =
Future Prospects	Inadequate	Inadequate =
Overall Status	Inadequate	Inadequate =
Reason for change	No change	

HABITAT CODE: 1230

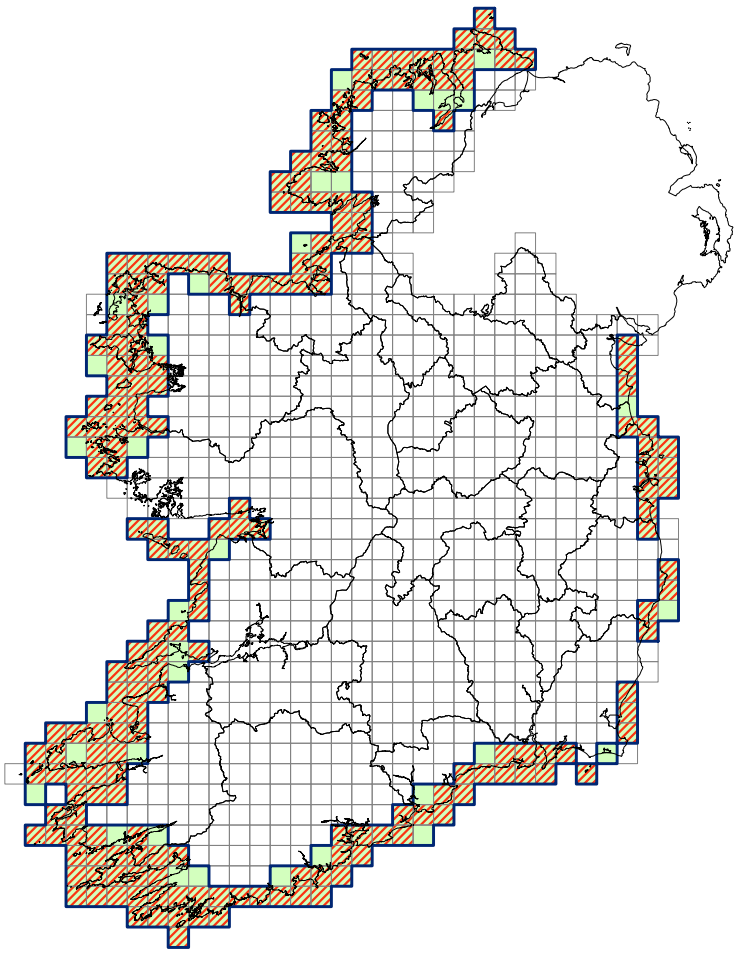
SEA CLIFFS

Robert Thompson

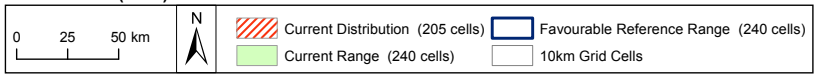
A sea cliff is a steep or vertical slope located on the coast. The cliff may be composed of hard rock such as basalt, or of softer substrate such as shale or boulder clay. Hard cliffs are at least 5m high, while soft cliffs are at least 3m high. The cliff top is generally defined by a change to an obvious less steep gradient. Both the cliff and the cliff top are subject to maritime influence in the form of salt spray and exposure to coastal winds. Sea cliffs support a range of plant communities such as grassland, heath, scrub and bare rock communities, among others.

Typical species include rock samphire *(Crithmum maritimum)*, thrift *(Armeria maritima)*, sea-lavender *(Limonium* spp.), common scurvy-grass *(Cochlearia officinalis)*, sea plantain *(Plantago maritima)*, red fescue *(Festuca rubra)*, sea spleenwort *(Asplenium marinum)*, rock sea-spurrey *(Spergularia rupicola)*, golden-samphire *(Inula crithmoides)*, English stonecrop *(Sedum anglicum)*, roseroot *(Rhodiola rosea)*, tree-mallow *(Lavatera arborea)*, spring squill *(Scilla verna)* and ling heather *(Calluna vulgaris)*.

Although probably one of the least modified habitat types occurring in Ireland, the Overall Status of this habitat is considered to be Inadequate due to invasive species and also erosion caused by sea defences and pathways, which is likely to be exacerbated by climate change. There has been no significant change since 2007, however the potential impacts of climate change may become a more serious threat to this habitat.



SEA CLIFFS (1230)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Favourable
Structures & Functions	Inadequate	Inadequate =
Future Prospects	Inadequate	Inadequate =
Overall Status	Inadequate	Inadequate =
Reason for change	No change	

HABITAT CODE: 1310

SALICORNIA MUD

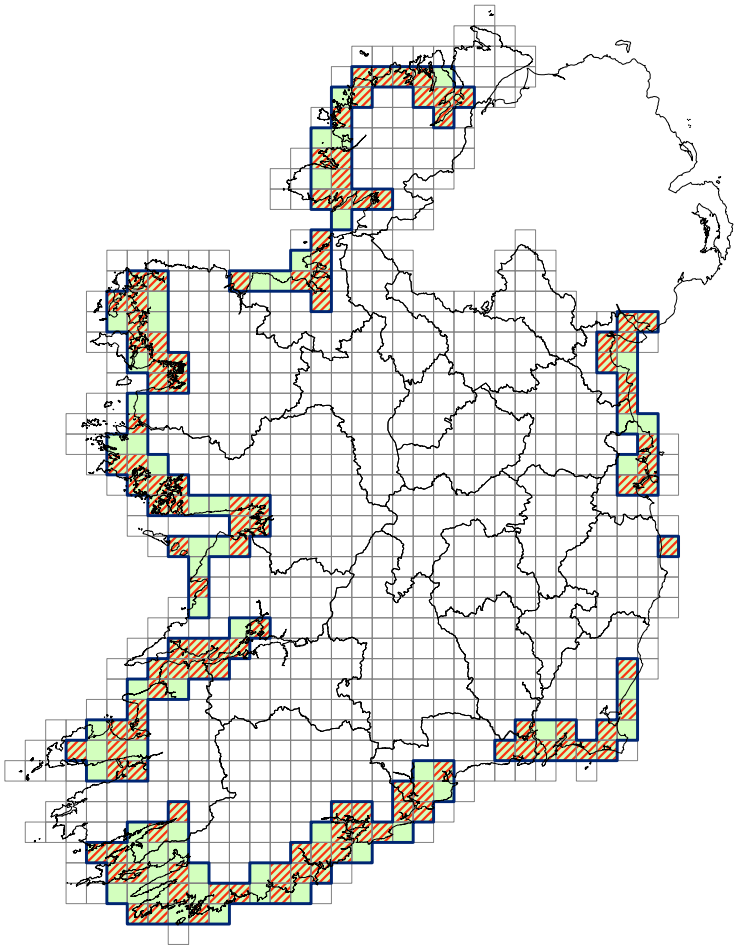
Salicornia and other annuals colonising mud and sand is a pioneer saltmarsh community that may occur on muddy sediment seaward of established saltmarsh, or form patches within other saltmarsh communities where the elevation is suitable and there is regular tidal inundation.

Typical species include glasswort species *(Salicornia europeae* and *S. pusilla)*, lax-flowered sea-lavender *(Limonium humile)*, common saltmarsh-grass *(Puccinellia maritima)*, greater sea-spurrey *(Spergularia media)* and annual sea-blite *(Suaeda maritima)*.

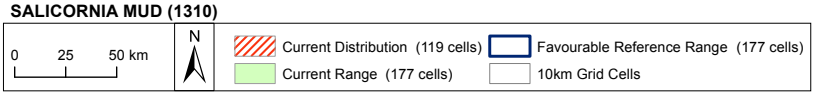
As this habitat is dominated by annuals it can be ephemeral or transient in nature and is highly susceptible to erosion. Its distribution can vary considerably from year to year and it can move in response to changing conditions, e.g. in estuaries with shifting river channels.

The Overall Status is assessed as Inadequate due to pressures associated with the invasion and on-going spread of common cordgrass *(Spartina anglica)*.

Mark McCorry



SALICORNIA MUD (1310)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Inadequate	Favourable
Structures & Functions	Inadequate	Inadequate ↓
Future Prospects	Inadequate	Inadequate ↓
Overall Status	Inadequate	Inadequate ↓
Reason for change	Genuine decline	

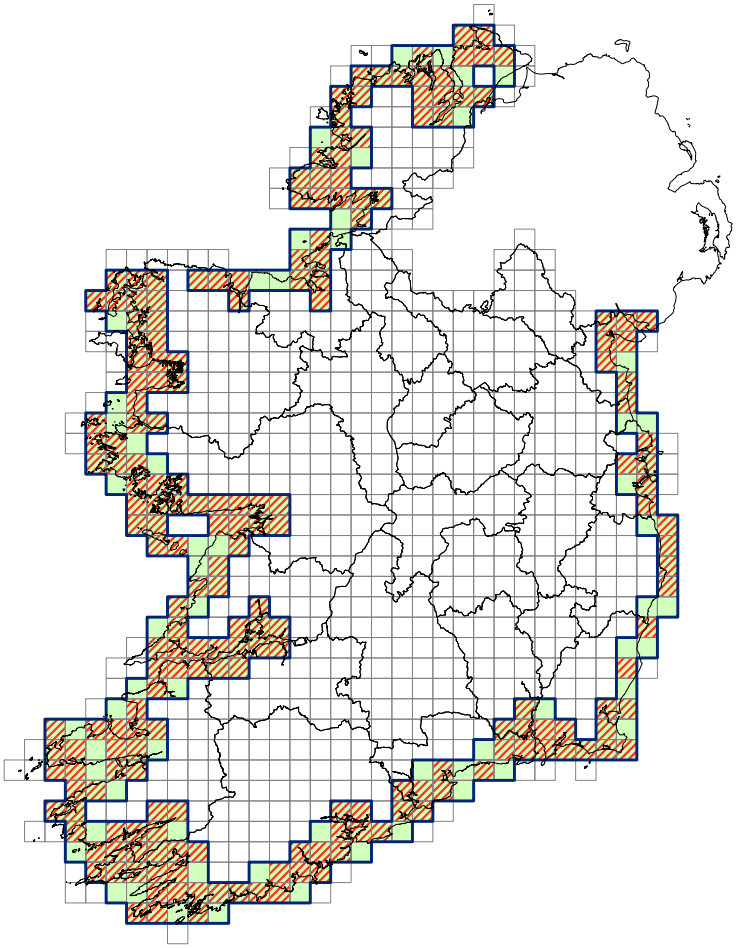
HABITAT CODE: 1330

ATLANTIC SALT MEADOWS

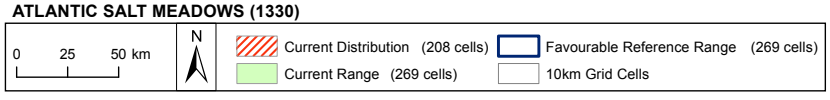
Mark McCorry

Atlantic salt meadows generally occupy the widest part of the saltmarsh gradient. They also contain a distinctive topography with an intricate network of creeks and salt pans occurring on medium to large sized saltmarshes. Atlantic salt meadows contain several distinctive zones that are related to elevation and submergence frequency. The lowest part along the tidal zone is generally dominated by common saltmarsh-grass *(Puccinellia maritima)* with species such as glasswort *(Salicornia* spp.), annual sea-blite *(Suaeda maritima)* and lax-flowered sea-lavender *(Limonium humile)* also frequent. The invasive common cordgrass *(Spartina anglica)* can be locally abundant in this habitat. The mid marsh zones are generally characterised by thrift *(Armeria maritima)* and/or sea plantain *(Plantago maritima)*. This zone is generally transitional to an herbaceous upper marsh community with red fescue *(Festuca rubra)*, saltmarsh rush *(Juncus gerardii)* and creeping bent *(Agrostis stolonifera)*. Atlantic salt meadows are distributed around most of the coastline of Ireland. The intricate topography of the Irish coastline with many inlets has created an abundance of sites that are sheltered and allow muddy sediments to accumulate, leading to the development of saltmarsh.

Although minor losses have been reported for this habitat they are considered negligible at a national level. The Overall Status is assessed as Inadequate due mainly to ecologically unsuitable grazing levels impacting the condition of the habitat. There is unlikely to have been any recent decline in condition.



ATLANTIC SALT MEADOWS (1330)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Inadequate	Favourable
Structures & Functions	Inadequate	Inadequate =
Future Prospects	Inadequate	Inadequate =
Overall Status	Inadequate	Inadequate =
Reason for change	No change	

HABITAT CODE: 1410

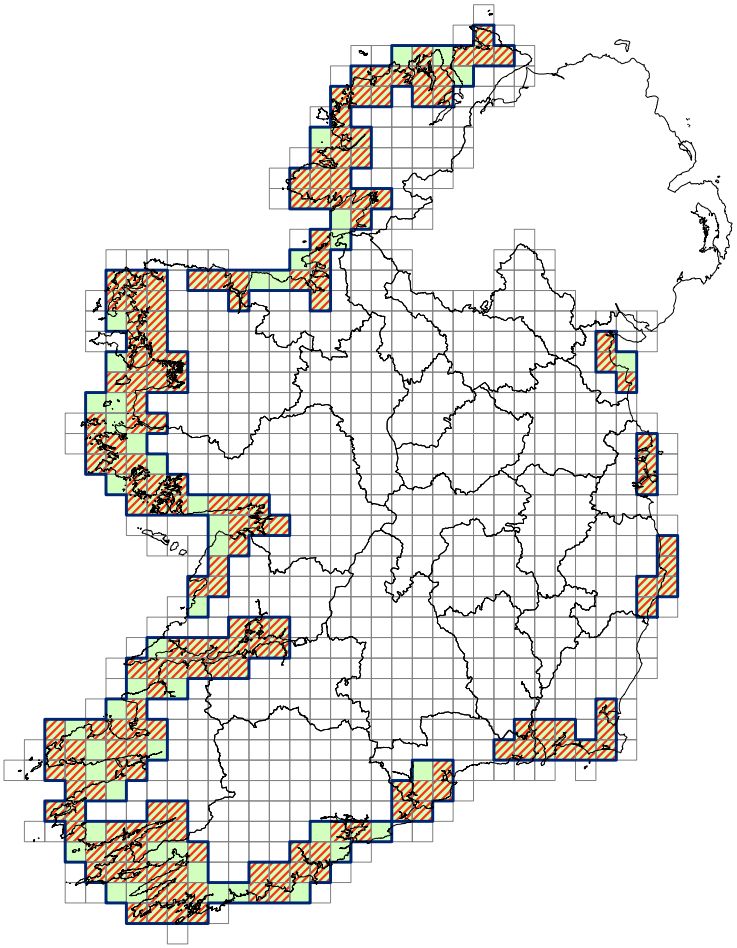
MEDITERRANEAN SALT MEADOWS

Mediterranean salt meadows occupy the upper zone of saltmarshes and usually occur adjacent to the boundary with terrestrial habitats. They are widespread on the Irish coastline, however they are not as extensive as Atlantic salt meadows.

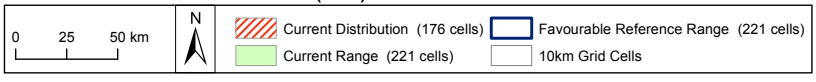
The habitat is distinguished from Atlantic salt meadows by the presence of rushes such as sea rush *(Juncus maritimus)* and/or sharp rush *(J. acutus)*, along with a range of species typically found in Atlantic salt meadows; including sea aster *(Aster tripolium)*, sea purslane *(Atriplex portulacoides)*, sea-milkwort *(Glaux maritima)*, saltmarsh rush *(J. gerardii)*, parsley water-dropwort *(Oenanthe lachenalii)*, sea plantain *(Plantago maritima)* and common saltmarsh grass *(Puccinellia maritima)*.

The Overall Status is assessed as Inadequate due mainly to ecologically unsuitable grazing levels impacting the condition of the habitat. There is unlikely to have been any recent decline in condition.

Mark McCorry



MEDITERRANEAN SALT MEADOWS (1410)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Favourable
Structures & Functions	Inadequate	Inadequate =
Future Prospects	Inadequate	Inadequate =
Overall Status	Inadequate	Inadequate =
Reason for change	No change	

HABITAT CODE: 1420

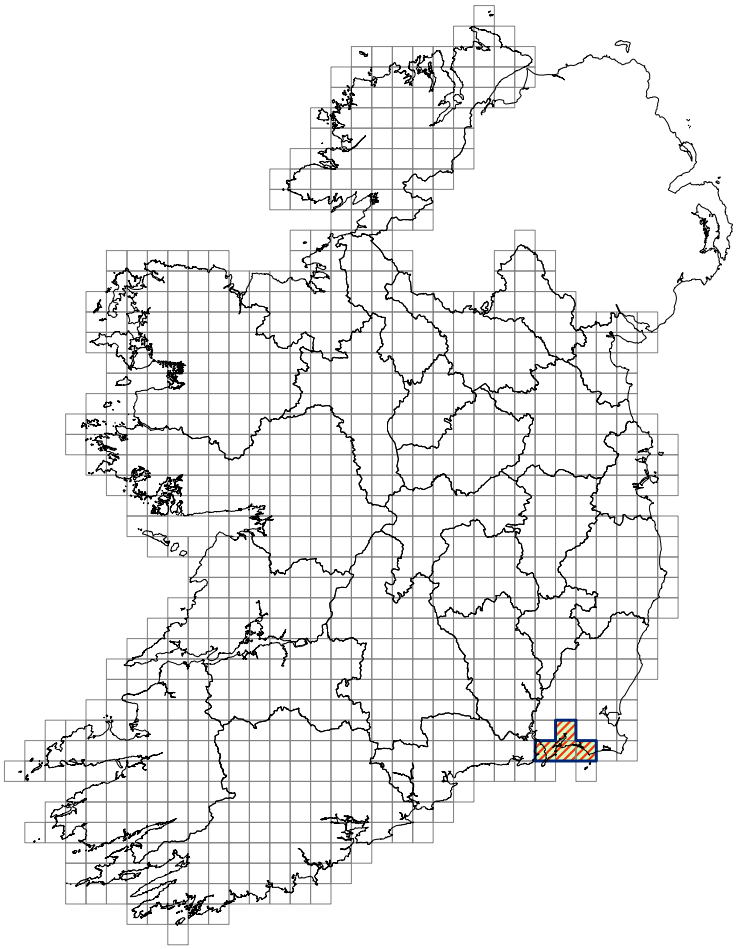
HALOPHILOUS SCRUB

Mark McCorry

This habitat is characterized in Ireland by the presence of a single species, Perennial glasswort *(Sarcocornia perennis)* on saltmarsh. This fleshy, slightly woody perennial can grow up to 30cm tall and often extends to form tussocks up to 1 metre in diameter. This species is very rare in Ireland and is legally protected. Consequently, this habitat is the rarest saltmarsh habitat found in Ireland and has been recorded from only seven saltmarsh sites along the south-east coast.

Perennial glasswort is generally found in the mid-lower saltmarsh zone, often with common saltmarsh grass *(Puccinellia maritima)* and lax-flowered lavender *(Limonium humile)*. It also occurs with glasswort species *(Salicornia* spp.) and amongst clumps of common cordgrass *(Spartina anglica)*.

The Overall Status is assessed as Bad (declining), particularly because of recent losses that have been recorded and the vulnerability of the habitat, which is dependent on a rare species with a restricted distribution.



HALOPHILOUS SCRUB (1420)

0 25 50 km

N

Current Distribution (4 cells)
Current Range (4 cells)
Favourable Reference Range (4 cells)
10km Grid Cells

ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Bad	Bad ↓
Structures & Functions	Inadequate	Favourable
Future Prospects	Bad	Inadequate ↓
Overall Status	Bad	Bad ↓
Reason for change	Genuine decline	

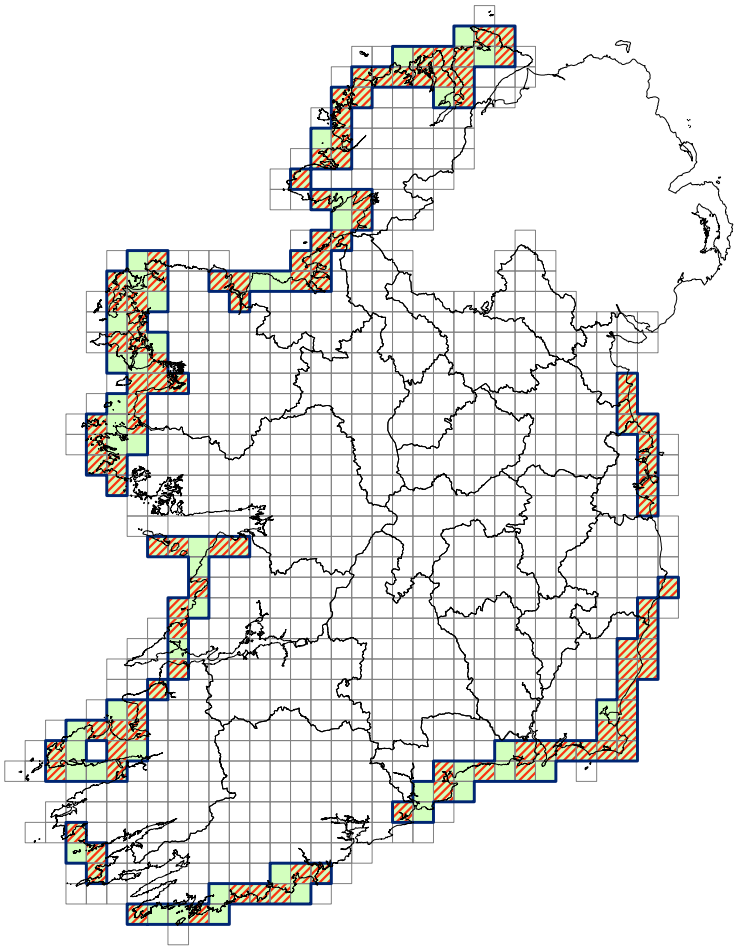
HABITAT CODE: 2110

EMBRYONIC SHIFTING DUNES

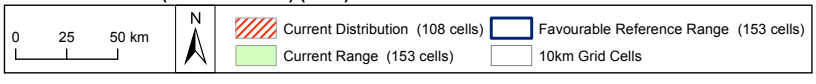
Embryonic shifting dunes are low sand mounds (generally less than a metre high) occurring between the high tide mark and the partially stabilised marram dunes. They are unstable habitats where wind-blown sand is common and they are still vulnerable to saltwater intrusion. They represent the initial phase of dune formation and typically form where sand gathers around salt-tolerant species such as lyme grass *(Leymus arenarius)* and sand couch grass *(Elytrigia juncea)*. Other plants commonly found are sea rocket *(Cakile maritime)*, sea sandwort *(Honckenya peploides)* and prickly saltwort *(Salsola kali)*. This habitat can be very short-lived, as it is subject to natural erosion processes and susceptible to removal by storms or high tides.

Although minor losses have been reported for this habitat they are considered negligible at a national level. The Overall Status is assessed as Inadequate due mainly to recreational pressures and coastal defences, which can interfere with the local sediment and wave dynamics. There is unlikely to have been any recent decline in condition.

Fiona Devaney



MARRAM DUNES (WHITE DUNES) (2120)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Inadequate	Favourable
Structures & Functions	Inadequate	Inadequate =
Future Prospects	Inadequate	Inadequate =
Overall Status	Inadequate	Inadequate =
Reason for change	No genuine change	

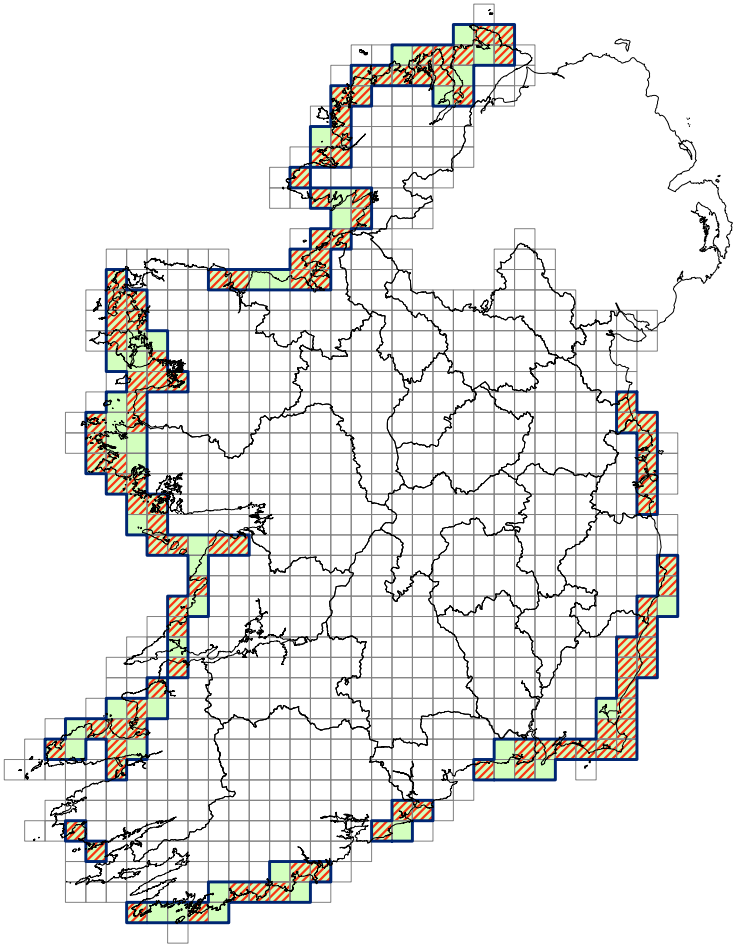
HABITAT CODE: 2120

MARRAM DUNES (WHITE DUNES)

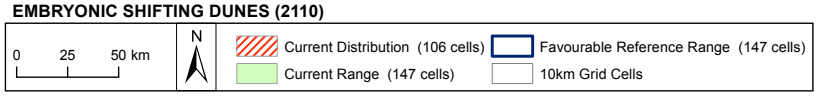
Kieran Connolly

Marram dunes are partly stabilised and are dominated by marram *(Ammophila arenaria)*. They tend to be taller than embryonic shifting dunes and form further inland from these. The dunes are actively created by marram, which traps sand. The dunes can build and erode quickly because of the presence of bare sand, and they are sometimes referred to as mobile dunes. Areas may also be colonised by species such as sand sedge *(Carex arenaria)*, sea spurge *(Euphorbia paralias)* and sea-holly *(Eryngium maritimum)*, along with a number of yellow Asteraceae, including cat's-ear *(Hypochaeris radicata)*, groundsel *(Senecio vulgaris)* and common ragwort *(S. jacobaea)*.

The Overall Status is assessed as Inadequate due to pressures associated with recreation and coastal defences. Change in status since the 2007 report is due to alterations in the methods of assessment and does not represent genuine change on the ground. However for this dynamic habitat, natural losses which occur are not related to human activities, and these are not considered to represent a deterioration in the conservation status.



EMBRYONIC SHIFTING DUNES (2110)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Bad	Inadequate =
Structures & Functions	Bad	Inadequate =
Future Prospects	Bad	Inadequate =
Overall Status	Bad	Inadequate =
Reason for change	No genuine change	

HABITAT CODE: 2130

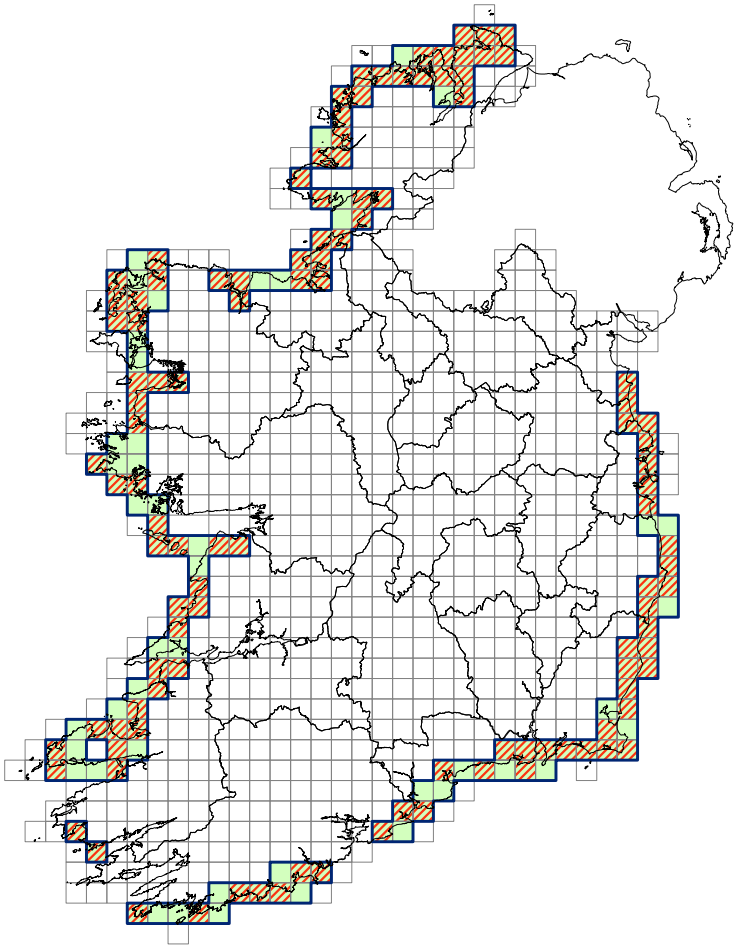
FIXED DUNES (GREY DUNES)*

Fixed dunes are the more stabilised areas of dune systems located inland from mobile dune habitats, where the wind speed and the influence of tidal inundation and salt spray is reduced. As this area is relatively sheltered, sand mobility is greatly reduced, leading to the development of a more or less closed or 'fixed' carpet of vegetation.

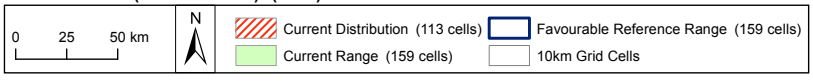
Species diversity and plant distribution in fixed dunes is strongly controlled by a range of factors, including soil chemistry, grazing intensities, moisture gradients, nutrient gradients and human disturbance. On sites composed of sand with a high shell fragment content, such as many western sites, the substrate remains relatively calcium-rich, supporting species such as common centaury *(Centaurium erythraea)*, kidney vetch *(Anthyllis vulneraria)*, hop trefoil *(Trifolium campestre)*, pyramidal orchid *(Anacamptis pyramidalis)*, yellow-wort *(Blackstonia perfoliata)* and carline thistle *(Carlina vulgaris)*. On siliceous sites, or on old dune systems where leaching over a long period of time has led to decalcification of the surface layers, the vegetation can include red fescue *(Festuca rubra)*, common bent *(Agrostis capillaris)*, sweet vernal grass *(Anthoxanthum odoratum)*, downy oat grass *(Helictotrichon pubescens)*, heath bedstraw *(Galium saxatile)*, field wood-rush *(Luzula campestris)* and mosses *(Dicranum scoparium, Hylocomium splendens* and *Pleurozium schreberi)*. *Cladonia* lichens can become locally abundant, particularly where rabbits are active. Where grazing levels have been significantly reduced a scrub community dominated by burnet rose *(Rosa pimpinellifolia)* can occur.

Only very minor losses in habitat area have been recorded, and these losses have been compensated by larger gains due to accretion. The Overall Status is assessed as Bad due to pressures associated with recreation and ecologically unsuitable grazing. The absence of adequate measures to address undergrazing and the resulting encroachment of scrub and bracken could lead to a further reduction in the conservation value of the habitat in future.

Aoife Delaney



FIXED DUNES (GREY DUNES)* (2130)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Inadequate	Favourable
Structures & Functions	Bad	Bad =
Future Prospects	Bad	Bad =
Overall Status	Bad	Bad =
Reason for change	No genuine change	

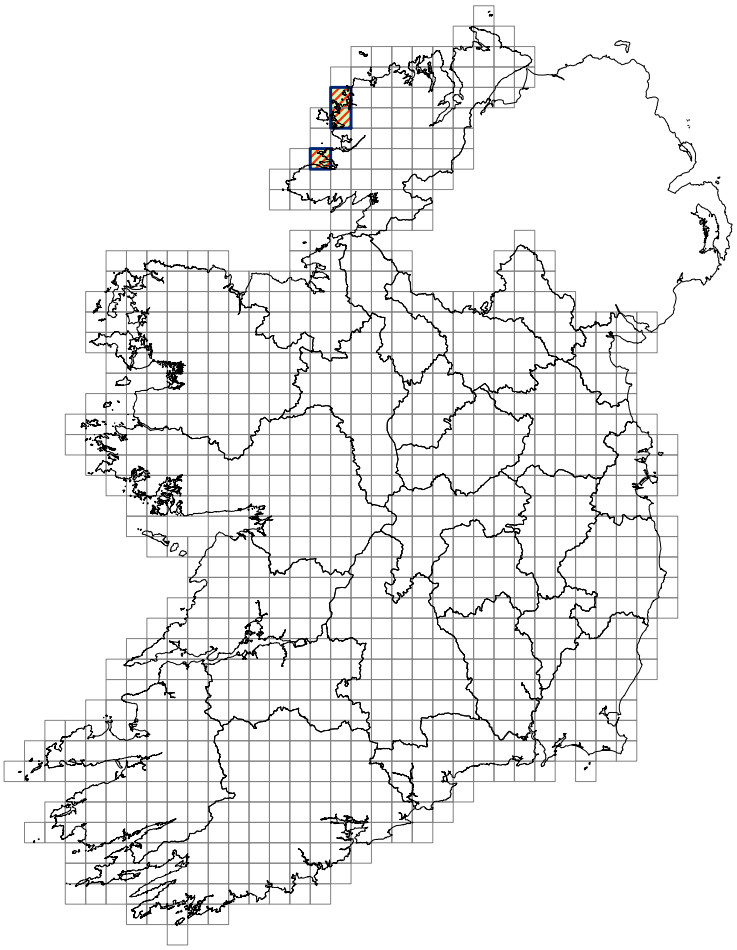
HABITAT CODE: 2140

DECALCIFIED EMPETRUM DUNES*

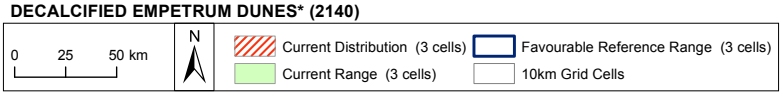
Karen Gaynor

This habitat is typically found on the landward edge of dune systems where the surface layers of sand have been leached of their calcium content, or where sand has blown up over rock that is siliceous *(silica-rich)* in nature. It is characterised by the presence of crowberry *(Empetrum nigrum)* in conjunction with ling *(Calluna vulgaris)*, cross-leaved heath *(Erica tetralix)*, common gorse *(Ulex europaeus)*, western gorse *(Ulex gallii)* and sand sedge *(Carex arenaria)*.

The Overall Status is assessed as Inadequate due to pressures associated with undergrazing and agricultural intensification. The changes since 2007 are related to changes in the interpretation and criteria used to define the habitat, rather than an actual change in status.



DECALCIFIED EMPETRUM DUNES* (2140)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Favourable
Structures & Functions	Bad	Inadequate =
Future Prospects	Inadequate	Inadequate =
Overall Status	Bad	Inadequate =
Reason for change	Improved knowledge	

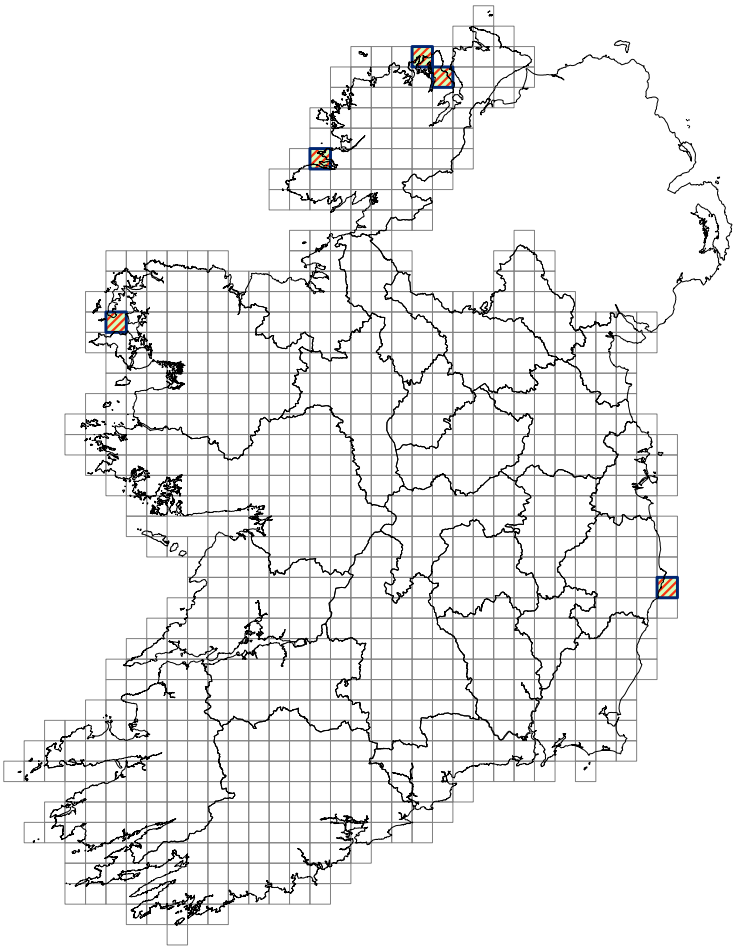
HABITAT CODE: 2150

DECALCIFIED DUNE HEATH*

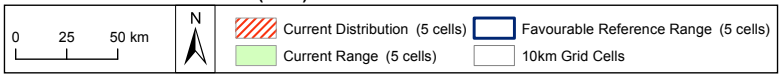
Decalcified dunes are typically found on the landward edge of dune systems where the surface layers of sand have been leached of their calcium content, or where sand is derived from rock that is siliceous (silica-rich) in nature. Typical species include ling *(Calluna vulgaris)*, bell heather *(Erica cinerea)*, cross-leaved heather *(Erica tetralix)*, common gorse *(Ulex europaeus)*, western gorse *(Ulex gallii)* and sand sedge *(Carex arenaria)*.

Lichens, particularly *Cladonia* species, can be locally abundant along with a range of herbaceous species more typically associated with fixed dunes.
The Overall Status is assessed as Inadequate due to pressures associated with undergrazing and agricultural intensification. The changes since 2007 are related to changes in the interpretation and criteria used to define the habitat, rather than an actual change in status.

Fiona Devaney



DECALCIFIED DUNE HEATH* (2150)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Favourable
Structures & Functions	Bad	Inadequate =
Future Prospects	Inadequate	Inadequate =
Overall Status	Bad	Inadequate =
Reason for change	Improved knowledge	

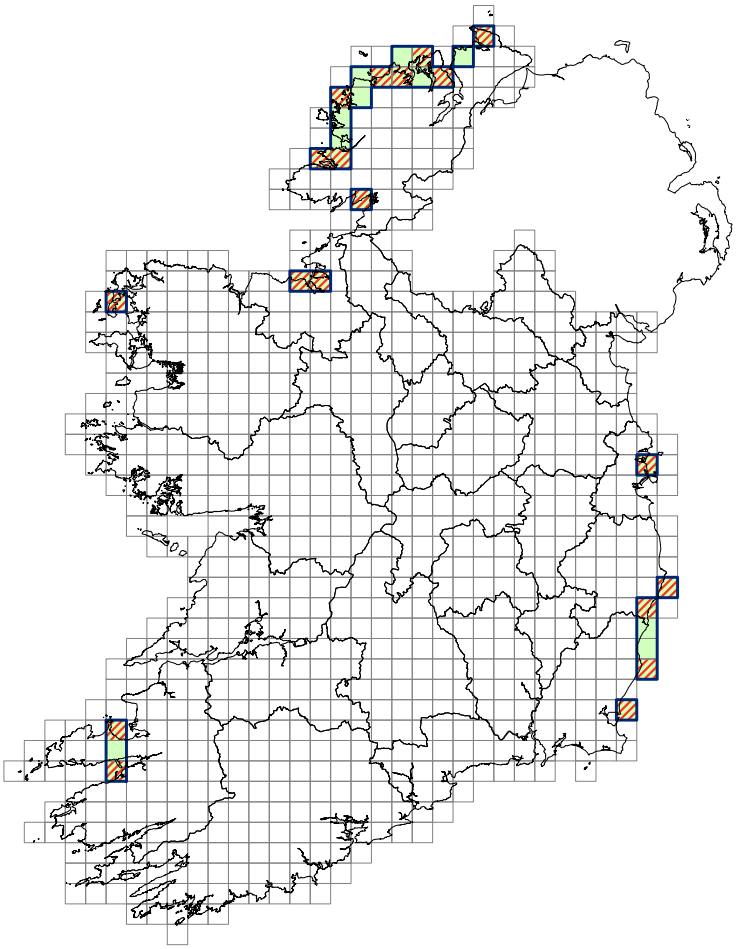
HABITAT CODE: 2170

DUNES WITH CREEPING WILLOW

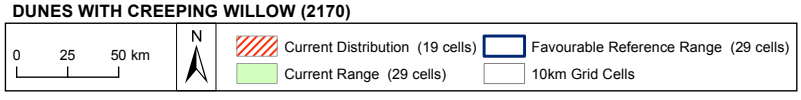
George Smith

This habitat is typically found either on sandy hummocks within dune slacks, or on the sides of dune ridges adjacent to slacks. The habitat is beyond the influence of the water table, either through elevation of the surface of the ground or by a lowering of the water table. It is characterised by a dominance of creeping willow *(Salix repens)*, which often forms a dense ground cover. Moisture-loving plant species typically associated with dune slacks are absent or noticeably reduced. Species associated with this habitat include Yorkshire fog *(Holcus lanatus)*, glaucous sedge *(Carex flacca)* and sand sedge *(Carex arenaria)*, creeping bentgrass *(Agrostis stolonifera)*, mouse-ear hawkweed *(Pilosella officinarum)*, eyebright *(Euphrasia officinalis* agg.), common restharrow *(Ononis repens)* and bird's-foot trefoil *(Lotus corniculatus)*.

The Overall Status is assessed as Inadequate due to pressures associated with undergrazing, forestry and agricultural intensification.



DUNES WITH CREEPING WILLOW (2170)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Favourable
Structures & Functions	Inadequate	Inadequate =
Future Prospects	Inadequate	Inadequate =
Overall Status	Inadequate	Inadequate =
Reason for change	No change	

HABITAT CODE: 2190

DUNE SLACK

Dune slacks are wet, nutrient-enriched depressions between dune ridges. They are characterised by the occurrence of a water table that is maintained by the combination of an impermeable layer in the soil, or by deeper salt water and precipitation. In winter, where there is relatively high rainfall and low evaporation, the water table normally rises above the soil surface and inundation occurs. In spring and during the major part of the summer, the water level drops, but the top layer of the soil remains damp. The proximity of the local freshwater-table is evidenced in the vegetation, in which rushes *(Juncus* spp.), sedges (*Carex* spp.) and moisture-loving herbs such as marsh pennywort *(Hydrocotyle vulgaris)*, bog pimpernel *(Anagallis tenella)*, grass of Parnassus *(Parnassia palustris)*, marsh bedstraw *(Galium palustre)* and marsh helleborine *(Epipactis palustris)* are frequent.

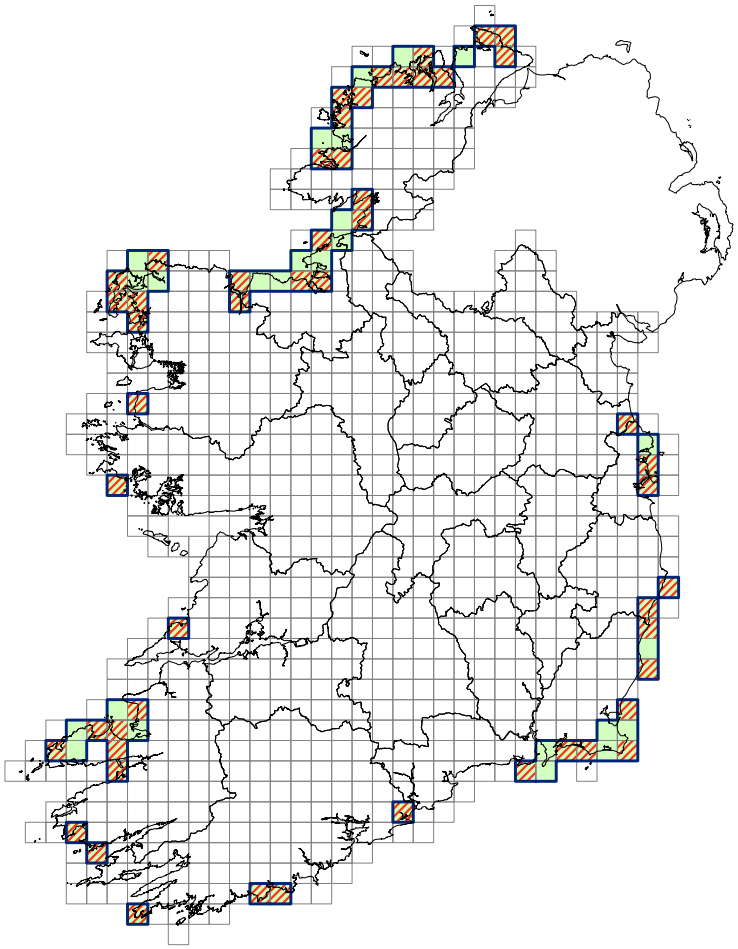
A wide spectrum of vegetation communities is observed in Irish dune slacks, reflecting the different formations and successional stages, as well as the frequency and duration of flooding.

There have been recent losses of habitat that have affected the Range. However there has been a net increase in the area recorded, as some dune slack habitat was undetected in 2007.

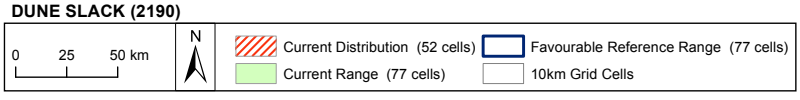
The Overall Status is assessed as Inadequate and declining due to the on-going losses and pressures from interference in the local hydrology, recreation and agriculture. The range of ecological variation within the habitat is also under threat, with pioneer slacks and very wet slacks being poorly represented in Ireland.

Further research is required on hydrological functioning and understanding of natural versus anthropogenic succession.

Karen Gaynor



DUNE SLACK (2190)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable ↓
Area	Inadequate	Favourable ↑
Structures & Functions	Inadequate	Inadequate =
Future Prospects	Bad	Inadequate ↓
Overall Status	Bad	Inadequate ↓
Reason for change	No genuine change	

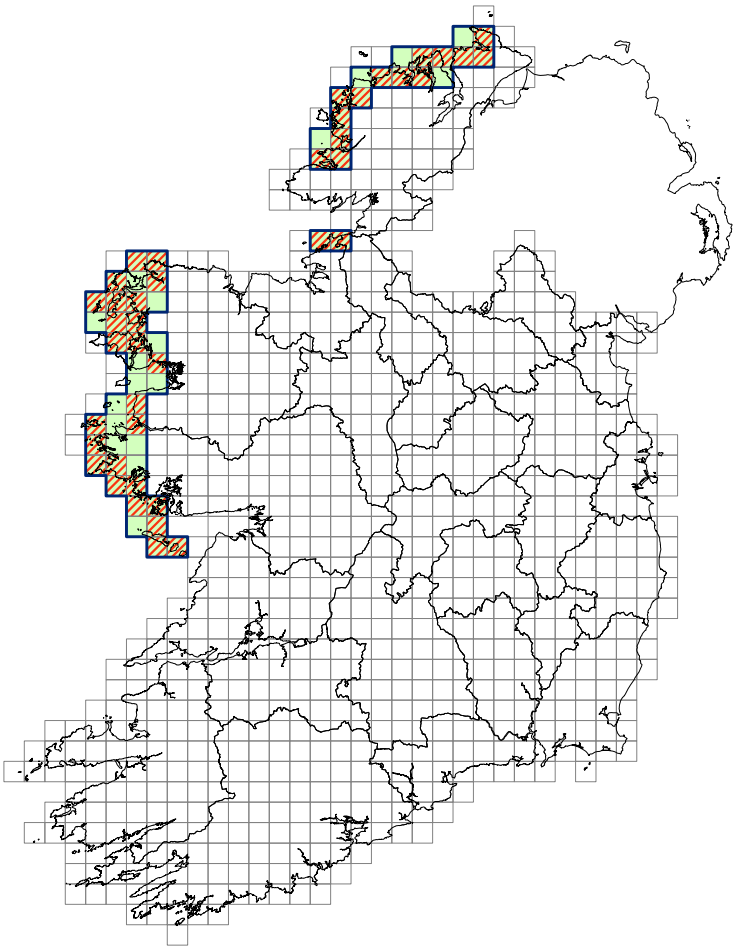
HABITAT CODE: 21A0

MACHAIR*

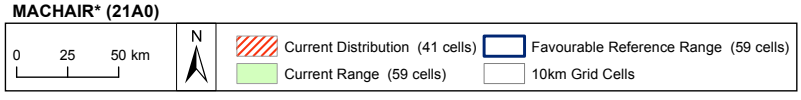
Aoife Delaney

Machairs are dynamic systems which are considered natural landforms that are the product of both wind erosion and cultural activities. They are globally restricted to the northwest coasts of Ireland and Scotland. Frequent species include red fescue *(Festuca rubra)*, bird's foot trefoil *(Lotus corniculatus)*, ribwort plantain *(Plantago lanceolata)*, daisy *(Bellis perennis)*, sand sedge *(Carex arenaria)*, lady's bedstraw *(Galium verum)* and white clover *(Trifolium repens)*. There is, however, no suite of species unique to machair and physical characteristics are important in its definition. A machair should typically be a flat, sandy, coastal plain, in an oceanic location with a cool, moist climate. The sandy substrate should have a significant percentage of shell-derived material, producing a lime-rich soil with a pH normally greater than 7. The vegetation should be herb-rich, with a low frequency of sand-binding species. Wetness of the soil varies, due to the proximity of the water table, with much of the vegetation transitional between wet and dry communities. There should be a history of human interference, principally from grazing.

Losses of >2% have occurred since the Directive came into force, however recent losses are considered negligible. The Overall Status is assessed as Bad due to the pressures from disturbance and ecologically unsuitable grazing regimes which have compromised the quality of the habitat.



MACHAIR* (21A0)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Inadequate	Inadequate =
Structures & Functions	Bad	Bad =
Future Prospects	Bad	Bad =
Overall Status	Bad	Bad =
Reason for change	No change	

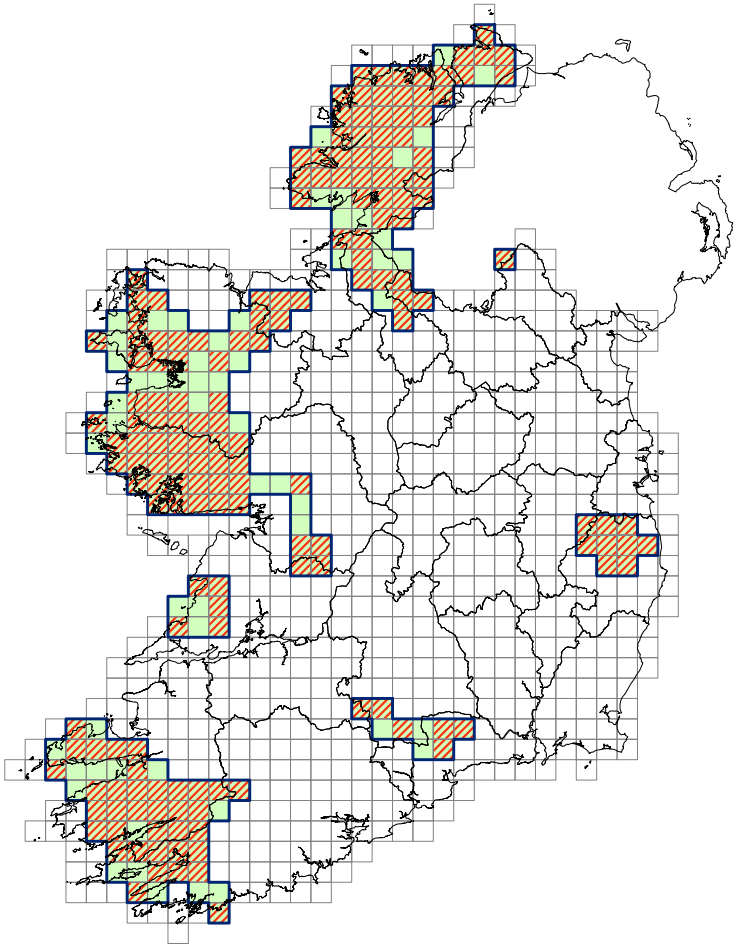
OLIGOTROPHIC SOFT WATER LAKES

The annexed lake habitats are characterised by benthic vegetation and can cover a large area or the entirety of the lake. Some of the larger and more complex Irish lakes, such as Corrib and Mask, are believed to contain three of the lake habitat types.

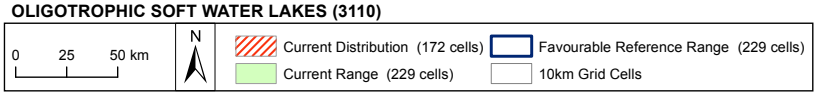
Oligotrophic soft water lakes are frequently associated with catchments where acid bedrock is overlain by peatland, with soft, nutrient-poor waters. The habitat is best developed on more gentle lake slopes along sheltered shorelines. It is dominated by species with an isoetid growth form, such as quillwort *(Isoetes lacustris)*, or water lobelia *(Lobelia dortmanna)*. Other species such as bulbous rush *(Juncus bulbosus)* and bog pondweed *(Potamogeton polygonifolius)* also frequently occur. The habitat is frequently found in upland lakes, such as those found in corries, and earlier references to it as a "lowland lake" were incorrect.

Ireland is a stronghold for the habitat, given the large number of lakes in which it occurs and its widespread distribution. Even in Ireland, however, the habitat is under significant pressure from eutrophication, and from drainage and other damage to peatland. Diffuse nutrient losses from agriculture and forestry are the most likely causes of enrichment in this lake habitat, and developing solutions to prevent or reduce such losses is a considerable challenge. Damage to peatland can result in hydrological changes in lakes, increased water colour and turbidity, changes in sediment characteristics, acidification and even enrichment. Ensuring the long-term future of this lake habitat requires action to address peatland damage at a catchment scale. Therefore, the Overall Status is assessed as Bad, declining.

Áine O'Connor



OLIGOTROPHIC SOFT WATER LAKES (3110)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Favourable
Structures & Functions	Bad	Bad ↓
Future Prospects	Bad	Bad ↓
Overall Status	Bad	Bad ↓
Reason for change	Genuine decline	

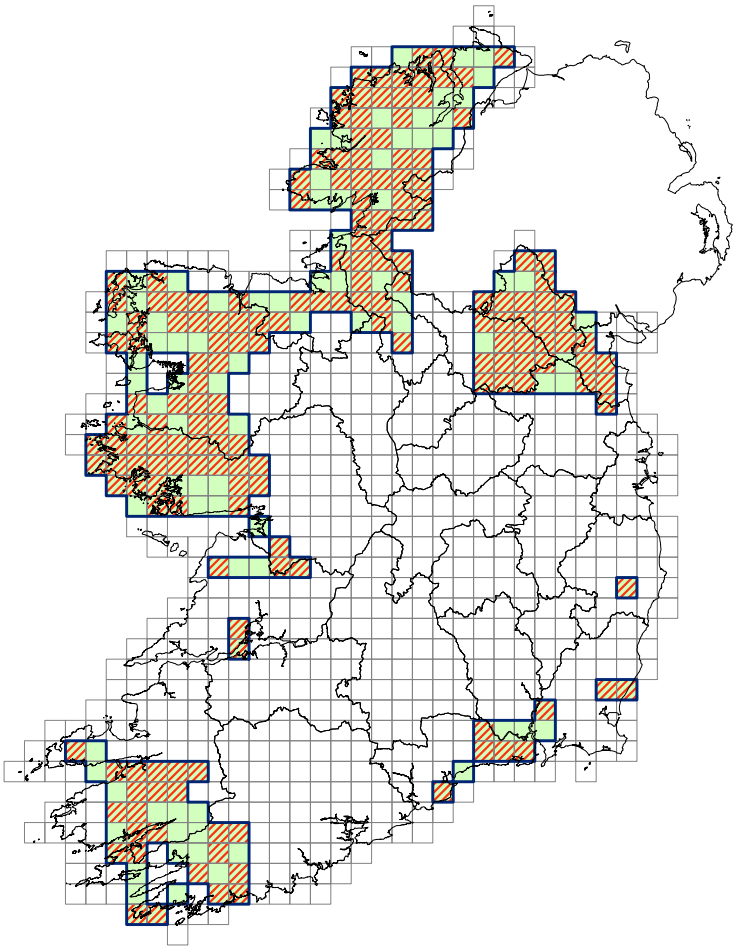
HABITAT CODE: 3130

SOFT WATER LAKES WITH BASE RICH INFLUENCES

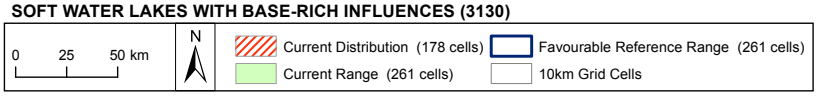
Áine O'Connor

This lake habitat is characterised by benthic vegetation and can cover a large area or the entirety of the lake. Soft water lakes with base rich influence typically occurs in lowland lakes with circum-neutral waters in catchments on mixed geology. Peatland and acid bedrock is often widespread in these catchments, however base-rich influences come from basalt, limestone, marble, sedimentary deposits or calcareous coastal sand. The Annex II plant species slender naiad *(Najas flexilis)* is a characteristic species of the habitat. The co-occurrence of the perfoliate pondweed *(Potamogeton perfoliatus)* and quillwort *(Isoetes lacustris)* is also characteristic. Other pondweed species occur, as well as stoneworts (*Chara* spp.) and rare species such hydrilla *(Hydrilla verticillata)*. The greater basic influence makes this habitat naturally more productive and slightly more tolerant of enrichment than oligotrophic soft water lakes (3110). Ireland is a stronghold for the habitat, where it is widespread particularly along the western fringe.

The main problems for lake habitats in Ireland are damage through eutrophication and other activities linked to water pollution and hydrological change. As for other freshwater habitats and species, the pressures and threats on this habitat arise from activities within the catchment. Agriculture and domestic wastewater systems are the most significant sources of nutrients causing enrichment of this habitat, particularly where they are associated with peatland or other peaty soils. Peat-cutting and forestry on peatland are other notable pressures. While significant measures are being implemented to address pollution from domestic and other wastewater systems, more action is needed to further reduce losses from agriculture, as well as to address the impacts of peatland drainage and general degradation. As a result, the Overall Status of this habitat is assessed as Inadequate. The change in status from Bad to Inadequate since 2007 is due to a more considered analysis of the ecological requirements of the habitat.



SOFT WATER LAKES WITH BASE-RICH INFLUENCES (3130)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Favourable
Structures & Functions	Bad	Inadequate =
Future Prospects	Bad	Inadequate =
Overall Status	Bad	Inadequate =
Reason for change	No genuine change	

HABITAT CODE: 3140

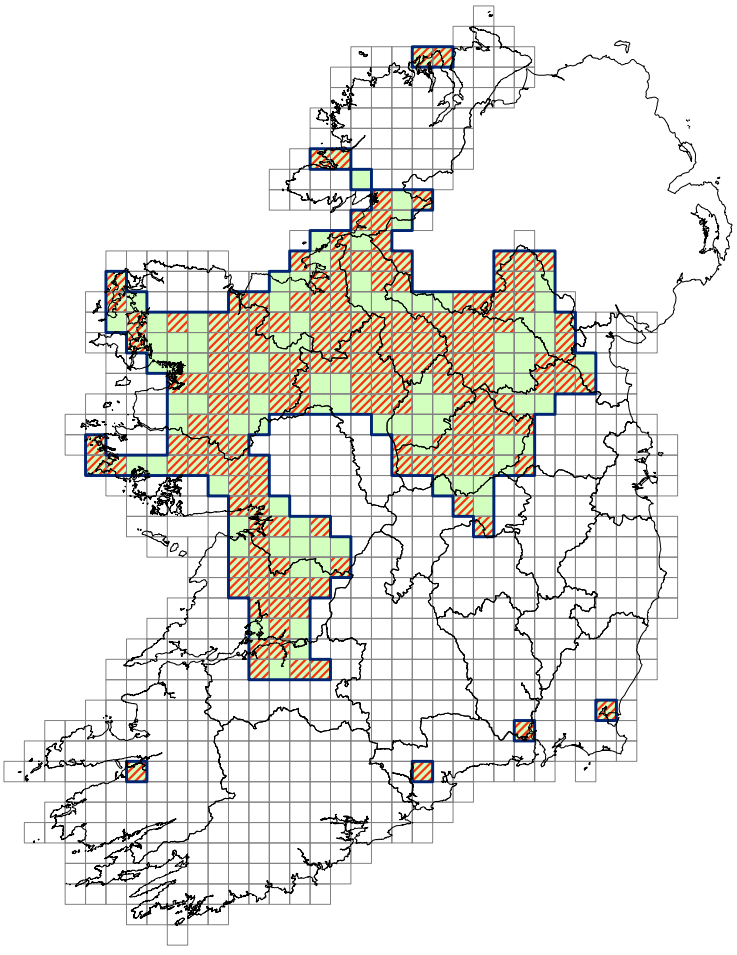
HARD WATER LAKES

The hard-water lake habitat is strongly associated with lowland lakes over limestone bedrock. It is also found on calcareous sand at the landward side of machair plains. The habitat is dominated by algae, particularly stoneworts (*Chara* spp.). Stonewort diversity is high and includes a number of rare and threatened species. Irish examples of the habitat are also of international importance for their 'krustenstein', an organic crust found on bedrock and cobbles in shallow waters. This crust is species-rich, but a cyanobacterium *(Schizothrix fasiculata)* dominates in terms of abundance. A characteristic depth-related vegetation zonation has been described from Irish hard water lakes, with up to six distinct zones occurring. Some of the best European examples of the hard-water lake habitat occur in Ireland.

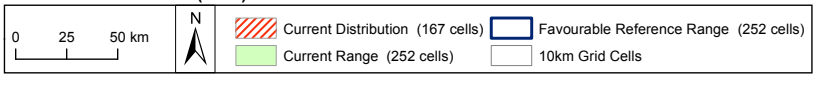
Base-rich groundwater contributes a significant amount of the volume to hard-water lakes. This distinguishes them from other lake habitats, but is a common feature with turloughs and, indeed, turlough and hard-water habitats co-occur.

The hard-water lake habitat is under significant pressure from eutrophication, the primary sources of nutrients and organic material being agriculture and municipal and industrial wastewaters. Movement of pollutants, especially phosphorus, through groundwater is a significant concern. Surveillance of the habitat has demonstrated that the greater part of the area of the habitat within Ireland is in poor or bad condition. While significant measures are being implemented to address pollution from regulated discharges and domestic wastewater systems, more action is needed to reduce pollution from other sources. As a result, the Overall Status of the hard-water lake habitat is assessed as Bad, declining.

Áine O'Connor



HARD WATER LAKES (3140)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Favourable
Structures & Functions	Bad	Bad ↓
Future Prospects	Bad	Bad ↓
Overall Status	Bad	Bad ↓
Reason for change	Genuine decline	

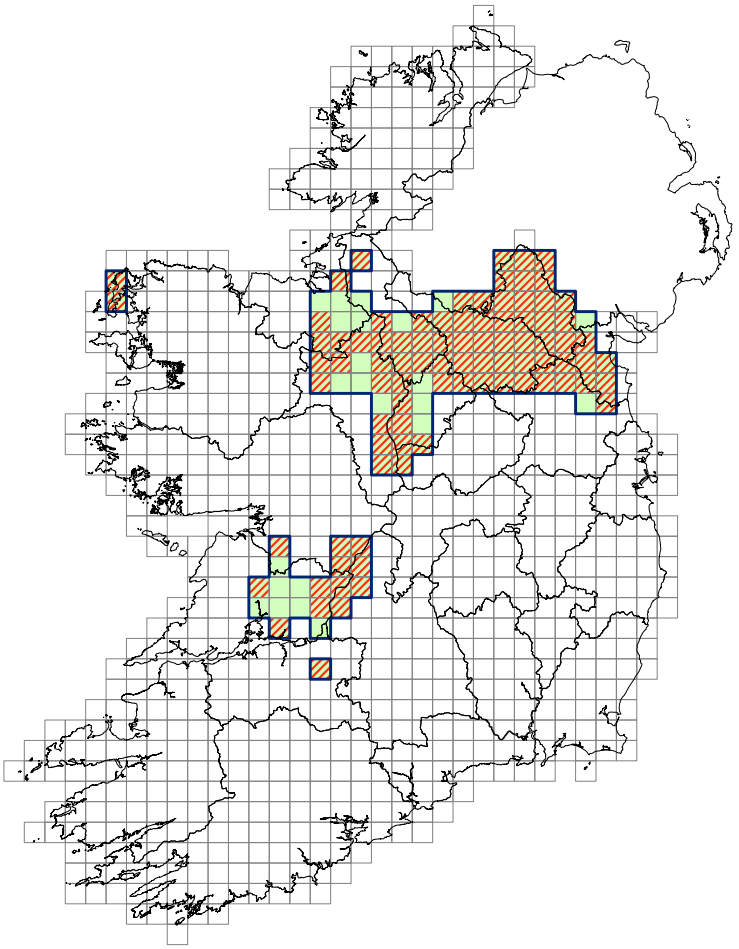
HABITAT CODE: 3150

NATURAL EUTROPHIC LAKES

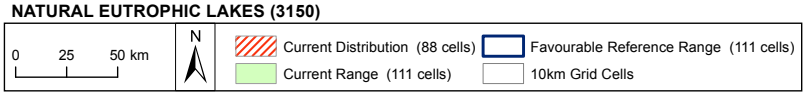
Cilian Roden

The annexed lake habitats are characterised by benthic vegetation and can cover a large area or the entirety of the lake. The natural "eutrophic" lake habitat is in fact found in mesotrophic waters in Ireland. It is associated with lowland, circum-neutral to base-rich lakes in naturally more productive catchments. The habitat is found in lakes in large catchments, such as the Shannon, and in inter-drumlin basins in the midlands and north east. It is characterised by a high abundance and diversity of pondweeds (e.g. *Potamogeton lucens, P. praelongus, P. perfoliatus, P. obtusifolius, P. berchtoldii and P. pectinatus*). Other rooted, predominantly-submerged species frequently co-occur, including water-milfoil *(Myriophyllum spicatum)*, mare's tail *(Hippuris vulgaris)*, starworts (*Callitriche* spp.), arrowhead *(Sagittaria sagittifolia)* and hornwort *(Ceratophyllum demersum)*, while free-floating species (e.g. *Lemna trisulca*) and stoneworts are also common. Lakes with this habitat typically have well-developed reedswamp, fen and/or marsh communities along their shoreline. Wet woodland has also survived or re-colonised many natural eutrophic lake shores.

Lakes with this habitat are mainly in catchments dominated by mineral soils, often with highly intensive agriculture and some are close to large centres of population. Consequently, the habitat has been under significant pressure from eutrophication since the 1970s or before. Agriculture, municipal and industrial wastewaters are the dominant sources of nutrients to this habitat. While significant measures are being implemented to address pollution from industry and other wastewaters, the pressures from agriculture are likely to increase on this lake habitat. The Overall Status of this habitat is, therefore, assessed as Inadequate and stable. The change in status from Bad to Inadequate since 2007 is due to a more considered analysis of the ecological requirements of the habitat.



NATURAL EUTROPHIC LAKES (3150)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Unknown	Favourable
Area	Unknown	Favourable
Structures & Functions	Unknown	Inadequate =
Future Prospects	Bad	Inadequate =
Overall Status	Bad	Inadequate =
Reason for change	Improved knowledge	

HABITAT CODE: 3160

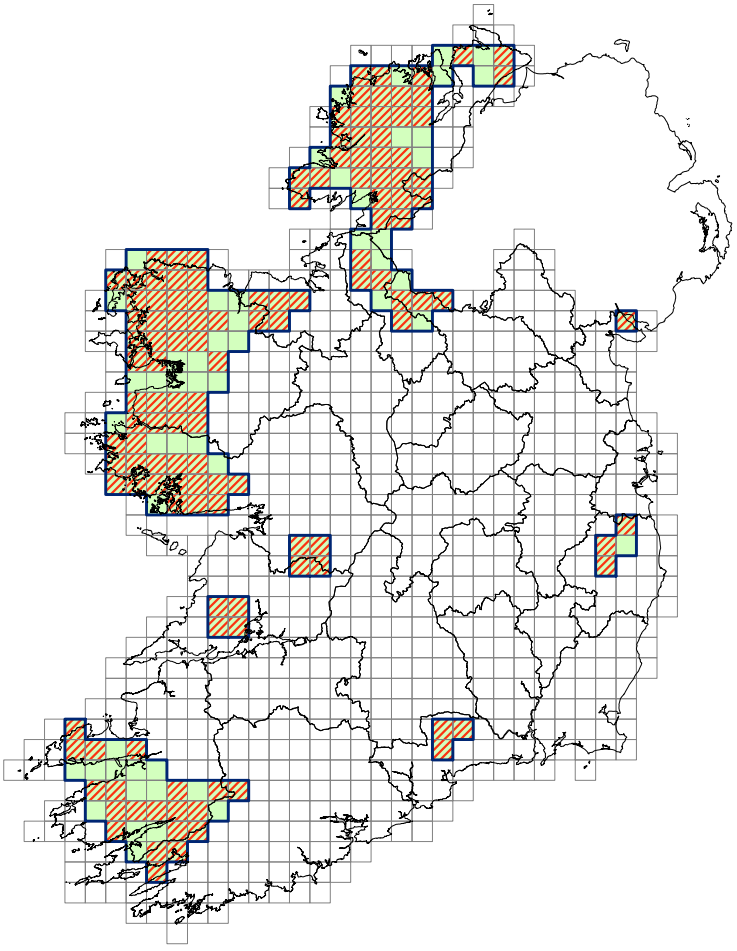
DYSTROPHIC LAKES

Dystrophic lakes and ponds are mainly associated with areas of Atlantic and upland blanket bog, and wet heath. As for other bog habitats, these lakes and ponds are species-poor botanically, with relatively greater invertebrate species-richness. Low species-richness is, however, not synonymous with low conservation value, as many of the species are strongly associated with or restricted to the dystrophic habitat. Dystrophic lakes and ponds are variable across their Irish range, with altitude, geology, and distance from the sea. While individual sites are typically species poor, among-site variation means that the habitat displays higher species richness at landscape and regional scales. Furthermore, the invertebrate fauna is characterised by some rare and threatened species, such as the rare downy emerald dragonfly *(Cordulia aenea)*.

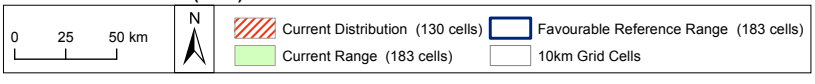
Dystrophic lakes and ponds are dominated by water beetles, caddisfly larvae and aquatic bugs, such as water boatmen. Chydorid cladocerans are also common. The typical plant species include bog mosses *(Sphagnum cuspidatum* and *S. auriculatum)*, bulbous rush *(Juncus bulbosus)*, bog pondweed *(Potamogeton polygonifolius)*, saw sedge (Cladium mariscus) and bladderworts *(Utricularia intermedia, U. minor)*.

Ongoing pressures causing peatland damage results in hydrological changes in dystrophic lakes and ponds, as well as increased sedimentation, colour, turbidity, organic material and ammonia. Fertilisation of forests can contribute to enrichment of the habitat. As these pressures are likely to continue in the future and possibly be exacerbated by climate change, the Overall Status is assessed as Inadequate, declining. The change in status from Bad to Inadequate since 2007 is due to a better ecological understanding of the distribution of this habitat and a more considered analysis of the ecological requirements.

Robert Thompson



DYSTROPHIC LAKES (3160)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Unknown	Favourable
Structures & Functions	Bad	Inadequate ↓
Future Prospects	Bad	Inadequate =
Overall Status	Bad	Inadequate ↓
Reason for change	Genuine decline	

HABITAT CODE: 3180

TURLOUGHS*

John Cross

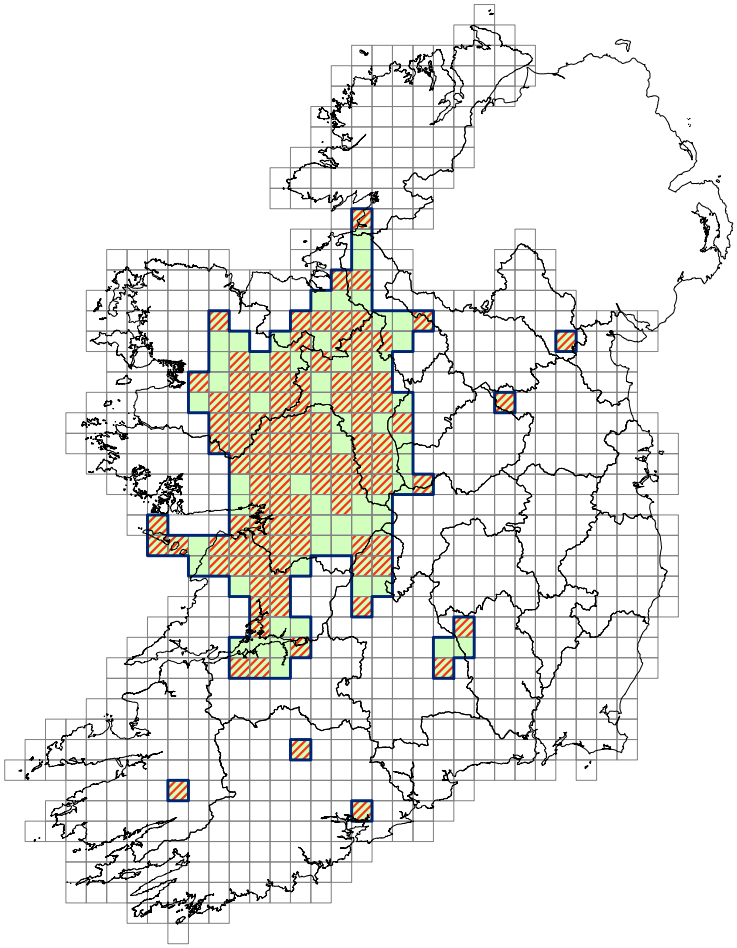
A turlough is a depression in limestone areas that is temporarily flooded by groundwater in most years. Turloughs are usually flooded in winter and dry during summer, though this varies greatly with rainfall and groundwater dynamics. Turloughs are entirely restricted to well-bedded, relatively-pure karstified Carboniferous limestone. Areas with turloughs seldom have rivers; instead water flows below the ground, and turloughs may be described as the floodplains of underground rivers.

Turloughs typically contain wetland vegetation communities in their lower zones, and communities more characteristic of drier limestone soils in their upper zones. Turloughs therefore do not generally contain unique vegetation types and in some cases may not be easy to distinguish from other wetlands. Many turloughs show a distinctive zonation of plants that relates to the duration of flooding. The climax vegetation for the drier parts of turloughs is wet-woodland, but owing to grazing practices, turlough woodland is now quite rare.

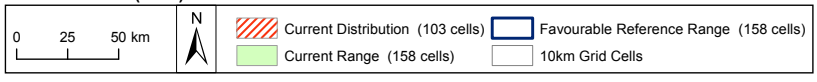
Turloughs contain numerous specialist invertebrates; they also provide important winter feeding grounds for several species of waterfowl and wading birds, with some of these species utilising the habitat for breeding. Most turloughs have ponds and wet areas that are important to aquatic groups such as the characteristic moss-edge water beetles during the dry phase. Marginal woodland and scrub, as well as fringing limestone pavement and semi-natural grasslands are also important for terrestrial invertebrates.

Hydrology is the key driver of turlough ecology, with flood duration and groundwater contribution important factors. Grazing is also integral to the ecology and it is important that appropriate grazing levels are maintained.

The Overall Status is assessed as Inadequate due to ongoing pressures related to groundwater pollution and ecologically unsuitable grazing regimes.



TURLOUGHS* (3180)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Favourable
Structures & Functions	Inadequate	Inadequate =
Future Prospects	Inadequate	Inadequate =
Overall Status	Inadequate	Inadequate =
Reason for change	No change	

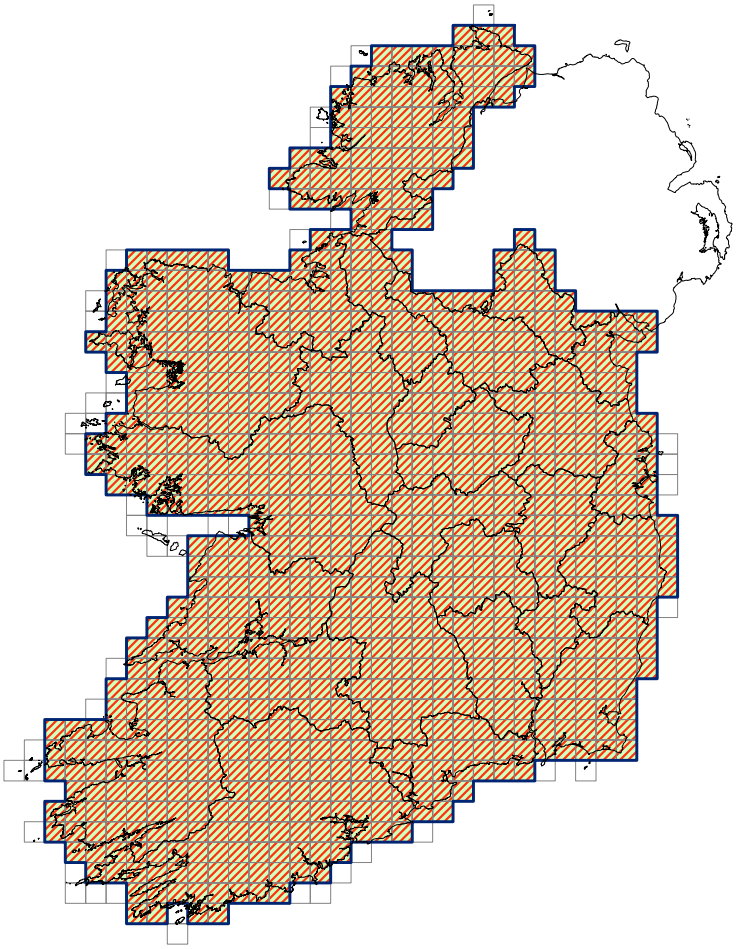
FLOATING RIVER VEGETATION

Floating river vegetation has a broad definition, covering river habitats as diverse as upland, flashy, oligotrophic, bryophyte- and algal-dominated stretches, to tidal reaches dominated by higher plants.

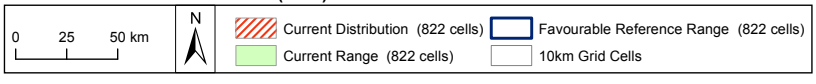
Many Irish rivers have been heavily modified, particularly through arterial drainage and channelisation. These activities have changed channel morphology and introduced larger amounts of fine sediment. These sediments provide a rooting medium for plants and, consequently, water crowfoot *(Ranunculus penicillatus)* has increased in abundance. Crowfoot-dominated stretches frequently have low diversity, are of low conservation value and indicate damage. Of greater conservation interest are lowland depositing and tidal rivers and un-modified, fast-flowing, low-nutrient rivers. A number of rare submerged and marginal species are associated with the former including opposite-leaved pondweed *(Groelandia densa)*, starworts (e.g. *Callitriche truncata*), triangular club-rush *(Schoenoplectus triqueter)*, needle spike rush *(Eleocharis acicularis)* and mud-dwelling mosses (e.g. *Ephemerum spp.)*. The latter are associated with high bryophyte diversity, cascades, riffles and riparian woodland. Important communities also occur in groundwater-fed, base-rich oligotrophic rivers.

Nutrient and organic losses from agriculture and municipal and industrial discharges are the most significant pressures to river habitats. The EPA has highlighted a decline in high quality rivers. A number of Water Framework Directive measures will contribute to the protection and improvement of rivers, however, additional agricultural measures are likely to be required. Agricultural related activities are responsible for 47% of polluted rivers sites and current agricultural policy may increase agricultural pressures. As a result, the Overall Status of the river habitat is assessed as Inadequate, declining. The change in status from Bad to Inadequate since 2007 is due to a more considered analysis of the ecological requirements of the habitat.

Eugene Ross



FLOATING RIVER VEGETATION (3260)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Favourable
Structures & Functions	Bad	Inadequate ↓
Future Prospects	Bad	Inadequate =
Overall Status	Bad	Inadequate ↓
Reason for change	Genune decline	

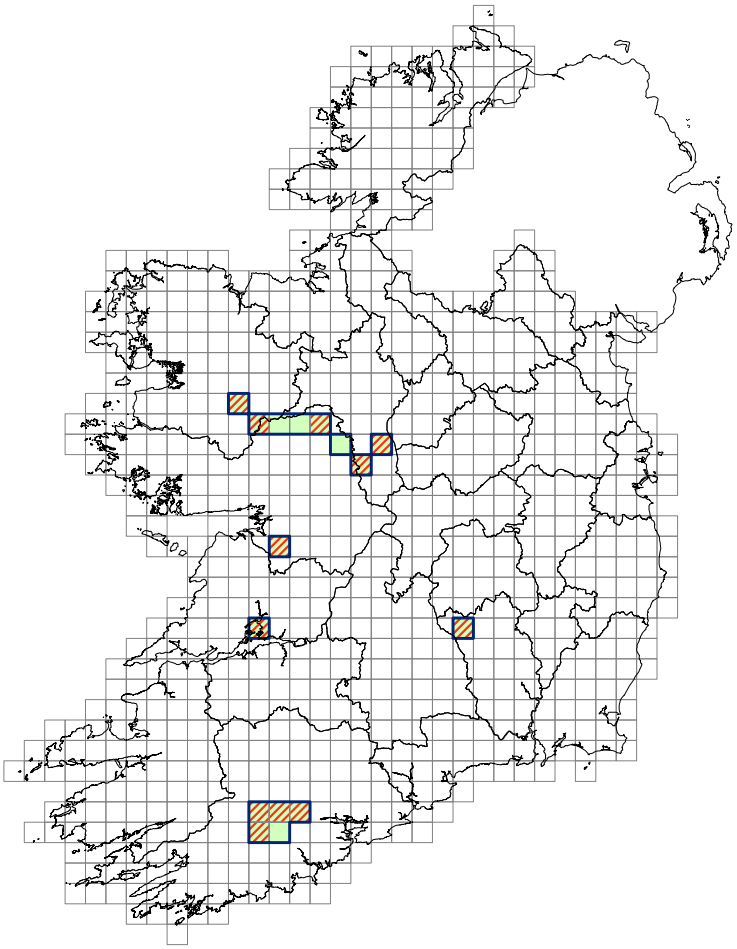
CHENOPODIUM RUBRI

Chris Peppiatt

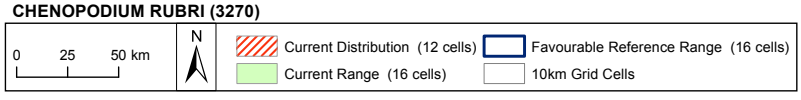
In Ireland this habitat is primarily found in riverine turloughs, in areas where flood water recedes relatively late and that are prone to summer flooding. This dynamic habitat is found on damp, fine, mineral soils (usually alluvial muds). Typical species are small, short-lived, fast-growing annuals that are poor competitors, including spear-leaved orache *(Atriplex prostrata)*, trifid bur-marigold *(Bidens tripartita)*, water starwort *(Callitriche palustris)*, red goosefoot *(Chenopodium rubrum)*, needle spikerush *(Eleocharis acicularis)*, marsh cudweed *(Gnaphalium uliginosum)*, toad rush *(Juncus bufonius)*, mudwort *(Limosella aquatica)*, water-pepper *(Persicaria hydropiper)*, small water-pepper *(Persicaria minor)*, cavernous crystalwort *(Riccia cavernosa)*, northern yellow cress *(Rorippa islandica)* and yellow-cress *(Rorippa palustris)*.

These species occupy the habitat because it is exposed for insufficient time and too late in the growing season for perennial species to complete their life cycles. The ongoing development of this habitat depends on a continuous supply of fine sediment. This sediment may be derived from external sources or through erosion, suspension and re-deposition of silt within the immediate vicinity of the habitat. Most sites are fed by streams or large underground conduits that supply a significant fine sediment load to the habitat. Wave action can lead to erosion, re-suspension and subsequent deposition of sediment within a basin.

Pressures are not impacting the typical species or the functioning of the habitat; therefore the Overall Status is assessed as Favourable. More detailed survey work is required to refine the extent of the habitat and investigate the impacts of nutrient enrichment and trampling by cattle.



CHENOPODIUM RUBRI (3270)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Favourable
Structures & Functions	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

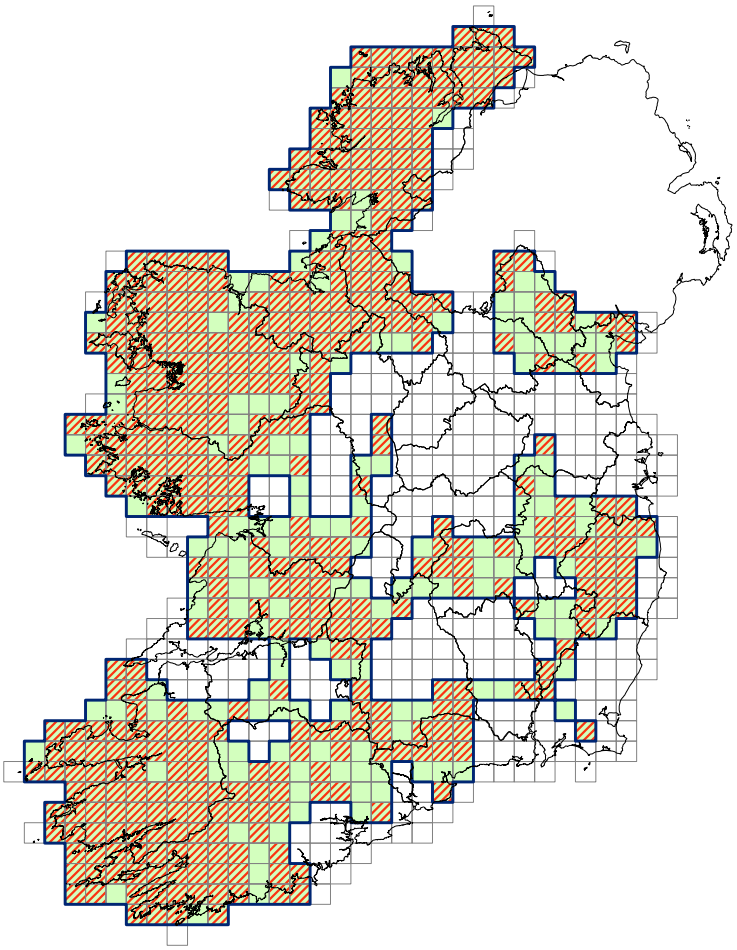
WET HEATH

Wet heaths are widespread on lowlands and uplands along the western seaboard and confined to uplands in the rest of the country. They are rare in the east and southeast and on lowlands outside western districts. Wet heaths form a highly variable habitat type that is intermediate in many regards between dry heath and blanket bog, generally occurring on gently sloping, poorly-draining ground on shallow or intermediate peat depths (typically 30 to 80cm deep).

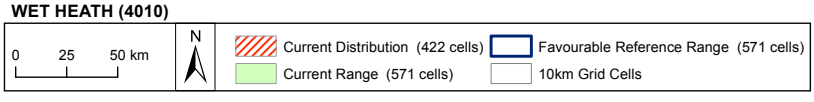
Typically this habitat is characterised by a mixture of purple moor-grass *(Molinia caerulea)*, cross-leaved heath *(Erica tetralix)*, deergrass *(Trichophorum germanicum)* and ling *(Calluna vulgaris)*, although not all of these species may be present as, for example, dwarf shrubs may be scarce or absent in degraded examples of wet heath. Sphagnum species in association with pleurocarpous or feather mosses and *Cladonia* lichens are also characteristic of wet heaths.

There are ongoing losses in habitat Area due to afforestation and agricultural improvement. The quality of the habitat has been impacted by overgrazing and trampling, burning, invasive non-native species, drainage and erosion. Stock reductions implemented through commonage framework plans have led to an increase in height and cover of dwarf shrubs and reduction in extent of bare peat at many sites. Nevertheless, the Overall Status of this habitat is assessed as Bad due to the continued impact of the pressures listed above. The overall trend is considered to be stable due to the improvements resulting from stock reductions that balance out losses in Area.

Philip Perrin



WET HEATH (4010)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Unknown	Inadequate ↓
Structures & Functions	Bad	Bad ↑
Future Prospects	Bad	Bad =
Overall Status	Bad	Bad =
Reason for change	Improved knowledge	

HABITAT CODE: 4030

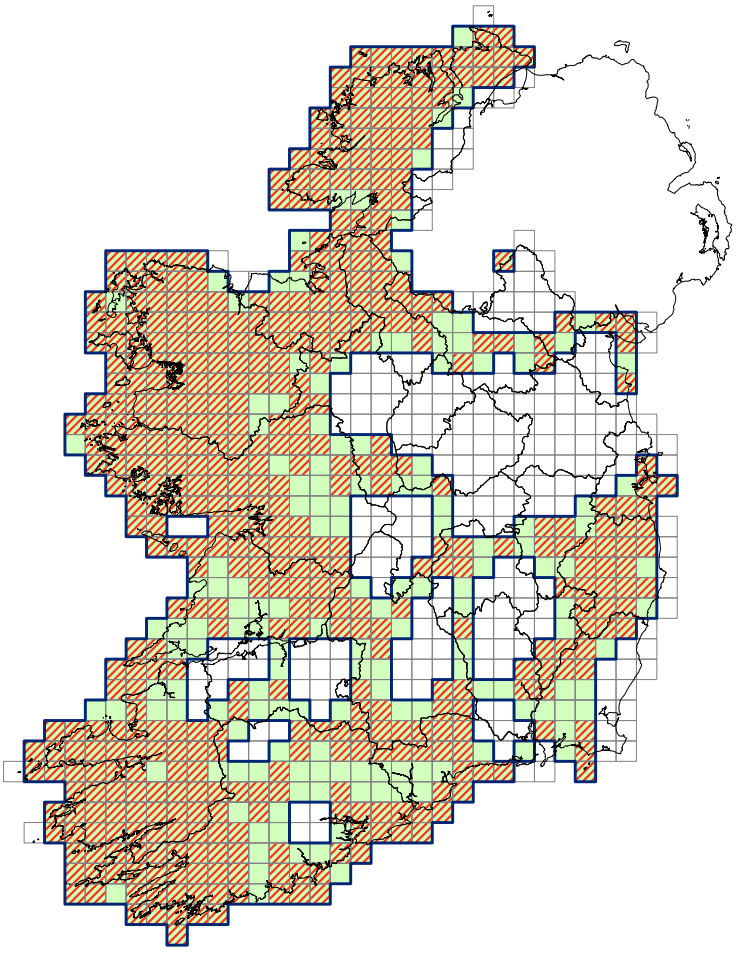
DRY HEATHS

Joanne Denyer

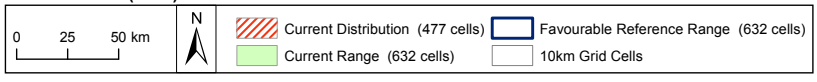
Dry heaths are widespread across the country and comprise vegetation dominated by ericaceous dwarf shrubs and usually occur on well-drained, nutrient-poor and acidic mineral soils or shallow peats on sloping ground. The habitat occurs from sea level up to around 400 m, where it starts to merge into alpine and subalpine heath. Calcareous dry heaths where dwarf shrub communities have developed on leached soils over a base-rich substrate (e.g. in the Burren) are also included; stands of Ulex europaeus are deemed to be scrub communities however and are not included in the definition.

Typical species of dry heath include ling *(Calluna vulgaris)*, which is usually the main species, bell heather *(Erica cinerea)* and bilberry *(Vaccinium myrtillus)*. Western gorse *(Ulex gallii)* can be an important species in coastal variants of dry heath. In calcareous dry heaths, species typical of calcareous grasslands also occur.

There have been ongoing losses in Area due to afforestation and agricultural improvement. Although the quality of the habitat has been impacted by overgrazing, burning, invasive non-native species and drainage, destocking brought about from the commonage framework plans has led to recovery in many upland areas. The Overall Status is assessed as Bad due to the impacts of the pressures listed. The overall trend is considered to be stable, the losses in Area balanced by the improvements in quality. The 2007 assessment was not underpinned by extensive survey and expert judgement was used to give an Overall Status of Inadequate. In light of current data it is likely that the 2007 assessment should have also been Bad.



DRY HEATHS (4030)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Inadequate ↓
Structures & Functions	Inadequate	Bad ↑
Future Prospects	Inadequate	Bad =
Overall Status	Inadequate	Bad =
Reason for change	Improved knowledge	

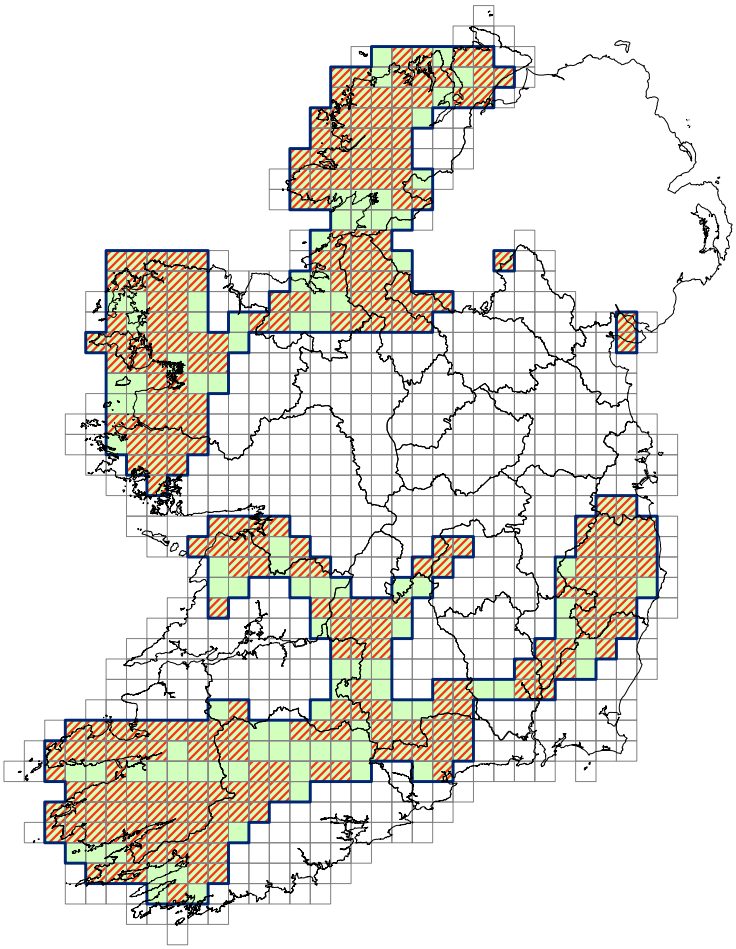
HABITAT CODE: 4060

ALPINE AND SUBALPINE HEATH

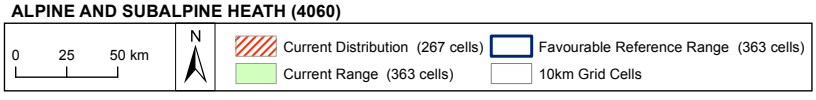
Two distinct alpine and subalpine heath communities occur in Ireland. The upland community occurs on the exposed summits and upper slopes of mountains on acidic substrate, typically from around 350-400m upwards, but can occur at lower altitudes in more exposed locations. The vegetation is characterised by low-growing, wind-clipped dwarf shrubs. Ling *(Calluna vulgaris)* is typically the most frequent species, together with an abundance of woolly fringe-moss *(Racomitrium lanuginosum)*. The lowland community comprises Dryas heath on limestone in the Burren and is less extensive. It is characterised by mats of mountain avens *(Dryas octopetala)* accompanied by species typical of calcareous grassland.

Sheep grazing is widespread in uplands where alpine and subalpine heath occurs and, where levels of grazing are high, is problematic within this habitat. Hill walking is often concentrated on the ridges and summits where this habitat is found and can cause trampling and erosion of the habitat. Abandonment, scrub encroachment and decline in traditional farming methods are widely viewed to have negative effects on the conservation status of habitats in the Burren. For these reasons the Overall Status of this habitat is considered to be Bad. Conservation measures undertaken in the uplands and the Burren to address grazing problems have resulted in an improving trend. The 2007 assessment was not underpinned by extensive survey and expert judgement was used to give an Overall Status of Inadequate. In light of current data it is likely that the 2007 assessment should have also been Bad.

Eamonn O'Sullivan



ALPINE AND SUBALPINE HEATH (4060)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Inadequate	Favourable
Structures & Functions	Inadequate	Bad ↑
Future Prospects	Inadequate	Bad =
Overall Status	Inadequate	Bad ↑
Reason for change	Genuine improvement	

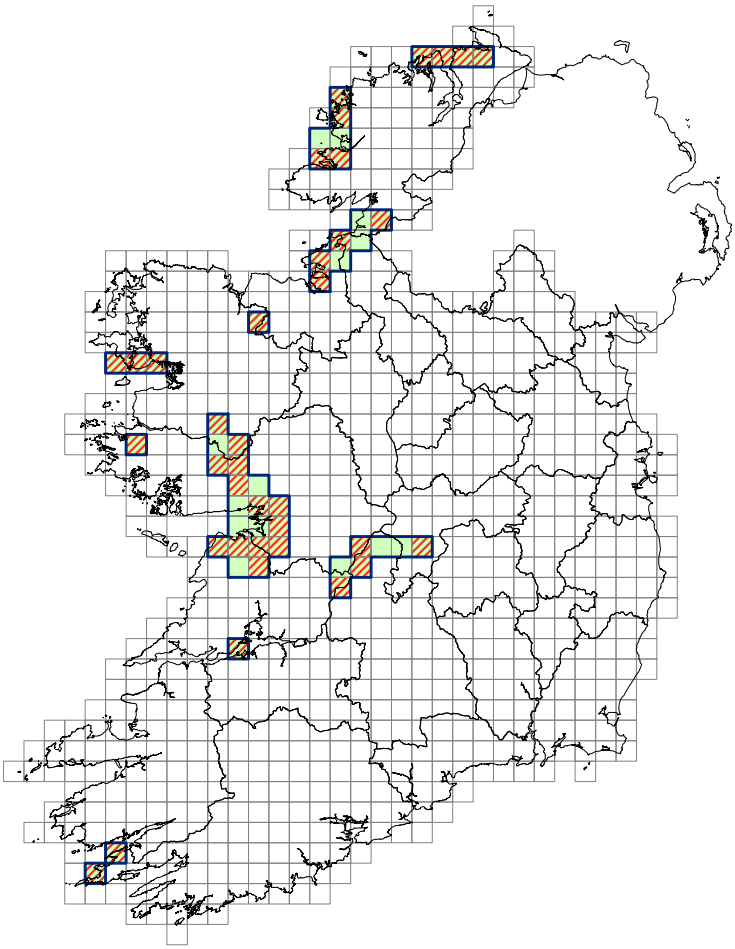
HABITAT CODE: 5130

JUNIPER SCRUB

NPWS

Juniper scrub formations are considered to be present where there are at least 50 individual Juniper shrubs. This threshold is the minimum below which isolated groups are unlikely to reproduce in any sufficient numbers to bring about recovery without inbreeding depression being a significant risk. Formations are mostly associated with lowland dry calcareous and neutral grassland, exposed calcareous rock, dry siliceous heath, exposed siliceous rock and dry calcareous heath. Scrub formations can also occur on coastal dunes and at higher altitudes.

Low recruitment and ecologically unsuitable grazing are the main issues affecting the quality of the habitat. The Overall Status has been assessed as Inadequate but stable as there is no evidence of any recent decline in condition and no change is foreseen in the immediate future. Further research is required to attain a greater understanding of the effect of perceived pressures and the conservation measures required to achieve favourable conservation status.



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Inadequate	Favourable
Structures & Functions	Inadequate	Inadequate =
Future Prospects	Inadequate	Inadequate =
Overall Status	Inadequate	Inadequate =
Reason for change	Improved knowledge	

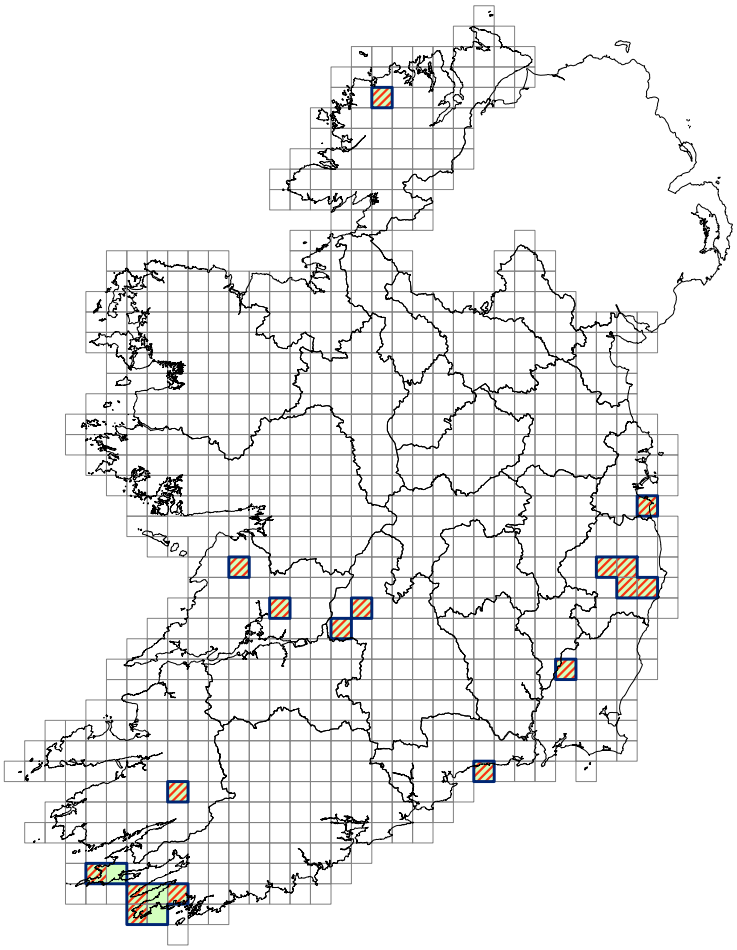
HABITAT CODE: 6130

CALAMINARIAN GRASSLAND

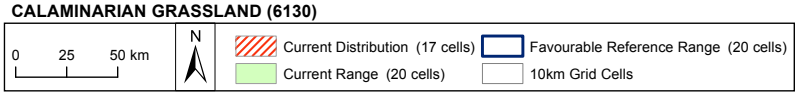
Calaminarian grassland is an uncommon habitat found in association with levels of heavy metals that are toxic to most plant species. There is a naturally occurring form of this habitat in Europe, but in Ireland known sites are semi-natural and located on or adjacent to old copper, lead or zinc mines. Mine workings and their artificial spoil heaps can support specialised plants and vegetation communities that are tolerant to high levels of these toxic metals. Some stands of such vegetation in Ireland are notable for the presence of rare bryophytes such as *Cephaloziella integerrima, C. massalongi, C. nicholsonii, Ditrichum cornubicum, Scopelophila cataractae* and *Pohlia andalusica*, amongst others, as well as inland stands of the vascular plants sea campion *(Silene uniflora)* and lowland thrift *(Armeria maritima)*, and some stands of spring sandwort *(Minuartia verna)*. Community development on new toxic sludge is not considered to represent the EU habitat.

There have been minor losses in area and ongoing pressures, including household dumping, overgrazing and trampling, erosion and abandonment to coarse vegetation as toxicity declines through leaching. This has resulted in the Overall Status being assessed as Inadequate. The overall trend is stable due to the fact that any current pressures are likely to be negated by an increase in awareness and improved site management.

Robert Thompson



CALAMINARIAN GRASSLAND (6130)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Inadequate ↓
Structures & Functions	Favourable	Favourable
Future Prospects	Inadequate	Inadequate ↑
Overall Status	Inadequate	Inadequate =
Reason for change	Improved knowledge	

HABITAT CODE: 6210

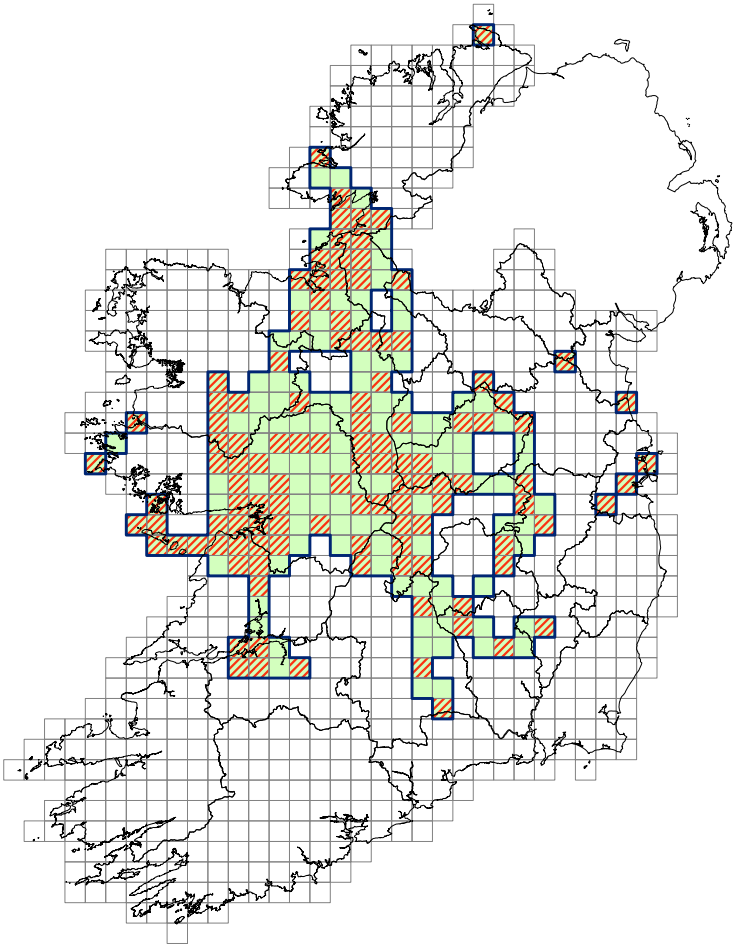
ORCHID-RICH CALCAREOUS GRASSLAND*

Jim Martin

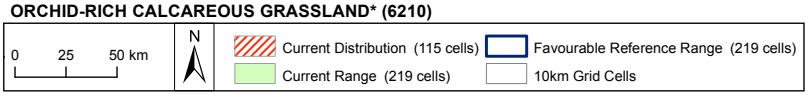
This calcareous grassland habitat comprises species-rich plant communities found on shallow, well-drained calcareous substrates, often occurring on obvious geological features such as eskers and outcropping limestone rock, and in association with limestone pavement. It is generally maintained by extensive grazing. The Burren and Aran Islands (Clare/Galway) and Dartry Mountains (Sligo/Leitrim) are particularly important areas for this habitat.

The habitat comprises a mixture of grasses and herbs, with calcicole species typically frequent. Species such as mountain everlasting *(Antennaria dioica)*, kidney vetch *(Anthyllis vulneraria)*, quaking-grass *(Briza media)*, harebell *(Campanula rotundifolia)*, spring sedge *(Carex caryophyllea)*, carline thistle *(Carlina vulgaris)*, fairy flax *(Linum catharticum)*, cowslip *(Primula veris)*, salad burnet *(Sanguisorba minor)* and orchids, such as common spotted orchid *(Dactylorhiza fuchsii)*, fragrant orchid *(Gymnadenia conopsea)*, bee orchid *(Ophyrs apifera)* and early-purple orchid *(Orchis mascula)*, can be particularly indicative of this habitat. Other typical species found within species-rich calcareous grassland include wild carrot *(Daucus carota)*, lady's bedstraw *(Galium verum)*, downy oat-grass *(Helictotrichon pubescans)*, rough hawkbit *(Leontodon hispidus)*, common bird's-foot-trefoil *(Lotus corniculatus)*, mouse-ear-hawkweed *(Pilosella officinarum)*, blue moor-grass *(Sesleria caerulea)* and wild thyme *(Thymus polytrichus)*, noteworthy species include hairy rock-cress *(Arabis hirsuta)* and heath false-brome *(Brachypodium pinnatum)*. The mosses comb-moss *(Ctenidium molluscum)* and yellow feather-moss *(Homalothecium lutescens)* are usually present. A vegetation community of this habitat as found in the Burren could include squinancywort *(Asperula cynanchica)*, dropwort *(Filipendula vulgaris)*, spring gentian *(Gentiana verna)* and bloody crane's-bill *(Geranium sanguineum)*, along with many of the other listed species.

Although conservation focussed farming practises in the Burren should result in localised improvements, the Overall Status is assessed as Bad due to historic loss and fragmentation caused by agricultural intensification and ongoing succession to scrub caused by the abandonment of pastoral systems.



ORCHID-RICH CALCAREOUS GRASSLAND* (6210)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Bad	Bad =
Structures & Functions	Bad	Bad =
Future Prospects	Bad	Bad =
Overall Status	Bad	Bad =
Reason for change	No change	

HABITAT CODE: 6230

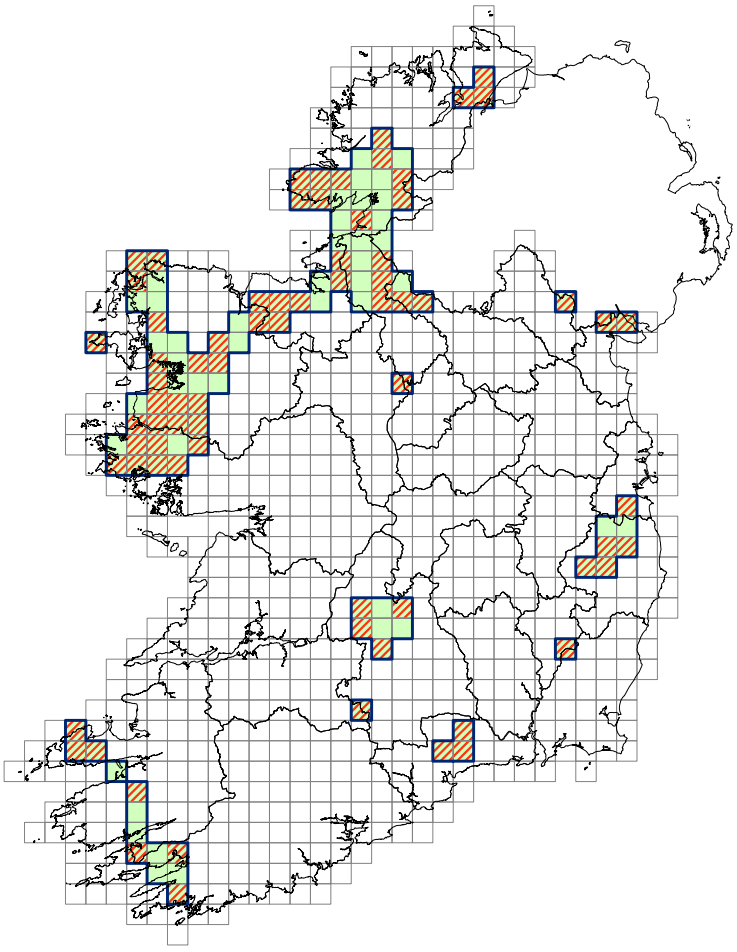
SPECIES-RICH NARDUS UPLAND GRASSLAND*

Species-rich Nardus grassland is restricted to siliceous substrates in upland areas, usually near the upper limit of enclosed farmland. It has probably always been a rare habitat within Irish uplands and it relies on extensive grazing, usually by sheep, to maintain the habitat. The habitat can often occur in a mosaic with heath. Mineral flushing is usually required to create a habitat that supports a more species-rich community. Both a calcareous (calcareous flushing) and non-calcareous sub-community of this habitat have been identified in Ireland.

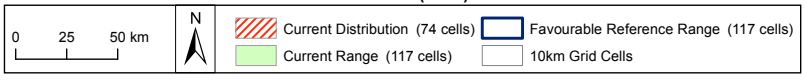
Vascular plant species typically occurring in this habitat include sheep's-fescue *(Festuca ovina)*, heath bedstraw *(Galium saxatile)*, mat-grass *(Nardus stricta)*, tormentil *(Potentilla erecta)* and heath speedwell *(Veronica officinalis)*. The presence of spring sedge *(Carex caryophyllea)*, pill sedge *(Carex pilulifera)*, small-white orchid *(Pseudorchis albida)*, heath dog-violet *(Viola canina)*, common dog-violet *(Viola riviniana)*, and for the calcareous sub-community, mountain everlasting *(Antennaria dioica)*, harebell *(Campanula rotundifolia)*, fairy flax *(Linum catharticum)*, common bird's-foot-trefoil *(Lotus corniculatus)* and wild thyme *(Thymus polytrichus)* can be indicative of species-rich Nardus grassland. Mosses and liverworts are often important components of this habitat, with higher quality communities usually containing comb-moss *(Ctenidium molluscum)* or golden-head moss *(Breutelia chrysocoma)*. Mat-grass *(Nardus stricta)* is almost always present within this habitat and as an approximate guide a minimum of 25 plant species would be required to indicate a species-rich community.

The Overall Status is assessed as Bad due to ongoing losses caused by forestry planting and agricultural improvement (fertilisation and re-seeding of the habitat) and also succession to heath and scrub. Due to ongoing losses to this habitat there is a declining trend for the habitat since the 2007 assessment.

Fiona Devaney



SPECIES-RICH NARDUS UPLAND GRASSLAND* (6230)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Bad	Bad ↓
Structures & Functions	Bad	Bad =
Future Prospects	Bad	Bad ↓
Overall Status	Bad	Bad ↓
Reason for change	Genuine decline	

HABITAT CODE: 6410

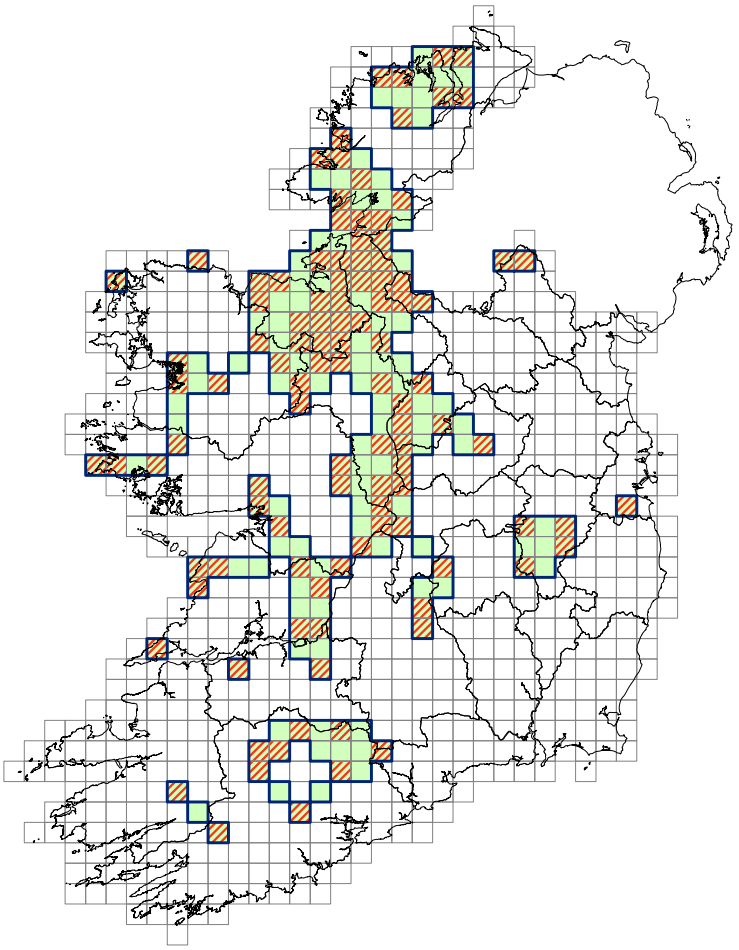
MOLINIA MEADOWS

Jim Martin

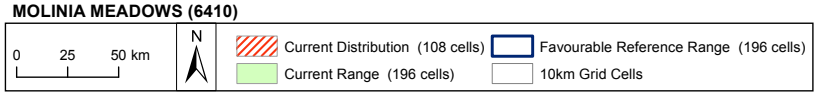
Molinia meadow is represented in Ireland by both fen and grassland communities on nutrient poor soils. The habitat is either managed as traditional hay meadows (cut only once a year in late summer or autumn with the hay crop removed) or more usually by extensive pasture. Within Ireland Molinia meadows occur in lowland plains on neutral to calcareous gleys, sometimes with a marl layer beneath the surface, or on peaty soils both in lowland and upland situations. Molinia meadows generally have a central to north-western distribution in Ireland that follows the distribution of marsh thistle *(Cirsium dissectum)*, one of the key indicator species for the habitat.

Typical species occurring in this habitat include sedges *(Carex echinata, C. flacca, C. nigra, C. panicea, C. viridula)*, meadowsweet *(Filipendula ulmaria)*, sharp-flowered rush *(Juncus acutiflorus)*, jointed rush *(Juncus articulatus)*, greater bird's-foot-trefoil *(Lotus pedunculatus)*, heath wood-rush *(Luzula multiflora)*, water mint *(Mentha aquatica)*, lesser spearwort *(Ranunculus flammula)*, trailing tormentil *(Potentilla anglica)*, tormentil *(Potentilla erecta)*, devil's-bit scabious *(Succisa pratensis)* and marsh violet *(Viola palustris)*. Purple moor-grass *(Molinia caerulea)* is usually present within this habitat at low abundance levels, dominance of this key species can indicate a lack of management. Meadow thistle *(Cirsium dissectum)*, marsh hawk's-beard *(Crepis paludosa)*, fen bedstraw *(Galium uliginosum)*, compact rush *(Juncus conglomeratus)*, meadow vetchling *(Lathyrus pratensis)*, adder's-tongue *(Ophioglossum vulgatum)* and orchids such as common spotted-orchid *(Dactylorhiza fuchsii)*, early marsh-orchid *(Dactylorhiza incarnata)* and heath spotted-orchid *(Dactylorhiza maculata)*, can be particularly characteristic or indicative of Molinia meadows, or of better habitat quality.

The Overall Status is assessed as Bad due to historic losses and an ongoing decline in quality caused by succession to scrub, abandonment of pastoral systems, and abandonment of mowing. Due to the ongoing deterioration of quality there is an overall declining trend for the habitat since the 2007 assessment.



MOLINIA MEADOWS (6410)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Bad	Bad =
Structures & Functions	Bad	Bad ↓
Future Prospects	Bad	Bad ↓
Overall Status	Bad	Bad ↓
Reason for change	Genuine decline	

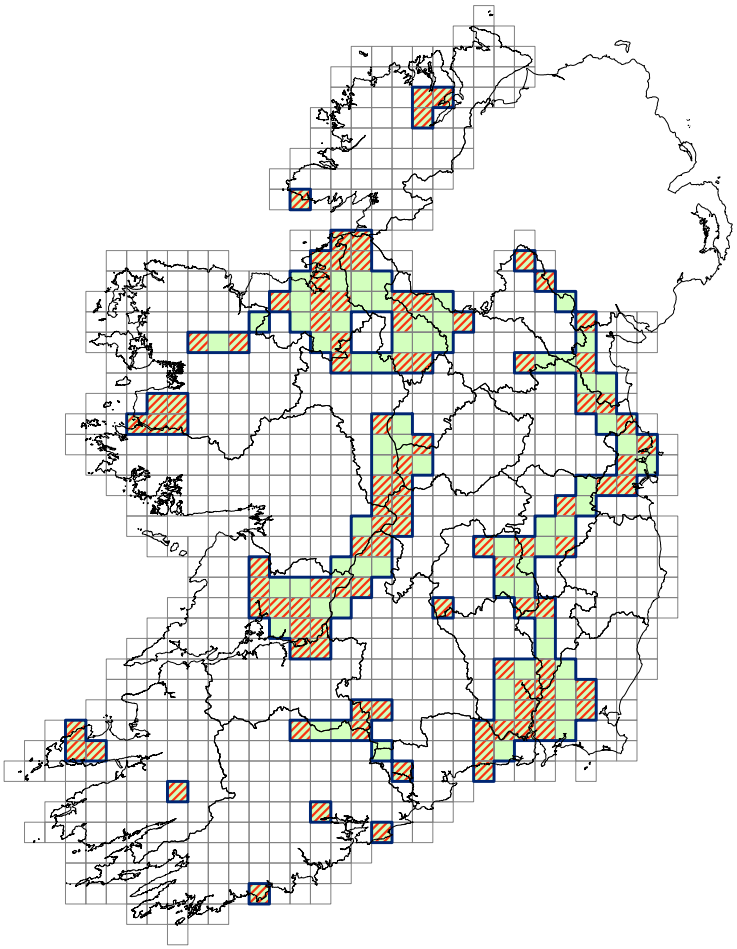
HYDROPHILOUS TALL HERB

Two distinct communities have been considered for this habitat in Ireland. In the lowlands, the habitat occurs as a community of watercourses, particularly unmanaged edges of slow-moving rivers, and the margins of lakes. In the uplands, the habitat occurs as typically small (<1m across) communities of ungrazed or lightly grazed cliff ledges on calcareous cliffs and on wet siliceous cliffs where there is some base-enrichment from the water.

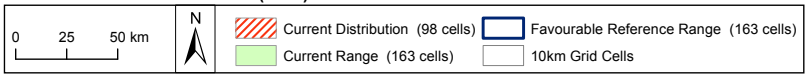
In the lowlands the community is dominated by tall hydrophilous herbs, such as wild angelica *(Angelica sylvestris)*, meadowsweet *(Filipendula ulmaria)*, yellow iris *(Iris pseudacorus)*, yellow loosestrife *(Lysimachia vulgaris)*, purple-loosestrife *(Lythrum salicaria)* and common valerian *(Valeriana officinalis)*. Horsetails such as water horsetail *(Equisetum fluviatile)* and marsh horsetail *(E. palustre)* can also occur. In the upland community, herbs such as lady's mantle *(Alchemilla* spp.), wild angelica, marsh hawk's-beard *(Crepis paludosa)*, meadowsweet *(Filipendula ulmaria)*, water avens *(Geum rivale)* and lesser meadow-rue *(Thalictrum minus)* occur.

Threats to the lowland community include grazing, particularly by cattle. Grazing by sheep is possible for more accessible examples in the uplands. Indian balsam *(Impatiens glandulifera)* is an aggressive invasive of riparian communities. Agricultural and industrial pollution of watercourses is likely to impact on this habitat. As a marginal habitat, agricultural intensification and land reclamation are also deemed to be pressures. For these reasons the Overall Status of this habitat is considered to be Bad. The 2007 assessment was not underpinned by extensive survey and expert judgement was used to give an Overall Status of Inadequate. In light of current data it is likely that the 2007 assessment should have also been Bad. Further survey work is required to determine the extent and nature of this habitat in Ireland.

Jim Martin



HYDROPHILOUS TALL HERB (6430)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Inadequate x
Structures & Functions	Inadequate	Bad =
Future Prospects	Inadequate	Bad =
Overall Status	Inadequate	Bad =
Reason for change	Improved knowledge	

HABITAT CODE: 6510

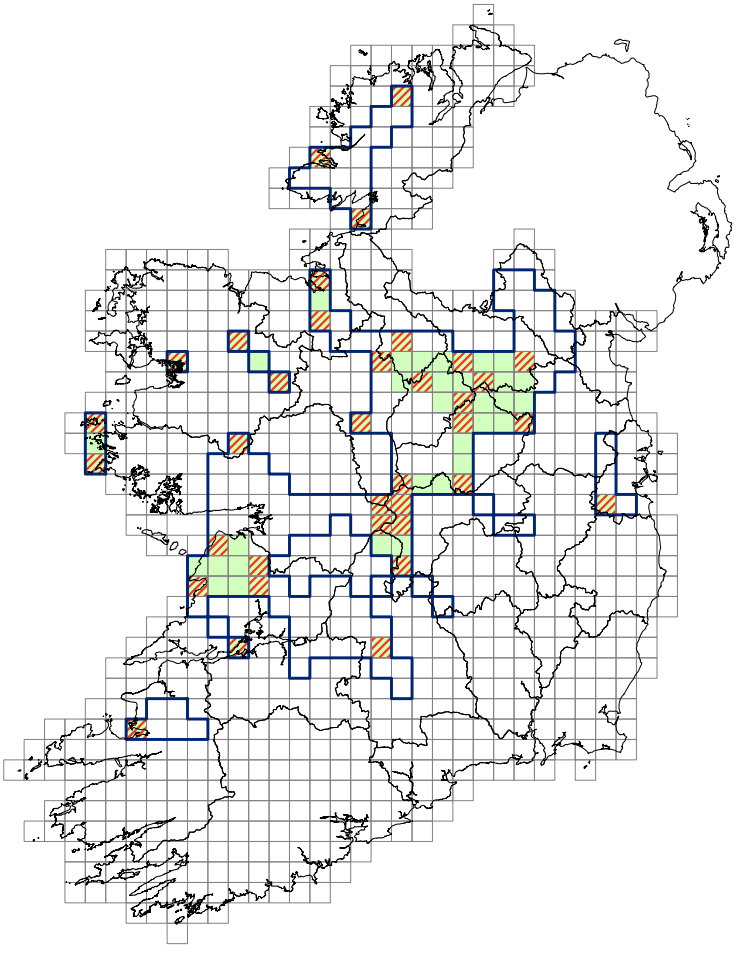
LOWLAND HAY MEADOWS

Jim Martin

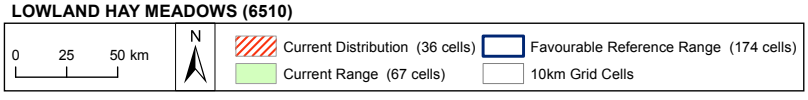
Lowland hay meadows are represented in Ireland by mesotrophic semi-natural grasslands that are almost always managed as traditional hay meadows (cut only once a year in late summer or autumn with the hay crop removed). These meadows are closely associated with the fertile plains of the larger river systems, such as the Shannon. However, they are also found on flatter ground amongst low hills and drumlins, and there are some sites on the coast.

Lowland hay meadows are composed of grasses and broadleaved herbs which are tolerant of annual mowing. Although the vegetation will be tall in mid-late summer, there is generally little leaf litter remaining from the previous season's growth. Plants found frequently in this habitat in Ireland include red clover (Trifolium pratense), ribwort plantain *(Plantago lanceolata)*, meadow buttercup *(Ranunculus acris)*, common knapweed *(Centaurea nigra)*, common bird's-foot-trefoil *(Lotus corniculatus)*, meadowsweet *(Filipendula ulmaria)*, cat's ear *(Hypochaeris radicata)*, yellow oat-grass *(Trisetum flavescens)* and meadow foxtail *(Alopecurus pratensis)*. Plants which which indicate that the habitat is of better quality include smooth brome *(Bromus racemosus)*, field scabious *(Knautia arvensis)*, ox-eye daisy *(Leucanthemum vulgare)*, greater burnet-saxifrage *(Pimpinella major)*, yellow rattle *(Rhinanthus minor)*, great burnet *(Sanguisorba officinalis)*, Goat's-beard *(Tragopogon pratensis)* and orchids such as common spotted-orchid *(Dactylorhiza fuchsii)*, bee orchid *(Ophrys apifera)* and early purple orchid *(Orchis mascula)*.

The Overall Status is assessed as Bad due to considerable historic losses caused by agricultural improvement. Also there are areas where the lack of mowing has resulted in the habitat becoming rank and species poor, and is leading to scrub encroachment. Despite threats relating to changes in land management, there appears to be a trend where State owned land and land owned by less commercial farmers is being returned to traditional hay meadow management, therefore the overall trend was balanced as stable with no overall change in status since the 2007 assessment.



LOWLAND HAY MEADOWS (6510)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Bad	Bad =
Area	Bad	Bad =
Structures & Functions	Bad	Bad =
Future Prospects	Bad	Bad =
Overall Status	Bad	Bad =
Reason for change	No change	

HABITAT CODE: 7110

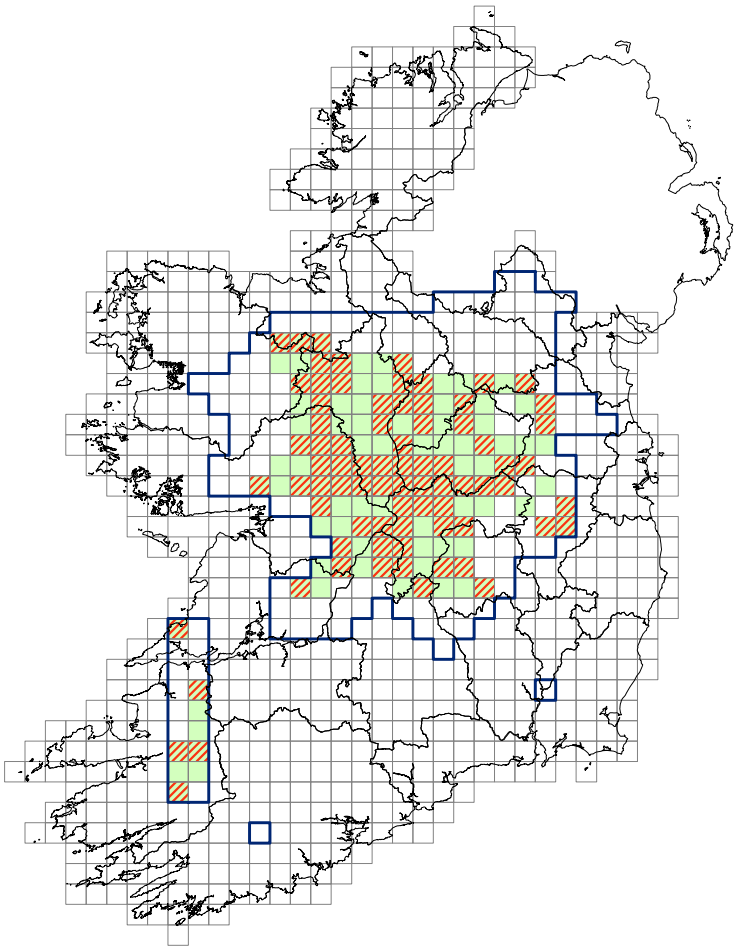
RAISED BOG (ACTIVE)*

Raised bogs are more abundant in the lowlands of central and mid-west Ireland and are confined to areas with an annual rainfall below 1,250mm. They are accumulations of deep acid peat (3-12m) that originated in shallow lake basins or topographic depressions. They have a typical elevated surface or dome, which develops as raised bogs grow upwards from the surface. The bog dome is primarily rainwater fed and isolated from the local groundwater table. This gives rise to acidic conditions deficient in plant nutrients and in turn supports a distinctive suite of vegetation types, supporting specialised plant assemblages dominated by a range of mosses of the genus *Sphagnum*. The mire expanse may support a patterned micro-topography of pools, hummocks and lawns that provide a range of water regimes supporting different species assemblages. Vascular plant species occurring in this habitat include bog rosemary *(Andromeda polifolia)*, sundews *(Drosera anglica, D. intermedia, D. rotundifolia)*, cross-leaved heath *(Erica tetralix)*, cottongrass *(Eriophorum angustifolium, E. vaginatum)*, bogbean *(Menyanthes trifoliata)*, lesser bladderwort *(Utricularia minor)* and cranberry *(Vaccinium oxycoccos)*.

NPWS

The term "active" means that peat is still forming in a significant area of the bog. This living actively growing layer is called the acrotelm.

The Overall Status of active raised bog is assessed as Bad and declining. This is due to historic losses and ongoing declines due to peat extraction and continuing drying, shrinking and slumping of the bog structure. The extent of active peat forming areas has reduced greatly with a loss of 20-30% reported since 2001. However restoration by drain blocking has produced encouraging results. The Government decision to stop turf cutters is the first step towards restoration of protected bogs.



RAISED BOG (ACTIVE)* (7110)

0 25 50 km

N

Current Distribution (78 cells)
Favourable Reference Range (261 cells)
Current Range (137 cells)
10km Grid Cells

ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Bad	Bad =
Area	Bad	Bad ↓
Structures & Functions	Bad	Bad =
Future Prospects	Bad	Bad ↓
Overall Status	Bad	Bad ↓
Reason for change	Genuine decline	

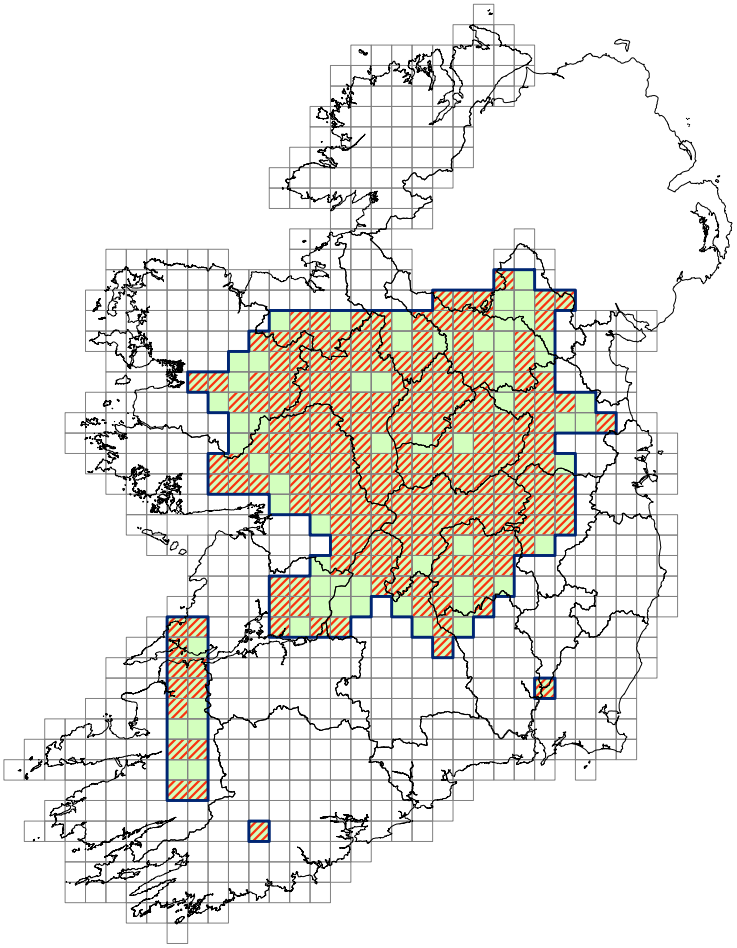
DEGRADED RAISED BOGS

NPWS

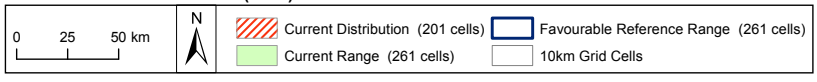
Degraded raised bog is characterised by the complete absence of (or a patchy thin cover) of an acrotelm layer, which is defined as the living, actively growing upper layer of a raised bog. The presence of the acrotelm is vital to a raised bog as this is the peat forming layer and water storing layer of the bog. The definition of the habitat (still capable of regeneration), indicates that the habitat can be restored to active raised bog habitat (7110). In the Irish context, the habitat does not include secondary degraded raised bog which relates to highly drained high bog devoid of vegetation, cutaway, and cutover bog. Although such areas do not correspond with the strict definition of degraded raised bog, the re-establishment of vegetation with peat forming capability in these areas may be possible and it may be even more feasible to restore some of these areas to active bog than some areas of typical degraded raised bog.

The complement of species is similar to that of active raised bog, but with a higher prevalence of bog asphodel *(Narthecium ossifragum)* and deergrass *(Trichophorum cespitosum)*.

The Overall Status of degraded raised bog is Bad and declining. This is due to the fact that only limited areas have been restored to Active raised bog and further declines due to peat extraction and continuing drying are ongoing. Planned restoration measures may reverse these trends.



DEGRADED RAISED BOGS (7120)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Bad ↓
Structures & Functions	Inadequate	Inadequate ↓
Future Prospects	Inadequate	Bad ↓
Overall Status	Inadequate	Bad ↓
Reason for change	Genuine decline	

HABITAT CODE: 7130

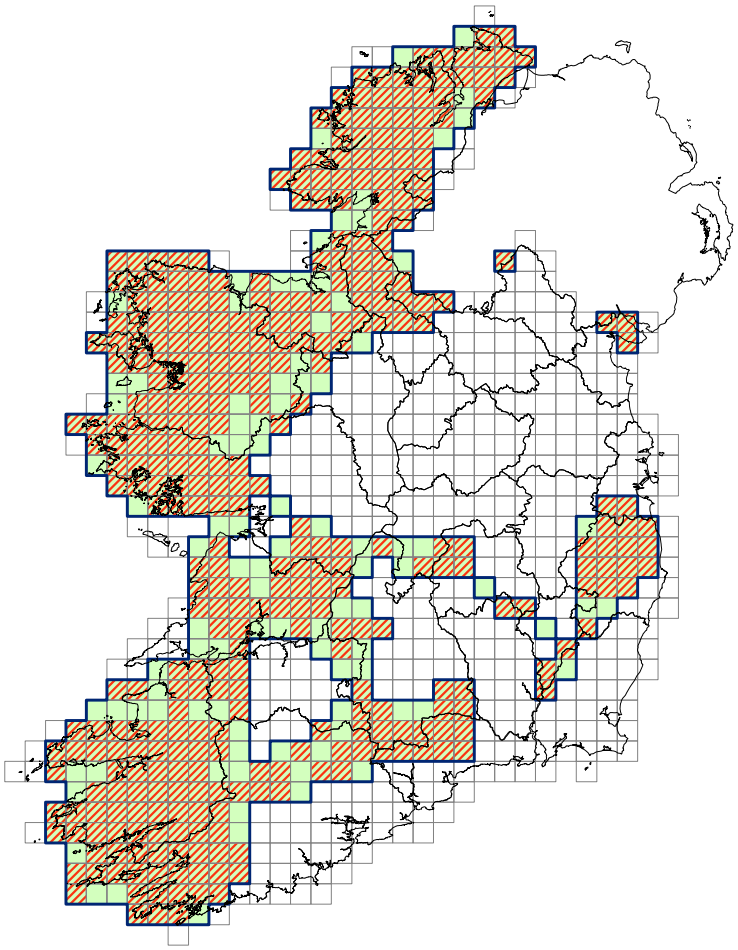
BLANKET BOG (ACTIVE)*

Blanket bogs occur in areas of consistently high rainfall where the ground surface is waterlogged for much of the time resulting in the development of deep peats. They may be broadly divided into upland and lowland communities. The peat is typically more than 50 cm deep and often 1-2m deep in the uplands and up to 7m deep in the lowlands. Blanket bogs generally occur on level ground or gentle slopes although upland blanket bog can occasionally occur on steeper ground. This habitat is widespread along the western seaboard and on uplands but absent from lowlands in the midland and eastern Ireland. Active blanket bog is a priority Annex I habitat, and is characterised by significant areas of vegetation that are normally peat-forming including sphagnum and other mosses, cottongrasses (*Eriophorum* spp.) and other species such as black bog rush *(Schoenus nigricans)* and white-beaked sedge *(Rhynchospora alba)* typical of lowland bog. Inactive blanket bog is also an Annex I habitat though lacks significant areas of peat-forming species.

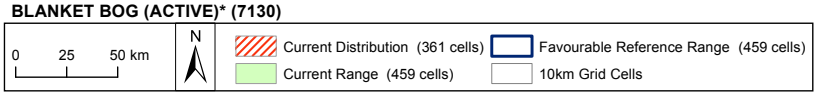
Rory Hodd

Additional characteristic species include ling *(Calluna vulgaris)*, cross-leaved heath *(Erica tetralix)*, purple moor-grass *(Molinia caerulea)*, deergrass *(Trichophorum germanicum)*, bog myrtle *(Myrica gale)*, bog asphodel *(Narthecium ossifragum)* and sundews (*Drosera* spp.). Mosses are a significant component, particularly sphagnum mosses and woolly fringe-moss *(Racomitrium lanuginosum)*, campylopus moss *(Campylopus atrovirens)* and the liverwort *Pleurozia purpurea*.

The main threats to blanket bog include overgrazing and trampling, drainage, afforestation, mechanical peat-extraction, burning and windfarm and other infrastructural development. Reductions in sheep numbers on upland commonages over the last decade has had a major positive impact on over-grazed areas, however recovery is a slow process and restoration measures are required to prevent further erosion of blanket bog. The Overall Status of this habitat is assessed as Bad with an ongoing decline of extent and quality.



BLANKET BOG (ACTIVE)* (7130)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Bad	Bad ↓
Structures & Functions	Inadequate	Bad ↓
Future Prospects	Bad	Bad ↓
Overall Status	Bad	Bad ↓
Reason for change	Genuine decline	

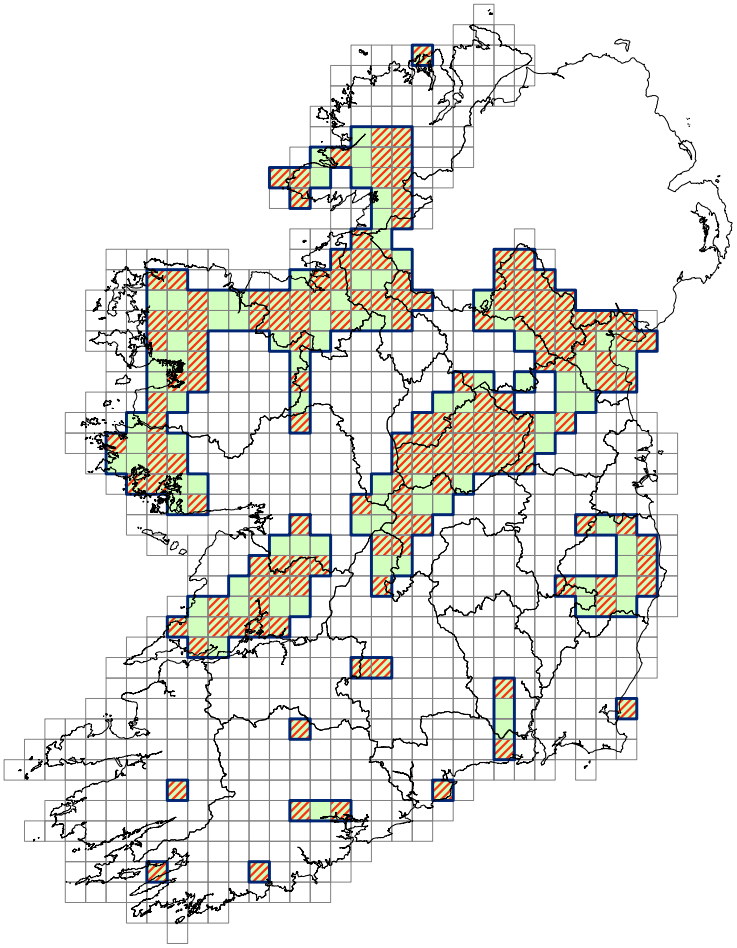
HABITAT CODE: 7140

TRANSITION MIRES

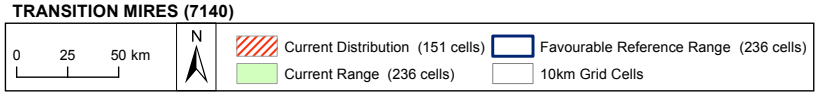
Janice Fuller

Transition mires and quaking bogs are characterised by a broad range of physically unstable peat-forming vegetation communities floating on surface water. Small to medium sedges co-occur with sphagnum and/or brown mosses and aquatic and semi-aquatic vegetation. The vegetation is characterised by a broad range of sedge (*Carex* spp.) and bog moss (*Sphagnum* spp.) species and typical species include bog bean *(Menyanthes trifoliata)*, marsh pennywort *(Hydrocotyle vulgaris)* and lesser spearwort *(Ranunculus flammula)*. Transition mires typically occur in the wettest parts of raised bog, blanket bog or fen or at transition areas of open water and may reflect succession from fen to bog. The key ecological requirements are thought to be a permanently high water level, remaining close to the peat surface all year, and minimal water level fluctuation.

The current distribution and range maps provide a more refined estimate of the national habitat extent since 2007, but further survey is needed. Some losses of fen habitat are considered to have occurred since the Directive came into force, though the magnitude of the loss is unknown. The main pressures were identified as peat extraction, wetland reclamation and infilling. Wetland habitats are afforded additional protection under recent Agriculture Environmental Impact Assessment Regulations, however the Overall Status is considered to be Bad due to the pressures outlined; the overall trend is Unknown due to the absence of a national survey for this habitat.



TRANSITION MIRES (7140)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Inadequate ↓
Structures & Functions	Bad	Bad x
Future Prospects	Bad	Bad ↑
Overall Status	Bad	Bad x
Reason for change	No change	

HABITAT CODE: 7150

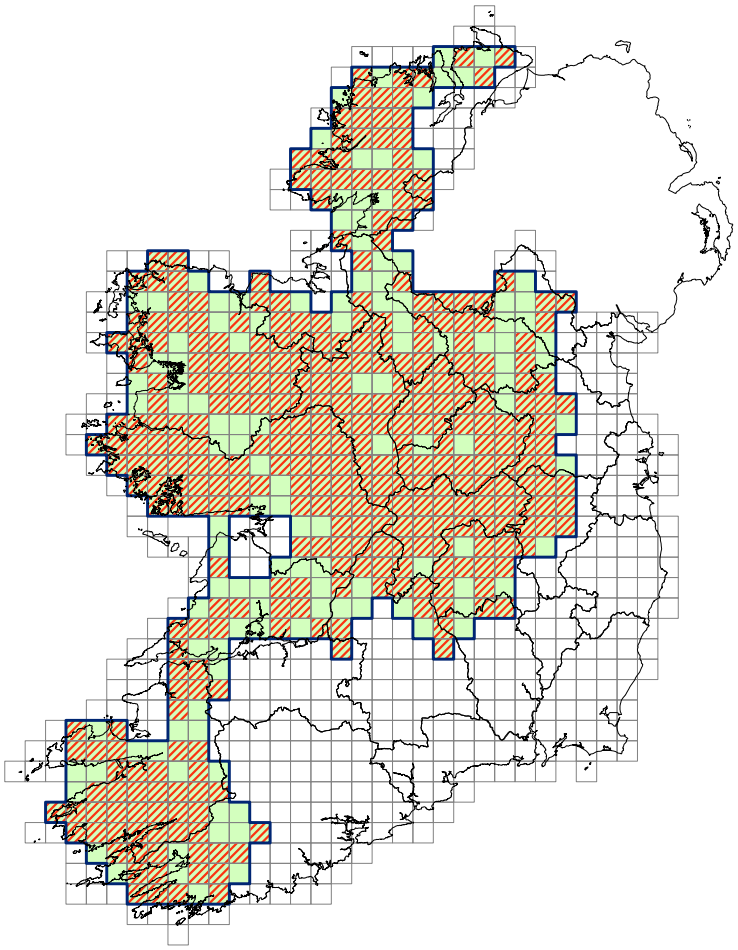
RHYNCHOSPORION DEPRESSIONS

Rhynchosporion depressions occur on blanket bogs and raised bogs both active and degraded. They occur on wet peat on the margins of pools and hollows and a species poor variant occurs as a pioneer community in areas of disturbance such as peat-cuttings. They are typically lowland communities.

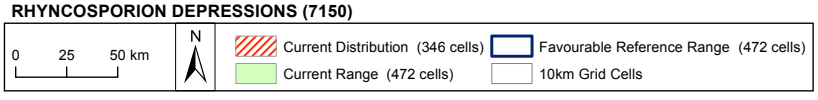
Characteristic species of this habitat where it occurs on the margins of pools and hollows include white beak-sedge *(Rhynchospora alba)*, brown beak-sedge *(R. fusca)* sundews (*Drosera* spp.), bogbean *(Menyanthes trifoliata)*, common cottongrass *(Eriophorum angustifolium)* and sphagnum mosses.

Sheep grazing is one of the main land uses occurring in the areas where *Rhynchosporion* depressions are found on blanket bog and although *Rhynchospora alba* itself may be favoured by peat compaction associated with trampling and a concomitant increase in standing surface water, the associated species including *Drosera anglica* and *D. intermedia* are highly vulnerable to such pressures. Peat cutting activity on bog can also affect the species composition of *Rhynchosporion* depressions. Drainage of raised or blanket bogs results in dessication of *Rhynchosporion* depressions, leading to changes in the suite of species present and the loss of this habitat. Drying out of active raised bog may result in short-term increases in *Rhynchospora alba*, however the other associated species are lost. Continued drying out results in these depressions being colonised by species intolerant of waterlogging. For these reasons the Overall Status of this is assessed as Inadequate and declining. There is a broader understanding of the ecology of this community since the 2007 assessment.

Janice Fuller



RHYNCOSPORION DEPRESSIONS (7150)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Inadequate ↓
Structures & Functions	Favourable	Inadequate ↓
Future Prospects	Favourable	Inadequate ↓
Overall Status	Favourable	Inadequate ↓
Reason for change	Genuine decline	

HABITAT CODE: 7210

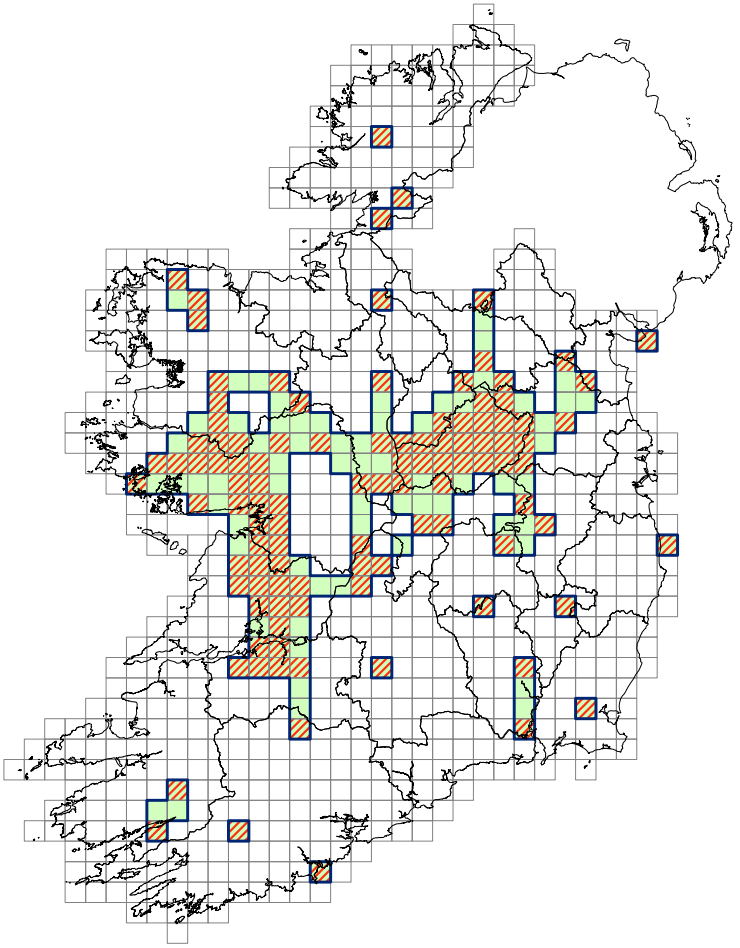
CLADIUM FEN*

Peter Foss

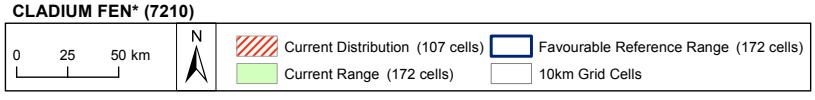
This fen type is often dominated by saw sedge *(Cladium mariscus)*. Cladium fens occur in a variety of situations including fens found in valleys or depressions, floodplains, over-grown-ditches, extensive wet meadows, within tall reed beds, on the landward side of lakeshore communities, calcium rich flush areas in blanket bogs, dune slack areas, fens adjacent to raised and blanket bogs, in turloughs, wet hollows in machair and often in association with alkaline fen. The key ecological requirements are a high water table, a calcareous, low nutrient water supply and minimal water level fluctuation.

Other associated species include black bog rush *(Schoenus nigricans)*, wide-leaved cotton grass *(Eriophorum latifolium)*, dioecious sedge *(Carex dioica)*, yellow sedges *(C. viridula ssp. brachyrrhyncha, C. pulicaris, C. viridula ssp. oedocarpa)*, blunt-flowered rush *(Juncus subnodulosus)*, five-flowered spike-rush *(Eleocharis quinqueflora)*, fen orchid *(Dactylorhiza traunsteineri)*, lesser clubmoss *(Selaginella selaginoides)*, marsh helleborine *(Epipactis palustris)*, grass of Parnassus *(Parnassia palustris)* and common butterwort (Pinguicula vulgaris).

The current distribution and range maps provide a more refined estimate of the national habitat extent since 2007, but further survey is needed. Some losses of fen habitat are considered to have occurred since the Directive came into force, though the magnitude of the loss is unknown. The main pressures were identified as peat extraction, wetland reclamation and infilling. Wetland habitats are afforded additional protection under recent Agriculture Environmental Impact Assessment Regulations, however the Overall Status is considered to be Bad due to the pressures outlined; the overall trend is Unknown due to the absence of a national survey for this habitat.



CLADIUM FEN* (7210)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Inadequate ↓
Structures & Functions	Bad	Bad x
Future Prospects	Bad	Bad ↑
Overall Status	Bad	Bad x
Reason for change	No genuine change	

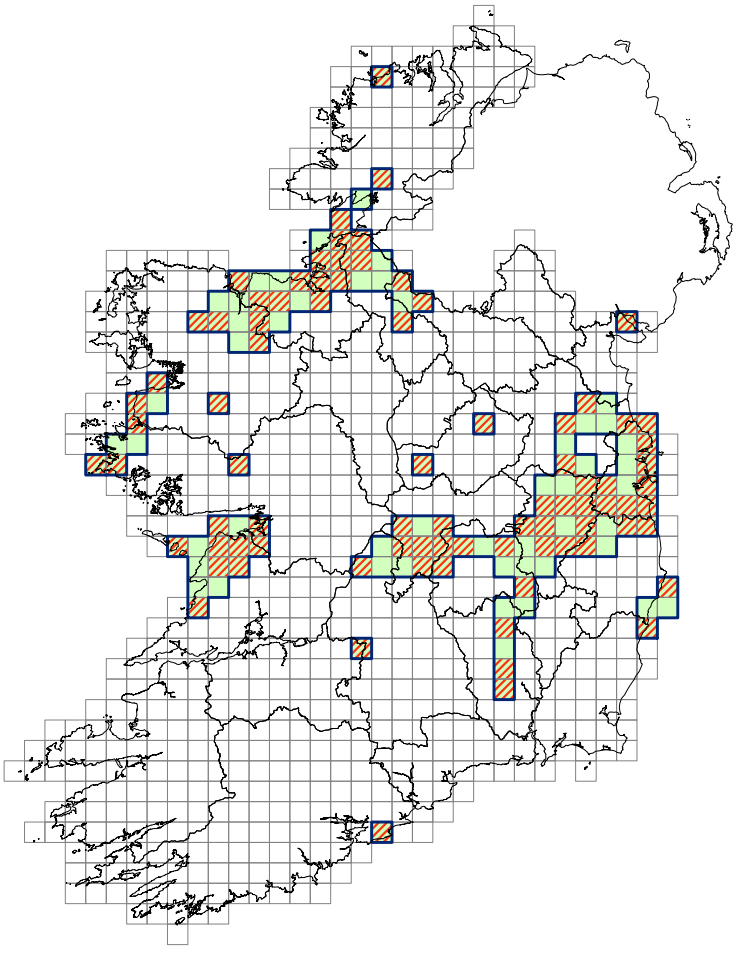
HABITAT CODE: 7220

PETRIFYING SPRINGS*

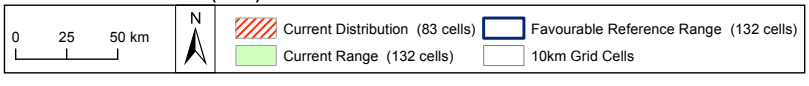
Petrifying Springs with Tufa Formation are defined as springs and seepages where tufa is actively deposited and where characteristic species of bryophytes are dominant or abundant. Characteristic bryophyte species are *Palustriella commutata, P. falcata, Eucladium verticillatum, Pellia endiviifolia, Cratoneuron filicinum, Bryum pseudotriquetrum* and *Didymodon tophaceus*. Characteristic vascular plants are red fescue *(Festuca rubra)*, carnation sedge *(Carex panacea)* and great horsetail *(Equisetum telmateia)*. Petrifying springs may occur as clearly defined spring heads with consolidated tufa; spring heads with an associated tufaceous flush; or seepage areas with tufa formation. The last-named type often occurs within alkaline fens and the vegetation forms a continuum between the two habitat types so that petrifying springs are not clearly demarcated from the surrounding fen vegetation. Three subtypes of petrifying spring vegetation can be distinguished depending on the setting of the spring: Woodland springs; Coastal springs; and Springs of inland, open habitats. Springs occurring on the Ben Bulben Range constitute a distinct group of high conservation value.

Melinda Lyons

The Overall Status is assessed Inadequate due to drainage land reclamation, unsuitable grazing levels, pollution and water abstraction as well as more isolated instances of road drainage and outdoor leisure pursuits. Differences between the present assessment and the 2007 submission are due to improved knowledge of the habitat rather than a real change in its conservation status.



PETRIFYING SPRINGS* (7220)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Favourable
Structures & Functions	Bad	Inadequate =
Future Prospects	Bad	Inadequate =
Overall Status	Bad	Inadequate =
Reason for change	Improved knowledge	

HABITAT CODE: 7230

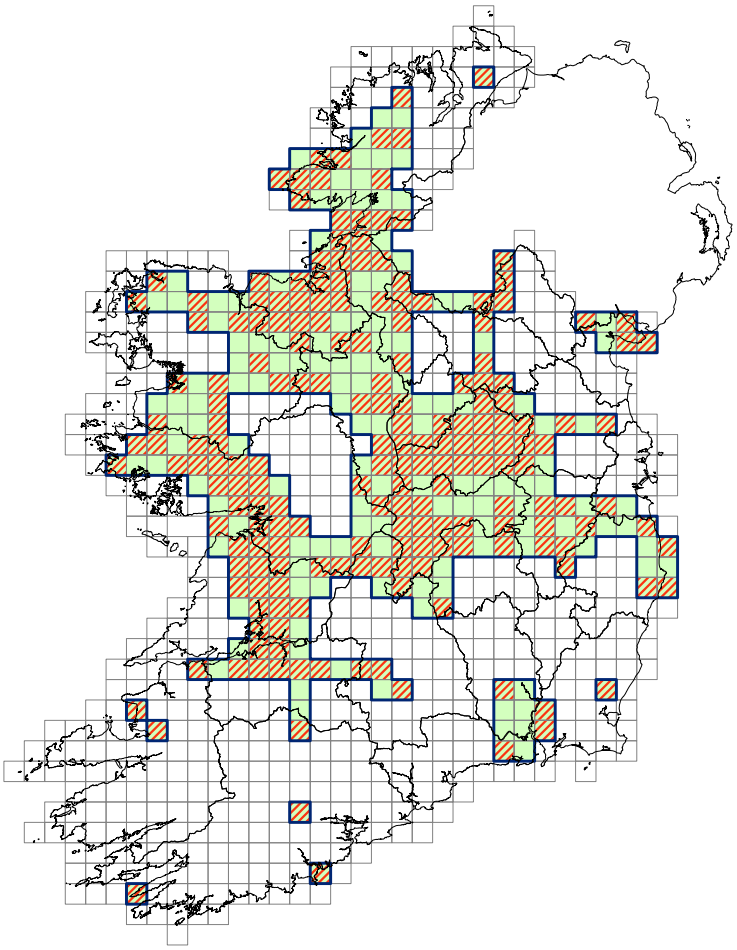
ALKALINE FENS

Philip Perrin

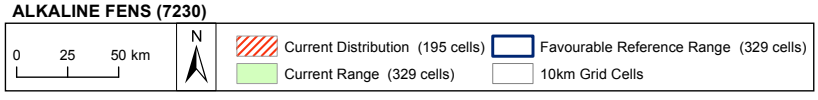
Alkaline fens are typically calcareous basin or flush fen systems with extensive areas of species-rich small sedge communities. These fen systems are often a complex mosaic of habitats, with co-occuring tall sedge beds, reedbeds, wet grasslands, springs and open-water. The habitat is characterised by a broad range of small to medium *Carex* spp., carpets of brown mosses and high species diversity including black bog-rush *(Schoenus nigricans)*, blunt-flowered rush *(Juncus subnodulous)*, devil's bit scabious *(Succisa pratensis)*, hemp agrimony *(Eupatorium cannabinum)* and purple moor-grass *(Molinia caerulea)*.

This habitat requires a high water table, a calcareous, low nutrient water supply and minimal water level fluctuation. Low intensity mowing and/or grazing are also very important for maintaining species richness. In Ireland, the most extensive areas of alkaline fens are thought to occur in lowland basins underlain by limestone groundwater bodies with a karstic or poorly productive flow regime. Alkaline fens within upland and lowland flushes, along the fringes of calcareous lakes (e.g. Lough Corrib) and within turloughs, dune slacks and machair are thought to be more limited in local extent but more widespread.

The current distribution and range maps provide a more refined estimate of the national habitat extent since 2007, but further survey is needed. Some losses of fen habitat are considered to have occurred since the Directive came into force, though the magnitude of the loss is unknown. The main pressures were identified as peat extraction, wetland reclamation and infilling. Wetland habitats are afforded additional protection under recent Agriculture Environmental Impact Assessment Regulations, however the Overall Status is considered to be Bad due to the pressures outlined; the overall trend is Unknown due to the absence of a national survey for this habitat.



ALKALINE FENS (7230)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Favourable	Inadequate ↓
Structures & Functions	Bad	Bad x
Future Prospects	Bad	Bad ↑
Overall Status	Bad	Bad x
Reason for change	No change	

HABITAT CODE: 8110

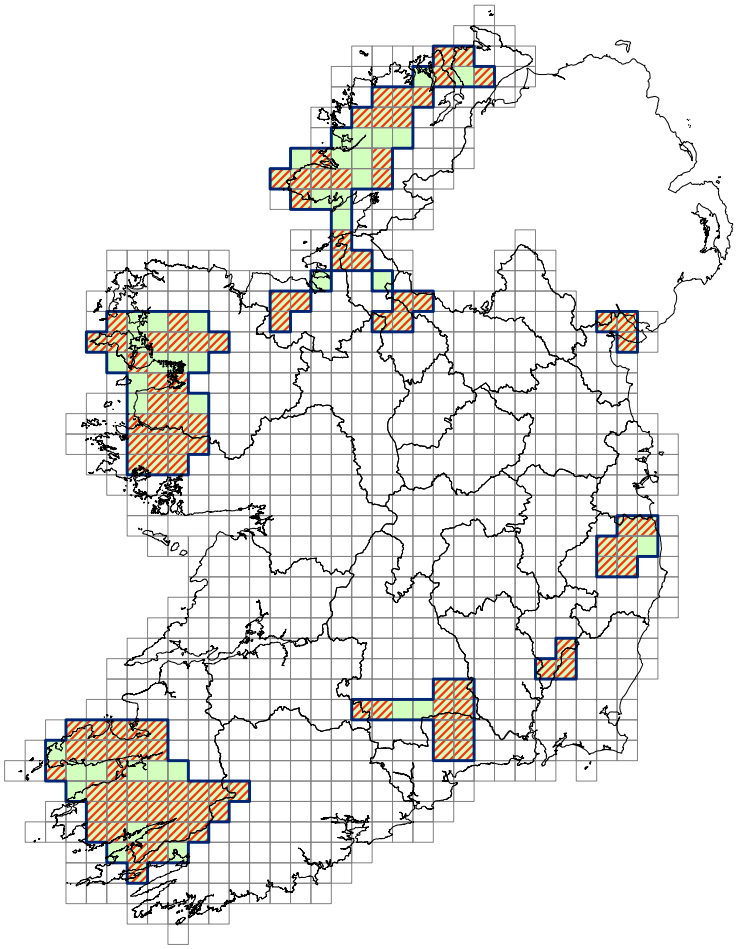
SILICEOUS SCREE

Siliceous scree consists of accumulations of siliceous rock fragments on slopes below upland cliffs or on exposed / frost-shattered mountain summits or ridges. Rocks may vary in size from large blocks (also known as talus) that can be very stable down to smaller fragments that can be highly mobile. Areas of scree which have vegetated to the point that they can be classified as another habitat (e.g. dry heath or scrub) are not included. There is no strict altitudinal threshold.

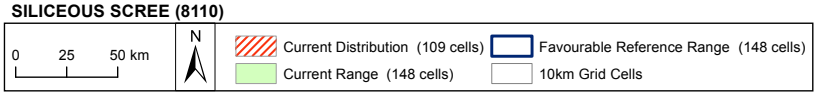
The vegetation may be very sparse and can comprise chiefly of bryophyte and lichen assemblages, but typically plants such as broad buckler-fern *(Dryopteris dilatata)*, Wilson's filmy-fern *(Hymenophyllum wilsonii)* or St Patrick's-cabbage *(Saxifraga spathularis)* are present.

This habitat that may be threatened by ecologically unsuitable grazing levels, recreational activities such as rock-climbing and invasive non-native species. The Overall Status is assessed as Inadequate, but with an improving trend. This trend is brought about by the implementation of the Commonage Framework Plans which address ecologically unsuitable grazing levels.

Rory Hodd



SILICEOUS SCREE (8110)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Inadequate	Favourable
Structures & Functions	Inadequate	Inadequate ↑
Future Prospects	Inadequate	Inadequate ↑
Overall Status	Inadequate	Inadequate ↑
Reason for change	Improved knowledge	

HABITAT CODE: 8120

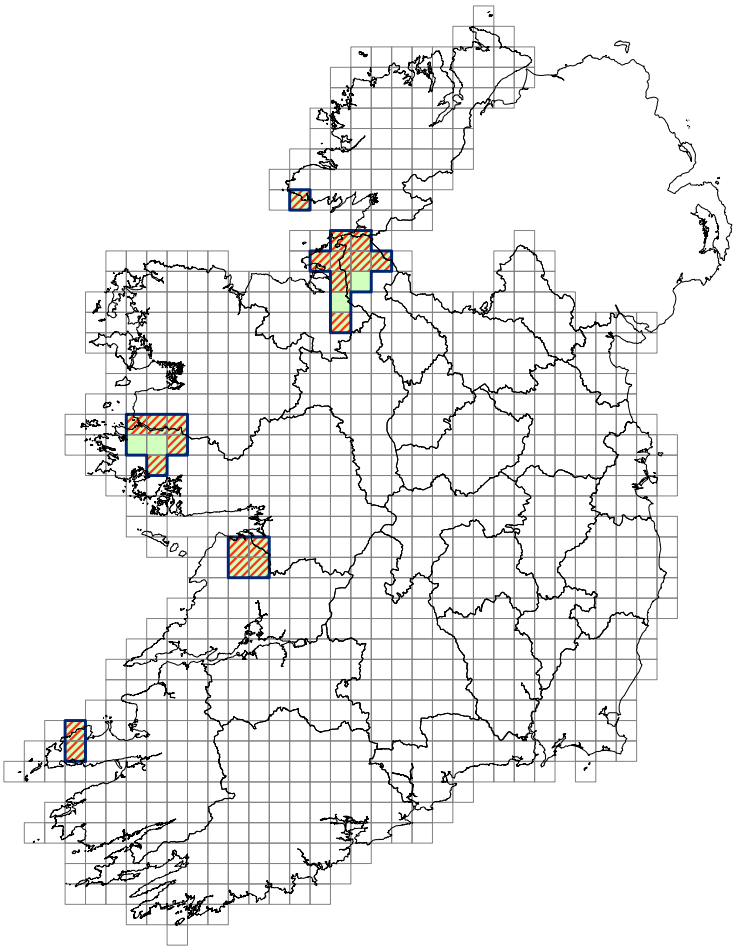
EUTRIC SCREE

Rory Hodd

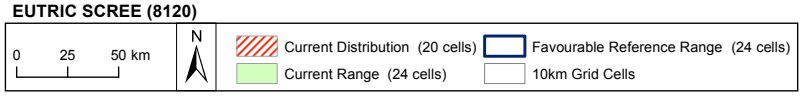
Eutric scree consists of accumulations of calcareous rock fragments on slopes below upland cliffs or on exposed / frost-shattered mountain summits or ridges. Rocks may vary in size from large blocks (also known as talus) that can be very stable down to smaller fragments that can be highly mobile. Areas of scree which have vegetated to the point that they can be classified as another habitat (e.g. dry heath or scrub) are not included. There is no strict altitudinal threshold.

The vegetation may be very sparse and can comprise chiefly of bryophyte and lichen assemblages, but species such as green spleenwort *(Asplenium viride)*, brittle bladder-fern *(Cystopteris fragilis)*, yellow saxifrage *(Saxifraga aizoides)* or purple saxifrage *(Saxifraga oppositifolia)* are typically present.

This habitat that may be threatened by ecologically unsuitable grazing levels, recreational activities such as rock-climbing and invasive non-native species. The Overall Status is assessed as Inadequate with no major changes since 2007.



EUTRIC SCREE (8120)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Inadequate	Favourable
Structures & Functions	Inadequate	Inadequate =
Future Prospects	Inadequate	Inadequate =
Overall Status	Inadequate	Inadequate =
Reason for change	Improved knowledge	

HABITAT CODE: 8210

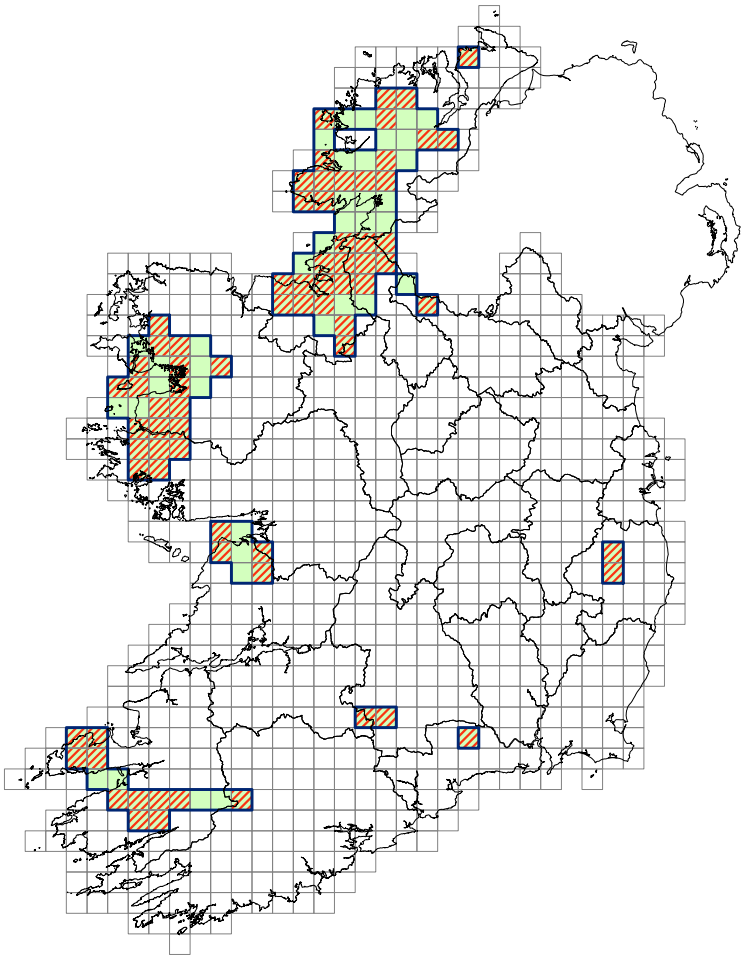
CALCAREOUS ROCKY SLOPES

Calcareous rocky slopes consist of vertical or near vertical exposures of calcareous bedrock with cracks, fissures and overhangs that support chasmophytic vegetation (i.e. vegetation in crevices). They may also occur on wet siliceous cliffs where there is some base-enrichment from the water or where the siliceous rock has been metamorphosed. Areas of heath, grassland or tall herb communities growing on the rock face or on ledges are not included.

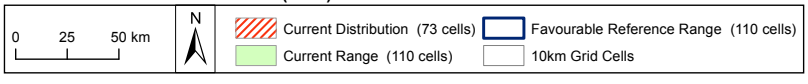
Chasmophytic vegetation is characterised by green spleenwort *(Asplenium viride)*, brittle bladder-fern *(Cystopteris fragilis)*, lady-fern *(Athyrium filix-femina)*, yellow saxifrage *(Saxifraga aizoides)* and purple saxifrage *(Saxifraga oppositifolia)* and bryophytes such as frizzled crisp-moss *(Tortella tortuosa)* and red leskea *(Orthothecium rufescens)* which are present due to the specific habitat conditions provided by the rock face and fissures.

This habitat is threatened by ecologically unsuitable grazing levels, recreational activities such as rock-climbing, quarrying and invasive non-native species. The Overall Status of this habitat is assessed as Inadequate with no major changes since 2007.

Eamonn O'Sullivan



CALCAREOUS ROCKY SLOPES (8210)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Inadequate	Favourable
Structures & Functions	Inadequate	Inadequate =
Future Prospects	Inadequate	Inadequate =
Overall Status	Inadequate	Inadequate =
Reason for change	Improved knowledge	

HABITAT CODE: 8220

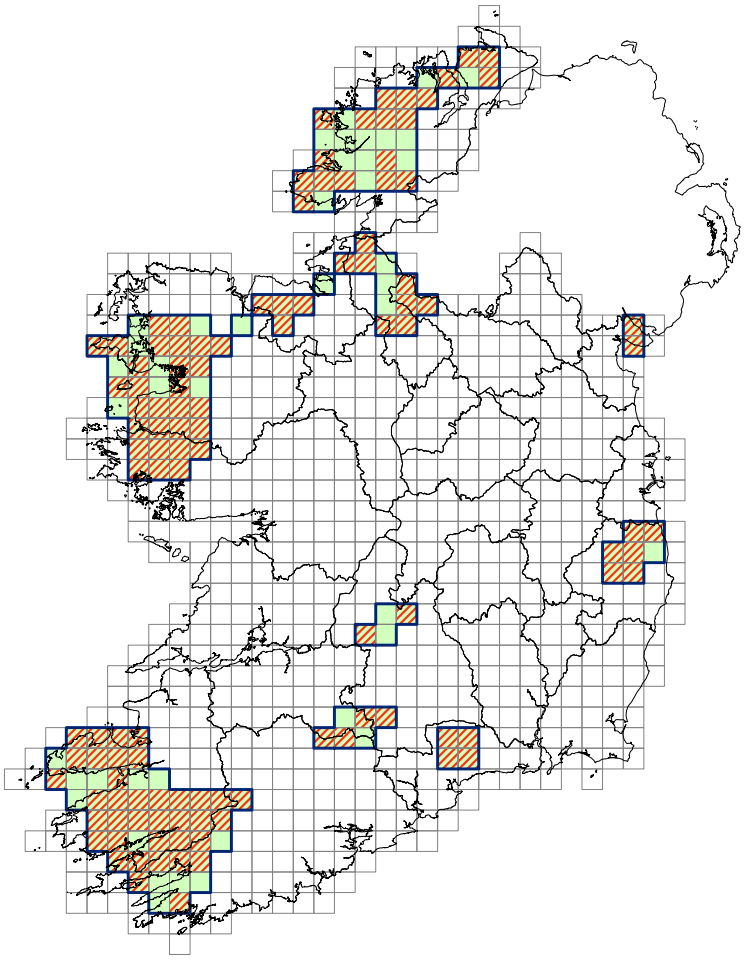
SILICEOUS ROCKY SLOPES

Orla Daly

Siliceous rocky slopes consist of vertical or near vertical exposures of siliceous bedrock with cracks, fissures and overhangs that support chasmophytic vegetation (i.e. vegetation in crevices). Areas of heath, grassland or tall herb communities growing on the rock face or on ledges are not included.

Chasmophytic vegetation is characterised by broad buckler-fern *(Dryopteris dilatata)*, black spleenwort *(Asplenium adiantum-nigrum)*, Wilson's filmy-fern *(Hymenophyllum wilsonii)* and St Patrick's-cabbage (*Saxifraga spathularis)* which are present due to the specific habitat conditions provided by the rock face and fissures.

This habitat is threatened by ecologically unsuitable grazing levels, recreational activities such as rock-climbing, and invasive non-native species. For these reasons the Overall Status of this habitat is assessed as Inadequate with no major changes since 2007.



SILICEOUS ROCKY SLOPES (8220)

0 25 50 km

N

Current Distribution (115 cells)

Favourable Reference Range (158 cells)

Current Range (158 cells)

10km Grid Cells

ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Inadequate	Favourable
Structures & Functions	Inadequate	Inadequate =
Future Prospects	Inadequate	Inadequate =
Overall Status	Inadequate	Inadequate =
Reason for change	Improved knowledge	

HABITAT CODE: 8240

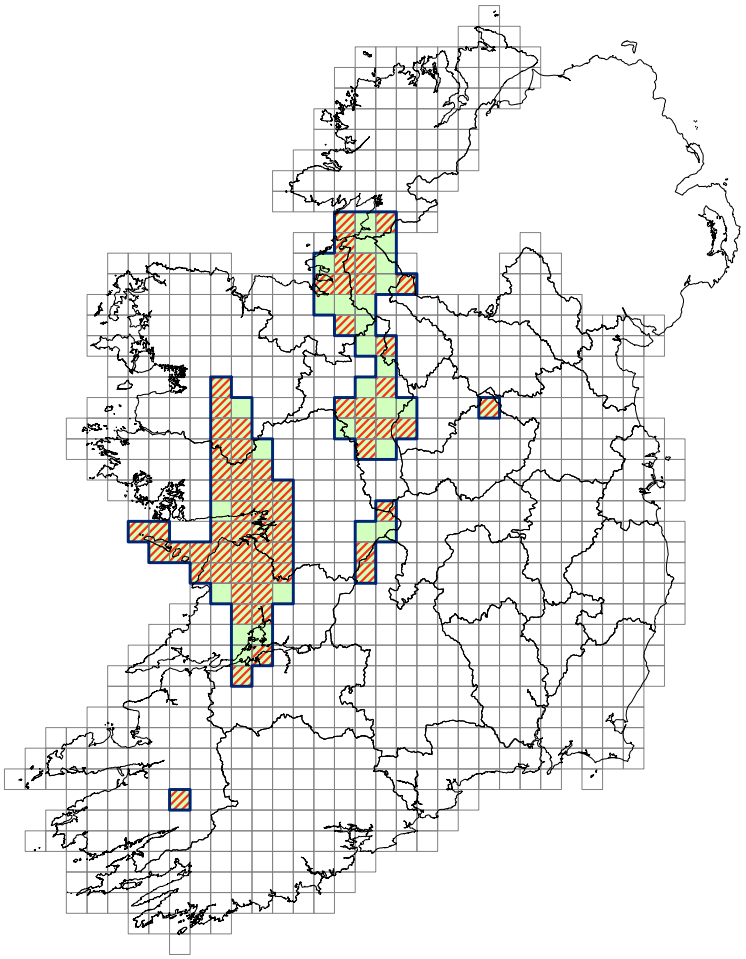
LIMESTONE PAVEMENT*

Limestone pavement consists of blocks of rock, known as clints, separated by fissures, or grikes. Some areas consist of massive blocks of smooth, relatively un-weathered pavement with well-developed grikes, other areas consist of shattered, rubble-strewn pavement. The rock surface is almost devoid of overlying soils although patches of shallow skeletal soils and occasional areas of deeper soil can occur. This morphology results in a variety of microclimates, and together with the varied soil types allows for the establishment of a complex vegetation mosaic of different communities of calcareous grassland, heath, woodland and scrub.

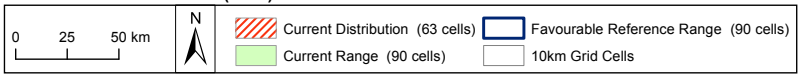
Species associated with this habitat include bloody crane's-bill *(Geranium sanguineum)*, wild thyme *(Thymus polytrichus)*, carline thistle *(Carlina vulgaris)*, and blue moor-grass *(Sesleria caerulea)*. Limestone pavement can also occur in a mosaic with areas of scrub/woodland, with extensive areas dominated by hazel *(Corylus avellana)* and hawthorn *(Crataegus monogyna)*. Buckthorn *(Rhamnus catharticus)*, alder buckthorn (Frangula alnus), spindle *(Euonymus europaeus)*, juniper *(Juniperus communis)* and ash *(Fraxinus excelsior)* can also occur. The mosaic of communities also supports arctic-montane plants such as mountain avens *(Dryas octopetala)* and spring gentian *(Gentiana verna)* and Mediterranean-Atlantic species such as the maidenhair fern (Adiantum capillus-veneris) and the dense flowered orchid *(Neotinea maculata)*.

Limestone pavement quarrying, land reclamation, scrub encroachment, invasive non-native species, problematic native species and lack of grazing were considered the main pressures and resulted in an Overall Status of Inadequate. Although there have been recent declines in habitat extent, measures have been put in place to improve the current land practices taking place in the Burren, the largest expanse of limestone pavement in Ireland. Therefore the Overall trend has been set as stable.

Fernando Fernandez Valverde



LIMESTONE PAVEMENT* (8240)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Inadequate	Inadequate ↓
Structures & Functions	Inadequate	Inadequate ↑
Future Prospects	Inadequate	Inadequate ↑
Overall Status	Inadequate	Inadequate =
Reason for change	No overall change	

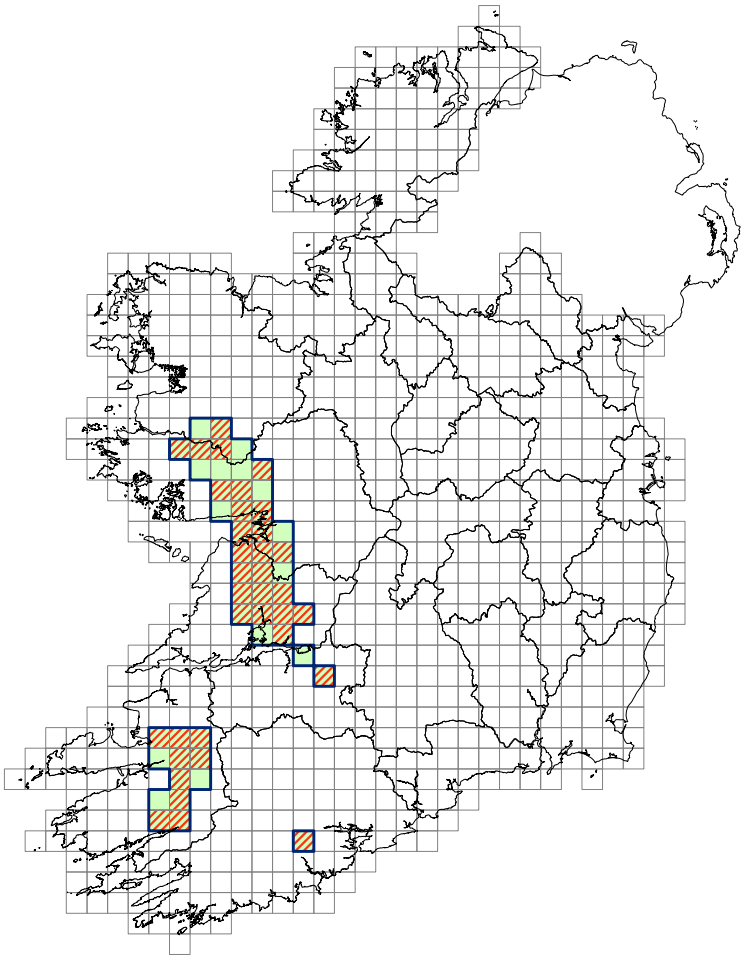
CAVES

Frank Greenway

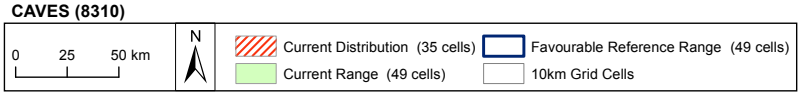
There is little evidence that Irish caves support much in the way of specialised or endemic fauna. However, the lesser horseshoe bat *(Rhinolophus hipposideros)* which is listed on Annex II of the Habitats Directive occurs in caves in Ireland. Consequently, in practice, this EU habitat is confined in Ireland to caves which host important numbers of lesser horseshoe bat.

The lesser horseshoe bat is restricted to 6 western counties: Mayo, Galway, Clare, Limerick, Kerry and Cork. It requires cool, stable temperatures and minimal disturbance for winter hibernation and suitable caves are selected where available. Lesser horseshoe bats may also turn up in caves at other times of year, although not in significant numbers.

Although individual caves may be subject to disturbance (e.g. dumping, vandalism) no significant pressures have been identified for this habitat nationally. Consequently, as the Overall Status of the lesser horseshoe bat is Favourable this cave habitat has also been assessed as Favourable. Further research is required, however, to determine the aspects of cave structure and function (e.g. size, air-flows, light, humidity, temperature regimes, hydrology) which are critical for bat utilisation.



CAVES (8310)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Unknown	Favourable
Structures & Functions	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

HABITAT CODE: 8330

SEA CAVES

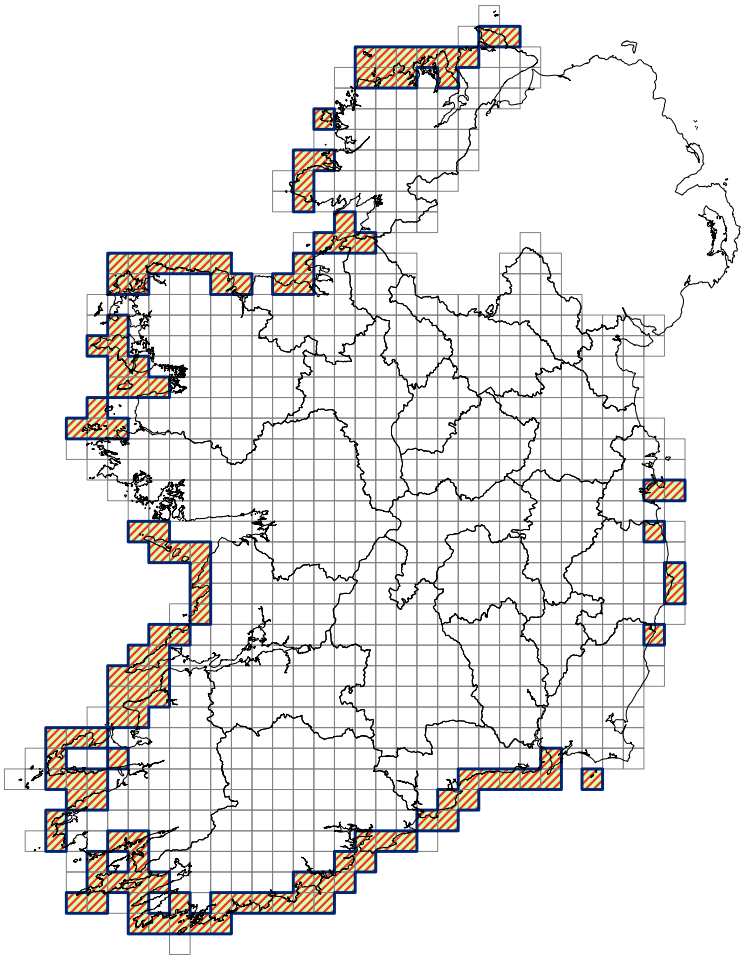
Submerged or partially submerged seacaves vary from small indentions to large caverns 50 – 100m in width. Caves usually occur on cliff faces with entrances extending above the surface of the sea but a number of caves are known to be completely under water and form tunnels or caverns some of which may have both underwater openings and small surface openings. The occurrence of sandstone/ limestone is highly correlated with the formation of seacaves, accounting for nearly 85% of documented occurrences around Ireland. The floor of caves varies from sediment to bedrock and/or boulders. Due to the exposure to swell these habitats are often very dynamic. Frequently the sides of caves are devoid of fauna close to the floor due to sediment or boulder scour. Where scour is intense the cave may have very limited fauna.

The species of seacaves in Ireland are known for only a couple of locations but have been found to be dominated by anemones *(Alcyonium digitatum, Caryophyllia smithii)*, tunicates *(Ascidia conchilega, Botrylloides leachi, Botryllus schlosseri, Dendrodoa grossularia)*, bryozoans *(Bugula flabellata, Crisiidae* sp.), sea anemones *(Cerianthus lloydii, Corynactis viridis, Peachia cylindrica, Sagartia elegans, Urticina felina)*, sponges *(Clathrina coriacea, Cliona celata, Dercitus bucklandi, Haliclona viscosa, Pachymatisma johnstonia, Stelligera rigida)*, *sea urchin (Echinus esculentus)*, sea cucumber *(Holothuria forskali)*, and brittle star *(Ophiactis balli)*.

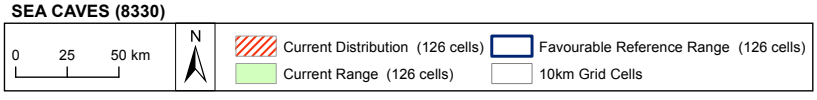
Where a bank of boulders is present at the back of a cave and the area is not continually submerged it may be used as a haul out area by grey seals *(Halichoerus grypus)*.

The Overall Status is assessed as Favourable as there are no significant pressures impacting this habitat.

MERC



SEA CAVES (8330)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Unknown	Favourable
Structures & Functions	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

HABITAT CODE: 91A0

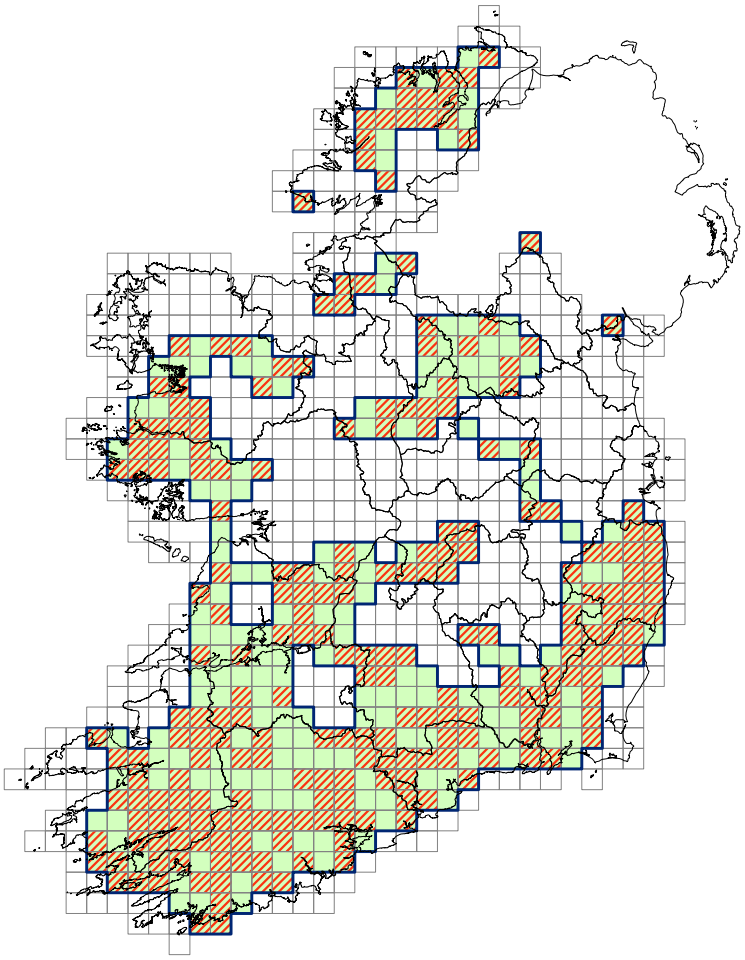
OLD OAK WOODLANDS

Aoife Delaney

Old oak woods generally occur on podzolised soils in upland, southern and western regions but also on localised, non-waterlogged acid soils elsewhere. A western oceanic subtype occurs in areas with high rainfall, and is rich in epiphytes, chiefly bryophytes, lichens and filmy ferns. A drier subtype occurs on less rocky terrain and is characterised by being comparatively species-poor. A higher base-rich subtype differs from the previous two in the greater diversity of tree and herb species

Typical plant species include birch *(Betula pubescens)*, hard fern *(Blechnum spicant)*, broad buckler fern *(Dryopteris dilatata)*, ivy *(Hedera helix)*, holly *(Ilex aquifolium)*, honeysuckle *(Lonicera periclymenum)*, great wood-rush *(Luzula sylvatica)*, bramble *(Rubus fruticosus)*, rowan *(Sorbus aucuparia)*, and bilberry *(Vaccinium myrtillus)*. A range of bryophytes are also typical of this habitat, including *Calypogeia muellerana, Dicranum scoparium, Diplophyllum albicans, Hylocomium brevirostre, Hypnum spp. Isothecium myosuroides, Kindbergia praelongum, Mnium hornum, Plagiothecium undulatum, Polytrichastrum formosum, Pseudotaxiphyllum elegans, Rhytidiadelphus loreus, Saccogyna viticulosa, Scapania gracilis, Thuidium tamariscinum.*

This habitat has suffered considerable historic losses and is highly fragmented. Non-native and invasive species, especially rhododendron *(Rhododendron ponticum)* and beech *(Fagus sylvatica)*, and overgrazing, particularly by deer, are regarded as the main pressures impacting this habitat. The Overall Status is assessed as Bad due to these ongoing pressures and highly fragmented nature of this habitat. There have been national efforts to remove non-native and invasive plant species. Some substantial areas have been rehabilitated, and this is the main reason for the improving trend reported since the 2007 assessment.



OLD OAK WOODLANDS (91A0)

0 25 50 km

N

Current Distribution (234 cells)

Current Range (399 cells)

Favourable Reference Range (399 cells)

10km Grid Cells

ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Bad	Bad ↑
Structures & Functions	Bad	Bad ↑
Future Prospects	Bad	Bad ↑
Overall Status	Bad	Bad ↑
Reason for change	Genuine improvement	

HABITAT CODE: 91D0

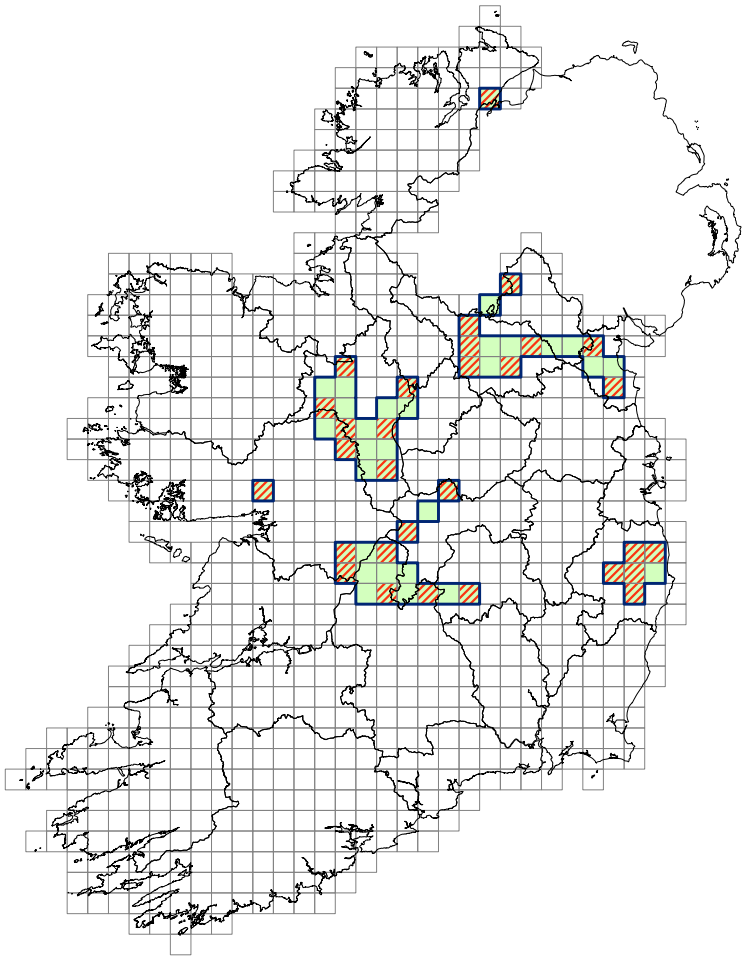
BOG WOODLAND*

Bog woodland is a widespread but localised habitat type in Ireland. It occurs in 3 distinct habitats: on raised bogs, where it is associated with weakly flushed sites on the high bog; on cutaway bog, where it occurs in association with weak ground-water influence; within sessile oak woodlands in association with nutrient-poor flushes. Bog woodland occurs mostly in the midlands, within the drumlin belt of the north midlands and in upland valleys.

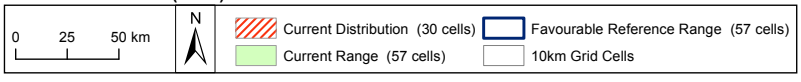
Bog woodlands are dominated by birch *(Betula pubescens)* with small amounts of willow (mostly *Salix aurita* or *S. atrocinerea*). Locally, there may be small amounts of Scots pine *(Pinus sylvestris)*, especially on raised bogs. Generally, the field layer is poorly developed but the dwarf shrub layer may be well developed, especially on raised bogs, and the moss layer is well developed, often luxuriant and dominated by bog moss *(Sphagnum)* species.

The field surveys undertaken during the reporting period provided refined figures for Range and Area. A few sites surveyed by were considered too small to be classified as bog woodland but could form the nucleus for future expansion. Although the area is less than for the previous reporting period, evidence suggests that the area is likely to be increasing and that the quality in most sites is Favourable. There are numerous raised bogs which contain small flushes containing areas of birch woodland or scattered birch trees. These may expand in the future. Extensive areas of cutaway are being colonised by birch woodland, a proportion of which can be expected to develop into bog woodland. This may be anticipated to offset any losses. The Overall Status is assessed as Favourable due to a change in interpretation of the definition of this habitat and also due to ongoing expansions.

John Cross



BOG WOODLAND* (91D0)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Inadequate	Favourable
Structures & Functions	Inadequate	Favourable
Future Prospects	Inadequate	Favourable
Overall Status	Inadequate	Favourable
Reason for change	Improved knowledge	

HABITAT CODE: 91E0

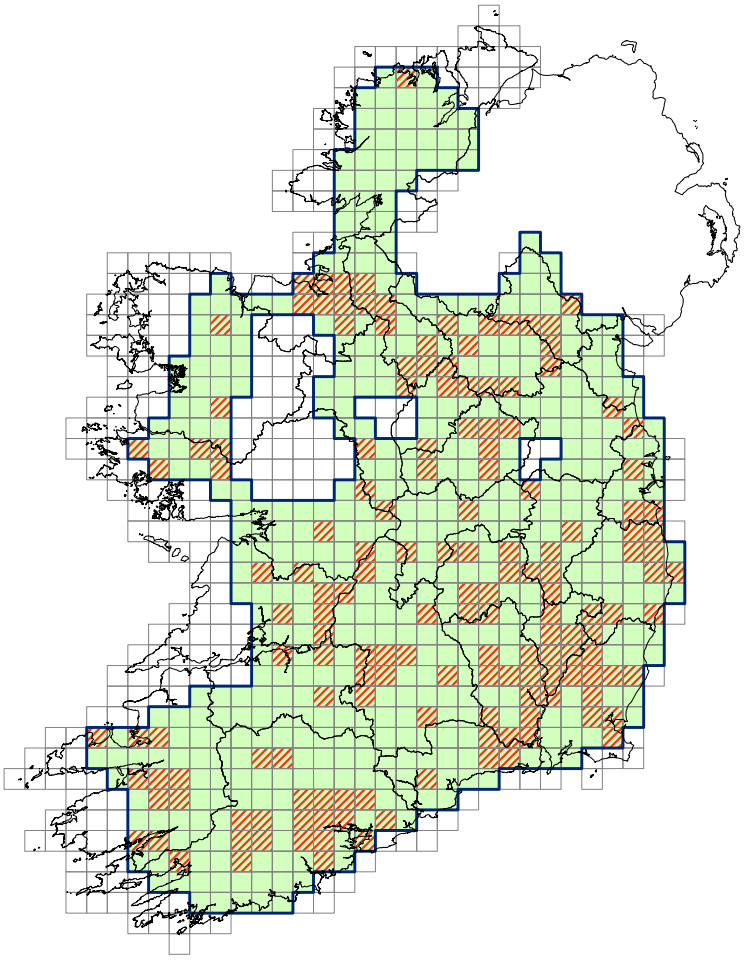
RESIDUAL ALLUVIAL FORESTS*

Simon Barron

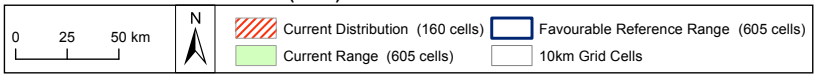
Riparian forests of ash *(Fraxinus excelsior)* and alder *(Alnus glutinosa)* occurs on heavy soils which are periodically inundated by the annual rise of river levels, but which are otherwise well drained and aerated during low water. The herbaceous layer includes many tall species such as remote sedge *(Carex remota)*, gypsywort *(Lycopus europaeus)*, common nettle *(Urtica dioica)* and water avens *(Geum rivale)*.

In addition there are gallery forests of tall willows alongside river channels and occasionally on river islands, where the tree roots are almost continuously submerged. They are dominated by white willow *(Salix alba)*, common osier *(S. viminalis)* and almond willow *(S. triandra)*, sometimes with grey willow *(S. cinerea)* but alder is relatively rare.

This habitat has suffered considerable historic losses and is highly fragmented. Non-native and invasive species especially sycamore (Acer pseudoplatanus) and beech *(Fagus sylvatica)*, and problematic native species such as bramble *(Rubus fruticosus)* and common nettle *(Urtica dioica)* (a consequence of undergrazing) are regarded as the main pressures impacting this habitat. The Overall Status is assessed as Bad due to these ongoing pressures and highly fragmented nature of this habitat. There have been national efforts to remove non-native and invasive plant species reinstate correct hydrological regimes and generally to improve the conservation status of alluvial woodlands. Some substantial areas have been rehabilitated, and this is the main reason for the improving trend reported since the 2007 assessment.



RESIDUAL ALLUVIAL FORESTS* (91E0)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Area	Bad	Bad =
Structures & Functions	Bad	Bad ↑
Future Prospects	Bad	Bad ↑
Overall Status	Bad	Bad ↑
Reason for change	Genuine improvement	

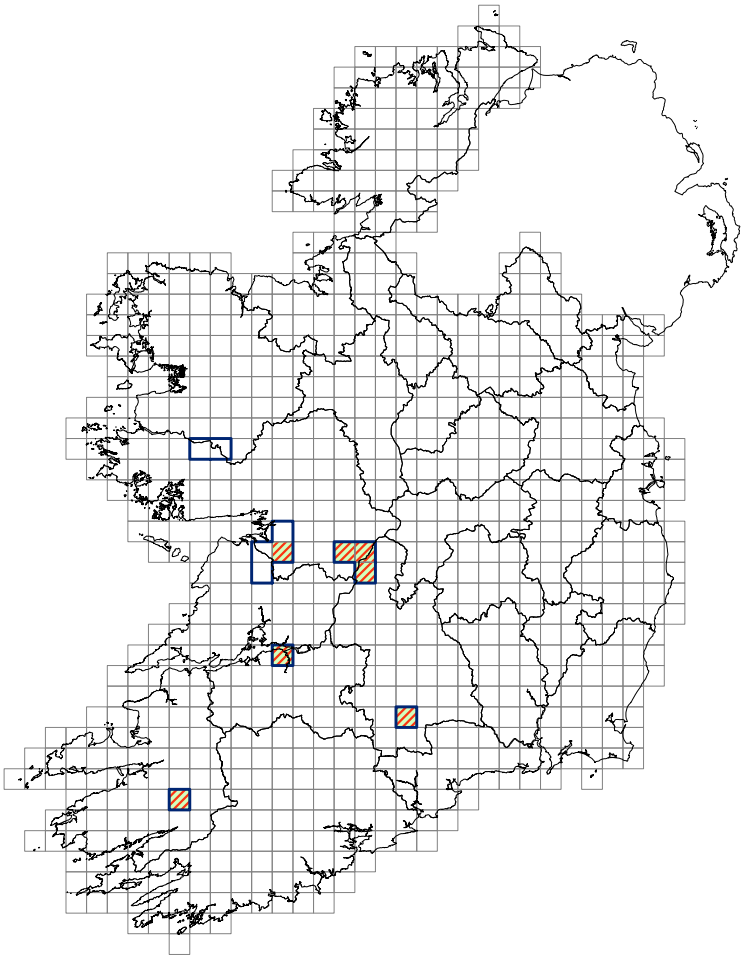
HABITAT CODE: 91J0

TAXUS BACCATA WOODS*

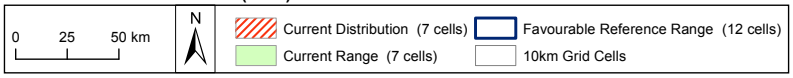
Yew *(Taxus baccata)* woodland is a highly restricted habitat type in Ireland which occurs at a small number of sites in the south western part of the country mostly on skeletal soils over limestone outcrops or pavement. The canopy in these stands is typically dominated by yew *(Taxus baccata)* with ash *(Fraxinus excelsior)* and frequently the introduced Beech *(Fagus sylvatica)*. Hazel (*Corylus avellana)* and holly *(Ilex aquifolium)* are frequent components of the shrub layer but typically in small quantities. The dense evergreen canopy is inimical to the development of the field layer and regeneration is very limited or absent. The herb layer is characteristically both species-poor and poorly developed with the most frequent and abundant species being ivy *(Hedera helix)*, which is locally dominant, false brome *(Brachypodium sylvaticum)*, common dog-violet *(Viola riviniana)* and ferns, especially Hart's tongue *(Phyllitis scolopendrium)*. A striking feature is the rocky forest floor which is typically covered by an extensive carpet of bryophytes dominated by a few robust pleurocarpous species, e.g. *Thamnobryum alopecurum, Neckera crispa* and I*sothecium myosuroides*.

John Cross

Although there is no evidence of decline since the Directive came into force, the current area is not considered adequate to ensure the long term survival of the habitat. The quality of the existing Yew Woodlands is still poor due to overgrazing, lack of regeneration and invasive species. As efforts are being undertaken to restore potential areas where the habitat could develop and to address the pressures listed the Overall Status is Bad but improving. There has been a genuine improvement since the 2007 assessment.



TAXUS BACCATA WOODS* (91J0)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Bad	Bad ↑
Area	Bad	Bad ↑
Structures & Functions	Bad	Bad ↑
Future Prospects	Bad	Inadequate ↑
Overall Assessment	Bad	Bad ↑
Reason for change	Genuine improvement	

SPECIES

KILLARNEY FERN *(Trichomanes speciosum)*

ANNEX: II, IV

Emer Ní Dhúill

Killarney fern *(Trichomanes speciosum)* is a type of filmy fern. These ferns have characteristically thin, membranous, translucent fronds which are prone to desiccation. The species has the two-stage life cycle typical of ferns, the first (gametophyte) stage comprising a filamentous structure, the second (sporophyte) being the more familiar fern frond. Both stages may live independently of one another.

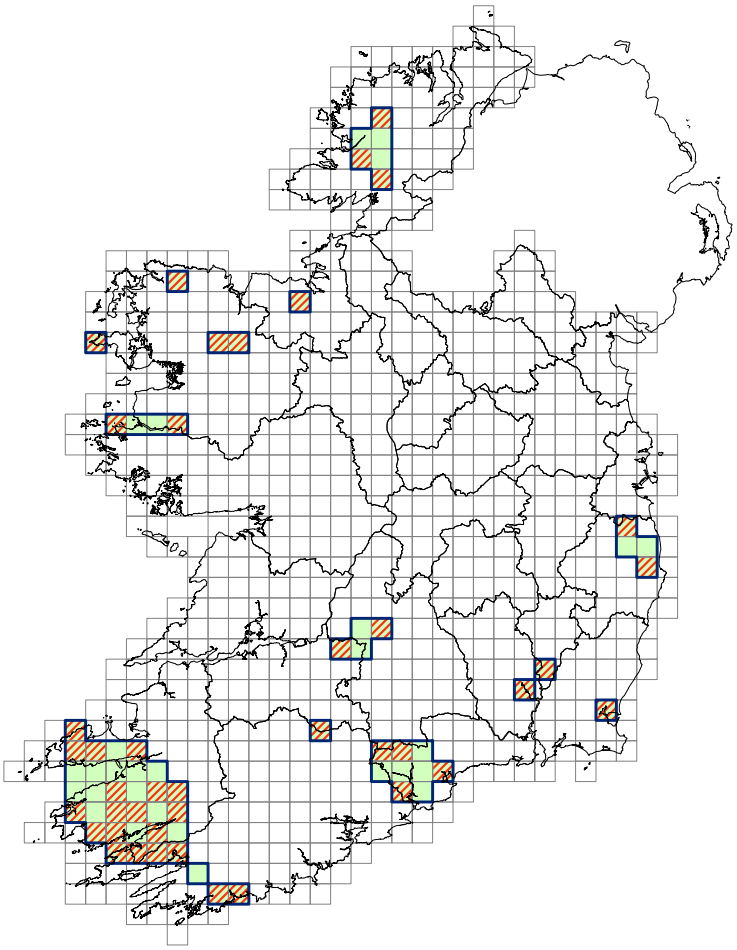
It grows in deeply shaded, humid situations such as dripping caves, crevices and overhangs on cliffs and rocky slopes, in stream gullies, by waterfalls and in woodlands, and occasionally occurs under fallen trees and on the floor of damp woodlands. It is found in areas underlain by acidic rocks such as quartzite, slates and sandstones and has an altitudinal range in Ireland of 50-380m above sea level; many of its sites have a predominantly north- or north-east-facing aspect.

Most sites are located in the south-west, in counties Cork, Kerry, Limerick, Tipperary and Waterford. However, counties Carlow, Donegal, Galway, Kilkenny, Mayo, Sligo, Wexford and Wicklow also hold populations.

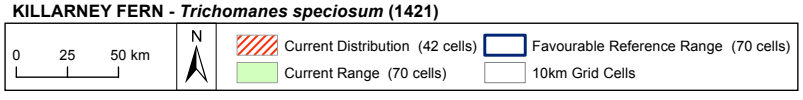
The current known Irish population comprises 177 discrete colonies within 64 populations, of which 25 have both sporophyte and gametophyte colonies, 18 have sporophytes only and 21 have gametophytes only. A colony is defined as a discrete, i.e. unconnected, "patch" or "plant". Knowledge of the species in Ireland has improved considerably since the last assessment and seven new populations have been discovered (comprising two sporophyte, one mixed and four gametophyte populations).

Killarney fern is potentially threatened by a variety of activities and impacts, either directly by loss of habitat, deliberate collection, encroachment of invasive or vigorous species, or indirectly by water pollution, removal of woodland or alteration of watercourses.

However there is no evidence of significant impact from pressures, and the Overall Status is assessed as Favourable.



KILLARNEY FERN - *Trichomanes speciosum* (1421)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

SPECIES CODE: 1528

MARSH SAXIFRAGE *(Saxifraga hirculus)*

ANNEX: II, IV

Marsh saxifrage *(Saxifraga hirculus)* is a low-growing, herbaceous perennial of upland blanket bog areas in counties Mayo and Sligo. Historically, the species was more widespread with nineteenth century records from counties Laois, Offaly, Tipperary and Westmeath. All of the recorded midlands sites have since been lost to drainage and peat extraction.

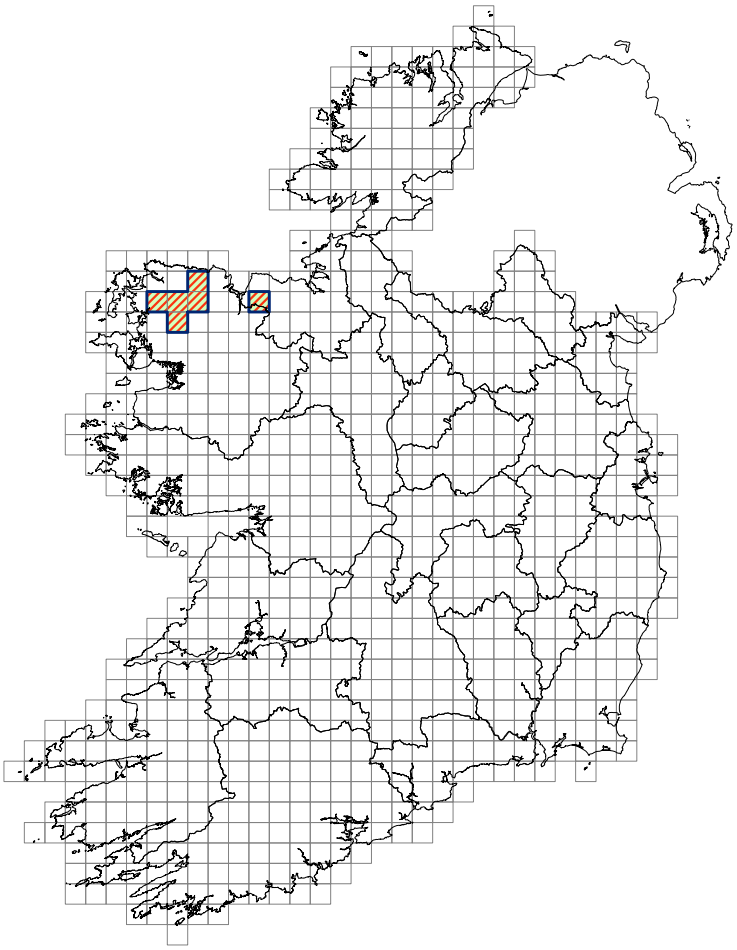
Flowering stems vary in length (4-35 cm) and in the number of flowers they support (usually 2-3, but up to 7). Flowers have bright yellow petals with orange spots near the base and sepals that are turned downwards in fruit. The ovary is superior. Leaves are alternate and oblong in shape, with the lowest having a distinct petiole. Stems and leaf-bases are furnished with long, slender reddish-brown hairs. The species reproduces sexually by seed, and asexually by means of slender rhizomes (normally 1-5) which give rise to new rosettes. These rhizomes decay after one season, resulting in new, clonally-derived, independent plants.

The species is restricted to mineral flushes in blanket bog where rising groundwater, rich in minerals and electrolytes that are not normally found in ombrotrophic bogs, forms small streams and seepage areas suitable for the species. Flushes are generally small, often linear in shape and grazed by sheep.

There are currently ten Irish sites, holding 19 populations. Survey work since the last assessment has resulted in the discovery of several new populations.

There is no evidence of any major pressures impacting this species and therefore the Overall Status is assessed as Favourable.

Neil Lockhart



MARSH SAXIFRAGE - *Saxifraga hirculus* (1528)

0 25 50 km

N

Current Distribution (6 cells)

Current Range (6 cells)

Favourable Reference Range (6 cells)

10km Grid Cells

ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

SPECIES CODE: 1833

SLENDER NAIAD *(Najas flexilis)*

ANNEX: II, IV

Cilian Roden

The slender naiad *(Najas flexilis)* is a fragile, annual, plant that grows in clear-water, lowland lakes. It has an unusual global distribution, being widespread in North America, but more restricted in Europe and Asia, and is rare and declining in many countries. The core of the species' European range is Ireland and Scotland.

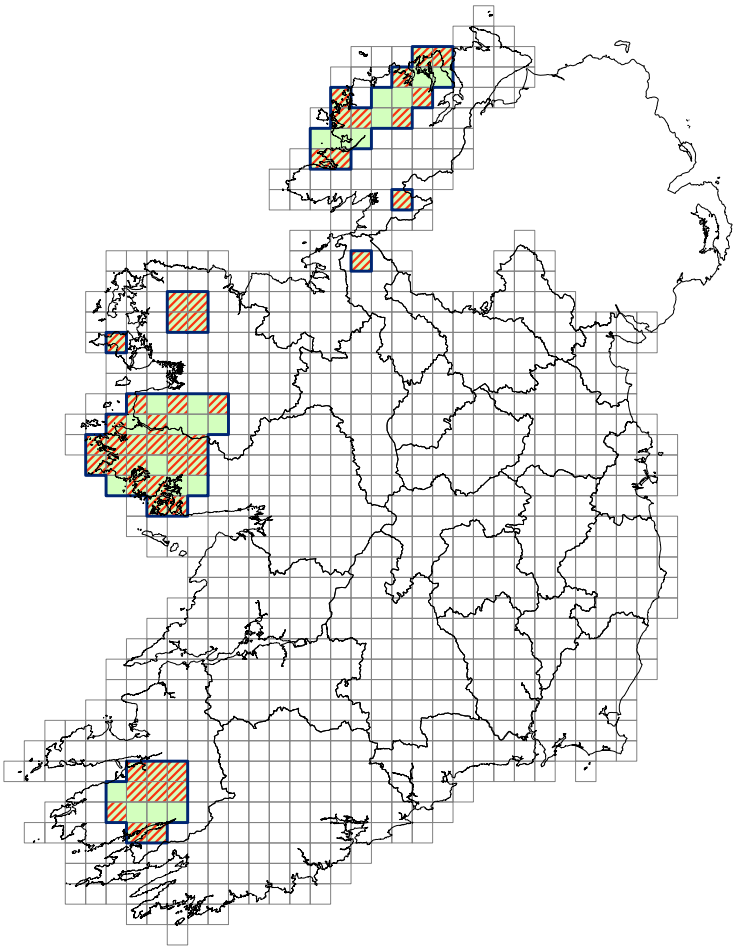
The species is now known to occur in 58 lakes in counties Donegal, Leitrim, Mayo, Galway and Kerry, with most sites near the coast. Knowledge its distribution has improved since 2007 owing to additional survey work and the collation of historical records. It is a glacial relict species that is not colonising new sites, rather it has occupied the same lakes continuously for almost 10,000 years. Owing to the large number of unexplored lakes, notably in Connemara, it is likely that yet more populations will be discovered.

The status of 16 of the 58 known populations is uncertain, because survey has failed to relocate the species or the populations were very small and in poor condition.

The slender naiad appears to have exacting environmental requirements, occurring in lakes in peatland dominated catchments, but with some base-rich influences. In Ireland, the lakes typically overlie calcareous sand (often in machair), marble or sometimes limestone. The species, in Ireland at least, appears to be strongly associated with naturally oligotrophic lakes.

The plant grows permanently submerged, commonly in deep water, and can easily be overlooked. It reproduces only from seed and seedlings appear around June. The plant dies in September/October, once it has set seed. Population size can vary over time, owing to fluctuations in seed production and germination.

The species is threatened by enrichment (eutrophication), acidification and peatland damage, therefore the Overall Status is assessed as Inadequate.



SLENDER NAIAD - *Najas flexilis* (1833)

0 25 50 km

N

Current Distribution (46 cells)
Current Range (68 cells)
Favourable Reference Range (68 cells)
10km Grid Cells

ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Inadequate	Inadequate =
Habitat for the species	Inadequate	Inadequate =
Future Prospects	Favourable	Inadequate =
Overall Status	Inadequate	Inadequate =
Reason for change	No change	

SLENDER GREEN FEATHER MOSS *(Hamatocaulis vernicosus)* ANNEX: II

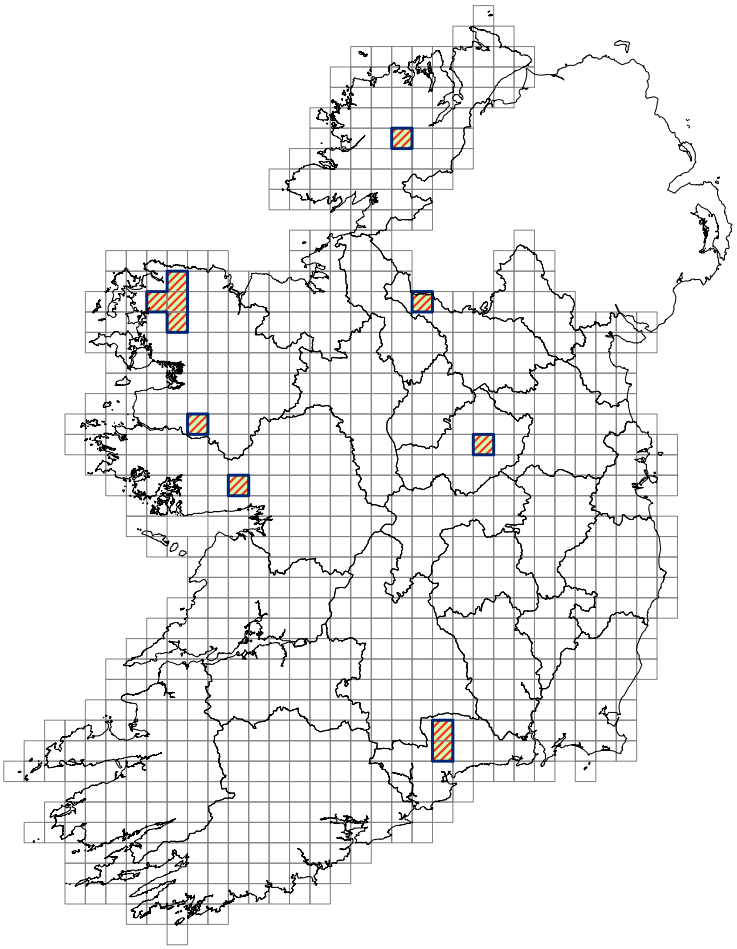
Slender green feather moss *(Hamatocaulis vernicosus)*, also called shining sickle moss, is a medium-sized perennial moss with distinctively hooked shoot tips with branches that are held at around 90° to the stem. The leaves are strongly curved, are often longitudinally pleated and are frequently tinged with red at the bases. Male and female parts are found on different plants. Sporophytes have never been recorded in Ireland and are very rare across its distribution, maturing in summer where they do occur. No specialised asexual propagules are known, thus propagation and dispersal must be through fragmentation of the parent plant.

Christina Campbell

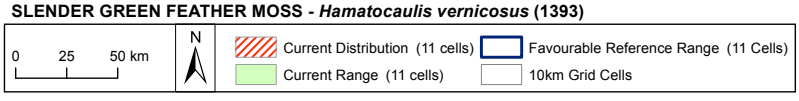
Slender green feather moss is a circumboreal species ranging from the Arctic, south to western, central and eastern Europe, Turkey, Caucasus, central Asia and northern USA, with a disjunct occurrence in the Dominican Republic. It is currently known from 11 localities in Ireland, with large populations in the lowlands (at Lough Corrib, Lough Mask and Scragh Bog) and smaller more scattered populations in the uplands (in Cos. Donegal, Mayo, Waterford and Cavan).

Slender green feather moss is found in intermediate fens and flushes where there is an influence of mineral-rich, but not calcium-rich, groundwater. In Ireland, it is found in somewhat base-rich springs in upland districts, while in the lowlands it generally occurs in spring-influenced sites in mildly basic small-sedge fens.

Although its population has almost certainly declined in historic times, due to loss of intact peatlands, recent surveys indicate that there continues to be sufficient good quality habitat to support the long term survival of the species. There are also no significant pressures currently impacting the species. Therefore the Overall Status is assessed as Favourable.



SLENDER GREEN FEATHER MOSS - *Hamatocaulis vernicosus* (1393)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

PETALWORT *(Petalophyllum ralfsii)*

ANNEX: II

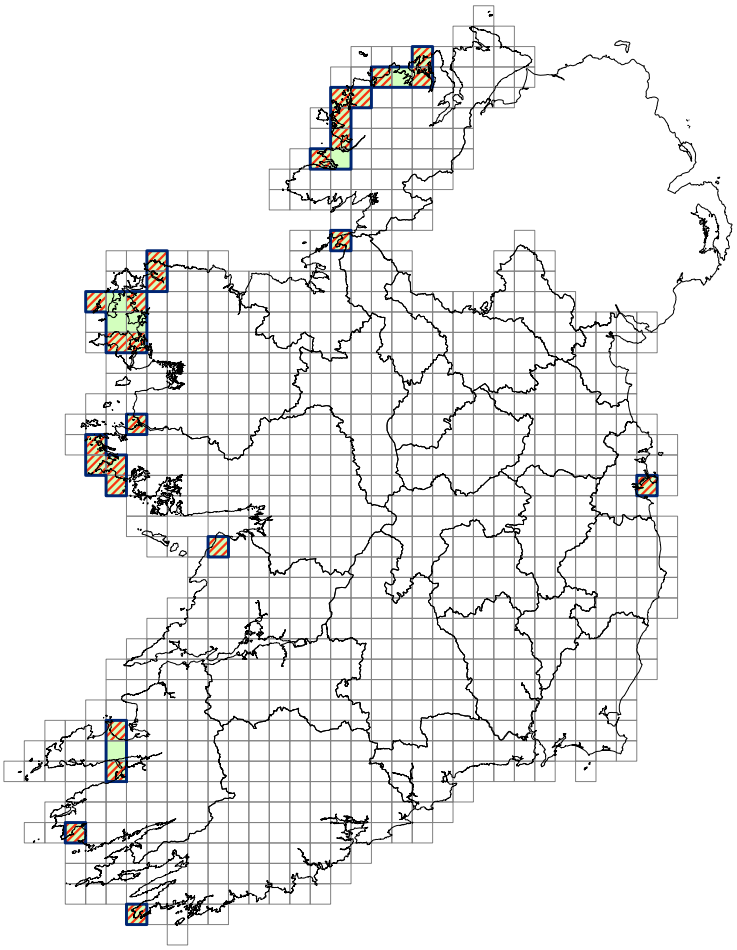
Robert Thompson

Petalwort *(Petalophyllum ralfsii)* is a pioneering thallose liverwort of bare, moist, stable sand or of short turf mainly on mildly to strongly base-rich dune slacks and machair, where the habitat can be subject to inundation in the winter.

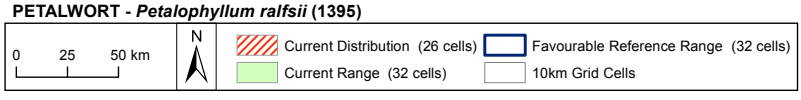
The species looks like a miniature lettuce and is often less than 1 cm across. It has erect, almost parallel, lamellae which are perpendicular to the flattened part of the thallus. The above-ground parts can die back during the summer when conditions are drier and the plants survive as underground tubers. Thalli can be solitary, in rosettes or in mats. Male and female parts are on separate plants. Sporophytes are produced regularly in spring and early summer. Spores may persist in the soil for long periods until environmental conditions become suitable for new plant production. No specialised asexual propagules are known, but the plant can reproduce clonally whereby the thallus splits in two. Underground branches can also give rise to new thalli, which then become independent as the underground branches decay.

Petalwort has an Atlantic-Mediterranean distribution and occurs at 30 localities in Ireland, mainly on the west coast. Some of the largest populations in the world of this species are likely to occur in Ireland. There continues to be sufficient good quality habitat to support the long term survival of the species.

There are also no significant pressures currently impacting the species. Therefore the Overall Status is assessed as Favourable.



PETALWORT - *Petalophyllum ralfsii* (1395)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

SPECIES CODE: 1376

MAËRL *(Lithothamnion corralloides)*

ANNEX: V

SPECIES CODE: 1377

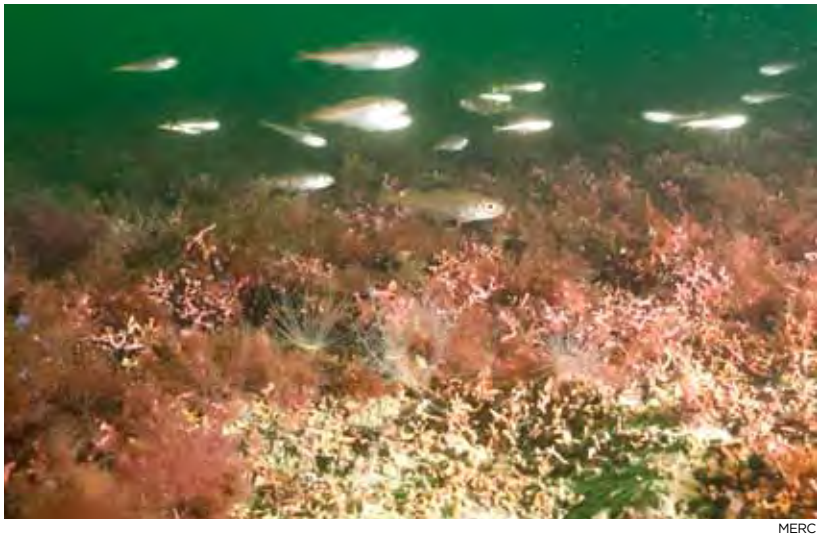
MAËRL *(Phymatolithon calcareum)*

ANNEX: V

Lithothamnion corallioides and *Phymatolithon calcareum* are species of calcified red seaweed and one of a number of species that are collectively known as maërl (which also include *Lithophyllum dentatum* and *Lithophyllum fasciculatum*). These species live freely over mud, sand or gravel substrates. They are slow growing species and morphology is variable but frequently presents as branched nodules. The distribution of maërl species are influenced by temperature, salinity and light penetration. Maërl species are associated with fully saline conditions so are usually found away from the influence of rivers. Both species are limited by the penetration of light to the sea bottom and are usually found within a depth of less than 20m. The slow accumulation of calcareous thalli over time can generate a three-dimensional habitat that is suitable for colonisation both superficially and in the associated spaces between thalli by a wide range of species. Maërl provides habitat in a number of forms; it may be live maërl, dead maërl or a mixture of both and on occasion forms dunes.

The fauna within this community type is very diverse including anemones *(Anthopleura ballii, Anemonia viridis, and Cereus pedunculatus)*, crustaceans *(Phtisica marina, Pisidia longicornis,* and *Caprella acanthifera)*, bristle worms (*Chaetopterus variopedatus, Polyophthalmus pictus)* and the free living calcareous algae *Corallina officinalis*. It is an important habitat for a number of rare anemones, (for example, *Edwardsia claparedii, Scolanthus callimorphus, Mesacmaea mitchellii* and *Aureliana heterocera*) the rare filamentous red alga *Spyridia filamentosa* and the possibly endemic epiphytic algae *Gelidiella calcicola*.

Fishing and aquaculture related activities are likely to affect these species. Therefore the Overall Status is assessed as Inadequate but improving. These improvements and the assessment of Future Prospects as Favourable are due to the fact that these activities are not considered to be a threat to these species in the future.



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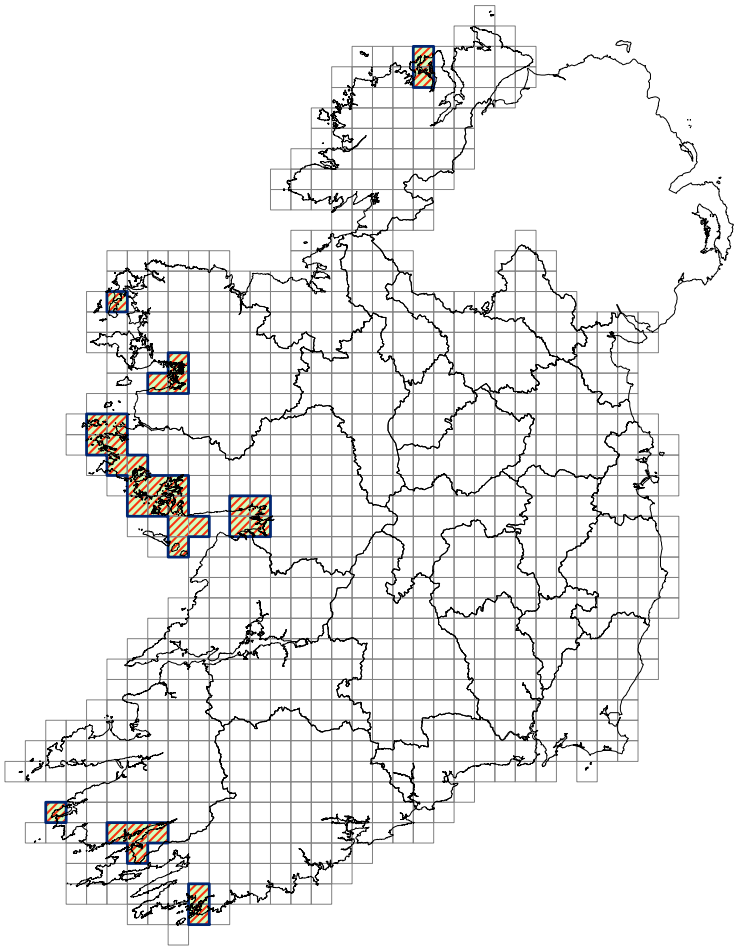
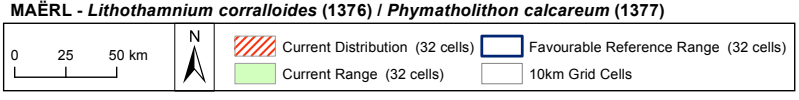


MAËRL - *Lithothamnium corralloides* (1376) / *Phymatholithon calcareum* (1377)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Unknown	Favourable
Habitat for the species	Unknown	Inadequate ↑
Future Prospects	Inadequate	Favourable
Overall Status	Inadequate	Inadequate ↑
Reason for change	Genuine improvement	

SPECIES CODE: 1400

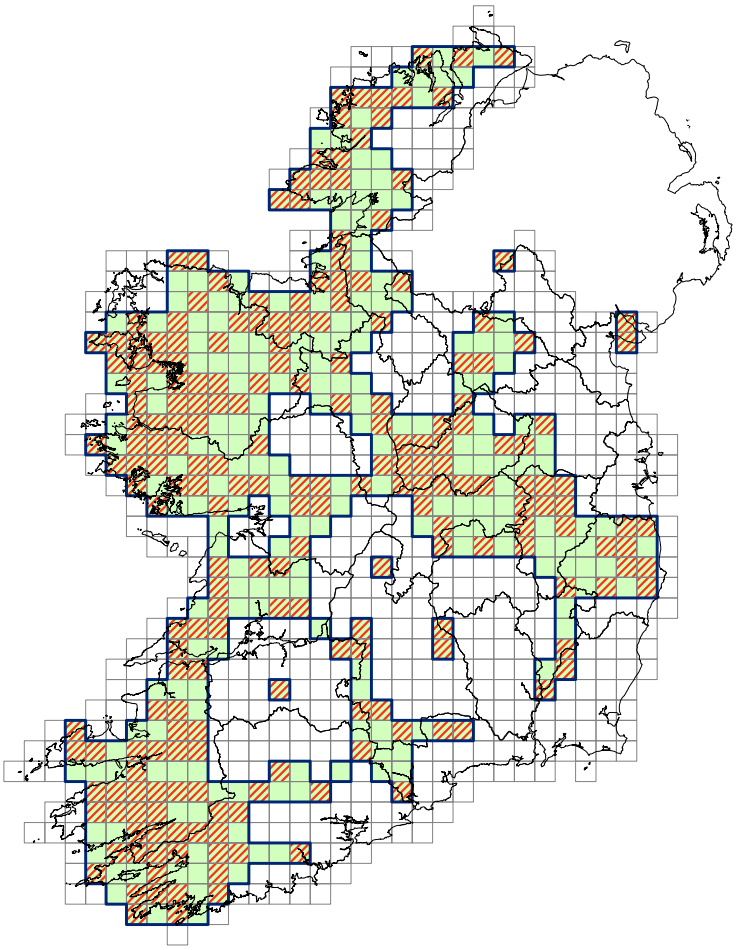
WHITE CUSHION MOSS *(Leucobryum glaucum)*

ANNEX: V

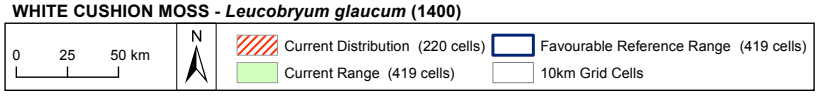
Neil Lockhart

White cushion moss *(Leucobryum glaucum)* is a densely tufted moss, forming cushions which can extend to one metre across and to 15+ cm high. The plant can hold water like a sponge. Male and female parts are on separate plants. The species rarely produces sporophytes, which mature in autumn. It grows commonly on rocks, tree stumps and on the ground in woodland, forest plantations, heath and bogs. The substrate is acid to strongly acid.

A study commissioned by the National Parks & Wildlife Service in 2006 to investigate wildlife trade in Ireland revealed no evidence of exploitation of this species. Although many peatland areas have suffered from declines in both area and quality as a result of over-grazing and drainage, it is considered that there is enough habitat of sufficient quality to ensure the long-term survival of the species Overall, White cushion moss is widespread, occurs in many habitat types and is not under pressure or threat directly, therefore the Overall Status is assessed as Favourable.



WHITE CUSHION MOSS - *Leucobryum glaucum* (1400)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Inadequate	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Inadequate	Favourable
Reason for change	No genuine change	

SPECIES GROUPS

Robert Thompson

GROUP CODE: 1409

SPHAGNUM SPECIES

Sphagnum mosses are the key peat-forming species in most acid bogs, including raised bogs and blanket bogs. These mosses form carpets made up of vertically growing shoots and can hold up to twenty times their own weight in water. Their morphology depends on the wetness and exposure of the habitat but all require high rainfall to survive. There are 32 *Sphagnum* taxa in Ireland.

Roy Anderson

GROUP CODE: 1378

CLADONIA SUBGENUS CLADINA

Cladonia species are lichens, compound organisms that are a stable association between a fungus and [usually] an alga, in which both organisms benefit from the association. In Ireland the subgenus *Cladina* (reindeer mosses) is represented by five species, *Cladonia arbuscula, C. azorica, C. ciliata, C. portentosa* and *C. rangiferina*. Collectively, they occur in a wide range of habitats including heaths, bogs, rocky slopes and screes, rock outcrops, cliffs, acid woodlands and sand dunes, and are found from sea level to the tops of the highest mountains. *C. portentosa* and *C. ciliata* are the commonest and most widespread species, *C. arbuscula* is also widespread but less frequent, whilst *C. rangiferina* and *C. azorica* are much rarer and more restricted in their distribution.

Noeleen Smith

GROUP CODE: 1413

LYCOPODIUM GROUP

The four species in this group are all clubmosses, low-growing, primitive plants with branching stems and undivided leaves. *Huperzia selago, Diphasiastrum alpinum* and *Lycopodium clavatum* all occur on upland heaths, bogs and rocky areas, whilst *Lycopodiella inundata* is found on open, wet ground on lake margins, in flushed boggy areas and in wet heath. *Huperzia selago* is the most widespread and frequently occurring of the species, and is found throughout upland areas. *Diphasiastrum alpinum* and *Lycopodium clavatum,* though widespread, are much less common and are largely restricted to high mountain sites. *Lycopodiella inundata* is the rarest of the four species and its range has declined considerably over the years.

ASSESSMENT RESULTS

There is no evidence of commercial exploitation any of the species within these groups. The species within each group occur in many widespread habitats, the condition of these habitats is considered to be poor due to peat extraction, drainage, eutrophication and ecologically unsuitable grazing. Therefore the Overall Status is assessed as Inadequate for each group with no change from the 2007 assessment.

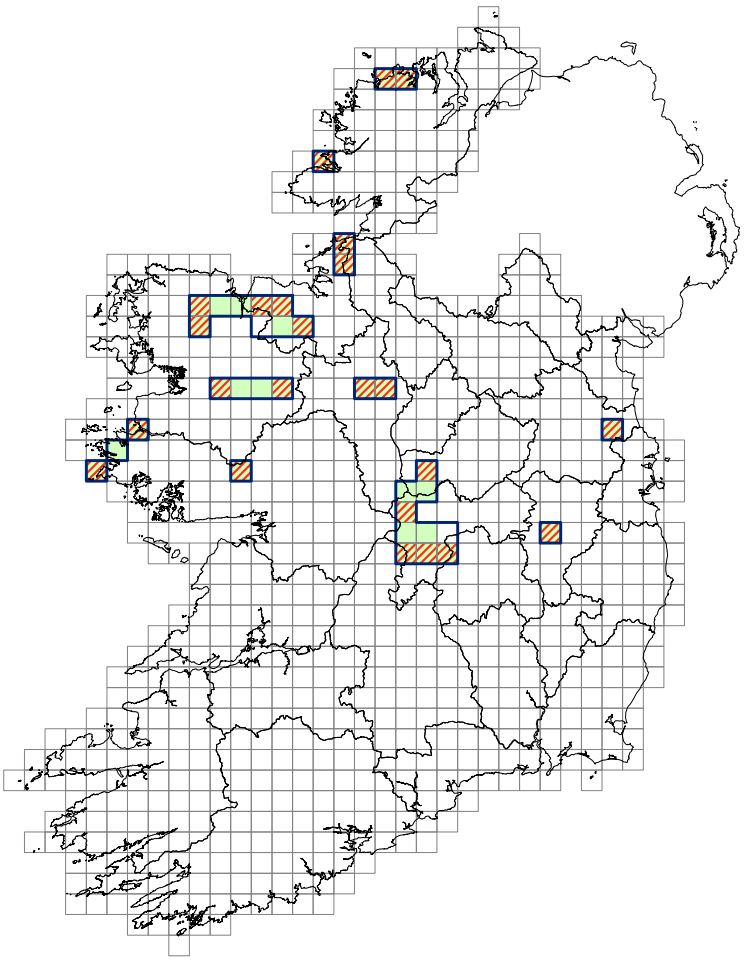
GEYER'S WHORL SNAIL *(Vertigo geyeri)*

ANNEX: II

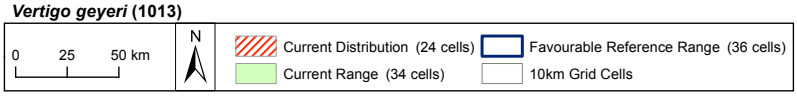
Roy Anderson

Geyer's whorl snail *(Vertigo geyeri)* is a tiny and inconspicuous snail found in small wetlands. This species feeds on bacterial films and decaying vegetation and lives in the root zone of sedges growing in calcareous, ground water fed flushes. This microhabitat is generally found in small patches of perhaps just a few square metres within wider habitats as diverse as raised bog laggs, transition mires, lake shores, hill or mountain slopes, and wetlands associated with coastal dunes and machair. The habitat must be open and with a stable hydrology as the snail cannot tolerate shade or abrupt and large changes in water levels. Most sites would not be managed directly, the conditions being naturally maintained by combination of wet ground and lack of nutrients, but some are within extensively cattle grazed habitat.

The Overall Status of *Vertigo geyeri* is assessed as Inadequate with ongoing declines. New populations continue to be found but these are considered to have been overlooked in the past and there have also been documented losses of some important sites. Suitable habitat still exists and the reasons for losses are not fully understood. This reflects the fragility of the sites for the species which, being small, can easily be damaged.



Vertigo geyeri (1013)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Inadequate ↓
Population	Inadequate	Inadequate ↓
Habitat for the species	Inadequate	Inadequate =
Future Prospects	Inadequate	Inadequate ↓
Overall Status	Inadequate	Inadequate ↓
Reason for change	Genuine decline	

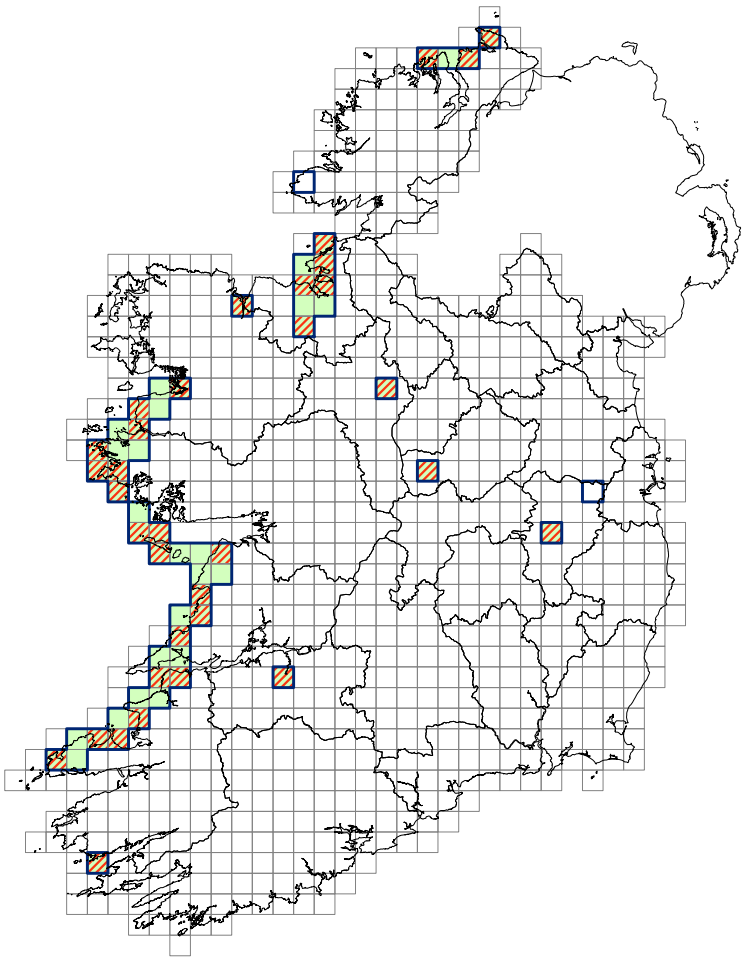
NARROW-MOUTHED WHORL SNAIL *(Vertigo angustior)*

ANNEX: II

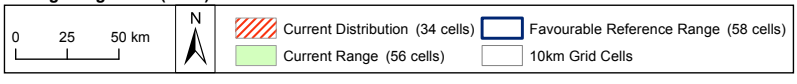
The narrow-mouthed whorl snail *(Vertigo angustior)* is a small snail and one of three protected species of this genus living in Ireland. Like the other whorl snails it favours damp or wet habitats, where it lives amongst moss, leaves and decaying vegetation. It feeds on bacterial films and decaying vegetation. The narrow-mouthed whorl snail can be found in a wide range of habitat categories of dune and coastal grassland, fen, marsh, salt marsh and flood plain. Populations on dunes can be extensive, extending over large areas that can support high numbers. In wetlands suitable habitat conditions typically occur in a narrow band in the transition zone between the wetland and terrestrial habitat. In these places the species is usually associated with yellow flag iris *(Iris pseudacorus)* whereas in dunes the species is found in decaying thatch of marram grass *(Ammophila arenaria)*.

V. angustior is a western species, mainly found on the Atlantic-facing dune systems from Kerry to Donegal. Inland populations are rarer and more scattered but it once occurred as far east as Co Kildare. There have been losses in the inland sites as well as on some of the western dunes and observed declines in habitat quality. Losses have been due to changes in grazing and wetland drainage. These declines in range and losses at individual sites have resulted in the Overall Status being assessed as Inadequate and declining.

Roy Anderson



***Vertigo angustior* (1014)**



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Inadequate ↓
Population	Inadequate	Inadequate ↓
Habitat for the species	Inadequate	Inadequate ↓
Future Prospects	Inadequate	Inadequate ↓
Overall Status	Inadequate	Inadequate ↓
Reason for change	Genuine decline	

SPECIES CODE: 1016

DESMOULIN'S WHORL SNAIL *(Vertigo moulinsiana)*

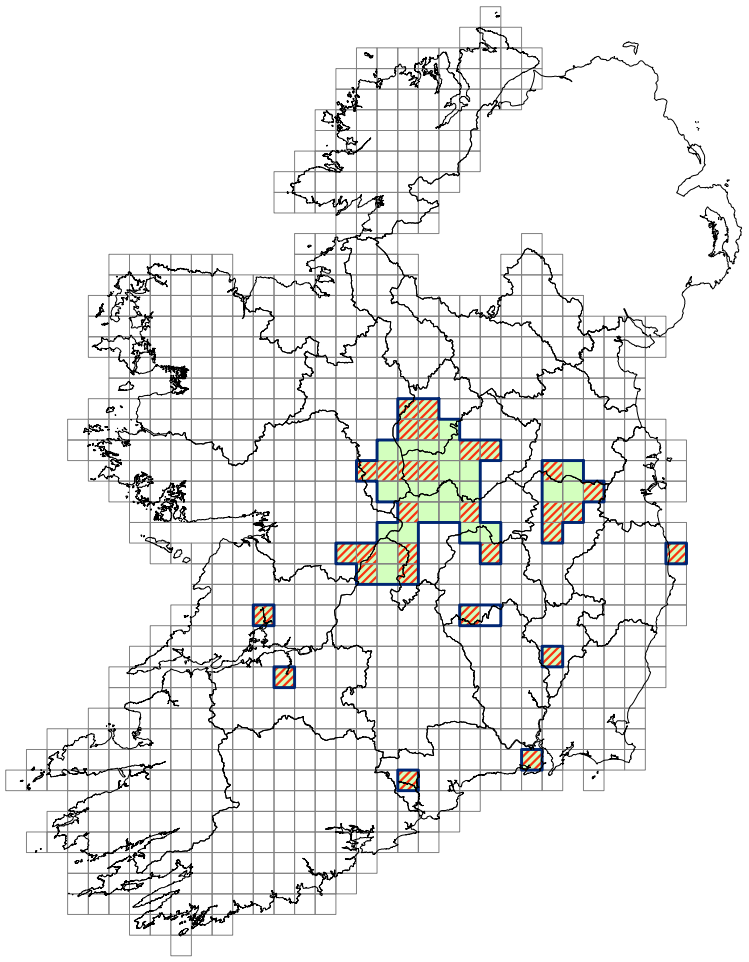
ANNEX: II

John Brophy

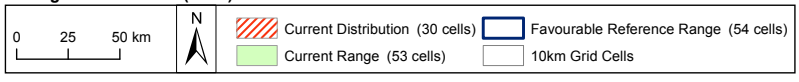
The Desmoulin's whorl snail (Vertigo *moulinsiana*) is the largest of the eight species of whorl snails occurring in wetlands in Ireland. However the term "large" is relative, as the adults are at most 2.5mm long. This species is found mainly central and southern parts of Ireland, principally in calcareous, lowland wetlands especially swamps, fens and marshes bordering rivers, canals, lakes and ponds. Some sites are coastal wetlands. It appears to favour sites at the end of hydroseral succession but with a relatively stable water table. It feeds on living and dead stems and leaves of tall plants, often in ungrazed situations which allow growth of suitable tall plants and importantly a build-up of litter.

There are new records of the species, some of large populations, in the south-east in Co Waterford as well as more widely than heretofore around Lough Derg and in Co Longford.

The Overall Status of the species is assessed as Inadequate. The apparent improvement from the 2007 previous assessment is due to the discovery of the new populations. However genuine losses of population in the last assessment period have not been recovered. Careful management will be needed to prevent further declines through succession and drying out of wetlands which is a continuing threat to the species.



***Vertigo moulinsiana* (1016)**



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Bad	Inadequate ↓
Population	Bad	Inadequate =
Habitat for the species	Inadequate	Inadequate ↓
Future Prospects	Bad	Inadequate ↓
Overall Status	Bad	Inadequate ↓
Reason for change	Genuine decline	

SPECIES CODE: 1024

KERRY SLUG *(Geomalacus maculosus)*

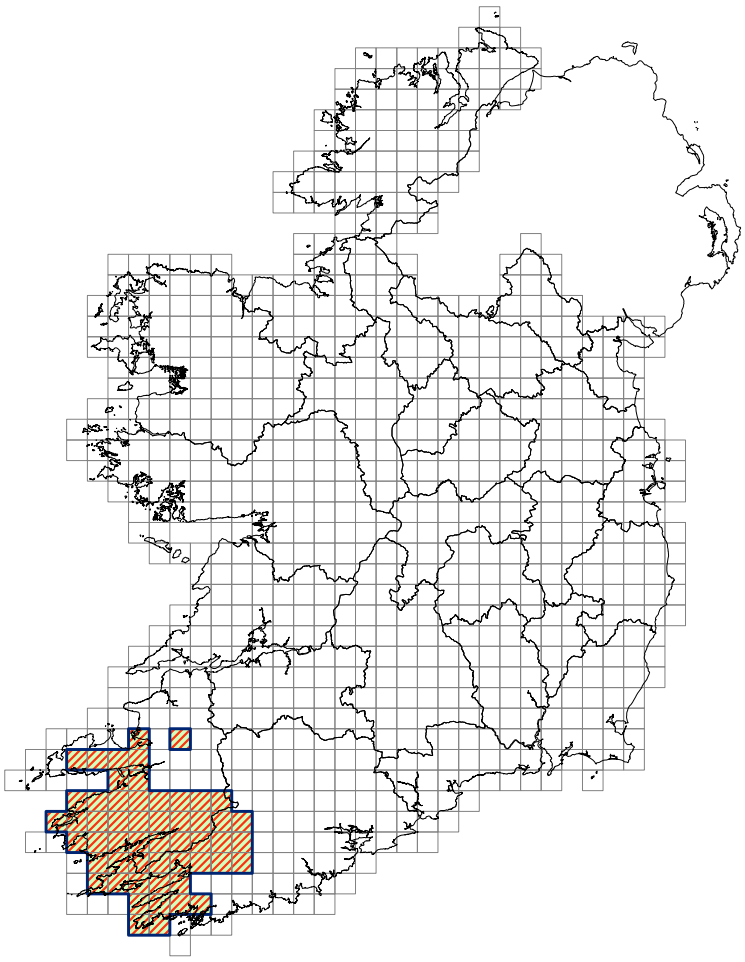
ANNEX: II, IV

The pale-spotted Kerry slug *(Geomalacus maculosus)* is one of the most distinctive of the Irish slugs. Adults exist in two forms, either black with white spots or brown with cream spots. In Ireland, both varieties frequently occur together, but the brown form is more frequent in woodland, while the black form is commoner on boulders in open country. The slugs are only associated with woodland or boulder-strewn heath and bogs and its main foods are lichens and mosses.

The species is widespread in suitable habitat in Kerry and west Co Cork which are underlain by old red sandstone. A survey was undertaken during 2008-2010 which confirmed the species in its historic range in the south-west. The species was also found in gaps within the range and also in new areas e.g. in the Dingle peninsula. A population was discovered in 2010 in conifer forest in Connemara but this is considered an introduction and not included in the assessment. However this discovery plus new records from conifer plantations in the south west have altered our knowledge of the species' habitat. Kerry Slug can occur in low density conifer plantation and this is aiding the spread of the species.

The Overall Status is assessed as Favourable as the species is still present throughout its range and there has been no evidence of any decline, the habitats remain largely in good condition, and there has been a reassessment of the pressures and threats with the effect that these are considered to have less of an impact on the conservation status than previously considered.

Roy Anderson



KERRY SLUG - *Geomalacus maculosus* (1024)

0 25 50 km

N

Current Distribution (54 cells)

Current Range (54 cells)

Favourable Reference Range (54 cells)

10km Grid Cells

ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

SPECIES CODE: 1029

FRESHWATER PEARL MUSSEL *(Margaritifera margaritifera)* ANNEX: II, V

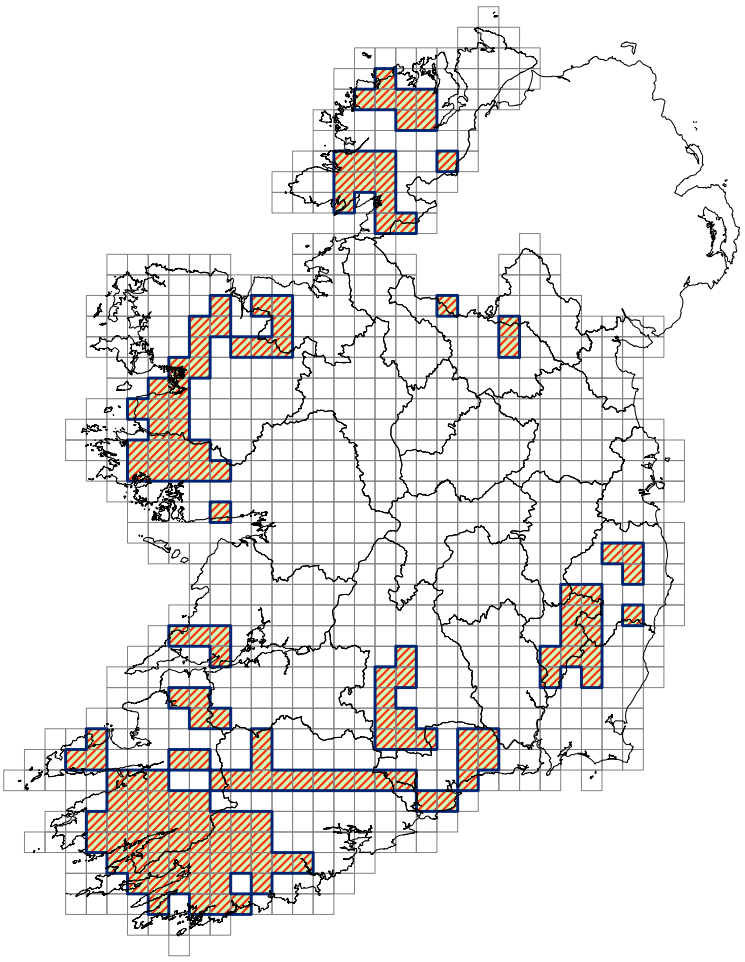
Robert Thompson

The freshwater pearl mussel *(Margaritifera margaritifera)* is a large, long-lived, bivalve mollusc found in clean, fast-flowing rivers. Freshwater pearl mussels are widespread in Ireland, occurring in more than 160 rivers and a handful of associated lakes. The national population estimate of 10.99 million adult mussels represents a decline of 8% since 2007.

As the name suggests, this mussel produces freshwater pearls and, because of historic exploitation, the species is protected under the Wildlife Acts, 1976 and 2000 and Annex V of the Habitats Directive. The species' current severe decline is not, however, the result of exploitation, rather it is because of sedimentation and enrichment of its habitat.

Until relatively recent years, the severity of the species' decline was not fully recognised. The freshwater pearl mussel has an unusual lifecycle and produces very tiny young that burrow into river gravels to prevent being washed to sea. The species requires very clean and well oxygenated rivers. When experts began searching for the young they discovered that most Irish populations have not recruited since the 1970s or 80s. Riverbeds have become clogged with silt, algae and rooted-plants so that the young mussels can no longer survive. In some rivers, pollution is sufficiently severe that adult mussels are also dying.

The sediment and nutrients that enter mussel rivers come from a wide variety of sources (e.g. urban wastewater, development activities, farming and forestry), often well upstream of the location of the mussels. The species can also suffer direct impacts from in-stream works such as channelisation, bridge-construction and recreational fishery structures. Ensuring the long-term future of the freshwater pearl mussel requires significant, integrated catchment management to prevent direct impacts and to reduce losses of sediment and nutrients from all indirect sources. The Overall Status is assessed as Bad and declining, however the prospects may improve for this species.



FRESHWATER PEARL MUSSEL - *Margaritifera margaritifera* (1029)

0 25 50 km

N

Current Distribution (152 cells)

Current Range (152 cells)

Favourable Reference Range (152 cells)

10km Grid Cells

ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Bad	Bad ↓
Habitat for the species	Bad	Bad ↓
Future Prospects	Bad	Bad ↑
Overall Status	Bad	Bad ↓
Reason for change	Genuine decline	

SPECIES CODE: 1990

IRISH FRESHWATER PEARL MUSSEL (*Margaritifera durrovensis*) ANNEX: II, V

The Nore pearl mussel *(Margaritifera durrovensis)* is a hard water form of the freshwater pearl mussel. It does not occur outside of Ireland, where it is now only found in the main channel of the River Nore.

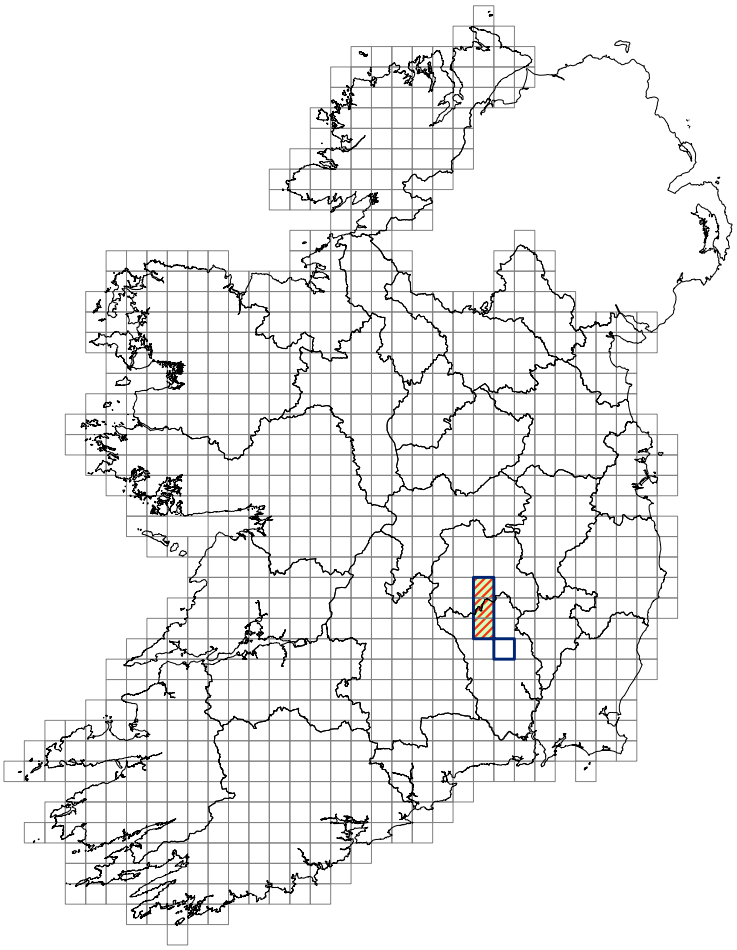
The Nore pearl mussel is recognised in the Habitats Directive as a separate species, but its status as such has been the subject of scientific debate since it was first discovered almost 90 years ago. Regardless, the Nore pearl mussel is morphologically distinct, significantly shorter-lived than its soft-water relatives and one of the most threatened animals in Ireland.

The estimated population of 585 adult mussels is widely dispersed along approximately 33 km of the river channel, with most of the mussels found in approximately 3 km near Durrow, Co. Laois. When healthy and fully-functioning, it is likely that the Nore population numbered in the hundreds of thousands or millions of adult mussels. The adult population continues to decline rapidly; at two survey stretches adult numbers declined by 23 and 67% between 2004 and 2009.

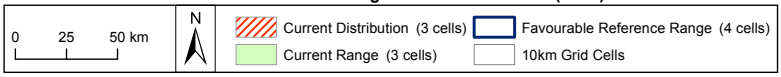
Sedimentation of the Nore pearl mussel's habitat has been the main cause of its decline and the habitat quality continues to be in bad condition. Young have failed to survive in the heavily silted riverbed since the early 1970s and high turbidity and sedimentation cause adult deaths.

Significant conservation efforts have been made to save the Nore pearl mussel and further work is planned, however it is unlikely that its habitat will be restored before the extinction of the wild population. Recent successes in an assisted breeding programme provide some hope, however this project has also suffered episodic and catastrophic losses of both adult and juvenile mussels in captivity. The future of the Nore pearl mussel remains very uncertain and therefore the Overall Status is assessed as Bad and declining.

Áine O'Connor



IRISH FRESHWATER PEARL MUSSEL - *Margaritifera durrovensis* (1990)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Bad	Bad =
Population	Bad	Bad ↓
Habitat for the species	Bad	Bad =
Future Prospects	Bad	Bad ↓
Overall Assessment	Bad	Bad ↓
Reason for change	Genuine decline	

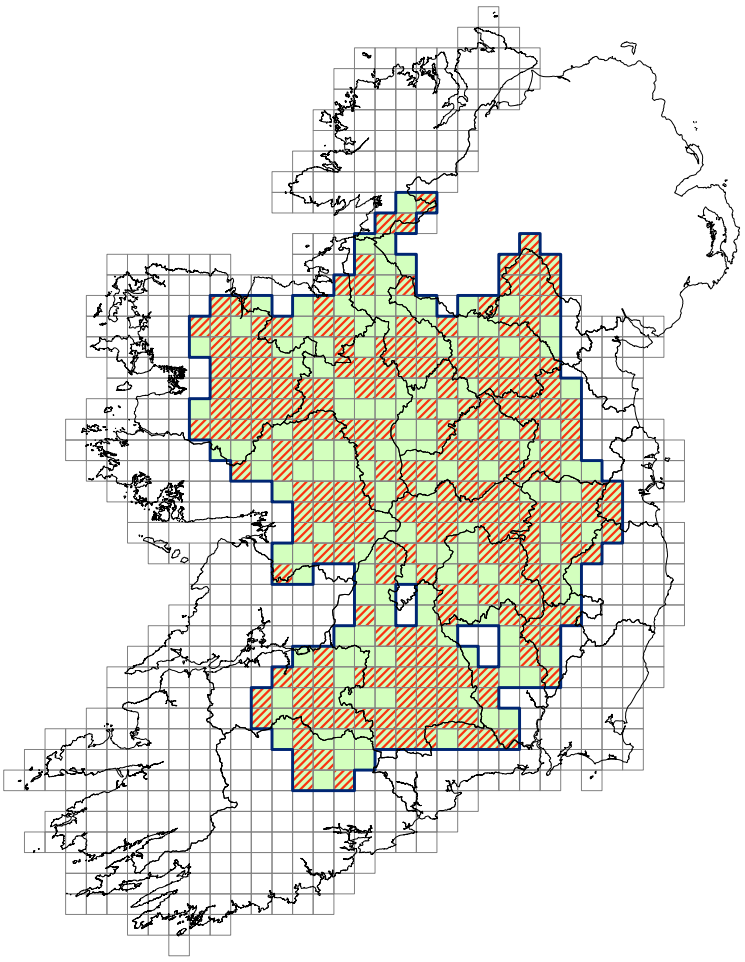
SPECIES CODE: 1092

WHITE-CLAWED CRAYFISH *(Austropotamobius pallipes)* ANNEX: II, V

Robert Thompson

The white-clawed crayfish *(Austropotamobius pallipes)* is the largest non-marine invertebrate found in Ireland. Adults can grow to approximately 11cm in length. It is also a relatively long-lived species with a maximum life of 10 years. Globally this species is confined to south and west Europe including Ireland, where it is the only crayfish species present. In its continental range white-clawed crayfish is found most commonly in headwater streams. In Ireland it occurs in small and medium-sized lakes as well as rivers and streams and this is considered to be due to the lack of competition from other crayfish species. The absence of non-native species from North America also means the Irish population is at less risk from the crayfish plague, although suspected plague events have occurred in Ireland. This disease kills white-clawed crayfish and is the principal cause of decline in Britain and parts of Europe.

Losses reported during the last assessment period have been regained and there has also been some spread into previously unoccupied rivers. These changes may be due to sampling methods and are therefore not certain to be genuine improvements. Populations appear large and robust despite occasional and unexplained reports of mass mortalities. There is no shortage of potential habitat for the species. However, the threat from disease introduction is severe and not likely to disappear and as a result future prospects are considered Inadequate. The key objective is to maintain the Ireland's status as free of both non-native species and the crayfish plague disease. The Overall Status is assessed as Inadequate.



WHITE-CLAWED CRAYFISH - *Austropotamobius pallipes* (1092)

0 25 50 km

N

Current Distribution (223 cells)

Current Range (357 cells)

Favourable Reference Range (357 cells)

10km Grid Cells

ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Inadequate	Favourable
Population	Inadequate	Favourable
Habitat for the species	Inadequate	Favourable
Future Prospects	Inadequate	Inadequate =
Overall Status	Inadequate	Inadequate =
Reason for change	No genuine change	

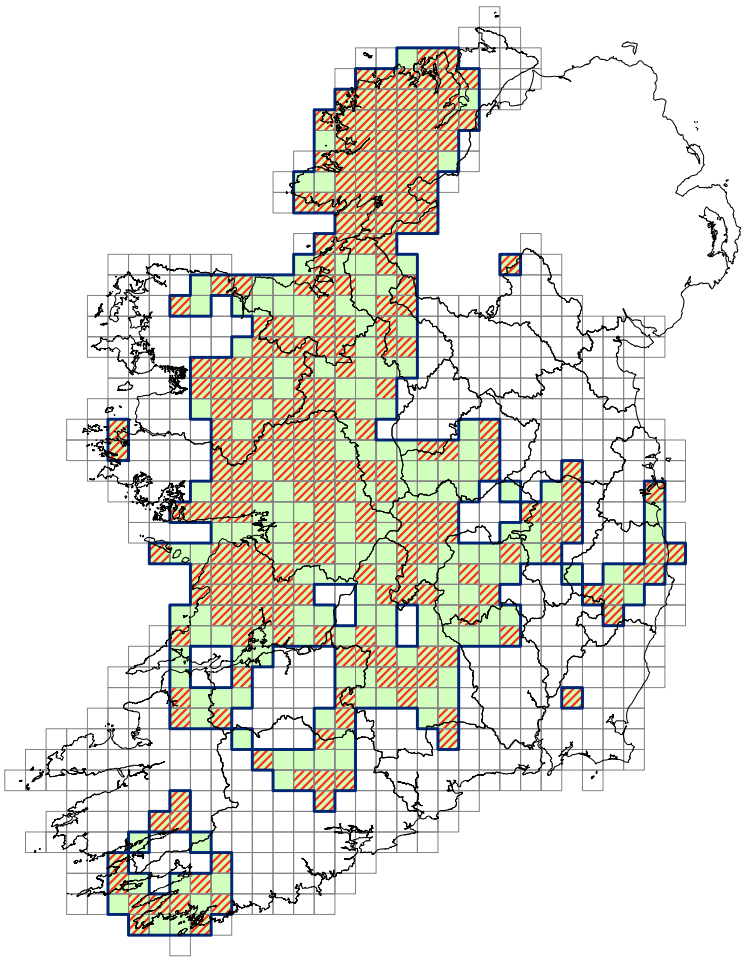
MARSH FRITILLARY *(Euphydryas aurinia)*

The Marsh fritillary *(Euphydryas aurinia)* is an attractive butterfly with chequered wings of brown, orange, black and white. The adults have a short flight period of 4-6 weeks in May and June. The larval stage is the longest part of the annual life cycle lasting nine months. The larvae live communally in a silken web which they spin over the leaves of the foodplant devil's-bit scabious *(Succisa pratensis)*. During the winter they hibernate together in a small web hidden within the vegetation. After hibernation, the caterpillars resume feeding but become increasingly solitary until they pupate in late April.

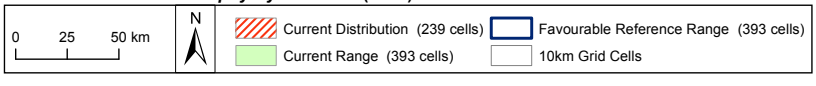
Marsh fritillary lives in habitats where the foodplant is found in a low open sward that is typically dominated by grasses and sedges. Colonies in Ireland occur in a wide variety of situations often in a complex mosaic of habitats that are difficult to define and categorise and may appear to be far from the pristine condition of the habitat. Colonies have been recorded on sand dunes, fens, cutover raised bogs, blanket bogs and wet heaths, unimproved wet, neutral and calcareous grasslands, calcareous and coastal heaths. Most sites are in lowland situations below 200m but it has been recorded up to 350m in recent years.

Although the range of the species is Favourable and currently the amount of habitat is sufficient for the species, the opinion is that the population and habitat quality are declining. Future prospects are therefore assessed as Inadequate and that population decline will continue unless appropriate measures are taken to reduce the pressures. Therefore the Overall Status is assessed as Inadequate and declining.

Vlad Dinca



MARSH FRITILLARY - *Euphydryas aurinia* (1065)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Inadequate	Inadequate ↓
Habitat for the species	Inadequate	Favourable
Future Prospects	Inadequate	Inadequate ↓
Overall Status	Inadequate	Inadequate ↓
Reason for change	Genuine decline	

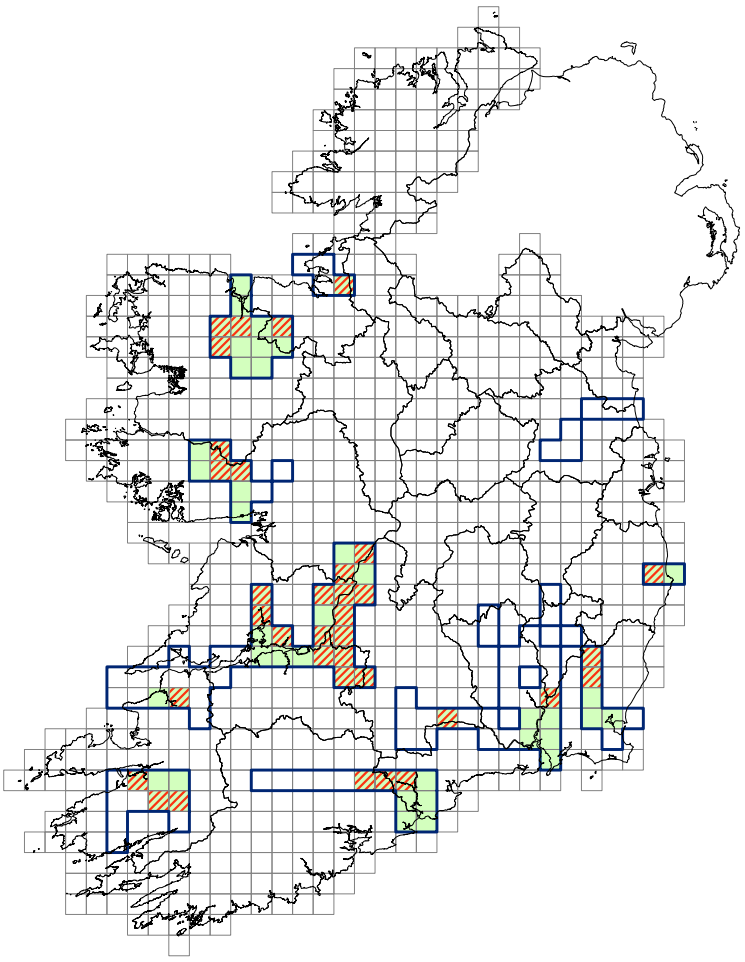
SEA LAMPREY *(Petromyzon marinus)*

ANNEX: II

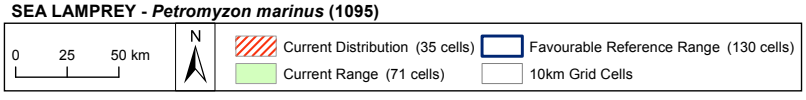
Eddie Dunne

The life cycle of the sea lamprey *(Petromyzon marinus)* contains both a marine phase and a freshwater phase. Adult sea lamprey, ranging in length from 60 to 100 cm, live at sea as external parasites on host fish. Adult lamprey migrate in spring into freshwater to excavate redds or spawning nests in gravelled areas of large rivers. Egg laying follows and the resulting larvae, called ammocoetes, hatch out within days. These swim or drift downstream to areas of fine sediment into which they can burrow. The ammocoete is a filter feeder and retains its burrowing habit in fine-grained sediment over a period of years. Transformation to the young adult stage occurs in late summer and young adult sea lamprey can be found migrating downriver to estuarine waters and the open sea in late autumn – winter. Records of non-migratory or 'land-locked' sea lamprey have been reported in Lough Derg, on the Shannon, and in L. Conn, L. Corrib and L. Gill.

Sea lamprey juveniles are rarely encountered and, when found, numbers are very low. Barriers to upstream migration (e.g. weirs), which limit access to spawning beds and juvenile habitat, are considered the major impediment to good conservation status for sea lamprey. The Overall Status of this species is assessed as Bad.



SEA LAMPREY - *Petromyzon marinus* (1095)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Inadequate	Bad =
Population	Inadequate	Bad =
Habitat for the species	Inadequate	Favourable
Future Prospects	Inadequate	Bad =
Overall Status	Inadequate	Bad =
Reason for change	Improved knowledge.	

RIVER LAMPREY *(Lampetra fluviatilis)*

ANNEX: II, V

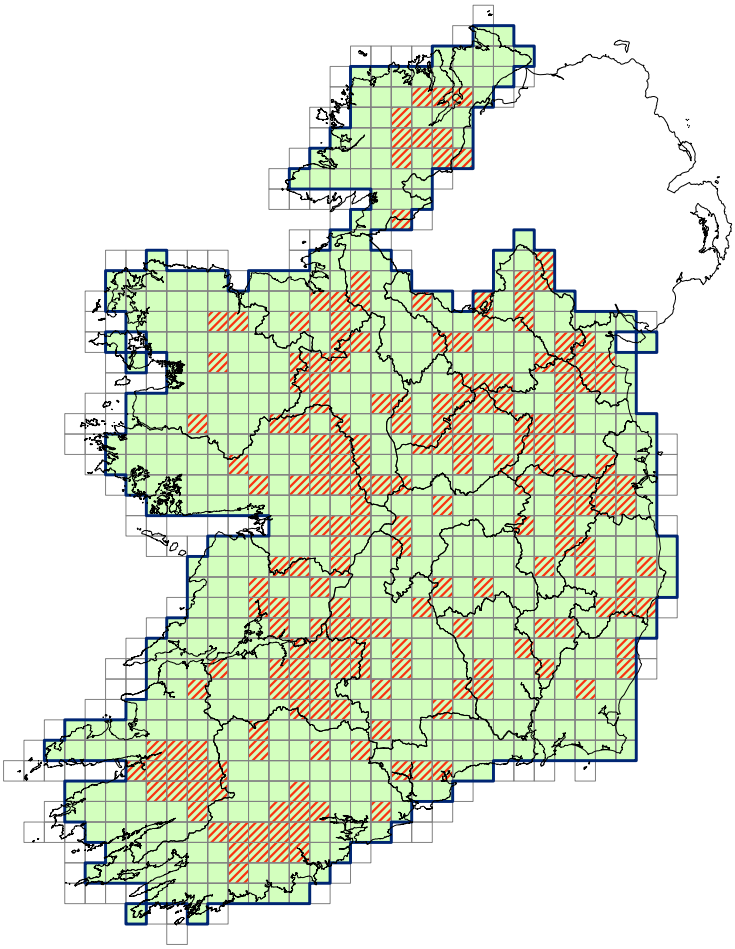
The river lamprey *(Lampetra fluviatilis)* breeds in freshwater rivers and streams. Adults spawn in spring, excavating shallow nests in gravels and stones. After hatching, the larvae called ammocoetes drift or swim downstream to areas of river bed with a fine silt composition. They burrow into this bed material and live as filter feeders over a period of years before transforming into young adult fish. As adults they are parasitic, attaching to and feeding on larger fish in coastal waters. They can grow to 30cm at maturity at which stage they re-enter freshwater to spawn. The adult fish die after spawning.

River and brook lamprey are indistinguishable as larvae, living as filter feeders in sediment. The mature adult forms are clearly distinguishable on the basis of body size. The two types of lamprey are considered by many in the same context as the brown trout / sea trout pairing, with a similar absence of genetic discriminators.

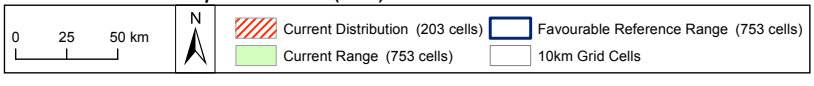
Lamprey surveys in Ireland have necessarily focussed on juvenile lamprey. Consequently, the vast majority of available data relates to "*Lampetra* sp." and cannot be assigned to one species or the other. For the above reasons the brook lamprey and the river lamprey are assessed jointly.

There are extensive areas of suitable habitat and no significant pressures impacting these species. The Overall Status is therefore assessed as Favourable.

Rúairí O Chonchúir



RIVER LAMPREY - *Lampetra fluviatilis* (1099)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

BROOK LAMPREY *(Lampetra planeri)*

ANNEX: II

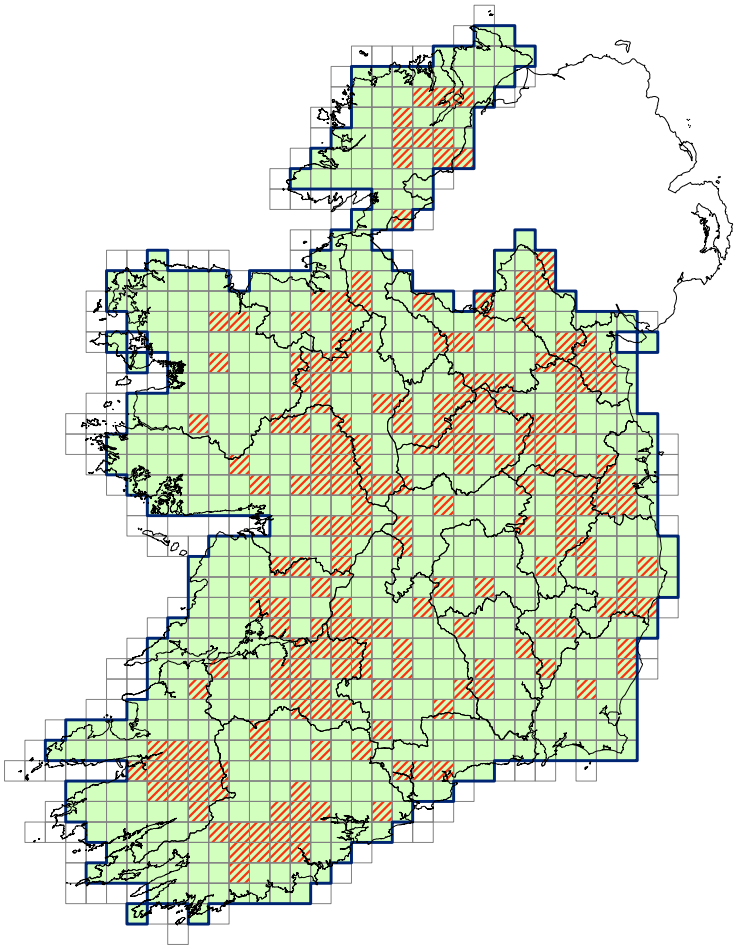
Eddie Dunne

The brook lamprey *(Lampetra planeri)* is the smallest of the three lampreys recorded in Ireland typically reaching no more than 15-18cm in length. Unlike the sea lamprey *(Petromyzon marinus)* and the river lamprey *(Lampetra fluviatilis)*, the brook lamprey is non-parasitic and non-migratory as an adult, living its entire life in freshwater. Adults spawn in spring, excavating shallow nests in relatively small sized gravels in areas of reduced flow. After hatching, the larvae called ammocoetes drift or swim downstream to areas of river bed with a fine silt composition. They burrow into this bed material and live as filter feeders over a period of years before transforming into young adult fish. The young adults overwinter before migrating short distances upstream to gravelled areas where they spawn. The adult fish die after spawning.

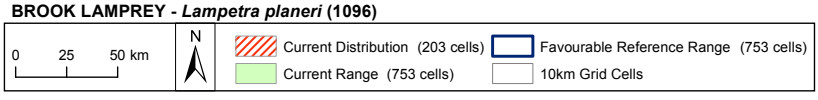
River and brook lamprey are indistinguishable as larvae, living as filter feeders in sediment. The mature adult forms are clearly distinguishable on the basis of body size. The two types of lamprey are considered by many in the same context as the brown trout / sea trout pairing, with a similar absence of genetic discriminators.

Lamprey surveys in Ireland have necessarily focussed on juvenile lamprey. Consequently, the vast majority of available data relates to "*Lampetra* sp." and cannot be assigned to one species or the other. For the above reasons the brook lamprey and the river lamprey are assessed jointly.

There are extensive areas of suitable habitat and no significant pressures impacting these species. The Overall Status is therefore assessed as Favourable.



BROOK LAMPREY - *Lampetra planeri* (1096)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

KILLARNEY SHAD *(Alosa fallax killarnensis)*

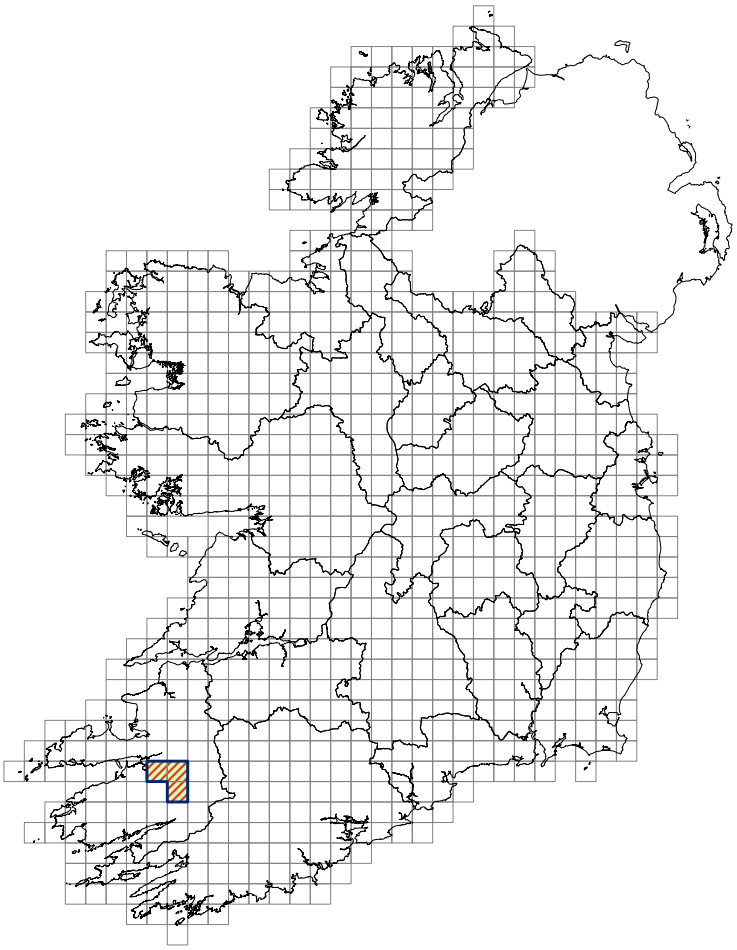
ANNEX: II, V

The Killarney shad *(Alosa fallax killarnensis)* is unique to Ireland and is only known from Lough Leane in Killarney. It is listed in the Irish Red Data Book as Vulnerable due to its presence at only one location. Nonetheless, surveys over the last three decades have confirmed the continued presence of the species in L. Leane in significant numbers.

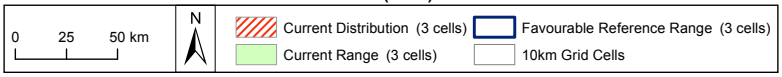
The Killarney shad is closely related to the Twaite *(Alosa fallax fallax)* and Allis shads *(Alosa alosa)*, although, unlike these species, it does not migrate to sea; it spends all of its life in L. Leane. The species is considered to derive from ancestral post-glacial populations that became isolated in the lake. Lough Leane has unimpeded connectivity to the waters of Castlemaine Harbour via the river Laune but there are no records of shads being taken in either the estuarine or riverine waters. Indications are that the species spawns along the shallow gravelled shores and on gravel banks adjoining the various islands within L. Leane. The adult fish live in shoals in the lake, feeding on zooplankton.

This species is maintaining a robust population in L. Leane and the available habitat is considered Favourable. Although the threats to water quality posed by the proximity of a large urban centre are a concern, the species is known to have coped successfully with eutrophication incidents before. The entire range of the Killarney shad is protected within Killarney National Park. The Overall Status is assessed as Favourable.

William Roche



KILLARNEY SHAD - *Alosa fallax killarnensis* (5046)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

TWAITE SHAD *(Alosa fallax fallax)*

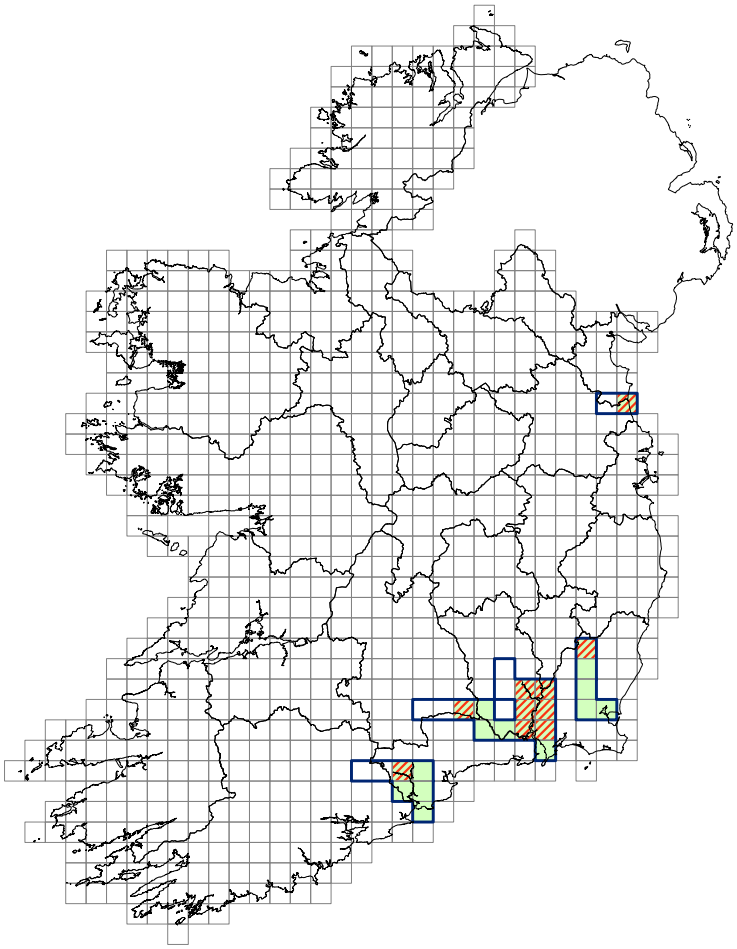
ANNEX: II, V

William Roche

The twaite shad *(Alosa fallax fallax)* spends most of its life in estuaries and coastal waters, but migrates upriver to spawn in late spring. The fertilised eggs hatch after a short period and juveniles can reach up to 100 mm at the end of the first year. Limited knowledge indicates that Irish twaite shad may live in estuarine waters for at least two full years prior to going to sea.

Although there have been sporadic records of twaite shad from the east and west coasts, spawning has been confirmed only in the major river systems of the south-east, and even there is limited evidence for any recent spawning outside the Barrow and the Blackwater. The number of incidental twaite shad records are much reduced in the 2007-2012 period due to the introduction of controls on commercial fishing for salmon in Irish estuaries, and the introduction of genetic identification by the Irish Specimen Fish Committee, eliminating the need for anglers to produce fish bodies for verification.

In 2007 a broad landscape approach was used to estimate the range of the twaite shad; the current range is based on more accurate information and represents only 75% of the identified favourable reference range. Population, although strong in the Barrow and reasonable in the Blackwater, is poor in other rivers and assessed as Inadequate overall. The extent of habitat is considered to be adequate to carry a larger population than is currently recorded, but there are concerns about habitat quality at spawning sites in particular. Hybridisation between twaite shad and Allis shad *(Alosa alosa)* has been identified as a further concern in certain rivers. Management measures will be required to ensure continued successful spawning in the Barrow and improvements elsewhere. The Overall Status of this species is assessed as Bad.



TWAITE SHAD - *Alosa fallax* (1103)

0 25 50 km

N

Current Distribution (10 cells)
Current Range (22 cells)
Favourable Reference Range (29 cells)
10km Grid Cells

ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Bad ↑
Population	Bad	Inadequate =
Habitat for the species	Unknown	Inadequate =
Future Prospects	Inadequate	Inadequate =
Overall Status	Bad	Bad =
Reason for change	Refined approach	

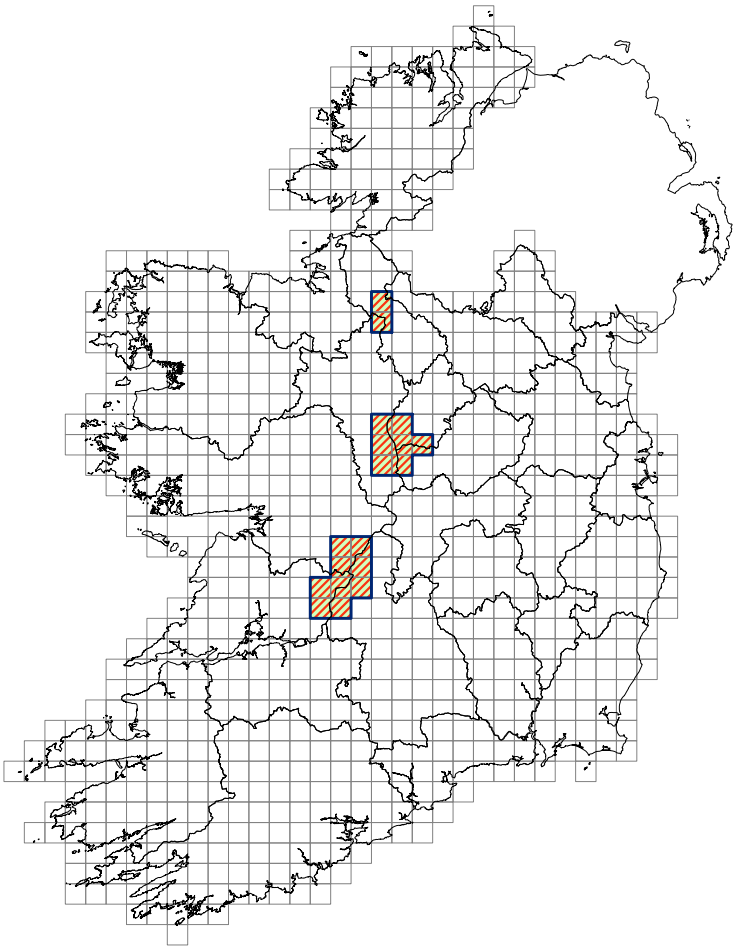
POLLAN *(Coregonus autumnalis)*

Pollan ***(Coregonus autumnalis)*** is a species of whitefish unique to the island of Ireland. It is found in three large lakes on the river Shannon – Lough Derg, L. Ree and L. Allen – as well as L. Erne and L. Neagh in Northern Ireland. With the exception of L. Neagh, these lakes are characterized by significant areas of deep water where the fish retreats during warm weather. The species feeds on a mix of plankton, insect larvae and some benthic food items. They may make diurnal feeding movements up and down the water column in feeding. Spawning is thought to occur on gravelled areas in the shallow waters on exposed lake shores in December – January.

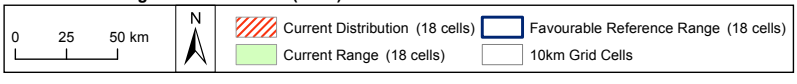
Pollan once constituted a significant proportion of fish biomass in the Shannon lakes, however, that is no longer the case. Recent hydro-acoustic surveys on L. Allen and L. Ree have indicated that the populations are reproducing but, overall, numbers are very low.

Several significant pressures and threats have been identified. Nutrient enrichment can lead to depletion of oxygen in the deep lake waters during summer. If this occurs, pollan are squeezed between unsuitable warmer surface waters and deeper areas which, though cooler, may have reduced oxygen concentrations. Introduced species are a further concern: perch and roach are a substantial component of the fish community in these lakes and these species may compete with pollan for food. The presence of zebra mussels and Asian clams further undermines habitat quality. The Overall Status of this species is assessed as Bad.

Emma Morrissey



POLLAN - *Coregonus autumnalis* (5076)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Bad	Bad x
Habitat for the species	Inadequate	Inadequate x
Future Prospects	Inadequate	Inadequate x
Overall Status	Bad	Bad x
Reason for change	No change	

SPECIES CODE: 1106

ATLANTIC SALMON *(Salmo salar)*

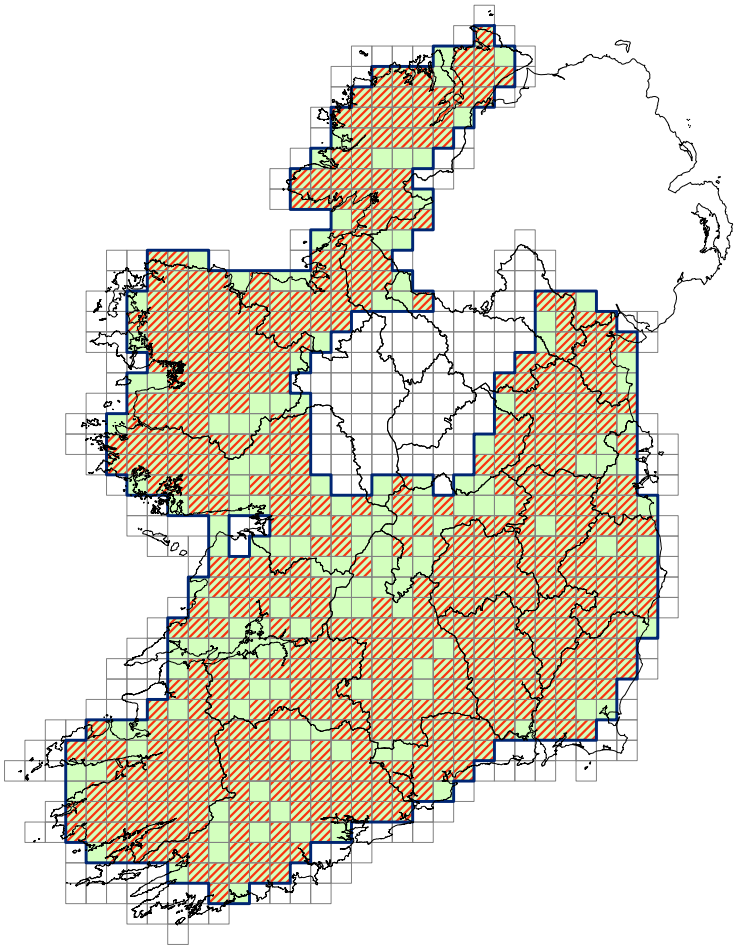
ANNEX: II, V

Mike Brown

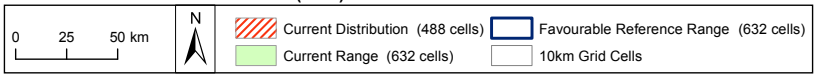
The range of the Atlantic salmon *(Salmo salar)* extends in an arc from northern Portugal in the east, to New England, United States in the west. Salmon use rivers to reproduce and as nursery areas. Eggs are deposited during the winter in a depression, called a redd, excavated in river gravels. The eggs develop protected within the substrate and during spring hatch into alevins, which in turn develop into fry. The fry feed for the summer and over the autumn, gradually becoming parr. Fry and parr feed primarily upon invertebrates. The Irish population generally comprises fish that spend two winters (small numbers spend one or three winters) in freshwater before going to sea, in spring, as smolts at around 10-25cm in length.

Adults spend one to three years at sea where growth rates are much greater. They feed upon crustaceans and fish (e.g. capelin and sandeels) as they migrate to feeding grounds in the North Atlantic. The majority of Irish fish spend one winter at sea before returning to their natal rivers, mainly during the summer, as grilse. Smaller numbers spend two or even three winters at sea, returning mainly in spring, hence "spring" salmon.

There has been a recent stabilisation of the numbers of salmon spawning in Ireland and an increasing number of salmon rivers meeting their conservation limits, however low rates of marine survival are of concern. Different units were used to measure population size in 2007; there is no genuine change in the overall population estimate. There are numerous threats to the freshwater habitat and vigilance is required to ensure the maintenance of good quality habitat which salmon require to thrive. The salmon population is still low in comparison to previous decades and so, in the absence of a recovery, the Overall Status is assessed as Inadequate.



ATLANTIC SALMON - *Salmo salar* (1106)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Bad	Inadequate =
Habitat for the species	Inadequate	Favourable
Future Prospects	Inadequate	Inadequate =
Overall Status	Bad	Inadequate =
Reason for change	No genuine change	

SPECIES CODE: 1202

NATTERJACK TOAD *(Bufo calamita)*

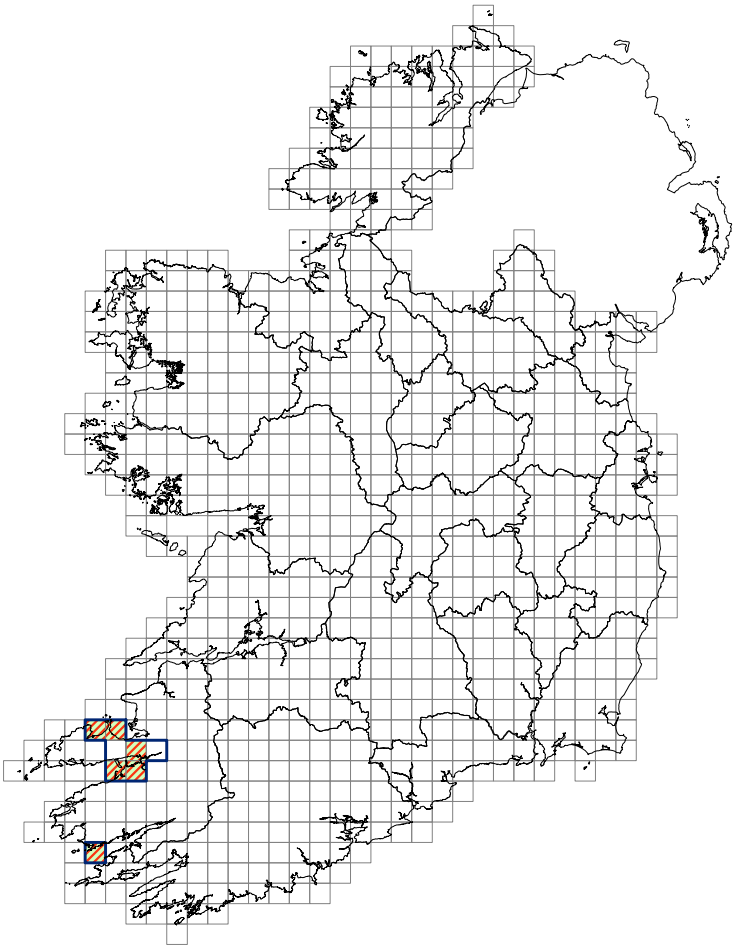
ANNEX: IV

The natterjack toad *(Bufo (Epidalea) calamita)* is widespread across continental Europe but lives at the edge of its climatic range in Ireland. The species hibernates, emerging to breed at the end of March/early April. Males take up residence in traditional breeding ponds where, in the evenings, they call to females. Eggs are laid in strings. In warm weather tadpoles can develop quickly and emerge onto land within 8-10 weeks. The toad is adapted to temporary water bodies; while dry years lead to mass mortalities of tadpoles, good years can see thousands of juveniles emerge successfully. Consequently, significant population fluctuations can occur between years.

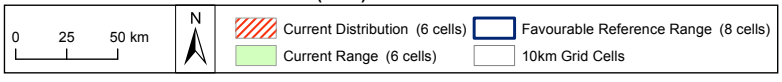
Natterjacks do best in warm, open grassy habitat such as dunes and coastal grasslands. They are most active at night and will forage until late Autumn. Toads feed on terrestrial invertebrates such as spiders and beetles. As nights get colder Natterjacks retreat to frost free refuges (e.g. under piles of logs/ stones, in sandy rabbit burrows) where they will hibernate over winter.

The natterjack toad suffered a significant loss of habitat in the first half of the 20th century and its range and population declined dramatically as a result. Recent investment in pond creation has seen an increase in available habitat, but continued intervention in terms of habitat creation and management will be required before the long term future of this species can be ensured. Therefore the Overall Status remains as Bad but improving.

NPWS



NATTERJACK TOAD - *Bufo calamita* (1202)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Bad	Bad =
Population	Bad	Bad x
Habitat for the species	Inadequate	Inadequate ↑
Future Prospects	Inadequate	Inadequate =
Overall Status	Bad	Bad ↑
Reason for change	Genuine improvement	

SPECIES CODE: 1213

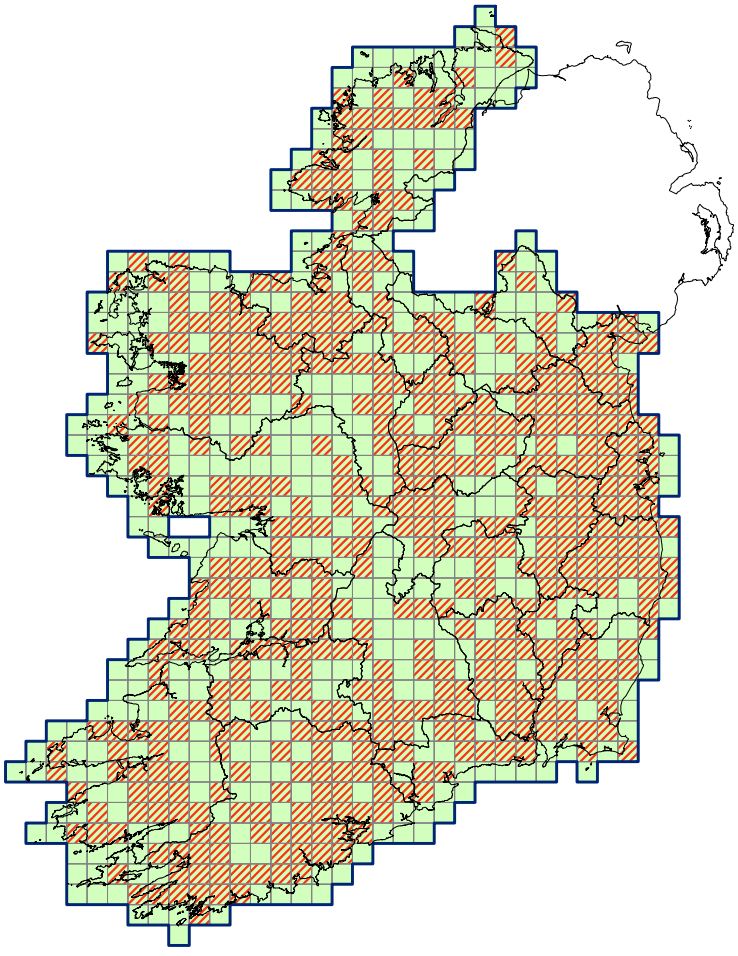
COMMON FROG *(Rana temporaria)*

ANNEX: V

Joan O'Neill

The common frog *(Rana temporaria)* is one of only three amphibians found in Ireland. It is a widespread and very abundant species occurring in a broad range of habitats throughout the country. Adults congregate to spawn in ponds and ditches in the spring. Eggs develop into tadpoles as water temperature rises and following metamorphosis, young froglets emerge onto land in early summer. These young animals are particularly vulnerable to predation. They spend 2-3 years on land, feeding on terrestrial invertebrates, before returning to freshwater to breed. Life expectancy is typically 3-4 years.

The previous assessment in 2007 highlighted concerns about the loss of wetland habitat for this species. However, since then an extensive national survey has been conducted. This demonstrated that there is a very large population of frogs in Ireland and that they have adapted well to wetland drainage, breeding extensively in drainage ditches. The Overall Status is now assessed as Favourable. While the conservation status appears to have improved since the 2007 report, this is considered to be due to improved knowledge and our better understanding of how frogs use the Irish landscape, rather than any actual improvement in the status of the species.



COMMON FROG - *Rana temporaria* (1213)

0 25 50 km

N

Current Distribution (481 cells)

Current Range (869 cells)

Favourable Reference Range (869 cells)

10km Grid Cells

ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Inadequate	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Inadequate	Favourable
Reason for change	Improved knowledge	

LEATHERBACK TURTLE *(Dermochelys coriacea)*

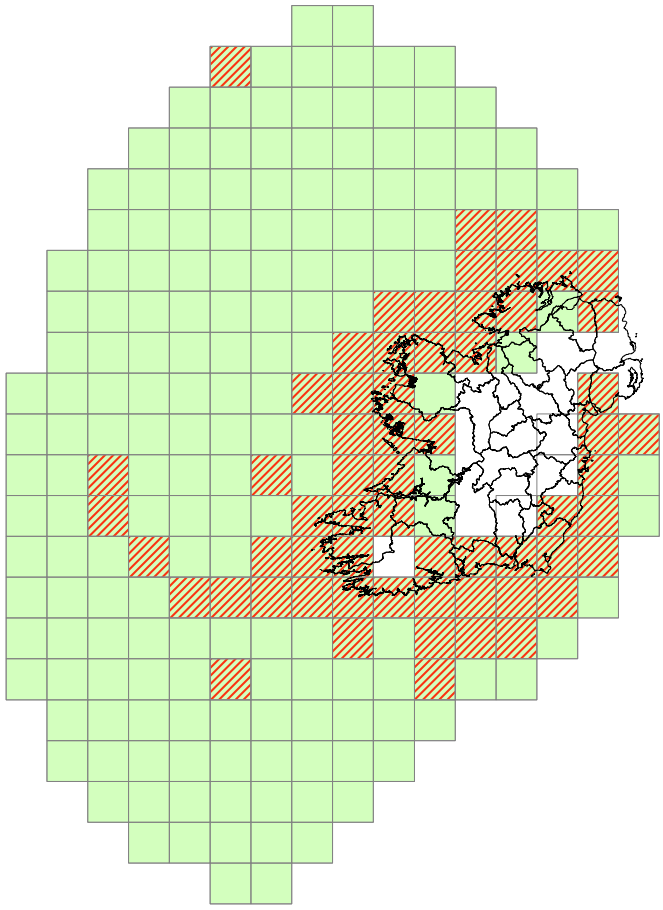
ANNEX: IV

The leatherback turtle *(Dermochelys coriacea)* is the most widely distributed living reptile species, being found in all oceans except the Southern Ocean. Within the North Atlantic its range extends from the tropics to the high latitudes of Newfoundland right across to Europe's north-westerly fringe. It is a widely roaming species, with individuals making extensive pan-oceanic movements. Breeding is confined to warm tropical regions because of thermal constraints on egg incubation, but the species has many unique anatomical and physiological adaptations that permit them, unlike other marine turtles, to forage seasonally into cooler temperate waters. During the summer months their range is at its greatest extent with individuals located throughout the North Atlantic, whereas during the winter months their range is restricted to areas where the sea surface temperature is >15 °C.

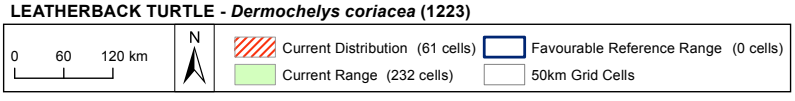
Recent studies have shown that after nesting in the tropics the majority of Atlantic leatherbacks head north towards cooler temperate waters. Some of these individuals head north towards the Northeast Atlantic and Irish waters where they forage on jellyfish for the summer months before turning south again as water temperatures decline.

There are significant difficulties associated with studying this species. Despite recent progress, the population ecology, range and habitat utilisation of this species in the NE Atlantic are not fully understood. Although there is evidence of significant by-catch of leatherbacks in long-line fisheries in the Pacific, there are some indications that the Atlantic populations may be faring better, with recent surveys suggesting that numbers of females may be increasing at nesting beaches. Nonetheless, a full assessment is not possible at this stage and the Overall Status of this species is assessed as Unknown.

Karl Partridge



LEATHERBACK TURTLE - *Dermochelys coriacea* (1223)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Unknown	Unknown
Population	Unknown	Unknown
Habitat for the species	Unknown	Unknown
Future Prospects	Inadequate	Unknown
Overall Status	Inadequate	Unknown
Reason for change	No genuine change	

SPECIES CODE: 1303

LESSER HORSESHOE BAT *(Rhinolophus hipposideros)*

ANNEX: II, IV

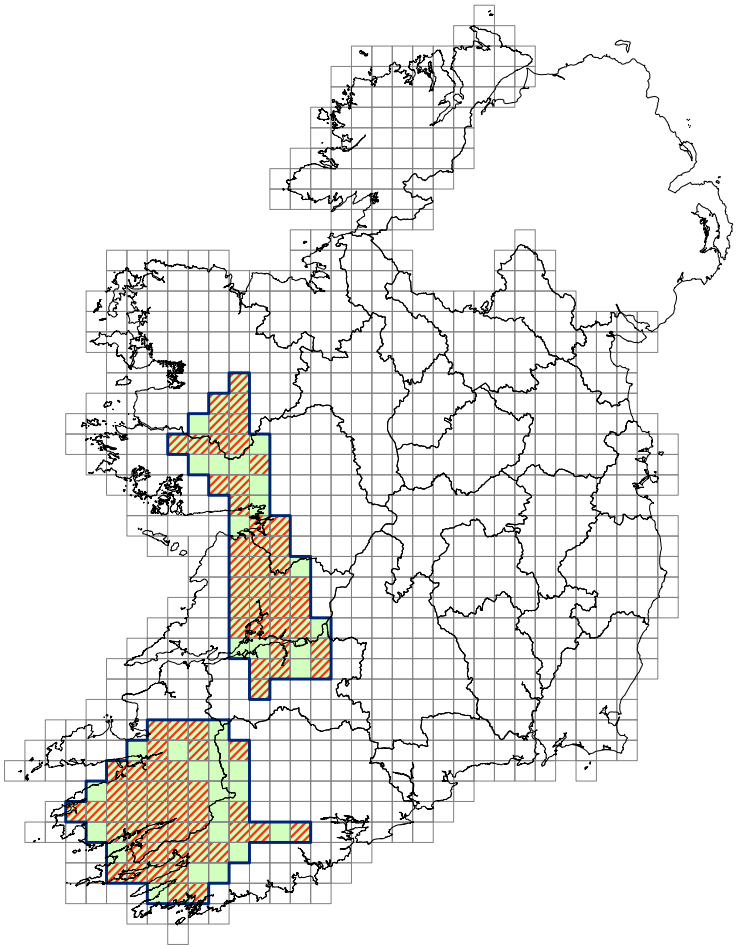
Sinead Biggane

The lesser horseshoe bat *(Rhinolophus hipposideros)* is widely distributed through western, central and southern Europe and as far east as Kashmir, northern Africa and Arabia. Ireland represents the most north-westerly limit of the species' distribution and here it is confined to six west coast counties: Mayo, Galway, Clare, Limerick, Cork and Kerry. A single animal has also been recorded in Co. Roscommon. Although this bat has declined in many European countries, Ireland is considered a stronghold for the species.

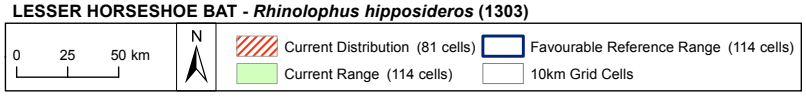
Lesser horseshoe bats are faithful to their roost site and will return to the same site each year. Summer roosts are often in the attics of old or derelict buildings. Hibernation sites are typically caves, souterrains, cellars and icehouses. Lesser horseshoes rely on linear landscape features (e.g. treelines, stonewalls and hedgerows) to navigate and commute from roosts to feeding sites and are reluctant to fly out in the open. The bats forage on flying insects predominantly in deciduous woodland and riparian vegetation normally within a few km of their roosts.

Lesser horseshoe bats are sensitive to disturbance and normally do not occupy the same buildings as humans. Loss of roosting sites due to deterioration or renovation of old buildings, loss of commuting routes linking roosts to foraging sites, and unsympathetic management of foraging habitats are the major threats to this species.

The population is estimated at approximately 12,000-14,000 animals and both short term and long term population trends show slight increases. The identified threats are considered manageable and a significant proportion of this bat's summer and winter roosts are protected within SACs. The Overall conservation status of this species is assessed as Favourable.



LESSER HORSESHOE BAT - *Rhinolophus hipposideros* (1303)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

SPECIES CODE: 1309

COMMON PIPISTRELLE *(Pipistrellus pipistrellus)*

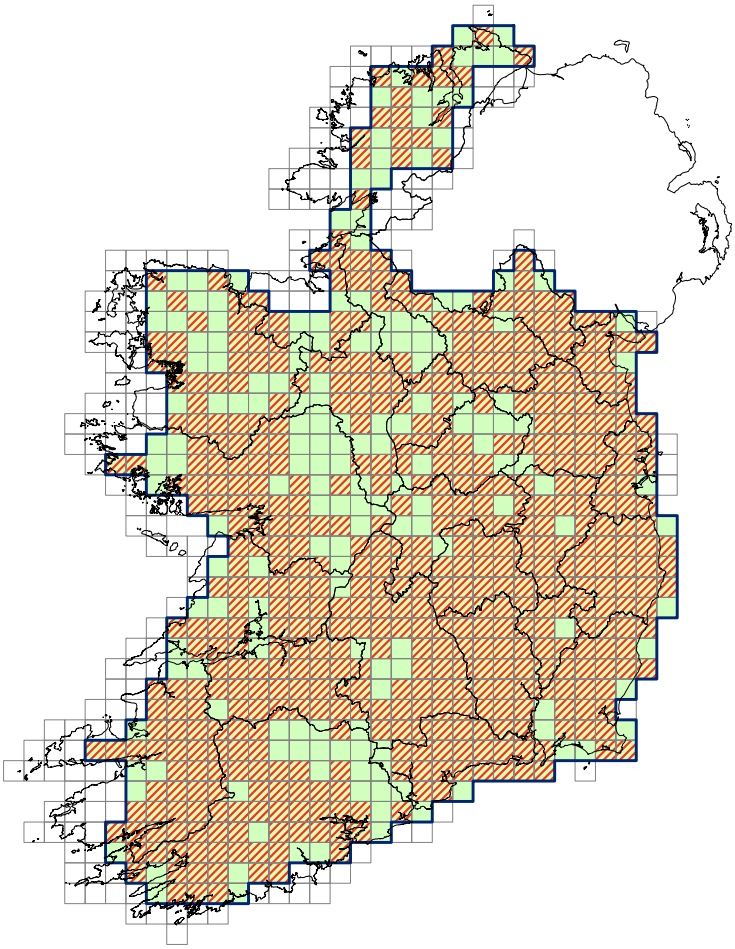
ANNEX: IV

The common pipistrelle *(Pipistrellus pipistrellus)* is one of Ireland's smallest mammals. It is widespread throughout the country although it may be less common or even absent from some parts of the far west. It is very general in its habitat preference, foraging in woodland, riparian habitats and parkland, along linear features in farmland, and in towns and cities. Some association with broadleaved woodland and riparian habitats at a local scale, have been identified, while mixed forestry may be more important at a wider scale in the landscape. Only areas of bog, marsh and heath appear to be avoided.

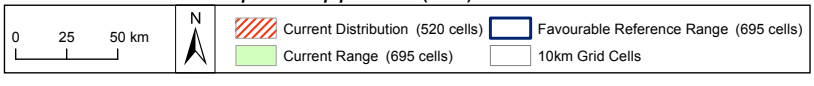
Maternity roosts of this species are often in buildings, typically in the attics of dwelling houses, although it is occasionally found roosting under bridges and in trees. Bats normally disperse in autumn and hibernate over winter. The species has rarely been found hibernating in Ireland, but the available records for bats in winter are from modern dwelling houses.

Recent estimates for this species suggest a population size in the order to 1-2 million animals. The population size is stable and may even be increasing. Furthermore, there is no indication of any major pressures currently impacting this species; therefore the Overall Status is assessed as Favourable.

Frank Greenway



COMMON PIPISTRELLE - *Pipistrellus pipistrellus* (1309)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

SOPRANO PIPISTRELLE *(Pipistrellus pygmaeus)*

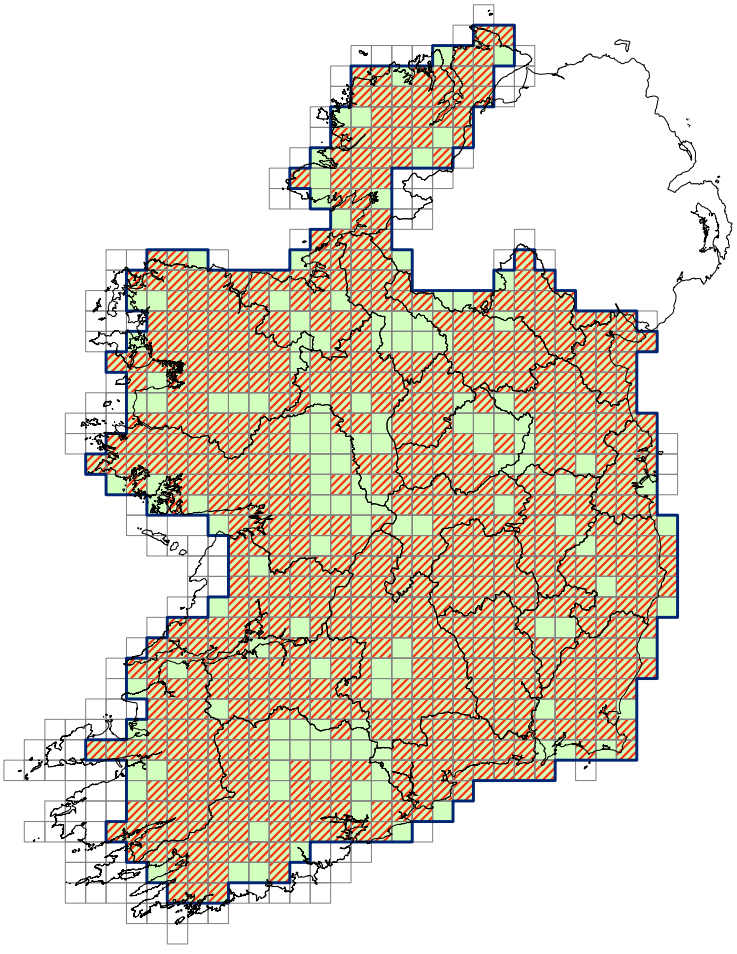
ANNEX: IV

Frank Greenway

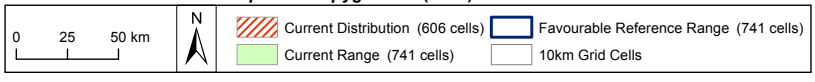
The soprano pipistrelle *(Pipistrellus pygmaeus)* overlaps with the common pipistrelle across much of central Europe, but while the soprano pipistrelle appears to be absent from much of France and northern Iberia, its range does extend into southern Scandinavia and Greece. The species is abundant and widespread in Ireland, occurring in all counties. Recent monitoring suggests that it may be most abundant in the western half of the country.

Summer roosts are usually in buildings, including modern suburban houses, old abandoned mansions, churches, amenity buildings and farm sheds. The bats normally roost in very confined spaces, such as behind window sashes, under tiles and weather-boards, behind fascia and soffits, and within the cavities of flat roofs. Roosts of >1000 soprano pipistrelles are known. The species is thought to hibernate in buildings and trees, but has seldom been recorded in winter. Although this bat is known to forage in a broad range of habitats, it shows some preference for aquatic habitats – riparian woodland, rivers and lakes.

Recent estimates for this species suggest a population size in the order of 500,000 – 1,000,000 animals, with evidence for a recent increase. As there is no indication of any major pressures currently impacting populations the Overall Status of this species is assessed as Favourable.



SOPRANO PIPISTRELLE - *Pipistrellus pygmaeus* (5009)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

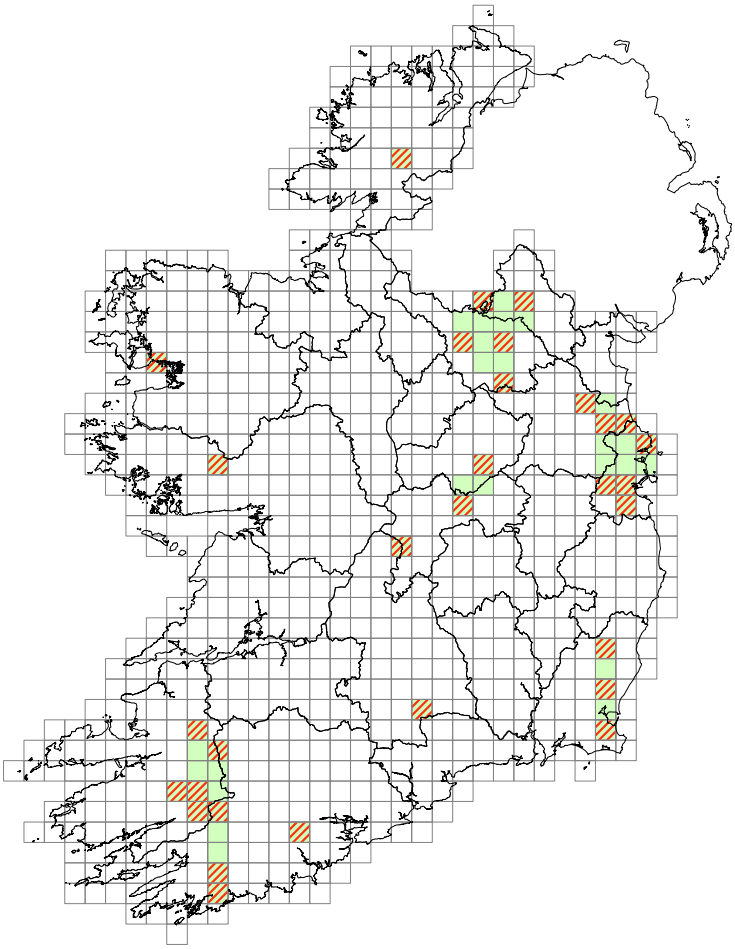
NATHUSIUS' PIPISTRELLE *(Pipistrellus nathusii)*

ANNEX: IV

The Nathusius' pipistrelle *(Pipistrellus nathusii)* was first detected in the Republic of Ireland in 1997. This pipistrelle is a long distant migrant over much of its range; it is found in eastern Europe only in summertime and is found in south-western Europe only in the winter. Ireland and the UK appear to lie in a transitional region, with resident bats being supplemented during winter by migratory individuals. To-date, although maternity colonies have been located in Northern Ireland, no maternity roost has been found in the Republic of Ireland.

Nathusius' pipistrelle is a relatively recent addition to the Irish fauna. It appears to have spread from Northern Ireland and the north-east remains its stronghold on the island. Initial indications suggested that this species was spreading rapidly. However, data from recent years are more ambiguous. Only 31 x 10km cells hold records for the current reporting period and these are scattered throughout the country giving no real impression of an established range. Consequently, range has been assessed as Unknown. Despite the years of survey work, there is still no evidence of any breeding colonies of this species in the Republic of Ireland and it is not clear if a viable breeding population exists. As a result, population has also been assessed as Unknown. There is, however, a significant area of suitable habitat available to be colonised by the species. The extent of these habitats appears to be stable and in general these habitats appear to be in good condition. Future prospects, however, are hard to define given the lack of other information and further work is required to clarify the true status of this bat species in Ireland. Therefore the Overall Status is assessed as Unknown.

Frank Greenway



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Unknown
Population	Favourable	Unknown
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Unknown
Overall Status	Favourable	Unknown
Reason for change	Uncertain data	

SPECIES CODE: 1322

NATTERER'S BAT *(Myotis nattereri)*

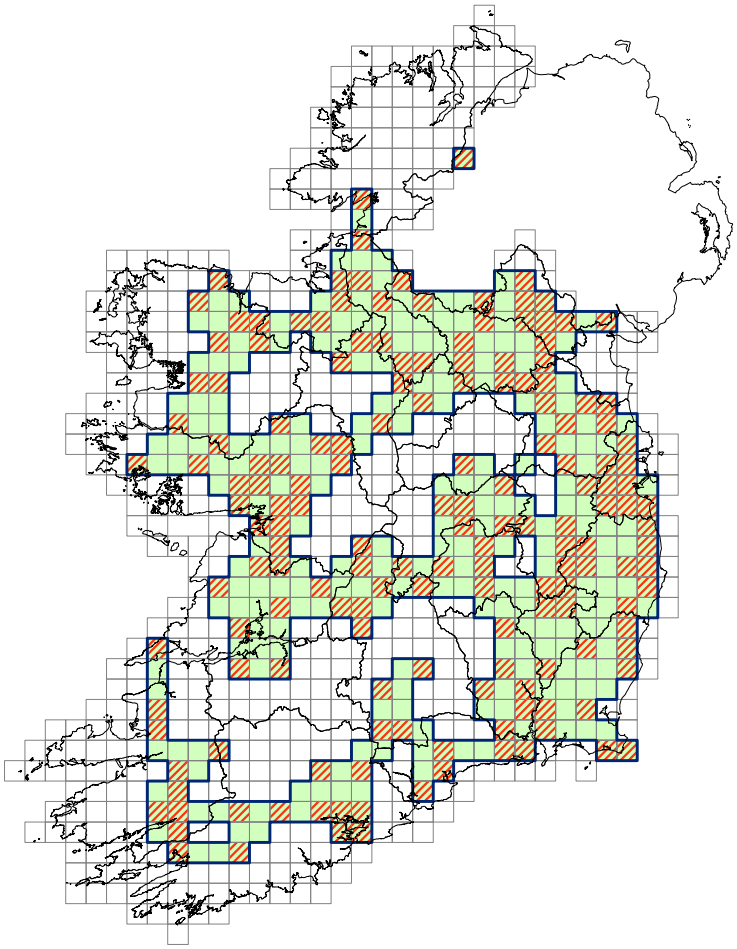
ANNEX: IV

Frank Greenway

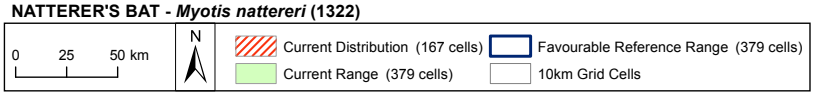
The Natterer's bat *(Myotis nattereri)* is widespread across Europe and found from Portugal and north-west Africa to the Urals and the near East. It is also widely distributed in Ireland, though seldom recorded.

Summer roosts are normally in buildings although bridge roosts are also known. Although some large roosts (>50 bats) have been found in churches, typically only small numbers of bats are present, often between rafters and felt and in other narrow spaces where they are difficult to locate. Recent surveys of swarming roosts have also located this species. In winter individuals have been observed in bridges, mines and caves. Woodland habitats and river corridors appear to be favoured for foraging.

The Natterer's bat has a disjunct distribution in Ireland, but its range and population are in good condition and the area of suitable habitat appears to be increasing. Woodland management and the renovation of old buildings and bridges have been identified as potential concerns. The Overall Status is however assessed as Favourable.



NATTERER'S BAT - *Myotis nattereri* (1322)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

DAUBENTON'S BAT *(Myotis daubentonii)*

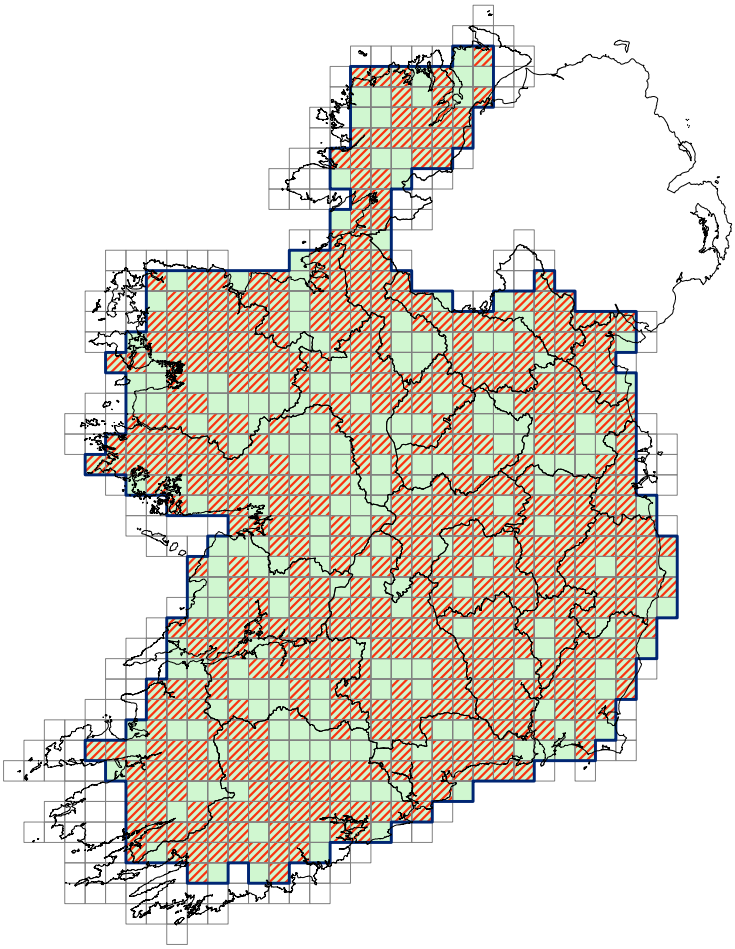
ANNEX: IV

The Daubenton's bat *(Myotis daubentonii)* is found throughout Ireland. It is particularly associated with rivers and lakes due to its preference for foraging over water. It is positively associated with good water quality and invertebrate diversity and favours waterways with riparian vegetation, particularly broadleaf woodlands. It is less likely to be present where there are street lights. It also tends to avoid areas of peatland and is negatively associated with increasing altitudes.

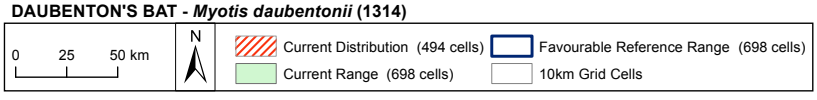
Daubenton's tend to roost in un-insulated structures, with bridges accounting for over 50% of its roost records in Ireland. The remaining roosts are found in buildings, with occasional records for caves and trees. Confirmed hibernacula for the species are extremely rare in Ireland. In recent years several cave locations have been confirmed as autumnal swarming sites for the species, but it is unknown whether these sites also function as hibernation roosts.

Recent estimates for this species suggest a population size in the order to 57,000-79,000 animals. The population size is stable and there is no indication of any major pressures currently impacting on the species. Therefore the Overall Status is assessed as Favourable.

Frank Greenway



DAUBENTON'S BAT - *Myotis daubentonii* (1314)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

WHISKERED BAT *(Myotis mystacinus)*

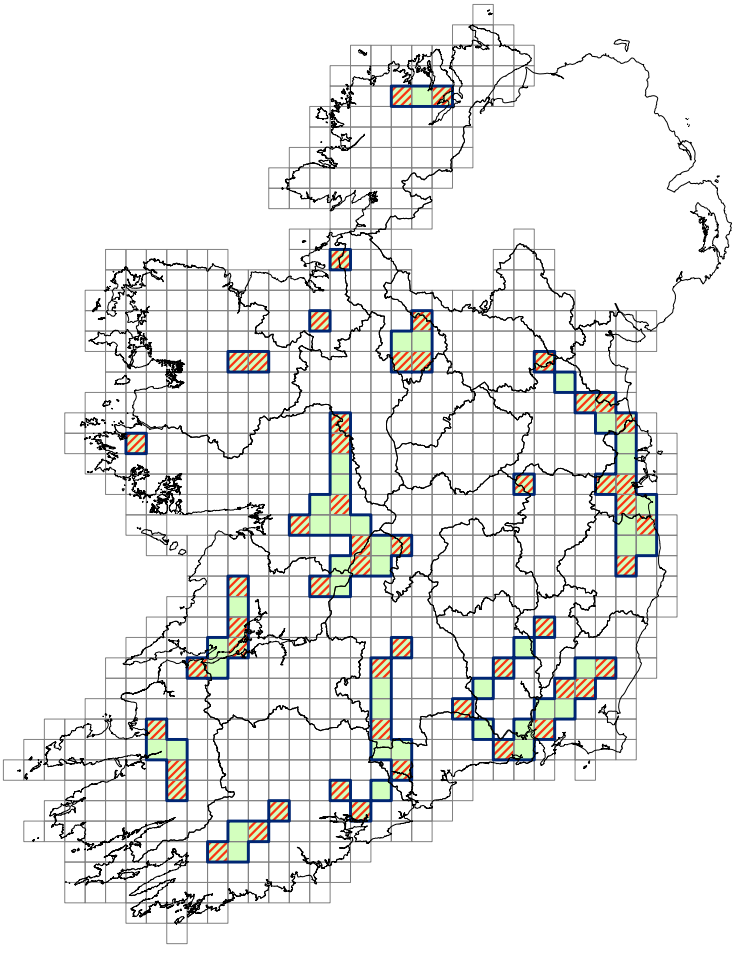
ANNEX: IV

Frank Greenway

The whiskered bat *(Myotis mystacinus)* is widespread across much of Europe although it is absent from northern Scotland and northern Scandinavia. There are records from throughout Ireland, from Donegal to Wexford, but the species is not common and its distribution appears to be naturally dispersed and disjunct.

Summer roosts are normally in old stone buildings. Usually only small numbers of bats are present, often between rafters and felt and in other narrow spaces where they are difficult to locate. Bridge roosts are also known. Wintering animals are rarely found, but a small number has been recorded in caves. This bat is known to be a woodland specialist, foraging selectively in broadleaved and mixed woodland as well as riparian corridors.

Although the whiskered bat has a dispersed and disjunct distribution, the area of suitable habitat appears to be increasing. Building renovation and loss of foraging habitat are potential threats but there are no significant pressures currently impacting this species. Therefore the Overall Status is assessed as Favourable.



WHISKERED BAT - *Myotis mystacinus* (1330)

0 25 50 km

N

Current Distribution (52 cells)
Current Range (93 cells)
Favourable Reference Range (93 cells)
10km Grid Cells

ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

SPECIES CODE: 1326

BROWN LONG-EARED BAT *(Plecotus auritus)*

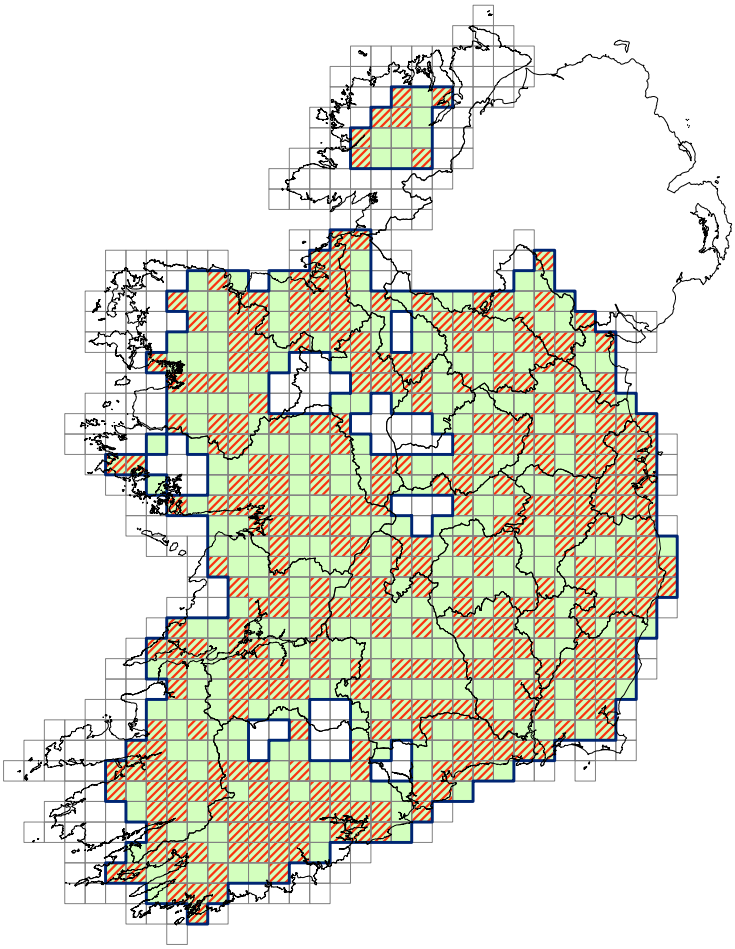
ANNEX: IV

The brown long-eared bat *(Plecotus auritus)* is widely distributed in Ireland and across Europe. Its slow flight limits the distance that this species can travel at night-time and studies have found that almost all bats will forage within 1.5km of the roost. However, its manoeuvrability means that it can access cluttered habitats and flightless arthropod prey makes up a large proportion of its diet confirming the importance of gleaning as a foraging strategy for the species. Modelling indicates that the brown long-eared bat selects areas with broadleaf woodland and riparian habitats on a local scale, while the presence of mixed woodland at a wider landscape level is also important. It can cope with low levels of urbanisation, but wetlands such as bog, marsh and heath are avoided.

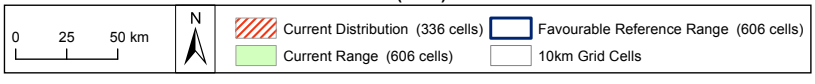
Brown long-eared bats rely heavily on manmade structures for roosting. Most of the roosts recorded in Ireland are in buildings, with very small numbers in bridges, trees and bat boxes, although the natural summer roost of this species across Europe is tree holes. Brown long-eared bats show a high degree of roost fidelity and will often use traditional roosts for generations. While the species has been found in a range of building types, from old mills to bungalows, churches or large mansions typically support the largest numbers.

Recent estimates put the Irish population of brown long-eared bats at 60,000 – 100,000 animals. Monitoring data suggests a recent significant increase in numbers. There is no indication of any major pressures currently impacting the population; therefore the Overall Status is assessed as Favourable.

Frank Greenway



BROWN LONG-EARED BAT - *Plecotus auritus* (1326)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

LEISLER'S BAT *(Nyctalus leisleri)*

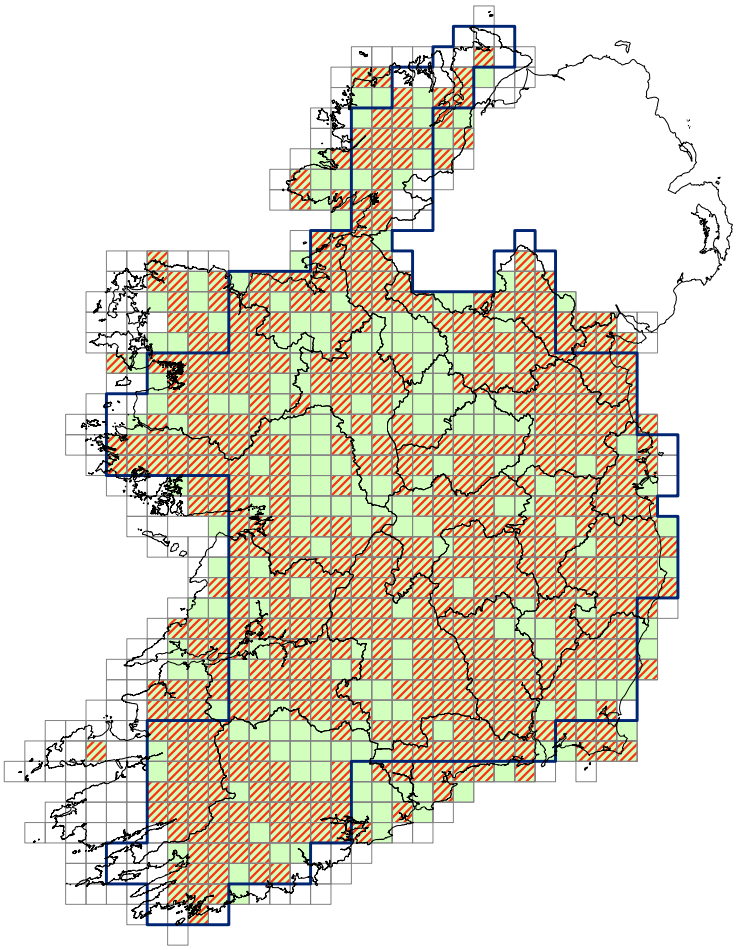
ANNEX: IV

Frank Greenway

Leisler's bat *(Nyctalus leisleri)* has been described as a 'typically Irish bat' due to its abundance in Ireland compared to the rest of the Europe, where it is uncommon or absent. Its abundance in Ireland has been attributed to the absence of larger competing species, such as the closely related noctule *(N. noctula)*. On continental Europe, Leisler's bat is considered a tree-dwelling species across most of its distribution. The majority of roosts of this species in Ireland, however, have been found in buildings although roost records from trees and bat boxes are also known.

Of all the Irish bat species, Leisler's have the most specific maternity roosting habitat requirements, selecting sites with adjacent woodland and freshwater and avoiding areas of arable land and coniferous woodland. Surveys and modelling of foraging preferences indicate that woodlands, riparian habitats and small amounts of urbanisation are favoured while peatlands and areas of dense urbanisation are avoided.

Recent estimates for this species suggest a population size of 60,000-110,000 animals with a recent increase in numbers. There are no major population level pressures identified, therefore the Overall Status is assessed as Favourable.



LEISLER'S BAT - *Nyctalus leisleri* (1331)

0 25 50 km

N

Current Distribution (504 cells)

Current Range (699 cells)

Favourable Reference Range (627 cells)

10km Grid Cells

ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

SPECIES CODE: 1334

MOUNTAIN HARE *(Lepus timidus)*

ANNEX: V

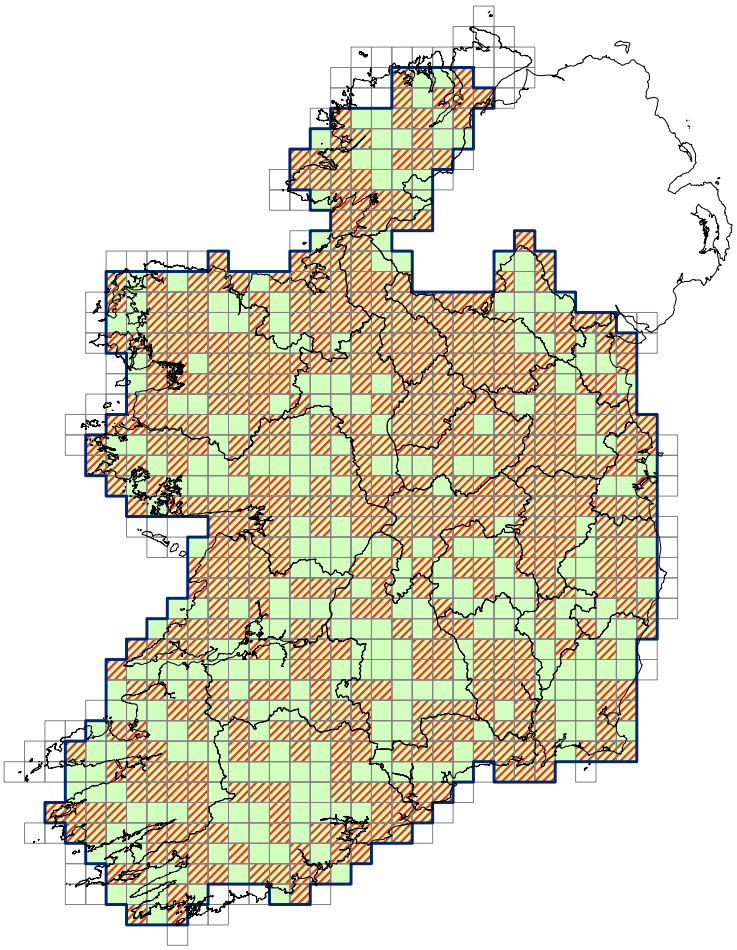
The Mountain hare *(Lepus timidus)* is widely distributed across northern Europe and Asia, ranging from Ireland in the west to Japan in the east. In Ireland, it occurs as a distinct, endemic sub-species, *Lepus timidus hibernicus*, known as the Irish hare. This is the only hare present in the Republic of Ireland and it is found throughout the country from coastal habitats to upland heath and bog. Diet in all these habitats tends to be dominated by grass species, but can also include herbs and shrubby species, where they are available.

Density estimates stratified by habitat show that hares in Ireland are more abundant in lowland, farmland habitat, while upland areas support lower densities of this species. As a result changes in agricultural practices can have a significant impact on hare populations.

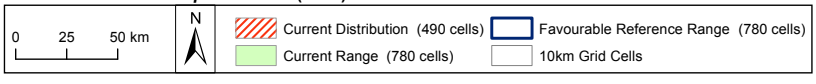
Leverets can be born at any time of year, but peak breeding in spring is typical with a second litter later in the summer under suitable conditions. In good years, when weather and its impact on grassland management allow, significant population increases can occur. By contrast, poor years with low breeding success and high mortality can lead to significant declines. Consequently, the species can show significant inter-annual fluctuations in population (recent estimates have varied from c.250,000 to over 500,000) making it difficult to estimate trends.

The hare is widespread and common in Ireland with a broad habitat niche. None of the identified threats are considered likely to impact on its conservation status in the foreseeable future and the Overall Status is assessed as Favourable.

Mike Brown



MOUNTAIN HARE - *Lepus timidus* (1334)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Unknown	Favourable
Habitat for the species	Inadequate	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Inadequate	Favourable
Reason for change	Improved knowledge	

OTTER (*Lutra lutra*)

ANNEX: II, IV

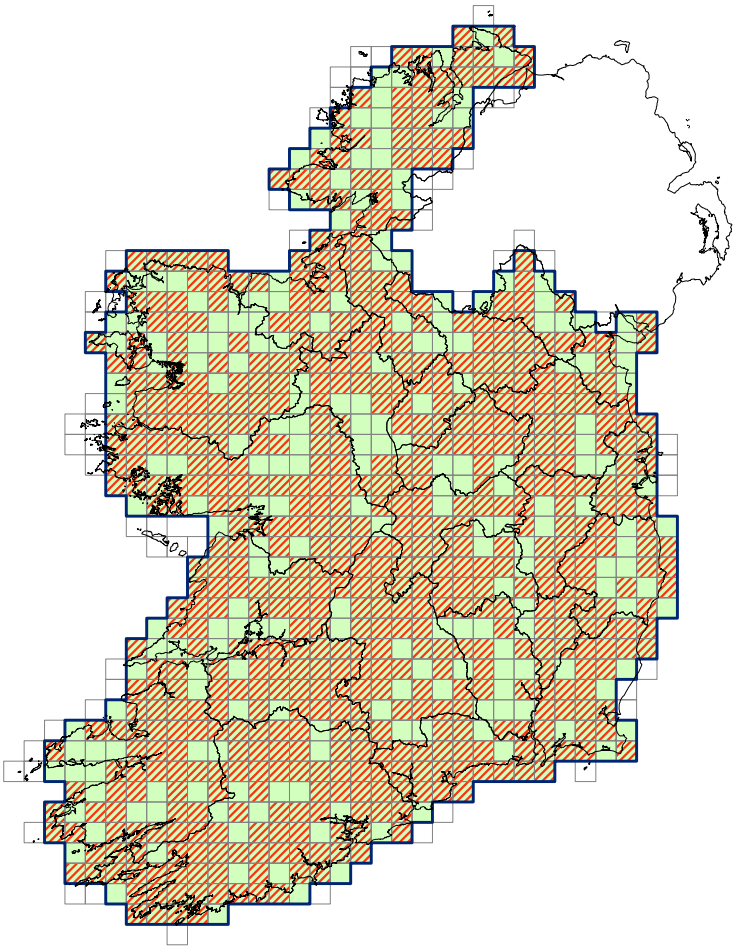
Eddie Dunne

Dramatic declines, leading in some cases to extinctions, occurred in many European otter *(Lutra lutra)* populations during the latter half of the 20th Century, however, Ireland has remained a stronghold for the species.

Otters have two basic requirements: aquatic prey and safe refuges where they can rest. In Ireland, otter populations are found along rivers, lakes and coasts, where fish and other prey are abundant, and where the bank-side habitat offers plenty of cover. The otter is an opportunistic predator with a broad and varied diet. In coastal areas fish, crabs and molluscs are known to be eaten. In freshwater areas a variety of fish from sticklebacks to salmon and eels will be taken, while crayfish and frogs can be important locally or seasonally.

The main threats to the otter include habitat destruction (including river drainage and the clearance of bank-side vegetation); pollution, particularly organic pollution resulting in fish kills; and accidental deaths (road traffic and fishing gear).

The otter is currently widespread throughout Ireland and present in a wide variety of habitat types. Previous concerns about population decline have been allayed and the latest estimate puts the population at approximately 15-20,000 animals. Therefore the Overall Status is assessed as Favourable.



OTTER - *Lutra lutra* (1355)

0 25 50 km

N

Current Distribution (596 cells)

Current Range (812 cells)

Favourable Reference Range (812 cells)

10km Grid Cells

ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Inadequate	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Inadequate	Favourable
Reason for change	Genuine improvement	

PINE MARTEN *(Martes martes)*

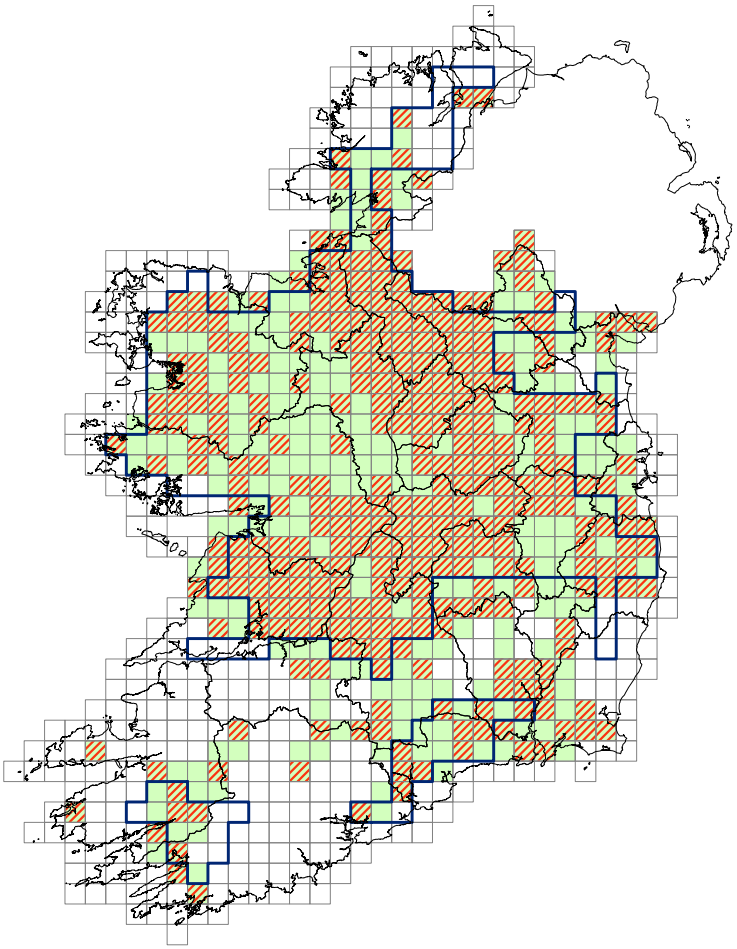
ANNEX: V

The pine marten *(Martes martes)* is a medium sized arboreal carnivore, typically inhabiting forested ecosystems or landscapes with substantial woodland or scrub. It is an opportunistic feeder on small mammals, berries, nuts, frogs, lizards, birds and invertebrates.

The pine marten was formerly widespread in Ireland but suffered serious decline in the 17th century with the deforestation of the country. Pine martens suffered further in the 19th and early 20th centuries due to persecution by gamekeepers and trappers. Although once considered to be the rarest of all Irish mammals, the species is undergoing a phase of re-colonisation. It has greatly increased its range in recent decades and although its population is still low, it is expanding. The expansion is largely attributed to the significant increase in afforestation and the legal protection afforded the species since 1976 under the Wildlife Acts.

There is ample habitat available across the country to allow the pine marten to continue its spread. While some threats have been identified, none of them are considered sufficiently serious to undermine the continued recovery of the species. The Overall Status is assessed as Favourable.

Mike Brown



PINE MARTEN - *Martes martes* (1357)

0 25 50 km

N

Current Distribution (319 cells)

Favourable Reference Range (382 cells)

Current Range (520 cells)

10km Grid Cells

ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

SPECIES CODE: 1364

GREY SEAL *(Halichoerus grypus)*

ANNEX: II, V

Oliver Ó Cadhla

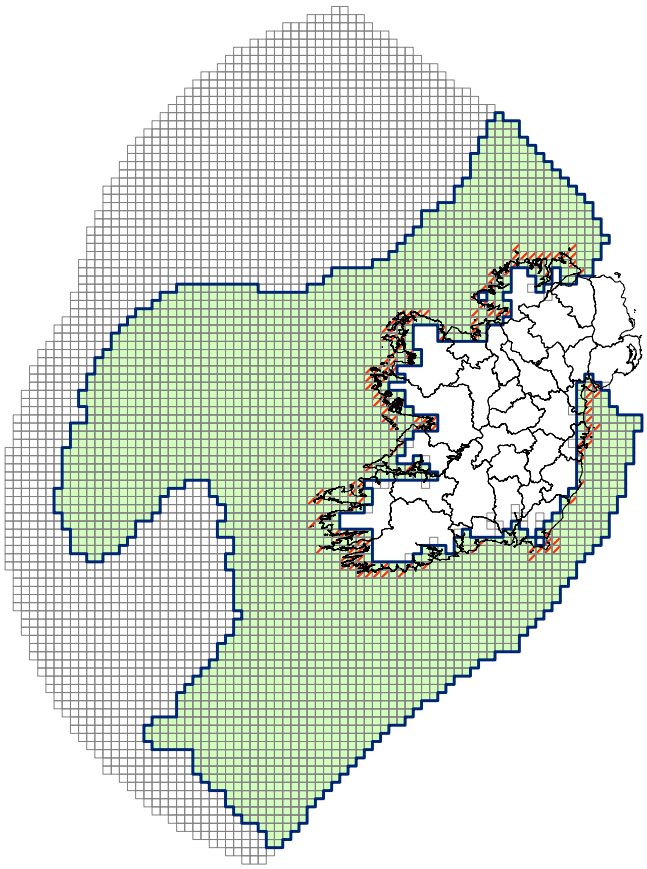
The grey seal *(Halichoerus grypus)* is the larger of two species of true seal (Phocidae) that commonly breed around the coast of Ireland. Most grey seals have a mottled coat of fur which ranges in colour mainly from dark grey or dark brown to paler grey with dark blotches. Where the animal's head is more visible, grey seals can be identified by their characteristic long muzzle and comparatively straight or convex snout from forehead to nose.

In Ireland grey seals occur widely in estuarine, coastal and offshore marine areas. The species also inhabits established terrestrial or intertidal colonies known as haul-out sites, at which individual seals breed, moult, rest and socialise. Some of these sites occur in large caves. The breeding season in Ireland takes place mainly between August and December each year when pups are born ashore and nursed for a period of about 2-3 weeks. Mating also takes place at breeding sites or in the water nearby.

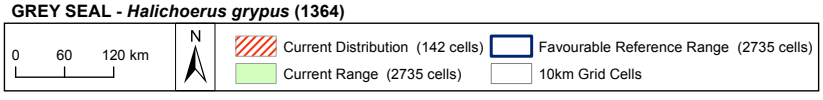
Grey seals are opportunistic foragers that mainly feed on a wide range of fish species and to a lesser extent on cephalopods. Individual grey seals can travel tens or even hundreds of kilometres when foraging or moving between haul-out sites.

As a wide-ranging species that inhabits coastal areas as well as continental shelf and slope waters, the grey seal is vulnerable to a range of threats and pressures in its natural habitat. Such threats and pressures include disturbance by human activities, accidental entanglement in fishing gear, competition for prey resources, illegal killing, pollution and other habitat degradation.

The Overall Status of the grey seal in Ireland is considered to be Favourable given current knowledge of the species' population size, distribution, ecology and prevailing pressures on the species.



GREY SEAL - *Halichoerus grypus* (1364)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Unknown	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	Improved knowledge	

SPECIES CODE: 1365

COMMON SEAL *(Phoca vitulina vitulina)*

ANNEX: II, V

The harbour seal, also known as the common seal, *(Phoca vitulina)* is the smaller of two species of true seal that commonly breed around the coast of Ireland. Individual seals can be variable in appearance with their fur ranging in colour from yellow-brown or mid-brown to grey-black and with variable spotted or speckled markings along the body. Harbour seals can also be identified by their short, blunt muzzle and obvious bridged, dog-like snout.

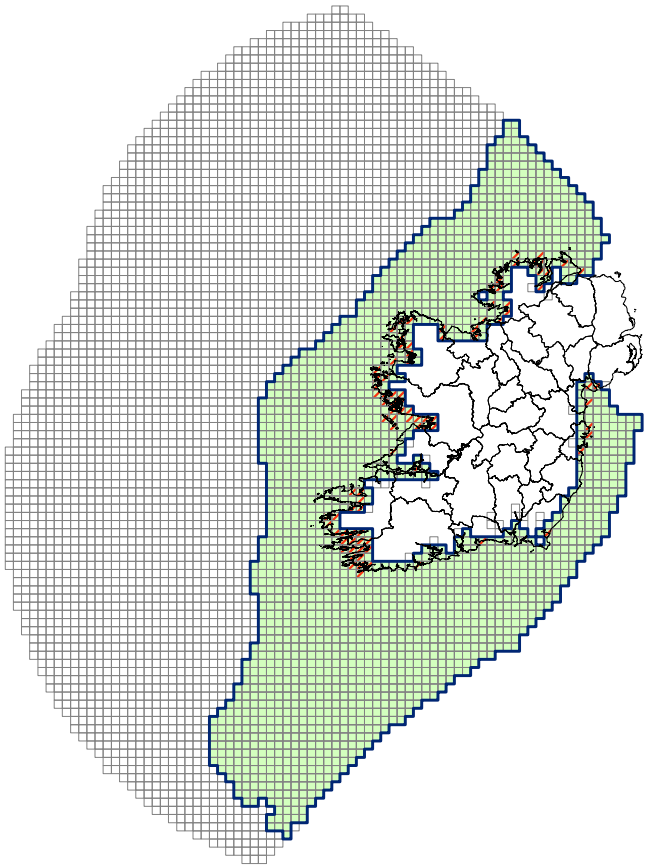
In Ireland harbour seals occur in estuarine, coastal and fully marine areas. They also occupy established intertidal/terrestrial resting places known as haul-out sites, about which animals breed, moult, rest and socialise. There is a tendency for such sites to be found in enclosed sheltered bays although the species may also occur on offshore islands and rocky skerries. The breeding season takes place mainly between May and July each year when pups are born and nursed for a period of about three weeks. Mating also takes place at breeding sites or in the water nearby.

Harbour seals are opportunistic foragers that feed on a wide range of fish species and to a lesser extent on molluscs and crustaceans. Individual seals can travel tens of kilometres or more when foraging or moving between haul-out sites.

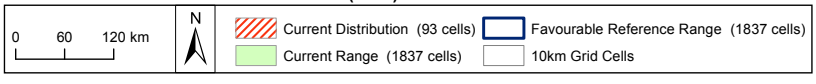
As a wide-ranging species that inhabits coastal areas as well as continental shelf waters, the harbour seal is vulnerable to a range of threats and pressures in its natural habitat. Such threats and pressures include disturbance by human activities, accidental entanglement in fishing gear, competition for prey resources, disease, illegal killing, pollution and other habitat degradation.

The Overall Status of the harbour seal in Ireland is considered to be Favourable given current knowledge of the species' population size, distribution, ecology and prevailing pressures on the species.

Oliver Ó Cadhla



COMMON SEAL - *Phoca vitulina vitulina* (1365)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Unknown	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	Improved knowledge	

SPECIES CODE: 1345

HUMPBACK WHALE *(Megaptera novaeangliae)*

ANNEX: IV

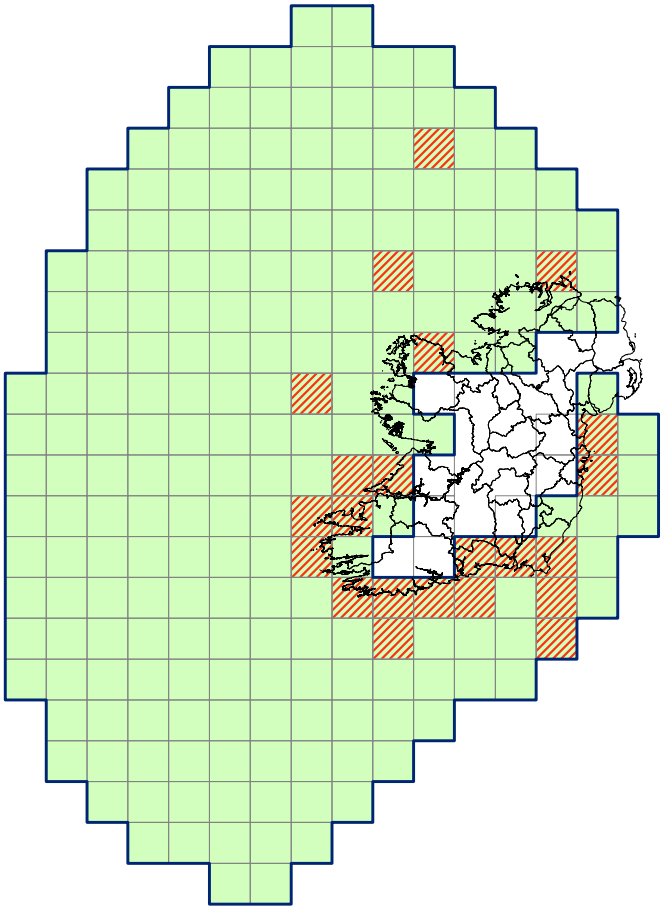
Padraig Whooley, IWDG

The humpback whale *(Megaptera novaeangliae)* is one of the most enigmatic whale species and the fourth largest baleen whale found in Irish waters. This species is identifiable at close range due to several diagnostic features, including a characteristic low 'bushy' exhalation blow, a small coarse-looking and irregularly-shaped dorsal fin, and uniquely long white flexible pectoral fins. Individuals can be identified by unique white patterning on the underside of the tail flukes, which often appear above the surface as the animal dives. Humpback whales are also known for their dramatic breaching and other distinctive surface displays.

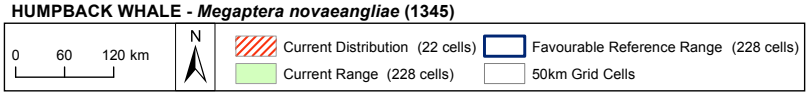
A migratory species feeding on small shoaling fish, krill and zooplankton in oceanic and even coastal waters, individual whales commonly move between cold, high latitude feeding grounds in summer and tropical waters in winter during which calving and mating occurs.

Having been intensively exploited in the late 19th and early 20th centuries, humpback whales have shown signs of post-whaling population recovery in key parts of their range. While it is possible that the species is under-recorded in Ireland due to difficulties in distinguishing it from other large whale species in the open sea, it's seasonal and mainly oceanic occurrence off western Europe may also explain why sighting records remain low compared to more wide-ranging whale species. In recent years however, records have increased close to the Irish coast and some individuals have been shown to return repeatedly to forage in waters off the southwest, south and southeast coasts.

Despite some improved understanding of the species' range and habitat, the Overall Status is considered Unknown, due to limitations in information on occurrence and population ecology.



HUMPBACK WHALE - *Megaptera novaeangliae* (1345)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Unknown	Favourable
Population	Unknown	Unknown
Habitat for the species	Unknown	Favourable
Future Prospects	Unknown	Unknown
Overall Status	Unknown	Unknown
Reason for change	Improved knowledge	

SPECIES CODE: 1349

BOTTLE-NOSED DOLPHIN *(Tursiops truncatus)*

ANNEX: II, IV

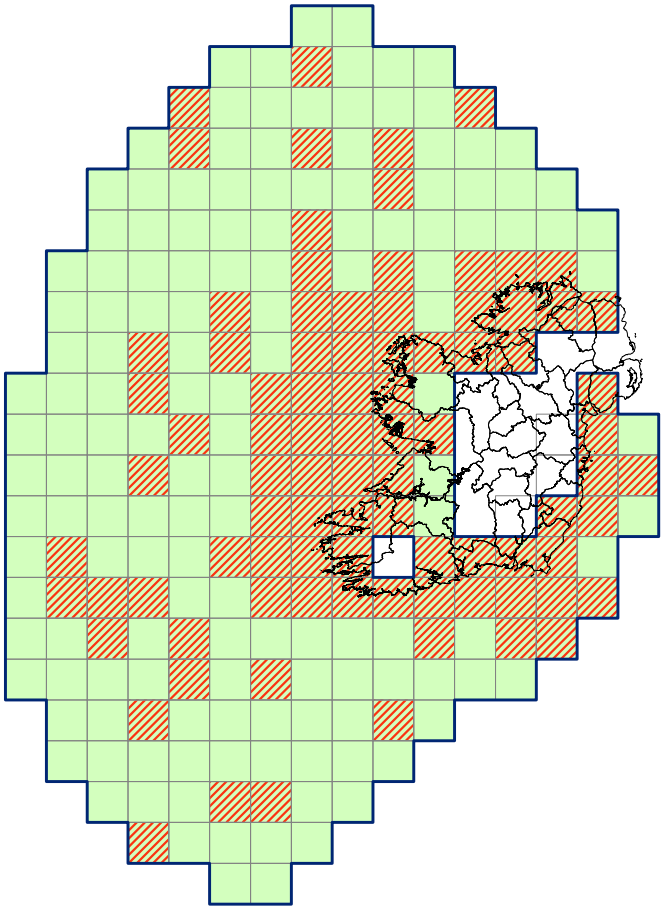
The common bottlenose dolphin *(Tursiops truncatus)* is one of the most frequently recorded and familiar cetaceans in Ireland. Inhabiting coastal and offshore waters, the species is notably resident in the Shannon Estuary which is home to a population of over 100 individuals, and in Dingle Harbour which is home to the male dolphin known as 'Fungie'. Appearing quite large and stocky for a dolphin species, bottlenose dolphins are quite easily identified when they break clear of the water surface, bearing a substantial curved grey dorsal fin, a short but pronounced rounded beak, and lacking an obvious pattern in their grey body colouration except for a paler undersurface. The species is known for its willingness to approach boats and other vessels, and their aerial and surface behaviour can be quite acrobatic and dramatic.

Oliver Ó Cadhla

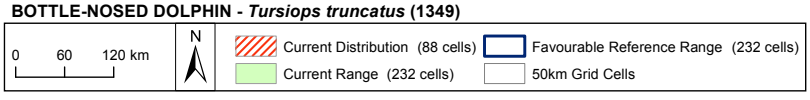
Bottlenose dolphins are skilful foragers, preying primarily on small fish and squid and often hunting cooperatively in social groups. Group sizes can be large and number several hundred individuals, particularly in offshore waters, while in coastal waters more variable groups of 3-30 individuals are more common. While localised residency has been shown by certain communities in Ireland, the UK and other European countries, individuals and groups may also make large scale movements spanning hundreds of kilometres.

As a wide-ranging species that also inhabits coastal waters, the bottlenose dolphin is vulnerable to a range of threats and pressures in its natural habitat. Such threats and pressures include accidental entanglement in fishing gear, competition for prey resources, pollution and other habitat degradation, and disturbance by human activities.

The Overall Status of bottlenose dolphin in Ireland is considered to be Favourable given current knowledge of the species' population size, distribution, ecology and prevailing pressures on the species.



BOTTLE-NOSED DOLPHIN - *Tursiops truncatus* (1349)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Unknown	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	Improved knowledge	

COMMON DOLPHIN *(Delphinus delphis)*

ANNEX: IV

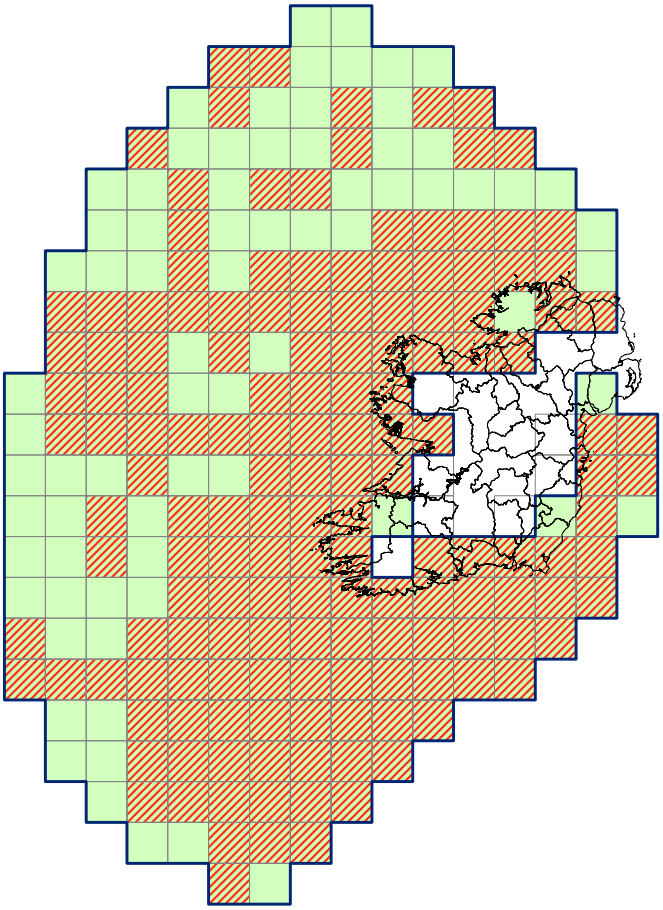
Padraig Whooley, IWDG

The short-beaked common dolphin *(Delphinus delphis)* is one of the smallest dolphin species occurring in Ireland with most adults measuring less than two metres long. Found throughout the world's oceans the species is also the most frequently recorded dolphin in Irish waters, its distribution extending from very deep ocean habitats to shallow coastal bays. Common dolphins are less commonly recorded in the Irish Sea however, than off the north, south and west coasts. They are quite readily identifiable when they break clear of the water surface showing a characteristic pronounced beak, obvious curved dorsal fin and an extended horizontal 'hourglass' colour pattern on the flanks. The species is also known for its willingness to approach boats and other vessels, which individual dolphins may bow ride or accompany for periods of several minutes at a time.

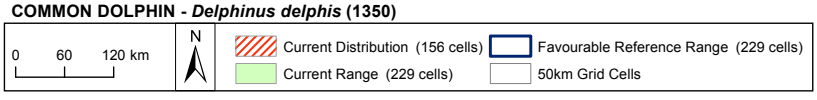
Common dolphins prey primarily on small fish and squid and they have also been shown to hunt cooperatively in social groups. Group sizes can number from a few dolphins to several hundred or over a thousand individuals in the open sea.

As a wide-ranging species that also inhabits coastal waters, the short-beaked common dolphin is vulnerable to a range of threats and pressures in its natural habitat. Such threats and pressures include accidental entanglement in fishing gear, competition for prey resources, pollution and other habitat degradation, and disturbance by human activities.

The Overall Status of short-beaked common dolphin in Ireland is considered to be Favourable given current knowledge of the species' population size, distribution, ecology and prevailing pressures on the species.



COMMON DOLPHIN - *Delphinus delphis* (1350)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Unknown	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	Improved knowledge	

HARBOUR PORPOISE *(Phocoena phocoena)*

ANNEX: II, IV

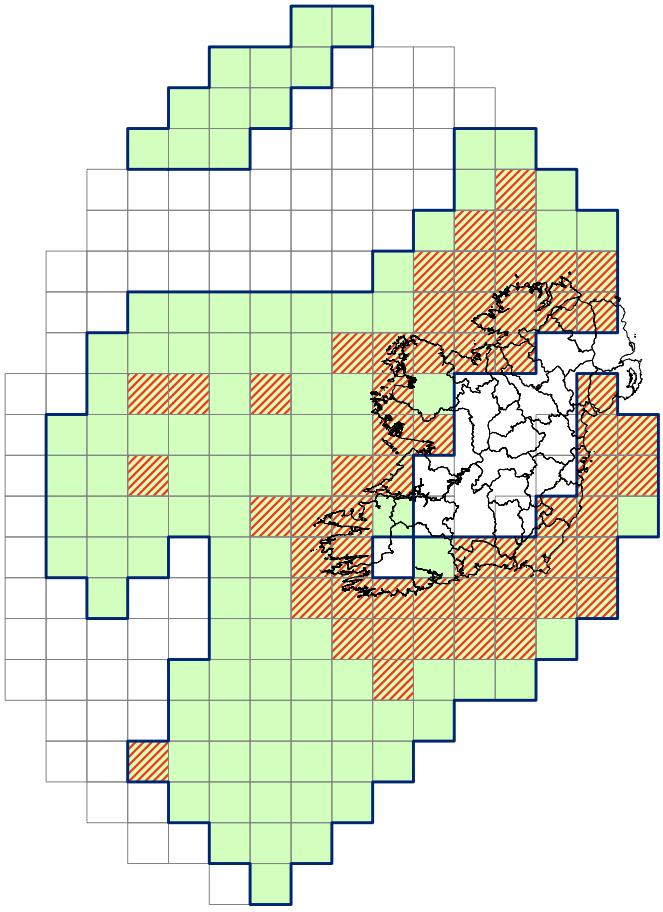
The harbour porpoise *(Phocoena phocoena)* is the smallest species of cetacean occurring in Irish waters with adults averaging just 1.4-1.8m in length. While it is the most frequently recorded cetacean around the Irish coast, it is known for being inconspicuous or 'shy' particularly in the presence of boats or other vessels, and porpoises can be difficult to see offshore in exposed sea conditions. Nevertheless the species has been widely recorded in continental shelf waters including far offshore over the Porcupine Bank and Rockall Bank, and in the Celtic Sea off southern Ireland.

Harbour porpoises are readily identified at closer range by their size and commonly brief surfacing roll showing their short, triangular dorsal fin. They rarely jump clear of the sea surface, unlike many of the dolphin species with which they might be confused. They also have a characteristic rounded or blunt head profile lacking a beak, which can help in their identification. Group sizes tend to be small, often consisting of between one and six individuals although much larger aggregations of more than fifty porpoises may occasionally be recorded.

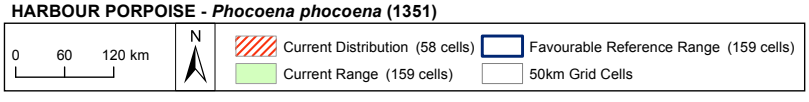
Harbour porpoises feed primarily on small fish and squid and they are thought to concentrate their hunting close to the seabed instead. As a wide-ranging species that also inhabits coastal waters, porpoises are vulnerable to a range of threats and pressures in their natural habitat. Such threats and pressures include accidental entanglement in fishing gear, competition for prey resources, pollution and other habitat degradation, and disturbance by human activities.

The Overall Status of harbour porpoise in Ireland is considered to be Favourable given current knowledge of the species' population size, distribution, ecology and prevailing pressures on the species.

Geoff Campbell



HARBOUR PORPOISE - *Phocoena phocoena* (1351)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Favourable	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	No change	

KILLER WHALE *(Orcinus orca)*

ANNEX: IV

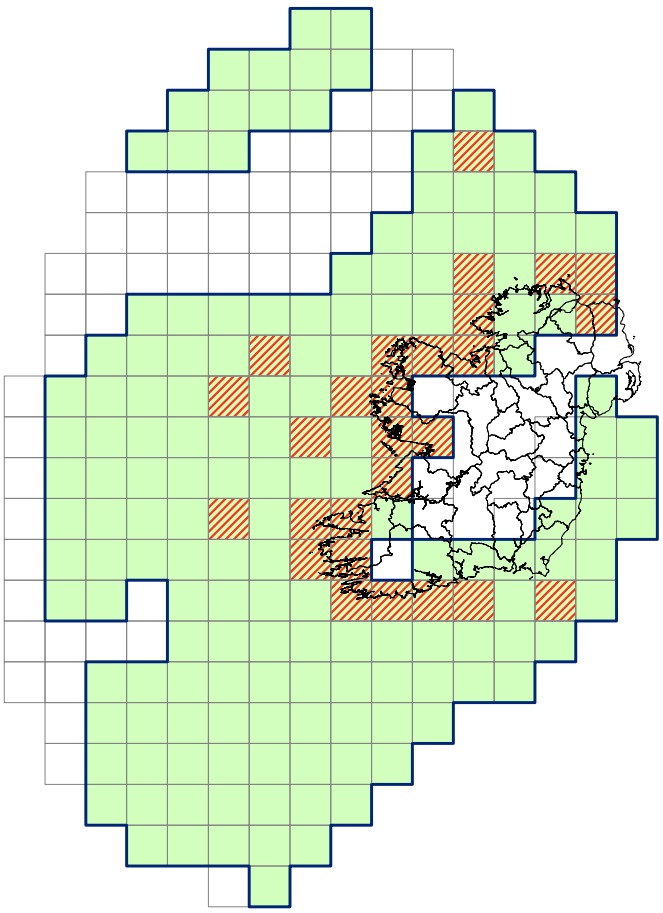
Oliver Ó Cadhla

The killer whale (*Orcinus orca*, often called 'orca') is one of the most distinctive species of cetacean occurring in Irish waters and is the largest member of the dolphin family, measuring up to nine metres in length. It's mainly black colour, characteristic tall black dorsal fin and distinctive white/grey patches behind the eye and dorsal fin make it quite easily recognisable. In Ireland killer whales are recorded annually in small numbers mostly around the north, west and south coasts. The species also occurs offshore where its distribution appears to be mainly in waters over the continental shelf and slope.

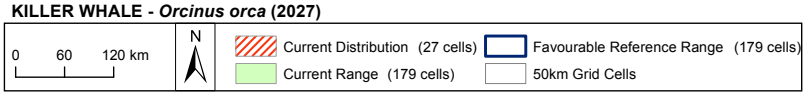
The killer whale is a top predator in the world's oceans, feeding on a wide range of fish, squid and marine mammal prey. Killer whales are known to be skilful and often specialised hunters that forage cooperatively in close-knit social groups. In Ireland group sizes of two to six individuals are most common, though larger aggregations have also been recorded. In the northeast Atlantic they have been shown to make long range movements spanning hundreds of kilometres which may be linked to the distribution of particular prey such as herring and mackerel.

Killer whales were actively hunted or captured alive in parts of their northeast Atlantic range until the late 1980s. In Ireland sighting records remain low compared to other wide-ranging whale and dolphin species, though some of the individual killer whales identified in Irish waters have been known to occur regularly in coastal waters off Scotland.

Despite some improved understanding of the species' range and habitat, the Overall Status is considered Unknown, due to limitations in information on occurrence and population ecology.



KILLER WHALE - *Orcinus orca* (2027)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Unknown	Favourable
Population	Unknown	Unknown
Habitat for the species	Unknown	Favourable
Future Prospects	Unknown	Unknown
Overall Status	Unknown	Unknown
Reason for change	Improved knowledge	

LONG-FINNED PILOT WHALE *(Globicephala melas)*

ANNEX: IV

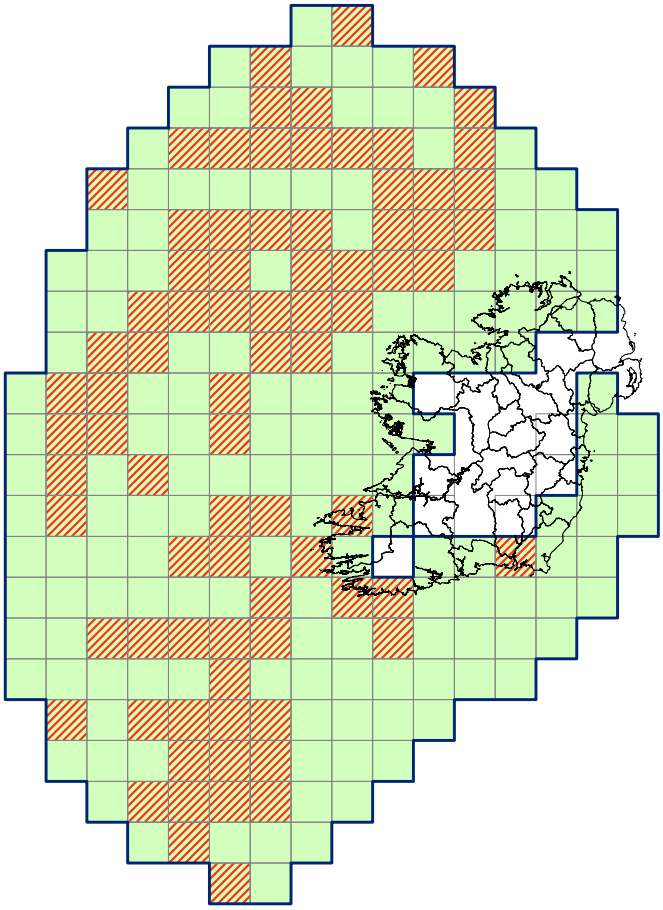
The long-finned pilot whale *(Globicephala melas)* is one of the most frequently recorded cetacean species in offshore Irish waters, particularly along the Atlantic continental margin. Groups are occasionally recorded closer to shore, particularly off the west and southwest coasts. A large member of the dolphin family, the species is quite readily identifiable due to its body size and mainly black/dark grey colour, its characteristic broad-based low dorsal fin and its bulbous melon (forehead) lacking an obvious beak. Pilot whales are also known for their willingness to approach ships and other vessels.

Knowledge of the ecology of long-finned pilot whales in Irish waters is improving. They are normally found in quite large social groups of 20-60 individuals, while groups of up to several hundred individuals may occasionally be recorded. Their main prey items are likely to be squid and small fish, for which pilot whales may dive to depths of several hundred metres when foraging. They may also make large scale movements spanning hundreds of kilometres linked to the distribution of their prey.

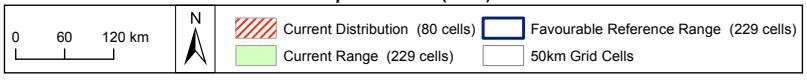
As a wide-ranging species that inhabits continental shelf and deeper waters, the long-finned pilot whale is vulnerable to a range of threats and pressures in its natural habitat. Such threats and pressures include accidental entanglement in fishing gear, competition for prey resources, pollution and other habitat degradation, and disturbance by human activities. The species is also still hunted in part of its northeast Atlantic range.

The Overall Status of the long-finned pilot whale in Ireland is considered to be Favourable given current knowledge of the species' population size, distribution, ecology and prevailing pressures on the species.

Dave Wall



LONG-FINNED PILOT WHALE - *Globicephala melas* (2029)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Unknown	Favourable
Population	Unknown	Favourable
Habitat for the species	Unknown	Favourable
Future Prospects	Unknown	Favourable
Overall Status	Unknown	Favourable
Reason for change	Improved knowledge	

RISSO'S DOLPHIN *(Grampus griseus)*

ANNEX: IV

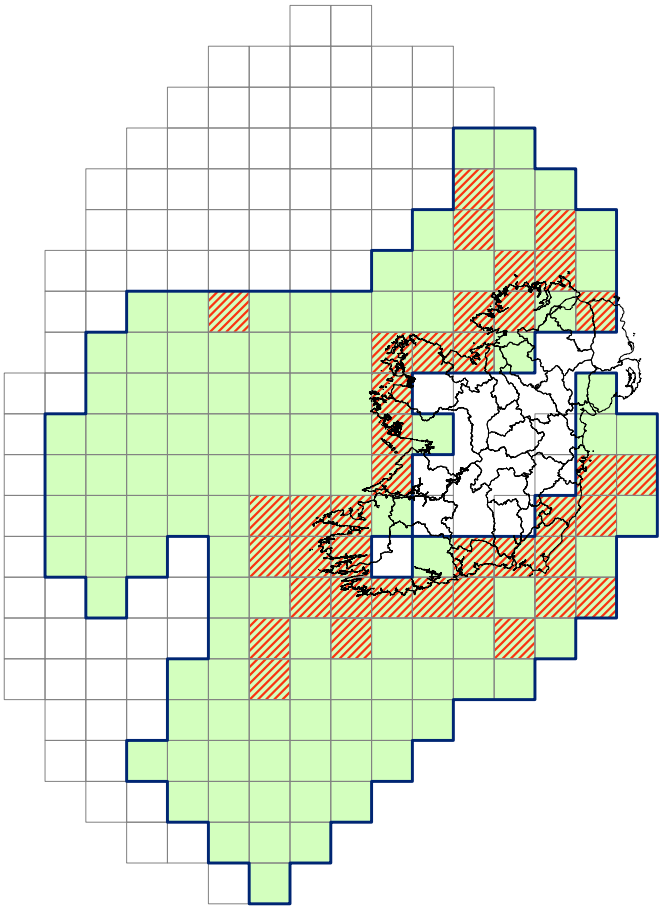
Ruari O'Brien

Risso's dolphin *(Grampus griseus)* is one of the larger dolphin species occurring in Irish waters but it remains less frequently recorded than many others. Risso's dolphins are quite easily distinguished from other dolphins since they have an unusually tall grey dorsal fin, no noticeable beak and many individuals are heavily scarred showing distinctive white scratches on their sides and upper surface, particularly in front of the dorsal fin. This scarring is thought to be a result of social interactions between individual dolphins and the amount of scarring seems to increase with age.

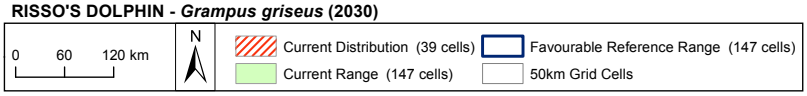
In Ireland Risso's dolphins are recorded annually in small numbers around the coast and some groups of the species may be repeat visitors to local bays, islands and other coastal features. The species also occurs offshore where its distribution appears to be mainly in waters over the continental shelf and slope. Risso's dolphins are thought to be specialised hunters that forage mainly for squid, cuttlefish and octopus. They are often recorded as solitary individuals or in close-knit social groups of fewer than a dozen individuals. Larger aggregations of thirty or more dolphins have also been observed and these records have tended to be from offshore waters.

As a wide-ranging species that inhabits coastal, continental shelf and deeper waters, the Risso's dolphin is vulnerable to a range of threats and pressures in its natural habitat, including accidental entanglement in fishing gear, competition for prey resources, pollution and other habitat degradation, and disturbance by human activities.

Despite some improved understanding of the species' range and habitat, the Overall Status is considered Unknown, due to limitations in information on occurrence and population ecology.



RISSO'S DOLPHIN - *Grampus griseus* (2030)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Unknown	Favourable
Population	Unknown	Unknown
Habitat for the species	Unknown	Favourable
Future Prospects	Unknown	Unknown
Overall Status	Unknown	Unknown
Reason for change	Improved knowledge	

ATLANTIC WHITE-SIDED DOLPHIN *(Lagenorhynchus acutus)* ANNEX: IV

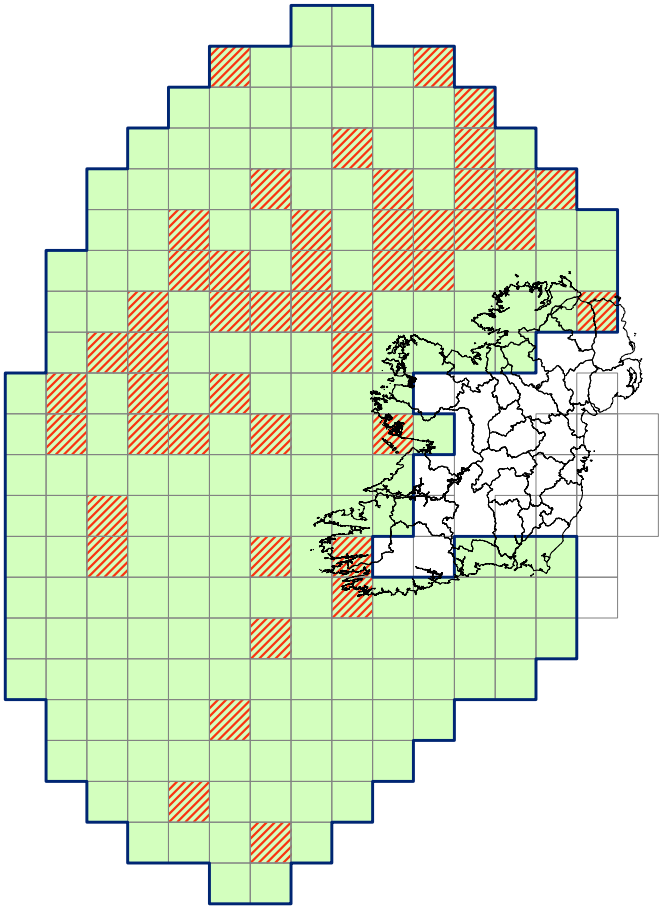
The Atlantic white-sided dolphin *(Lagenorhynchus acutus)* is one of several medium-sized dolphin species occurring in Irish waters. The species is quite frequently seen in open Atlantic waters but is not often recorded close to the coast. It can be difficult to identify at sea due to its body size, inconspicuous dorsal fin and a mainly black/dark grey dorsal colouration that is a feature common to several dolphin species. However white-sided dolphins are more readily identified when they break clear of the water surface showing their characteristic short stub-like beak, thick tail stock and horizontal bright white into sandy colour bands on the rear flanks of the body.

Oliver Ó Cadhla

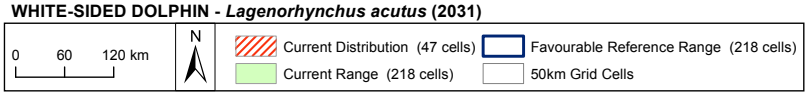
In Irish waters white-sided dolphins have mostly been recorded from very deep ocean habitats to continental shelf waters, with the exception of the Irish Sea. The species is sometimes recorded in association with other members of the dolphin family, including short-beaked common dolphins, bottlenose dolphins and long-finned pilot whales. White-sided dolphins prey primarily on small fish and squid and like other dolphins may hunt cooperatively in social groups. Group sizes can number from a few dolphins to several hundred or over a thousand individuals in the open sea.

As a wide-ranging oceanic species that also inhabits continental shelf waters, the Atlantic white-sided dolphin is vulnerable to a range of threats and pressures in its natural habitat. Such threats and pressures include accidental entanglement in fishing gear, competition for prey resources, pollution and other habitat degradation, and disturbance by human activities.

The Overall Status is assessed as Favourable given current knowledge of the species' population size, distribution, ecology and prevailing pressures on the species.



WHITE-SIDED DOLPHIN - *Lagenorhynchus acutus* (2031)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Unknown	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	Improved knowledge	

WHITE-BEAKED DOLPHIN *(Lagenorhynchus albirostris)*

ANNEX: IV

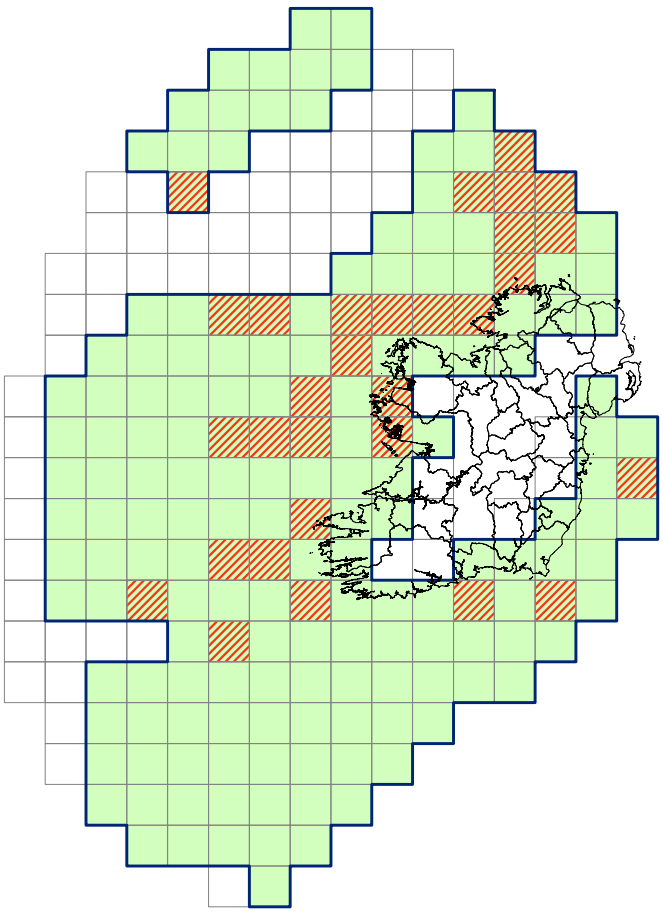
Fredrik Broms

The white-beaked dolphin *(Lagenorhynchus albirostris)* is one of several medium-sized dolphin species occurring in Irish waters. At sea it can be confused with other dolphins including its close relative the Atlantic white-sided dolphin, due to its body size and a mainly black/dark grey dorsal colouration that is a feature common to several dolphin species. White-beaked dolphins are more readily identified at close range or when they break clear of the water surface showing their characteristic stubby white or greyish beak, conspicuously tall sickle-shaped dorsal fin, and large pale white-coloured bands or patches on their flanks and behind the dorsal fin.

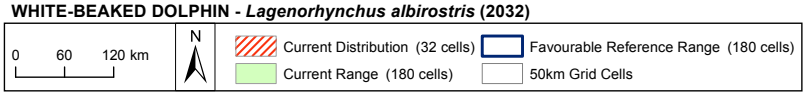
Occurring mainly in waters over the continental shelf and slope, white-beaked dolphins are a cold temperate and sub-polar species mainly recorded in Irish Atlantic waters but they may also be observed coastally or occasionally in the Celtic Sea or Irish Sea. Like the white-sided dolphin, this species is sometimes recorded in association with other dolphins and whales. White-beaked dolphins prey primarily on squid and small fish and like other dolphins may hunt cooperatively in social groups. Group sizes can number from a few dolphins to as many as 40-50 individuals but larger group sizes are rare.

As a wide-ranging species that inhabits continental slope, shelf and coastal waters, the white-beaked dolphin is vulnerable to a range of threats and pressures in its natural habitat. Such threats and pressures include accidental entanglement in fishing gear, competition for prey resources, pollution and other habitat degradation, and disturbance by human activities.

The Overall Status of white-beaked dolphin in Ireland is considered to be Favourable given current knowledge of the species' population size, distribution, ecology and prevailing pressures on the species.



WHITE-BEAKED DOLPHIN - *Lagenorhynchus albirostris* (2032)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Unknown	Favourable
Population	Unknown	Favourable
Habitat for the species	Unknown	Favourable
Future Prospects	Unknown	Favourable
Overall Status	Unknown	Favourable
Reason for change	Improved knowledge	

STRIPED DOLPHIN *(Stenella coeruleoalba)*

ANNEX: IV

The striped dolphin *(Stenella coeruleoalba)* is one of the smallest dolphin species occurring in Irish waters. At sea it can easily be confused with the common dolphin due to its similarity in body shape and behaviour, and a tendency to form mixed groups with this species. Striped dolphins are better identified at close range when individuals break clear of the water surface showing their noticeably pale or white flanks and undersurfaces, and narrow grey/black stripes extending rearwards from the eye.

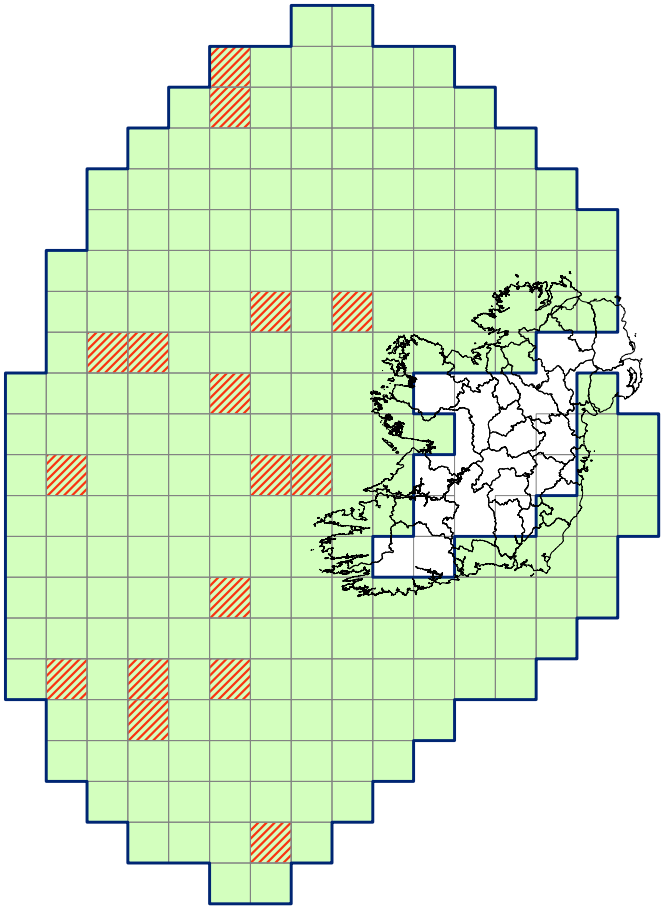
Occurring in waters over the continental shelf, slope and deep ocean basins, striped dolphins are a mainly considered a warm temperate or sub-tropical species and they are not commonly observed in Irish waters, although strandings are recorded quite frequently. Sightings are mainly from Atlantic waters but they may also be observed occasionally in the Celtic Sea or Irish Sea. Like common dolphins, striped dolphins are known for their willingness to approach boats and other vessels. They are also known to jump clear of the water repeatedly when travelling at speed.

Striped dolphins prey primarily on squid, small fish and swimming crustaceans and like other dolphins may hunt cooperatively in social groups. Group sizes can number from a dozen individuals to several hundred with larger groups tending to be seen further offshore.

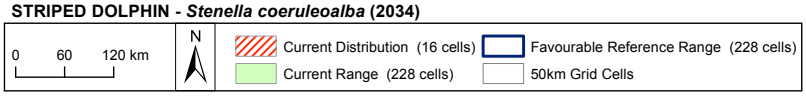
As a wide-ranging species that inhabits deep oceanic, continental slope and shelf waters, the striped dolphin is vulnerable to a range of threats and pressures in its natural habitat. Such threats and pressures include accidental entanglement in fishing gear, competition for prey resources, pollution and other habitat degradation, and disturbance by human activities.

The Overall Status of striped dolphin in Ireland is considered to be Favourable given current knowledge of the species' population size, distribution, ecology and prevailing pressures on the species.

International Fund for Animal Welfare / Marine Conservation Research



STRIPED DOLPHIN - *Stenella coeruleoalba* (2034)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Unknown	Favourable
Population	Unknown	Favourable
Habitat for the species	Unknown	Favourable
Future Prospects	Unknown	Favourable
Overall Status	Unknown	Favourable
Reason for change	Improved knowledge	

CUVIER'S BEAKED WHALE *(Ziphius cavirostris)*

ANNEX: IV

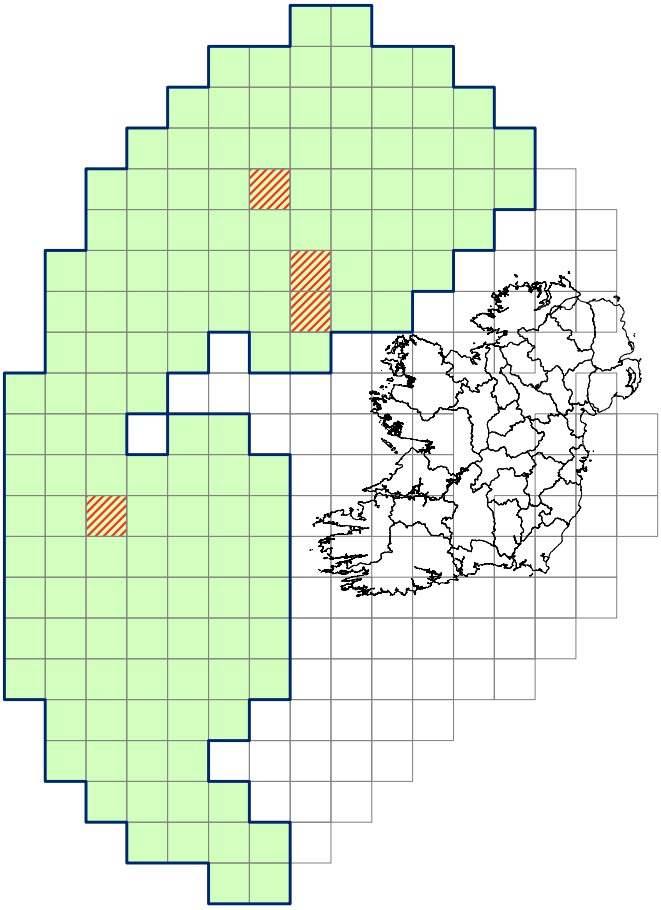
International Fund for Animal Welfare

Cuvier's beaked whale *(Ziphius cavirostris)* is the most common member of the beaked whale family to be found stranded in Ireland. Sightings in Irish waters have been infrequent and sporadic, however, possibly due to the species' offshore distribution and probably low population density. Cuvier's beaked whales can be very difficult to identify at sea, partly due to their elusive behaviour in the presence of vessels. Individuals may be identified at close range by their distinctive body colouration, a prominent but short blunt beak and the position of a small curved dorsal fin about two-thirds of the way along the back.

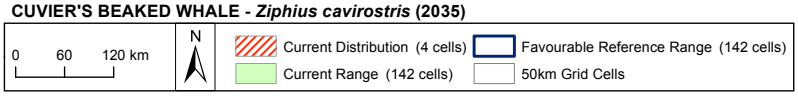
Little is known about this species' natural history or ecology in Irish waters and the wider northeast Atlantic. It is known to be a deep-diving species, being capable of dives extending more than 30-40 minutes at a time. Records from Ireland all indicate a principal distribution in continental slope and deeper oceanic waters. When they are encountered at sea, Cuvier's beaked whales are normally recorded singly or in small groups of 2-6 individuals. Their prey is thought to consist mainly of squid, though fish may also form part of the diet.

Cuvier's beaked whales are vulnerable to a range of threats and pressures in their natural habitat, including competition for prey resources and disturbance by human activities. Being deep oceanic divers and recorded in small population numbers they may be particularly susceptible to the effects of noise-related disturbance.

Despite some improved understanding of the species' range and habitat, the Overall Status is considered Unknown, due to limitations in information on occurrence and population ecology.



CUVIER'S BEAKED WHALE - *Ziphius cavirostris* (2035)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Unknown	Favourable
Population	Unknown	Unknown
Habitat for the species	Unknown	Favourable
Future Prospects	Unknown	Unknown
Overall Status	Unknown	Unknown
Reason for change	Improved knowledge	

SOWERBY'S BEAKED WHALE *(Mesoplodon bidens)*

ANNEX: IV

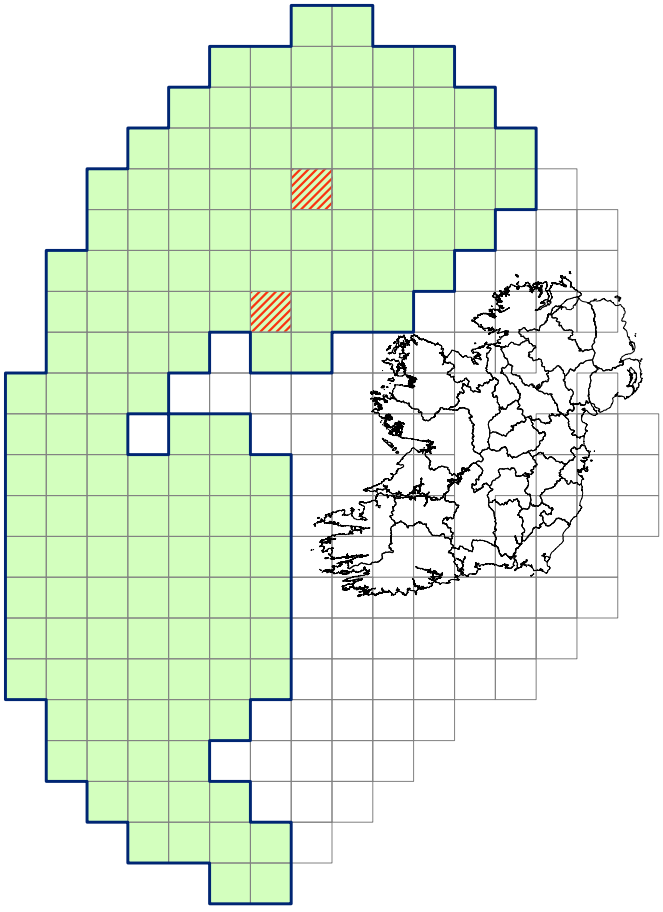
Sowerby's beaked whale *(Mesoplodon bidens)* is one of three members of the genus *Mesoplodon* that have been recorded in Ireland and it has been the most common of the three. Sightings of this smaller member of the beaked whale family have been infrequent and sporadic, possibly due to the species' offshore distribution and low population density. Sowerby's beaked whales are quite readily identifiable at close range however, due to their long slender beak which may be clearly visible when the animal surfaces, their moderate body length for a toothed cetacean and the position of a small curved dorsal fin about two-thirds of the way along the grey-coloured back.

Little is known about this species' natural history or ecology in Irish waters and the wider northeast Atlantic. It is known to be a deep-diving species, capable of long dive durations extending more than 25 minutes at a time. Records from Ireland all indicate a principal distribution in continental slope and deeper oceanic waters. When they are encountered at sea, Sowerby's beaked whales are normally recorded in small groups of up to 12 individuals. Their prey is thought to consist mainly of squid and fish.

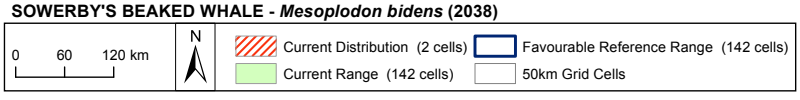
Sowerby's beaked whales are vulnerable to a range of threats and pressures in their natural habitat, including competition for prey resources and disturbance by human activities. Being deep oceanic divers and recorded in small population numbers they may be particularly susceptible to the effects of noise-related disturbance.

Despite some improved understanding of the species' range and habitat, the Overall Status is considered Unknown, due to limitations in information on occurrence and population ecology.

International Fund for Animal Welfare / Marine Conservation Research



SOWERBY'S BEAKED WHALE - *Mesoplodon bidens* (2038)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Unknown	Favourable
Population	Unknown	Unknown
Habitat for the species	Unknown	Favourable
Future Prospects	Unknown	Unknown
Overall Status	Unknown	Unknown
Reason for change	Improved knowledge	

SPECIES CODE: 2618

MINKE WHALE *(Balaenoptera acutorostrata)*

ANNEX: IV

Padraig Whooley, IWDG

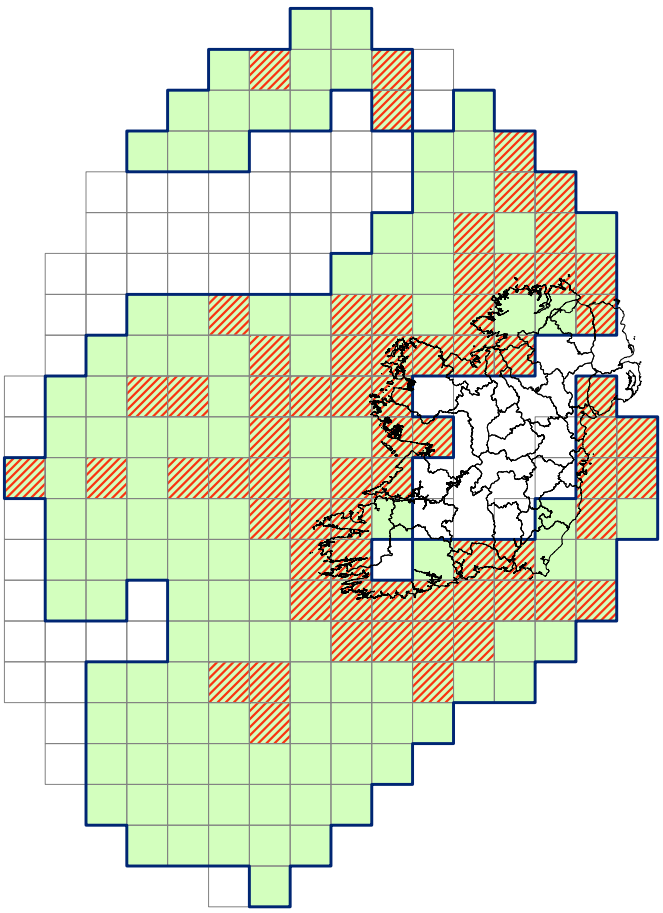
The minke whale *(Balaenoptera acutorostrata)* is the smallest baleen whale species occurring in Irish waters, with adults averaging 8.5m in body length. Found only in the Northern Hemisphere the species is recorded more frequently in Irish waters than its larger relatives the blue whale, fin whale and sei whale. As well as their size difference and the absence of a distinct tall exhalation blow when surfacing, the species' characteristic pointed snout and broad white patches on the pectoral fins are striking and useful in its identification.

Minke whales are recorded in all Irish coastal waters and offshore mainly in waters over the continental shelf and slope. Known also to enter coastal bays or be seen close to headlands, they may approach slow-moving boats and other vessels and remain in their presence for several minutes or more. Unlike their larger relatives they are also known to breach well above the sea surface, sometimes repeatedly.

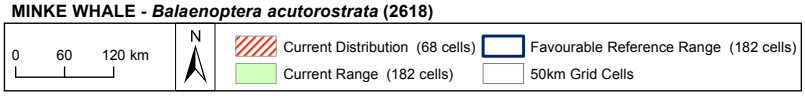
Minke whales are thought to prey on small fish and swimming crustaceans. It is thought that they undertake some migratory movement to warmer waters in the winter although in Ireland they are seen in all seasons however. They usually occur as single individuals or in loose associations of up to ten animals linked to localised feeding activity.

As a wide-ranging species that mainly inhabits continental slope, shelf and coastal waters, the minke whale is vulnerable to a range of threats and pressures in its natural habitat. Such threats and pressures include accidental entanglement in fishing gear, competition for prey resources, pollution and other habitat degradation, and disturbance by human activities.

The Overall Status of minke whale in Ireland is considered to be Favourable given current knowledge of the species' population size, distribution, ecology and prevailing pressures on the species.



MINKE WHALE - *Balaenoptera acutorostrata* (2618)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Unknown	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	Improved knowledge	

FIN WHALE *(Balaenoptera physalus)*

The fin whale *(Balaenoptera physalus)* is the second largest whale species and it is recorded more frequently in Ireland than either of its close relatives of similar size, the blue whale and sei whale. While fin whales can be difficult to distinguish at sea from other large whales, the species' asymmetrical white skin pigmentation in the right jaw is striking and useful in its identification.

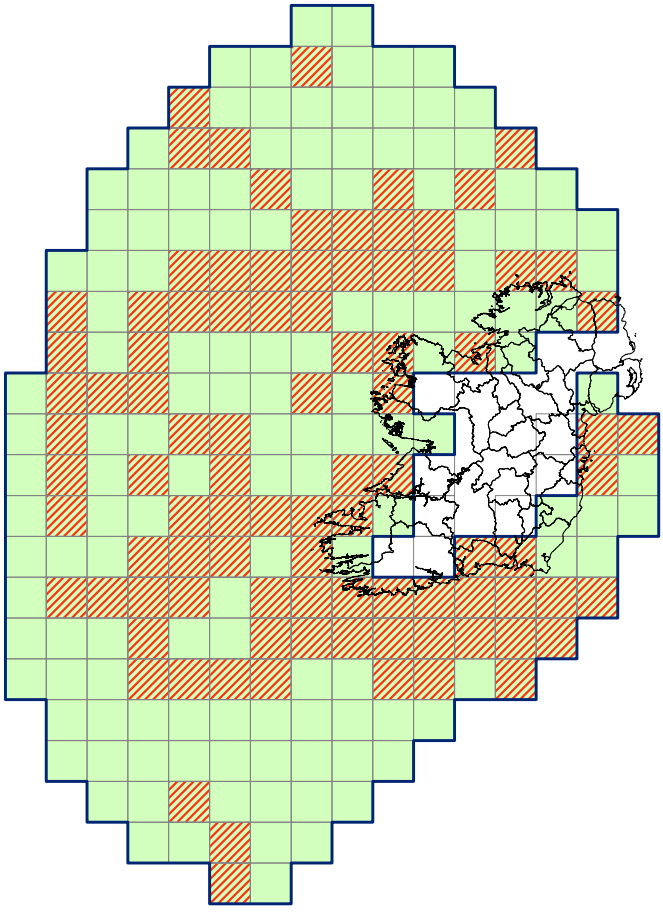
Fin whales are recorded in all Irish waters from deep ocean basins to continental slope and shelf areas, and even in some coastal waters particularly off the southwest, south and southeast coasts. In the last decade or so, the annual seasonal occurrence of numerous individual whales off the Cork, Waterford and Wexford coasts has prompted a new whale-watching industry and led to several ecological studies in the region.

Fin whales are thought to prey on small fish, swimming crustaceans and zooplankton and though it is thought that they undertake some migratory movement to warmer waters in the winter, in Ireland fin whales are recorded in all seasons. The species is usually observed in small numbers comprising 1-3 individuals or in loose associations of up to twenty animals linked to localised feeding activity.

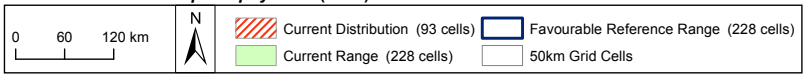
Having been intensively hunted throughout the North Atlantic in the late 19th and early 20th centuries, signs of a post-whaling population recovery remain uncertain. The species continues to be vulnerable to a range of threats and pressures in its natural habitat. Such threats and pressures include accidental entanglement in fishing gear, competition for prey resources, pollution and other habitat degradation, and disturbance by human activities.

The Overall Status of fin whale in Ireland is considered to be Favourable given current knowledge of the species' population size, distribution, ecology and prevailing pressures on the species.

Padraig Whooley, IWDG



FIN WHALE - *Balaenoptera physalus* (2621)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Favourable	Favourable
Population	Unknown	Favourable
Habitat for the species	Favourable	Favourable
Future Prospects	Favourable	Favourable
Overall Status	Favourable	Favourable
Reason for change	Improved knowledge	

SPECIES CODE: 5020

BLUE WHALE *(Balaenoptera musculus)*

ANNEX: IV

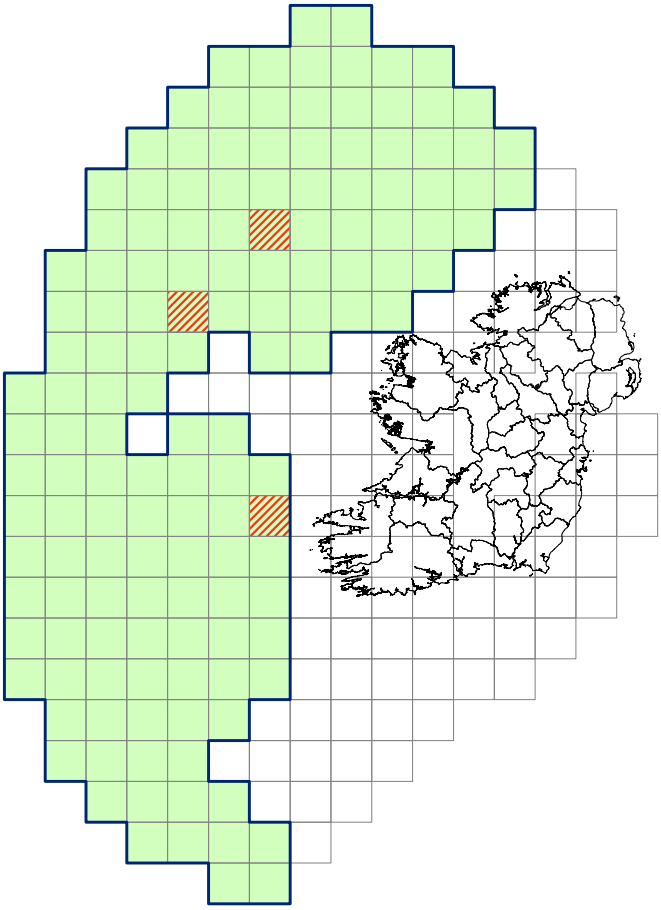
Irish Air Corps

The blue whale *(Balaenoptera musculus)* is the world's largest animal species, measuring up to 30m in length, but it remains one of the most rarely observed cetaceans in Irish waters. This may be due to severe population decline as a result of intensive hunting throughout its North Atlantic range, as well as its mainly oceanic migratory occurrence. When encountered, individual blue whales can be identified at sea by their sheer body size and other diagnostic features, including a characteristically tall column-shaped blow often extending more than 10m high, a very small triangular dorsal fin, and blue-grey skin colouration with lighter-coloured blotches or patches.

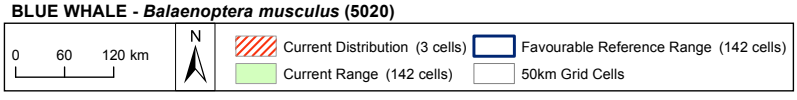
Blue whales feed on swimming crustaceans and zooplankton in oceanic, continental slope and continental shelf waters. Records from Irish waters are very limited, consisting of 1-2 individuals and mainly situated in deep Atlantic waters off the west and southwest coasts. Like many baleen whale species individual blue whales commonly move between cold, high latitude feeding grounds in summer and warm temperate or tropical waters in winter during which calving and mating occurs. The rarity of records from Ireland makes its occurrence and seasonal distribution unclear but there is some evidence of the species actively foraging in offshore Atlantic waters, possibly during this migratory transit.

Having been widely hunted well into the 20th century, this species remains vulnerable to a range of potential threats and pressures in its natural habitat, including accidental entanglement in fishing gear, ship strikes and disturbance by human activities.

The Overall Status of the blue whale is considered to be Unknown due to limitations in information on its occurrence and population ecology in Ireland's extensive marine waters. Nevertheless recent scientific research has provided an improved understanding of the species' range and habitat in Ireland.



BLUE WHALE - *Balaenoptera musculus* (5020)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Unknown	Favourable
Population	Unknown	Unknown
Habitat for the species	Unknown	Favourable
Future Prospects	Unknown	Unknown
Overall Status	Unknown	Unknown
Reason for change	Improved knowledge	

SPERM WHALE *(Physeter catodon)*

The sperm whale *(Physeter macrocephalus)* is the largest of the toothed cetaceans occurring in Irish waters with males of the species averaging up to 18m in length. Sperm whales are readily identified at sea by their size, their distinct angular bushy exhalation blow, a characteristic low bump-like dorsal fin and a notably blunt or square-shaped head. When initiating a dive they also show a series of knuckle-like bumps along the back between the dorsal fin and tail flukes.

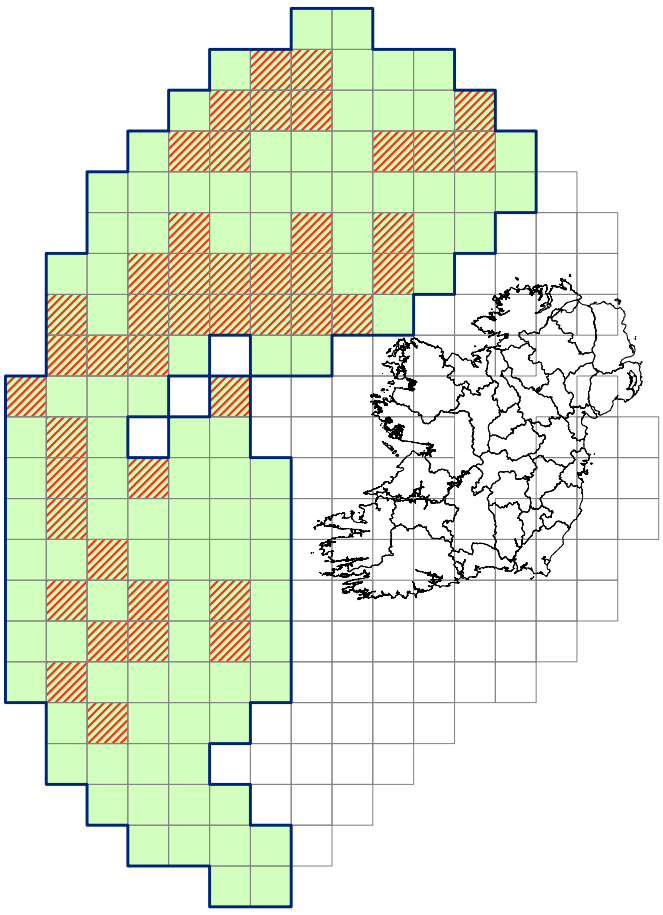
A deep-diving species, sperm whales have frequently been recorded during offshore visual and acoustic surveys to the west of Ireland. Most records are thought to be males of the species and they mainly occur over the continental slope and deep ocean basins such as the Rockall Trough and Porcupine Seabight.

Knowledge of the ecology of sperm whales in Irish waters is improving. The species is normally recorded as solitary individuals or in small groups of 2-8 individuals. Their main prey consists of various squid species, although fish may also form part of the diet. Sperm whales can dive to a few kilometres deep when foraging, making their presence difficult to detect without acoustic monitoring techniques.

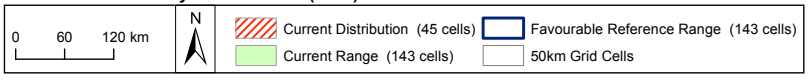
As a species that was intensively hunted in the North Atlantic the sperm whale remains vulnerable to a range of threats and pressures in its natural habitat, including accidental entanglement in fishing gear, competition for prey resources and disturbance by human activities.

Despite some improved understanding of the species' range and habitat, the Overall Status is considered Unknown, due to limitations in information on occurrence and population ecology.

Oliver O Cadhla



SPERM WHALE - *Physeter catodon* (5031)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Unknown	Favourable
Population	Unknown	Unknown
Habitat for the species	Unknown	Favourable
Future Prospects	Unknown	Unknown
Overall Status	Unknown	Unknown
Reason for change	Improved knowledge	

SPECIES CODE: 5033

NORTHERN BOTTLENOSE WHALE *(Hyperoodon ampullatus)* ANNEX: IV

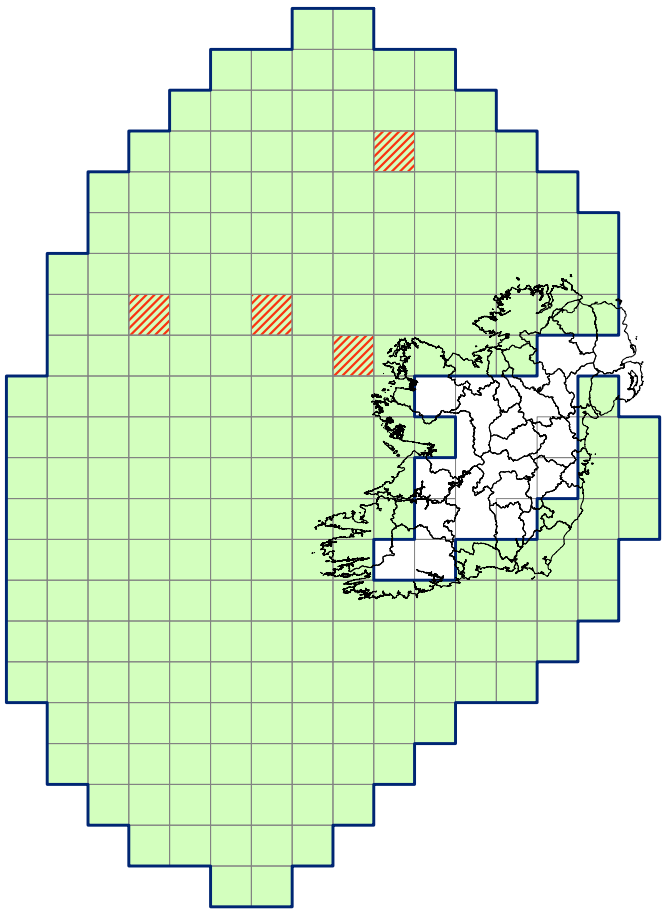
Padraig Whooley, IWDG

The northern bottlenose whale *(Hyperoodon ampullatus)* is the largest member of the beaked whale family to occur in Irish waters with adults averaging up to 7-9m in body length. The species is quite readily identifiable at close range due to its large body length for a toothed cetacean, its characteristic broad bulbous melon (forehead), its prominent medium-sized rounded beak and the position of its curved dorsal fin about two-thirds of the way along its back.

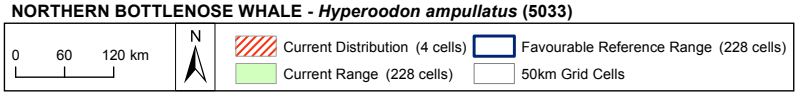
Little is known about this species' natural history or ecology in Irish waters and the wider northeast Atlantic. It is known to be a deep-diving species, capable of very long dive durations extending more than 60 minutes at a time. Records from Ireland indicate a principal distribution in continental slope and deeper oceanic waters but sightings have been infrequent and sporadic, with even the occasional occurrence around the Irish coast. When they are encountered at sea, Northern bottlenose whales are normally recorded singly or in small groups of up to ten individuals. Their prey is thought to consist mainly of squid, though fish may also form part of the diet.

Having been actively hunted in the North Atlantic into the mid-late 20th century, Northern bottlenose whales remain vulnerable to a range of threats and pressures in their natural habitat, including competition for prey resources and disturbance by human activities. Being deep oceanic divers and recorded in small population numbers they may be particularly susceptible to the effects of noise-related disturbance.

Despite some improved understanding of the species' range and habitat, the Overall Status is considered Unknown, due to limitations in information on occurrence and population ecology.



NORTHERN BOTTLENOSE WHALE - *Hyperoodon ampullatus* (5033)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Unknown	Favourable
Population	Unknown	Unknown
Habitat for the species	Unknown	Favourable
Future Prospects	Unknown	Unknown
Overall Status	Unknown	Unknown
Reason for change	Improved knowledge	

SEI WHALE *(Balaenoptera borealis)*

ANNEX: IV

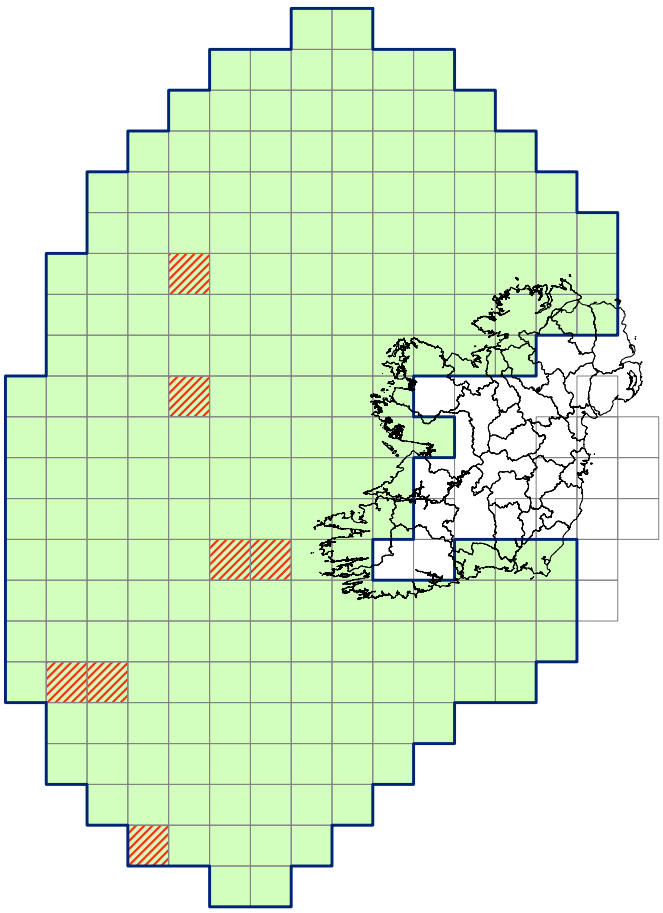
The sei whale *(Balaenoptera borealis)* is the third largest whale species found in Irish waters but is one of the least frequently recorded. It is possible that the species is under-recorded due to difficulties in distinguishing it from other large whales, particularly its close relative the fin whale. Individual sei whales are only readily identifiable in good sea conditions or within close range where diagnostic features including its surface behaviour, a characteristic upright and comparatively tall dorsal fin and the absence of asymmetrical skin colouration can be observed. Its apparently more oceanic existence may also explain why contemporary records remain low compared to more wide-ranging and coastally-occurring whale species such as the fin whale and humpback whale.

Geoff Campbell

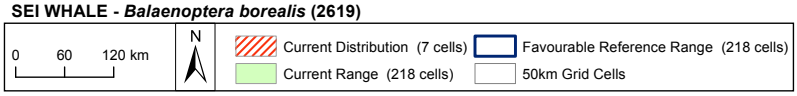
Sei whales feed on small shoaling fish, swimming crustaceans and zooplankton in oceanic, continental slope and shelf waters. It is believed that like many baleen whales, sei whales commonly move between cold, high latitude feeding grounds in summer and warm temperate or tropical waters in winter during which calving and mating occurs. In Ireland the sporadic nature of records makes its occurrence and seasonal distribution unclear.

Having been intensively hunted into the mid-late 20th century, there is little sign of any recovery in northeast Atlantic populations of sei whale. The species remains vulnerable to a range of potential threats and pressures in its natural habitat, including competition for prey resources and disturbance by human activities.

Despite some improved understanding of the species' range and habitat, the Overall Status is considered Unknown, due to limitations in information on occurrence and population ecology.



SEI WHALE - *Balaenoptera borealis* (2619)



ASSESSMENT SUMMARY:

CONCLUSION	2007	2013
Range	Unknown	Favourable
Population	Unknown	Unknown
Habitat for the species	Favourable	Favourable
Future Prospects	Unknown	Unknown
Overall Status	Unknown	Unknown
Reason for change	Improved knowledge	

VAGRANTS

SPECIES CODE: 1348

NORTHERN RIGHT WHALE *(Eubalaena glacialis)*

ANNEX: IV

The Northern right whale *(Eubalaena glacialis)* is one of six species of cetacean that is very rarely recorded in Irish waters and is therefore termed vagrant. Distinctive by its v-shaped exhalation blow, the absence of a dorsal fin and the presence of white encrusted lumps on the head area known as "callosities", this slow-swimming baleen whale species was once hunted intensively throughout its North Atlantic range including off the northwest of Ireland in the early 1900s. Little is now known about the occurrence or ecology of this species in the northeast Atlantic, while remnant populations inhabiting North American waters remain vulnerable to ongoing human impacts and potential extinction.

The Overall Status of the Northern right whale is considered to be Unknown since no live records have been confirmed from Irish waters in recent decades. In the last 50 years, sightings have occurred very occasionally off the European continental shelf and in the mid-Atlantic.

SPECIES CODE: 2028

FALSE KILLER WHALE *(Pseudorca crassidens)*

ANNEX: IV

The false killer whale *(Pseudorca crassidens)* is one of six species of cetacean that have been very rarely recorded in Irish waters and are therefore termed vagrant. Distinctive by its resemblance to the larger, stockier killer whale, particularly due to its length and the shape of its dorsal fin, this species is completely black in colouration and more slender in appearance with a more pointed head shape also notable.

Little is known about the occurrence or ecology of this species in the northeast Atlantic but it is assumed to be a tropical, sub-tropical and warm temperate deep water species that feeds on fish and squid and which very occasionally occurs in offshore Irish waters.

Overall, the conservation status of the false killer whale is considered to be Unknown since no live records have been confirmed from Irish waters in more than a decade. In the last 50 years, sightings have occurred very occasionally off the European continental shelf and in the mid-Atlantic.

SPECIES CODE: 2037

TRUE'S BEAKED WHALE *(Mesoplodon mirus)*

ANNEX: IV

True's beaked whale *(Mesoplodon mirus)* is one of six species of cetacean that have been very rarely recorded in Irish waters and are therefore termed vagrant species. Like many beaked whale species its presence and identifying features can be elusive in the field. True's beaked whales are also tricky to separate from their close relatives the Gervais' beaked whale but both are identifiable by a distinct medium-sized beak and adult male True's beaked whales have two prominent teeth at the tip of the lower jaw.

Little is known about the occurrence or ecology of this species in the northeast Atlantic but it is assumed to be a deep water species that feeds on squid and possibly fish, and which according to stranding records occasionally occurs off the west or southwest of Ireland.

The Overall Status of the True's beaked whale is considered to be Unknown.

SPECIES CODE: 2622

PYGMY SPERM WHALE *(Kogia breviceps)*

ANNEX: IV

The pygmy sperm whale *(Kogia breviceps)* is one of six species of cetacean that is very rarely recorded in Irish waters and is therefore termed vagrant. It is distinctive by its small size (up to 3.5m in length) and blunt head shape containing a pale 'false gill' line between the eyes and the pectoral fins. Also, unlike cetaceans of similar size its small dorsal fin is located about two thirds of the way along its back.

Little is known about the population distribution or ecology of this species in the northeast Atlantic but it is considered to be a deep water species that feeds on squid and octopus, and which may occasionally occur in offshore Irish waters. Since only one live record has emerged so far from oceanic waters very far from shore, most information on the species in Ireland has come from the isolated stranding of individuals.

The Overall Status of the pygmy sperm whale is considered to be Unknown since no live records of this species have been confirmed from Irish waters in recent decades.

SPECIES CODE: 5029

BELUGA/WHITE WHALE *(Delphinapterus leucas)*

ANNEX: IV

The beluga or white whale *(Delphinapterus leucas)* is one of six species of cetacean that have been very rarely recorded in Irish waters and are therefore termed vagrant. A large dolphin species that is very distinctive due to its completely white/ivory skin colouration, its rounded bulbous melon (forehead) and the absence of a dorsal fin, it is not easily confused with other cetacean species.

Little is known about the occurrence or ecology of this species in the northeast Atlantic. It is normally a polar or sub-polar species found in Arctic regions where it feeds on fish and crustaceans. Just two records have been confirmed from Ireland so far, one from County Mayo and another from County Cork.

The Overall Status of the beluga/white whale is considered to be Unknown since no live records or strandings have been confirmed from Ireland in recent decades.

SPECIES CODE: 5034

GERVAIS' BEAKED WHALE *(Mesoplodon europaeus)*

ANNEX: IV

Gervais' beaked whale *(Mesoplodon europaeus)* is one of six species of cetacean that have been very rarely recorded in Irish waters and are therefore termed vagrant. Difficult to identify in the open ocean, like many beaked whale species its presence and identifying features can be elusive in the field. Gervais' beaked whales are also tricky to separate from their close relatives the True's beaked whale but both are identifiable by a distinct medium-sized beak and adult male Gervais' beaked whales have two prominent teeth positioned about a quarter of the way back along the lower jaw.

Little is known about the occurrence or ecology of this species in the northeast Atlantic but it is assumed to be a warm temperate or sub-tropical deep water species that feeds on squid and possibly fish. Only one record is available from Ireland so far, that being from a stranding in County Sligo.

SPECIES CODE: 1102

ALLIS SHAD *(Alosa alosa)*

ANNEX: II, V

The Allis shad *(Alosa alosa) is* a large member of the herring family. It spends much of its life in coastal waters and samples of marine-caught Allis shad have been collected off the south-east coast. This species enters freshwater to breed, with significant penetration of large rivers reported on the continent. There is some evidence of Allis shad entering Irish rivers, with one fish recorded some 40km from the sea on the Slaney. Nonetheless, only a small number of Allis shad have ever been recovered from Irish freshwaters and while there is good evidence of the presence of breeding populations of Twaite shad in Irish rivers, the only evidence of breeding by Allis shad is the presence of Allis-Twaite hybrids. No juvenile Allis shad have been found during survey work of Irish rivers systems. Overall it would appear that the Allis shad is an opportunistic spawner in Irish waters. Until evidence of an established breeding population is found, Allis shad is considered a vagrant.

SPECIES CODE: 1320

BRANDT'S BAT *(Myotis brandtii)*

ANNEX: IV

Brandt's bat *(Myotis brandtii)* is a cryptic species, requiring genetic determination to separate it from the whiskered bat *(M. mystacinus)*. Following the initial confirmation of a specimen of Brandt's in Wicklow in 2006 further records were expected. However, extensive survey work at potential roosts and swarming sites during the current reporting period has failed to locate a single specimen. The species is now considered a vagrant and was not assessed in the current report.

RESULTS

RESULTS

COMPARISONS WITH 2007

Direct comparison with the 2007 assessments must be approached with caution, as some 2013 results show an apparent change which is due to one of the following:

1. Improved knowledge. More detailed surveys have been undertaken since 2007. This has lead to an improved understanding of the distribution and ecology of the habitat or species or
2. Change in assessment methodology. There have been developments in the 2011 guidelines which have resulted, in some cases, in a change in the assessment results. In particular, there is a new list of pressures/threats and a standardised guidance on the recommended number of pressures/threats that should be listed.

Therefore only genuine changes are highlighted and summary comparisons are not presented.

PRESSURES/THREATS

The standardised list of pressures/threats is hierarchical. The pressures/threats reported for each habitat and species have been amalgamated into the highest level of the hierarchy to provide an overview of the proportion impacted by each high level category. These high level categories are listed in Table 1 together with explanations or major subdivisions where appropriate.

Table 1 Standardised high level categories for pressures and threats.

HIGH LEVEL CATEGORY	COMMENTS
Agriculture	Mainly related to ecologically unsuitable grazing (including undergrazing and overgrazing) and fertilisation
Forestry	
Mining, extraction, energy production	Including mechanical peat extraction
Transportation	
Urbanisation	
Other Biological resource use	Mainly hunting, fishing, aquaculture related
Human intrusion and disturbances	Mainly recreation
Pollution	Relating mainly to agricultural, forestry, household or industrial sources
Invasive and problematic species	
Natural system modifications	Mainly drainage, burning, reclamation, coastal protection
Natural biotic and abiotic processes	Mainly erosion or succession
Natural catastrophes	
Climate change	

Elements of "Natural system modifications", "Pollution" "...problematic species" are often related to agricultural practices. There are also many inter linkages between pressures/threats, e.g. abandonment (under "Agriculture") and succession (under "Natural and biotic processes").

Pressures are negatively impacting activities that have taken place during the reporting period (i.e. 2007-2012); threats are negatively impacting activities that are expected to continue over the next 12 years.

Pressures/threats are ranked as High, Medium or Low intensity. A maximum of 20 pressures/threats per habitat or species can be listed, with a maximum of 5 at High intensity.

HABITAT OVERALL ASSESSMENTS

An overview of the results of the individual assessments for 2007 and 2013 is presented in Table 2. For the 2013 submission, 9% of habitats are assessed as "Favourable", 50% as "Inadequate" and 41% as "Bad" (Figure 1).

Table 2 – Assessment results by habitat for 2007 and 2013 ↑ = improving, = = stable, ↓= declining, x = unknown.

CODE	HABITAT NAME	YEAR	Range	Area	Structures & Functions	Future Prospects	Overall	Changes since 2007
1110	Sandbanks	2007	Favourable	Favourable	Favourable	Inadequate	Inadequate	Genuine improvement. More optimistic assessment for Future Prospects.
		2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1130	Estuaries	2007	Favourable	Favourable	Unknown	Inadequate	Inadequate	Genuine improvement. Measures in the marine will positively impact this habitat.
		2013	Favourable	Favourable	Inadequate↑	Favourable	Inadequate↑	
1140	Tidal mudflats	2007	Favourable	Favourable	Inadequate	Inadequate	Inadequate	Genuine improvement. Measures in the marine will positively impact this habitat.
		2013	Favourable	Favourable	Inadequate↑	Favourable	Inadequate↑	
1150	Lagoons*	2007	Favourable	Inadequate	Bad	Inadequate	Bad	Too optimistic with Future Prospects in 2007
		2013	Favourable	Favourable	Bad=	Bad=	Bad=	
1160	Large shallow inlets and bays	2007	Favourable	Favourable	Unknown	Inadequate	Inadequate	Genuine improvement. Measures in the marine will positively impact this habitat.
		2013	Favourable	Favourable	Inadequate↑	Favourable	Inadequate↑	
1170	Reefs	2007	Favourable	Unknown	Inadequate	Inadequate	Inadequate	Ongoing decline but ahould have been Red in 2007
		2013	Favourable	Favourable	Bad↓	Bad↓	Bad↓	
1210	Drift lines	2007	Favourable	Inadequate	Favourable	Inadequate	Inadequate	Ongoing decline
		2013	Favourable	Inadequate↓	Inadequate↓	Inadequate=	Inadequate↓	
1220	Perennial vegetation of stony banks	2007	Favourable	Inadequate	Inadequate	Inadequate	Inadequate	
		2013	Favourable	Inadequate=	Inadequate=	Inadequate=	Inadequate=	
1230	Sea cliffs	2007	Favourable	Favourable	Inadequate	Inadequate	Inadequate	
		2013	Favourable	Favourable	Inadequate=	Inadequate=	Inadequate=	
1310	Salicornia mud	2007	Favourable	Inadequate	Inadequate	Inadequate	Inadequate	Ongoing decline
		2013	Favourable	Favourable	Inadequate↓	Inadequate↓	Inadequate↓	
1320	Spartinion	2007	Favourable	Inadequate	Favourable	Inadequate	Inadequate	No longer considered. Spartina is an Invasive non-native species
		2013						
1330	Atlantic salt meadows	2007	Favourable	Inadequate	Inadequate	Inadequate	Inadequate	
		2013	Favourable	Favourable	Inadequate=	Inadequate=	Inadequate=	
1410	Mediterranean salt meadows	2007	Favourable	Favourable	Inadequate	Inadequate	Inadequate	
		2013	Favourable	Favourable	Inadequate=	Inadequate=	Inadequate=	
1420	Halophilous scrub	2007	Favourable	Bad	Inadequate	Bad	Bad	Ongoing decline
		2013	Favourable	Bad↓	Favourable	Inadequate↓	Bad↓	
2110	Embryonic shifting dunes	2007	Favourable	Inadequate	Inadequate	Inadequate	Inadequate	
		2013	Favourable	Favourable	Inadequate=	Inadequate=	Inadequate=	
2120	Marram dunes (white dunes)	2007	Favourable	Bad	Bad	Bad	Bad	Should have been Inadequate in 2007
		2013	Favourable	Inadequate=	Inadequate=	Inadequate=	Inadequate=	
2130	Fixed dunes (grey dunes)*	2007	Favourable	Inadequate	Bad	Bad	Bad	
		2013	Favourable	Favourable	Bad=	Bad=	Bad=	
2140	Decalcified empetrum dunes*	2007	Favourable	Favourable	Bad	Inadequate	Bad	Should have been Inadequate in 2007
		2013	Favourable	Favourable	Inadequate=	Inadequate=	Inadequate=	
2150	Decalcified dune heath*	2007	Favourable	Favourable	Bad	Inadequate	Bad	Should have been Inadequate in 2007
		2013	Favourable	Favourable	Inadequate=	Inadequate=	Inadequate=	
2170	Dunes with creeping willow	2007	Favourable	Favourable	Inadequate	Inadequate	Inadequate	
		2013	Favourable	Favourable	Inadequate=	Inadequate=	Inadequate=	
2190	Dune slack	2007	Favourable	Inadequate	Inadequate	Bad	Bad	Ongoing decline, however Future prospects were assessed too severely in 2007.
		2013	Inadequate↓	Inadequate↑	Inadequate=	Inadequate↓	Inadequate↓	
21A0	Machair*	2007	Favourable	Inadequate	Bad	Bad	Bad	
		2013	Favourable	Inadequate=	Bad=	Bad=	Bad=	
3110	Oligotrophic soft water lakes	2007	Favourable	Favourable	Bad	Bad	Bad	Ongoing decline in water quality
		2013	Favourable	Favourable	Bad↓	Bad↓	Bad↓	
3130	Soft water lakes with base rich influences	2007	Favourable	Favourable	Bad	Bad	Bad	Should have been Inadequate in 2007
		2013	Favourable	Favourable	Inadequate=	Inadequate=	Inadequate=	
3140	Hard water lakes	2007	Favourable	Favourable	Bad	Bad	Bad	Ongoing decline
		2013	Favourable	Favourable	Bad↓	Bad↓	Bad↓	
3150	Natural eutrophic lakes	2007	Unknown	Unknown	Unknown	Inadequate	Bad	Should have been Inadequate in 2007
		2013	Favourable	Favourable	Inadequate=	Inadequate=	Inadequate=	
3160	Dystrophic lakes	2007	Favourable	Unknown	Bad	Bad	Bad	Ongoing decline but should have been Inadequate in 2007
		2013	Favourable	Favourable	Inadequate↓	Inadequate=	Inadequate↓	
3180	Turloughs*	2007	Favourable	Favourable	Inadequate	Inadequate	Inadequate	
		2013	Favourable	Favourable	Inadequate=	Inadequate=	Inadequate=	
3260	Floating river vegetation	2007	Favourable	Favourable	Bad	Bad	Bad	Ongoing decline but should have been Inadequate in 2007
		2013	Favourable	Favourable	Inadequate↓	Inadequate=	Inadequate↓	
3270	Chenopodium rubri	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
		2013	Favourable	Favourable	Favourable	Favourable	Favourable	

CODE	HABITAT NAME	YEAR	Range	Area	Structures & Functions	Future Prospects	Overall	Changes since 2007
4010	Wet heath	2007	Favourable	Unknown	Bad	Bad	Bad	Ongoing declines balanced with some improvements
		2013	Favourable	Inadequate↓	Bad↑	Bad=	Bad=	
4030	Dry heaths	2007	Favourable	Favourable	Inadequate	Inadequate	Inadequate	Ongoing declines balanced with some improvements
		2013	Favourable	Inadequate↓	Bad↑	Bad=	Bad=	
4060	Alpine and subalpine heath	2007	Favourable	Inadequate	Inadequate	Inadequate	Inadequate	Genuine improvements but should have been Bad in 2007
		2013	Favourable	Favourable	Bad↑	Bad↑	Bad↑	
5130	Juniper scrub	2007	Favourable	Inadequate	Inadequate	Inadequate	Inadequate	
		2013	Favourable	Favourable	Inadequate=	Inadequate=	Inadequate=	
6130	Calaminarian grassland	2007	Favourable	Favourable	Favourable	Inadequate	Inadequate	
		2013	Favourable	Inadequate↓	Favourable	Inadequate↑	Inadequate=	
6210	Orchid-rich calcareous grassland*	2007	Favourable	Bad	Bad	Bad	Bad	
		2013	Favourable	Bad=	Bad=	Bad=	Bad=	
6230	Species-rich nardus upland grassland*	2007	Favourable	Bad	Bad	Bad	Bad	Ongoing decline
		2013	Favourable	Bad↓	Bad=	Bad↓	Bad↓	
6410	Molinia meadows	2007	Favourable	Bad	Bad	Bad	Bad	Ongoing decline
		2013	Favourable	Bad=	Bad↓	Bad↓	Bad↓	
6430	Hydrophilous tall herb	2007	Favourable	Favourable	Inadequate	Inadequate	Inadequate	
		2013	Favourable	Inadequate x	Bad=	Bad=	Bad=	
6510	Lowland hay meadows	2007	Bad	Bad	Bad	Bad	Bad	
		2013	Bad=	Bad=	Bad=	Bad=	Bad=	
7110	Raised bog (active)*	2007	Bad	Bad	Bad	Bad	Bad	Ongoing decline
		2013	Bad=	Bad↓	Bad=	Bad↓	Bad↓	
7120	Degraded raised bogs	2007	Favourable	Bad	Inadequate	Bad	Bad	Ongoing decline
		2013	Favourable	Bad↓	Bad↓	Bad↓	Bad↓	
7130	Blanket bog (active)*	2007	Favourable	Favourable	Inadequate	Inadequate	Inadequate	Ongoing decline, should have been Bad in 2007.
		2013	Favourable	Bad↓	Inadequate↓	Bad↓	Bad↓	
7140	Transition mires	2007	Favourable	Favourable	Bad	Bad	Bad	Ongoing decline
		2013	Favourable	Inadequate↓	Bad x	Bad↑	Bad x	
7150	Rhynchosporion depressions	2007	Favourable	Favourable	Favourable	Favourable	Favourable	Ongoing decline
		2013	Favourable	Inadequate↓	Inadequate↓	Inadequate↓	Inadequate↓	
7210	Cladium fen*	2007	Favourable	Favourable	Bad	Bad	Bad	Ongoing decline
		2013	Favourable	Inadequate↓	Bad x	Bad↑	Bad x	
7220	Petrifying springs*	2007	Favourable	Favourable	Bad	Bad	Bad	
		2013	Favourable	Favourable	Inadequate=	Inadequate=	Inadequate=	
7230	Alkaline fens	2007	Favourable	Favourable	Bad	Bad	Bad	Ongoing decline
		2013	Favourable	Inadequate↓	Bad x	Bad↑	Bad x	
8110	Siliceous scree	2007	Favourable	Inadequate	Inadequate	Inadequate	Inadequate	Ongoing improvement
		2013	Favourable	Favourable	Inadequate↑	Inadequate↑	Inadequate↑	
8120	Eutric scree	2007	Favourable	Inadequate	Inadequate	Inadequate	Inadequate	
		2013	Favourable	Favourable	Inadequate=	Inadequate=	Inadequate=	
8210	Calcareous rocky slopes	2007	Favourable	Inadequate	Inadequate	Inadequate	Inadequate	
		2013	Favourable	Favourable	Inadequate=	Inadequate=	Inadequate=	
8220	Siliceous rocky slopes	2007	Favourable	Inadequate	Inadequate	Inadequate	Inadequate	
		2013	Favourable	Favourable	Inadequate=	Inadequate=	Inadequate=	
8240	Limestone pavement*	2007	Favourable	Inadequate	Inadequate	Inadequate	Inadequate	Combination of declines and improvements
		2013	Favourable	Inadequate↓	Inadequate↑	Inadequate=	Inadequate=	
8310	Caves	2007	Favourable	Unknown	Favourable	Favourable	Favourable	
		2013	Favourable	Favourable	Favourable	Favourable	Favourable	
8330	Sea caves	2007	Favourable	Unknown	Favourable	Favourable	Favourable	
		2013	Favourable	Favourable	Favourable	Favourable	Favourable	
91A0	Old oak woodlands	2007	Favourable	Bad	Bad	Bad	Bad	
		2013	Favourable	Bad↑	Bad↑	Bad↑	Bad↑	
91D0	Bog woodland*	2007	Favourable	Inadequate	Inadequate	Inadequate	Inadequate	Change in interpretation of status
		2013	Favourable	Favourable	Favourable	Favourable	Favourable	
91E0	Residual alluvial forests*	2007	Favourable	Bad	Bad	Bad	Bad	Genuine improvement
		2013	Favourable	Bad=	Bad↑	Bad↑	Bad↑	
91J0	Taxus baccata woods*	2007	Bad	Bad	Bad	Bad	Bad	Genuine improvement
		2013	Bad↑	Bad↑	Bad↑	Bad↑	Bad↑	

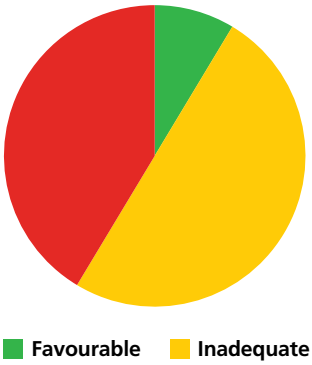


Figure 1 The Overall assessment results for habitats

Assessments that are Unfavourable (i.e. "Inadequate" or "Bad") are assigned qualifiers to determine whether the status is improving, declining, stable or unknown. A full breakdown of the Overall assessment including qualifiers is presented in Figure 2. Qualifiers are based on trends over the reporting period (i.e. 2007-2012) that are expected to continue into the future.

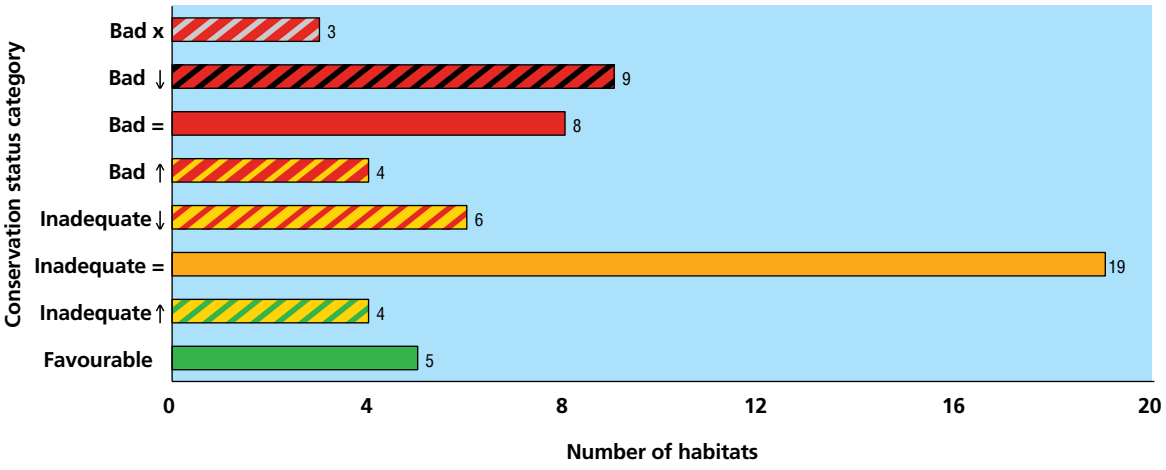


Figure 2 The Overall assessment results for habitats subdivided by qualifiers for Unfavourable categories. ↑ = improving, = = stable, ↓ = declining, x = unknown.

Since 2007, nine (16%) habitats demonstrate a genuine improving trend, 18 (31%) habitats are considered to be declining, no change is reported for 28 (48%) habitats and an unknown trend reported for 3 (5%) habitats (Figure 3). These results also include movement between categories as well as changes indicated by the qualifiers.

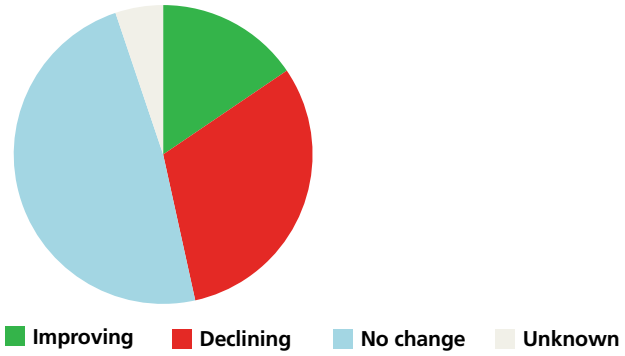


Figure 3 Trends in assessment results for habitats

Many of the coastal habitats and lakes are assessed as "Inadequate", with ongoing declines. "Inadequate" but improving trends are noted for some marine habitats. Several of the peatland and grassland habitats remain in "Bad" status with ongoing declines; however improvements are noted in some woodland habitats. Fens are assigned a "Bad" but unknown trend due to the lack of national data to support the assessments.

HABITAT PRESSURES

The proportion of habitats impacted by Pressure or Threat category at High, Medium and Low intensity is presented in Figure 4. The proportion of habitats impacted by high level Pressure or Threat category is presented in Figure 5.

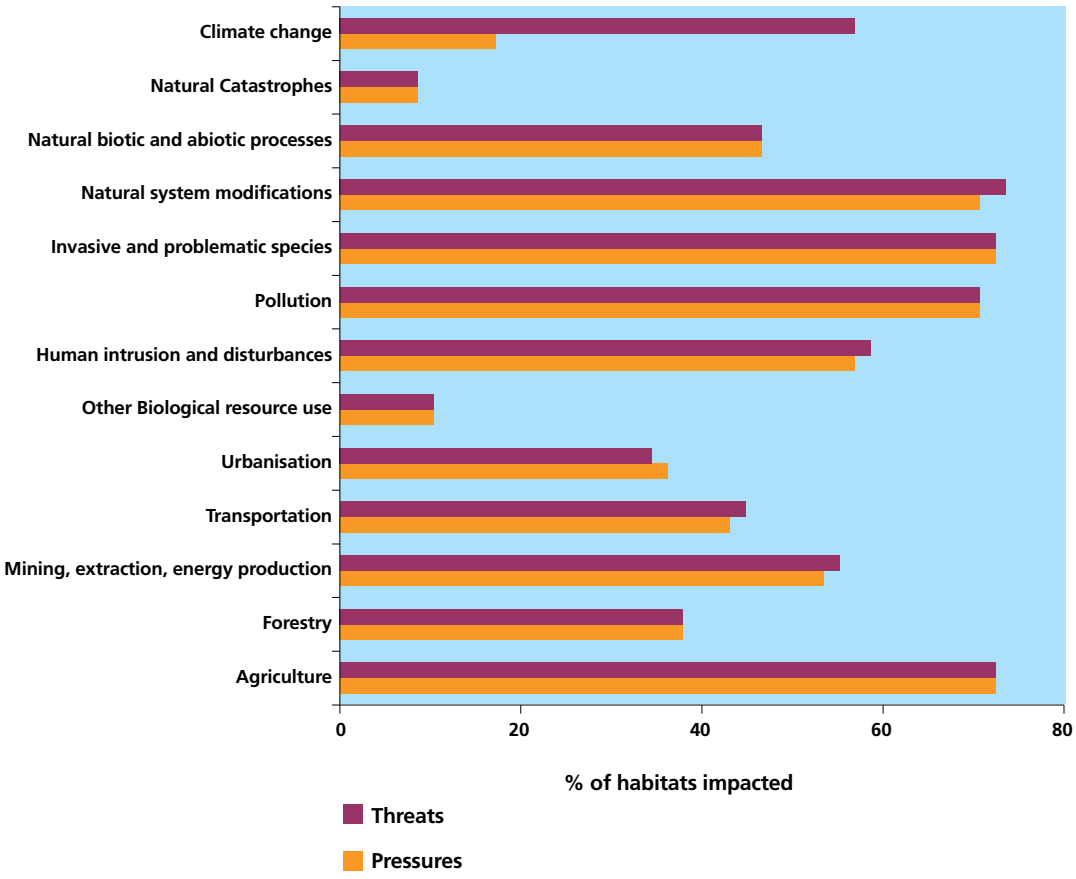


Figure 4 The proportion of habitats impacted by Pressure or Threat category at High, Medium and Low intensity

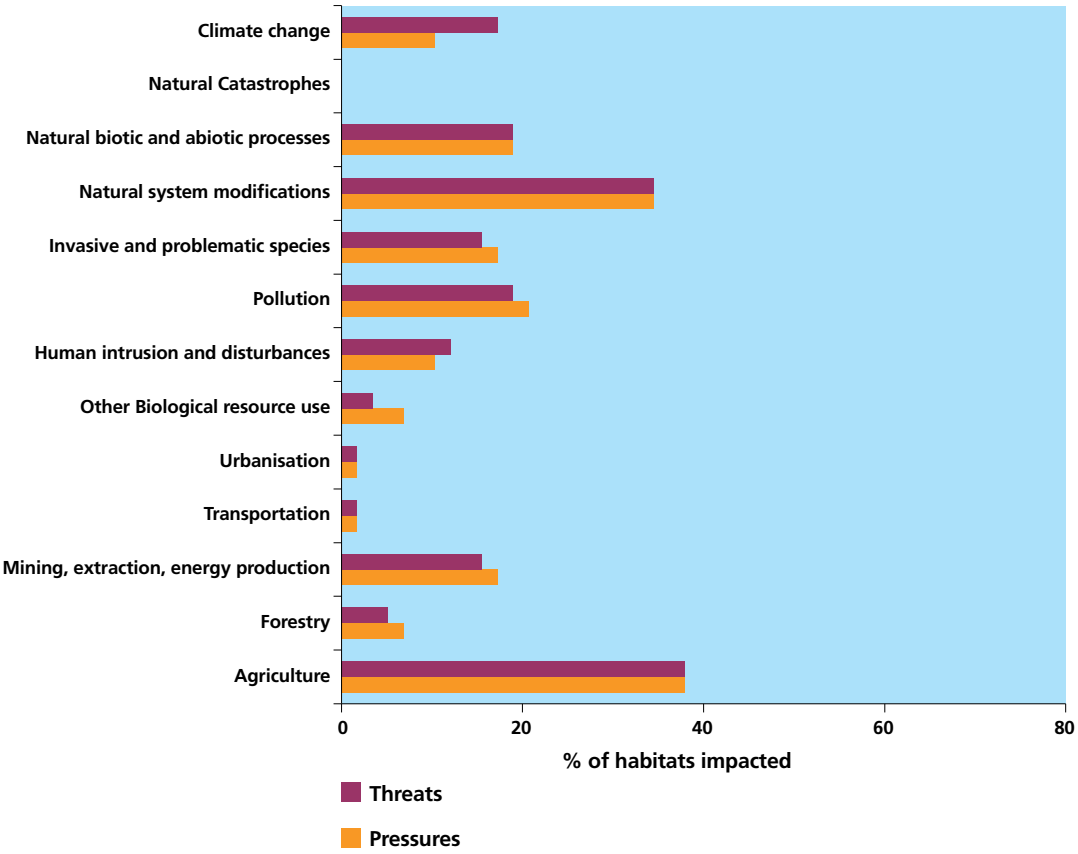


Figure 5 The proportion of habitats impacted by Pressure or Threat category at a High intensity

There is no evidence that there will be any major decline in pressures over the next 12 years. Some potential improvements however have been noted for the following:

- A decline in invasive infestation of woodlands due to improved forestry management.
- Management of aquaculture related pressures impacting estuaries and mudflats
- A reduction in pollution from household waste, sewage systems and pollution arising from agricultural or forestry related activities. These improvements are likely to be observed in certain lake habitats.

There is some evidence that climate change is negatively impacting coastal habitats. Predictions indicate that degraded upland habitats, in particular, will become less resilient to the impacts of climate change in the immediate future. These predictions relate mainly to drier summers and higher levels of more intense rainfall which are likely to result in bog bursts and landslides which may indirectly impact other habitats e.g. lakes.

Ecologically unsuitable grazing regimes represent approximately 50% of the pressures recorded in the "Agriculture" category. The grazing pressures noted were both intensive and non-intensive grazing. Non-intensive grazing is assigned as a pressure where a habitat has not recovered from the impacts of overgrazing and even a small amount of grazing is still considered to negatively impact the habitat. One-third of the pressures in the "Agriculture" category are assigned to abandonment, which should be considered in conjunction with the "Natural and Abiotic processes" category where a similar proportion of the pressures are assigned to succession.

Approximately one-third of "Natural system modifications" are related to drainage while the remainder are made up of burning, reclamation, dredging and sea defences. Over half of the High intensity pressures are related to drainage which is significantly impacting peatland habitats.

The most prevalent pollution sources are from agricultural or forestry related activities and household sewage systems. Air pollution was reported to impact upland habitats but at a Low intensity.

Mechanical peat extraction is considered a High intensity pressure for blanket bog and also indirectly impacts lake and river habitats.

SPECIES OVERALL ASSESSMENTS

An overview of the results of the individual assessments for 2007 and 2013 is presented in Table 3.

Table 3 – Assessment results by species for 2007 and 2013 ↑ = improving, = = stable, ↓ = , x = unknown.

CODE	SPECIES NAME	ANNEX	YEAR	Range	Population	Habitat for the species	Future Prospects	Overall	Changes since 2007
1421	Killarney Fern *(Trichomanes speciosum)*	II, IV	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1528	Marsh Saxifrage *(Saxifraga hirculus)*	II, IV	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1833	Slender Naiad *(Najas flexilis)*	II, IV	2007	Favourable	Inadequate	Inadequate	Favourable	Inadequate	Reinterpretation of future prospects
			2013	Favourable	Inadequate=	Inadequate=	Inadequate=	Inadequate=	
1393	Slender green feather moss *(Hamatocaulis vernicosus)*	II	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1395	Petalwort *(Petalophyllum ralfsii)*	II	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1376	Maërl *(Lithothamnion corralloides)*	V	2007	Favourable	Unknown	Unknown	Inadequate	Inadequate	Genuine improvement. Measures in the marine will positively impact this species
			2013	Favourable	Favourable	Inadequate↑	Favourable	Inadequate↑	
1377	Maërl *(Phymatolithon calcareum)*	V	2007	Favourable	Unknown	Unknown	Inadequate	Inadequate	Genuine improvement. Measures in the marine will positively impact this species
			2013	Favourable	Favourable	Inadequate↑	Favourable	Inadequate↑	
1400	White cushion moss *(Leucobryum glaucum)*	V	2007	Favourable	Favourable	Inadequate	Favourable	Inadequate	Change in expert opinion of amount of suitable habitat for the species
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1409	*Sphagnum* genus	V	2007	Favourable	Favourable	Inadequate	Inadequate	Inadequate	Only partial assessments required for 2013
			2013					Inadequate=	
1413	*Lycopodium* group	V	2007	Favourable	Inadequate	Inadequate	Inadequate	Inadequate	Only partial assessments required for 2013
			2013					Inadequate=	
1378	*Cladonia* subgenus *cladina*	V	2007	Favourable	Favourable	Inadequate	Inadequate	Inadequate	Only partial assessments required for 2013
			2013					Inadequate=	
1013	Geyer's whorl snail *(Vertigo geyeri)*	II	2007	Favourable	Inadequate	Inadequate	Inadequate	Inadequate	Ongoing decline.
			2013	Inadequate↓	Inadequate↓	Inadequate=	Inadequate↓	Inadequate↓	
1014	Narrow-mouthed whorl snail *(Vertigo angustior)*	II	2007	Favourable	Inadequate	Inadequate	Inadequate	Inadequate	Ongoing decline.
			2013	Inadequate↓	Inadequate↓	Inadequate↓	Inadequate↓	Inadequate↓	
1016	Desmoulin's whorl snail *(Vertigo moulinsiana)*	II	2007	Bad	Bad	Inadequate	Bad	Bad	Ongoing decline. New discoveries place values closer to Reference Values. Not an actual improvement
			2013	Inadequate↓	Inadequate=	Inadequate↓	Inadequate↓	Inadequate↓	
1024	Kerry Slug *(Geomalacus maculosus)*	II, IV	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1029	Freshwater Pearl Mussel *(Margaritifera margaritifera)*	II, V	2007	Bad	Bad	Bad	Bad	Bad	Ongoing decline.
			2013	Favourable	Bad↓	Bad↓	Bad↑	Bad↓	
1990	Irish Freshwater Pearl Mussel *(Margaritifera durrovensis)*	II, V	2007	Favourable	Bad	Bad	Bad	Bad	Ongoing decline.
			2013	Bad=	Bad↓	Bad=	Bad↓	Bad↓	
1092	White-Clawed Crayfish *(Austropotamobius pallipes)*	II, V	2007	Inadequate	Inadequate	Inadequate	Inadequate	Inadequate	Distribution changes may be associated with sampling methods
			2013	Favourable	Favourable	Favourable	Inadequate=	Inadequate=	
1065	Marsh Fritillary *(Euphydryas aurinia)*	II	2007	Favourable	Inadequate	Inadequate	Inadequate	Inadequate	Ongoing decline.
			2013	Favourable	Inadequate↓	Favourable	Inadequate↓	Inadequate↓	
1095	Sea Lamprey *(Petromyzon marinus)*	II	2007	Inadequate	Inadequate	Inadequate	Inadequate	Inadequate	Should have been Bad in 2007
			2013	Bad=	Bad=	Favourable	Bad=	Bad=	
1099	River Lamprey *(Lampetra fluviatilis)*	II, V	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1096	Brook Lamprey *(Lampetra planeri)*	II	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
5046	Killarney Shad *(Alosa fallax killarnensis)*	II, V	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1103	Twaite Shad *(Alosa fallax fallax)*	II, V	2007	Favourable	Bad	Unknown	Inadequate	Bad	
			2013	Bad↑	Inadequate=	Inadequate=	Inadequate=	Bad=	
5076	Pollan *(Coregonus autumnalis)*	V	2007	Favourable	Bad	Inadequate	Inadequate	Bad	
			2013	Favourable	Bad x	Inadequate x	Inadequate x	Bad x	
1106	Atlantic Salmon *(Salmo salar)*	II, V	2007	Favourable	Bad	Inadequate	Inadequate	Bad	Should have been Inadequate in 2007
			2013	Favourable	Inadequate=	Favourable	Inadequate=	Inadequate=	
1202	Natterjack Toad *(Bufo calamita)*	IV	2007	Bad	Bad	Inadequate	Inadequate	Bad	Genuine improvement
			2013	Bad=	Bad x	Inadequate↑	Inadequate=	Bad↑	
1213	Common Frog *(Rana temporaria)*	V	2007	Favourable	Favourable	Inadequate	Favourable	Inadequate	Improved knowledge of habitat useage
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1223	Leatherback Turtle *(Dermochelys coriacea)*	IV	2007	Unknown	Unknown	Unknown	Inadequate	Inadequate	Difficult to determine reference values
			2013	Unknown	Unknown	Unknown	Unknown	Unknown	
1303	Lesser Horseshoe Bat *(Rhinolophus hipposideros)*	II, IV	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1309	Common Pipistrelle *(Pipistrellus pipistrellus)*	IV	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
5009	Soprano Pipistrelle *(Pipistrellus pygmaeus)*	IV	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1317	Nathusius' Pipistrelle *(Pipistrellus nathusii)*	IV	2007	Favourable	Favourable	Favourable	Favourable	Favourable	Uncertain whether this species is breeding in ROI
			2013	Unknown	Unknown	Favourable	Unknown	Unknown	
1322	Natterer's Bat *(Myotis nattereri)*	IV	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1314	Daubenton's Bat *(Myotis daubentonii)*	IV	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	

CODE	SPECIES NAME	ANNEX	YEAR	Range	Population	Habitat for the species	Future Prospects	Overall	Changes since 2007
1330	Whiskered Bat *(Myotis mystacinus)*	IV	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1326	Brown Long-Eared Bat *(Plecotus auritus)*	IV	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1331	Leisler's Bat *(Nyctalus leisleri)*	IV	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1334	Mountain Hare *(Lepus timidus)*	V	2007	Favourable	Unknown	Inadequate	Favourable	Inadequate	Should have been Favourable in 2007
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1355	Otter *(Lutra lutra)*	II, IV	2007	Favourable	Inadequate	Favourable	Favourable	Inadequate	Genuine improvement
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1357	Pine Marten *(Martes martes)*	V	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1364	Grey Seal *(Halichoerus grypus)*	II, V	2007	Unknown	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1365	Common Seal *(Phoca vitulina vitulina)*	II, V	2007	Unknown	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1345	Humpback Whale *(Megaptera novaeangliae)*	IV	2007	Unknown	Unknown	Unknown	Unknown	Unknown	
			2013	Favourable	Unknown	Favourable	Unknown	Unknown	
1349	Bottle-Nosed Dolphin *(Tursiops truncatus)*	II, IV	2007	Favourable	Unknown	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1350	Common Dolphin *(Delphinus delphis)*	IV	2007	Favourable	Unknown	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
1351	Harbour Porpoise *(Phocoena phocoena)*	II, IV	2007	Favourable	Favourable	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
2027	Killer Whale *(Orcinus orca)*	IV	2007	Unknown	Unknown	Unknown	Unknown	Unknown	
			2013	Favourable	Unknown	Favourable	Unknown	Unknown	
2029	Long-Finned Pilot Whale *(Globicephala melas)*	IV	2007	Unknown	Unknown	Unknown	Unknown	Unknown	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
2030	Risso's Dolphin *(Grampus griseus)*	IV	2007	Unknown	Unknown	Unknown	Unknown	Unknown	
			2013	Favourable	Unknown	Favourable	Unknown	Unknown	
2031	White-Sided Dolphin *(Lagenorhynchus acutus)*	IV	2007	Favourable	Unknown	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
2032	White-Beaked Dolphin *(Lagenorhynchus albirostris)*	IV	2007	Unknown	Unknown	Unknown	Unknown	Unknown	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
2034	Striped Dolphin *(Stenella coeruleoalba)*	IV	2007	Unknown	Unknown	Unknown	Unknown	Unknown	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
2035	Cuvier's Beaked Whale *(Ziphius cavirostris)*	IV	2007	Unknown	Unknown	Unknown	Unknown	Unknown	
			2013	Favourable	Unknown	Favourable	Unknown	Unknown	
2038	Sowerby's Beaked Whale *(Mesoplodon bidens)*	IV	2007	Unknown	Unknown	Unknown	Unknown	Unknown	
			2013	Favourable	Unknown	Favourable	Unknown	Unknown	
2618	Minke Whale *(Balaenoptera acutorostrata)*	IV	2007	Favourable	Unknown	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
2621	Fin Whale *(Balaenoptera physalus)*	IV	2007	Favourable	Unknown	Favourable	Favourable	Favourable	
			2013	Favourable	Favourable	Favourable	Favourable	Favourable	
5020	Blue Whale *(Balaenoptera musculus)*	IV	2007	Unknown	Unknown	Unknown	Unknown	Unknown	
			2013	Favourable	Unknown	Favourable	Unknown	Unknown	
5031	Sperm Whale *(Physeter catodon)*	IV	2007	Unknown	Unknown	Unknown	Unknown	Unknown	
			2013	Favourable	Unknown	Favourable	Unknown	Unknown	
5033	Northern Bottlenose Whale *(Hyperoodon ampullatus)*	IV	2007	Unknown	Unknown	Unknown	Unknown	Unknown	
			2013	Favourable	Unknown	Favourable	Unknown	Unknown	
2619	Sei Whale *(Balaenoptera borealis)*	IV	2007	Unknown	Unknown	Favourable	Unknown	Unknown	
			2013	Favourable	Unknown	Favourable	Unknown	Unknown	
	VAGRANTS								
1348	Northern Right Whale *(Eubalaena glacialis)*	IV	2007	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	
			2013	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	
2028	False Killer Whale *(Pseudorca crassidens)*	IV	2007	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	
			2013	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	
2037	True's Beaked Whale *(Mesoplodon mirus)*	IV	2007	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	
			2013	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	
2622	Pygmy Sperm Whale *(Kogia breviceps)*	IV	2007	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	
			2013	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	
5029	Beluga/White Whale *(Delphinapterus leucas)*	IV	2007	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	
			2013	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	
5034	Gervais' Beaked Whale *(Mesoplodon europaeus)*	IV	2007	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	
			2013	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	
1102	Allis Shad *(Alosa alosa)*	II, V	2007	Favourable	Unknown	Unknown	Unknown	Unknown	Considered to be a Vagrant
			2013	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	
1320	Brandt's *(Myotis brandtii)*	IV	2007	Favourable	Favourable	Favourable	Favourable	Favourable	Considered to be a Vagrant
			2013	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	

Eight species have been assigned as vagrants within Ireland. These include six cetacean species, Allis shad and Brandt's bat. The latter two species have been assigned to this category since 2007 as there is no evidence of breeding populations of these species.

For the remaining 61 species (including 3 species groups) 52% are assessed as "Favourable", 20% as "Inadequate", 12% as "Bad" and 16% as "Unknown" (Figure 6). There are less Unknowns than reported in 2007, due to improved knowledge of cetaceans; in those cases, the "Unknown" ratings were elevated to a "Favourable" status in 2013. Therefore with further improved knowledge of cetaceans it is likely that the proportion of species in "Favourable" status will increase.

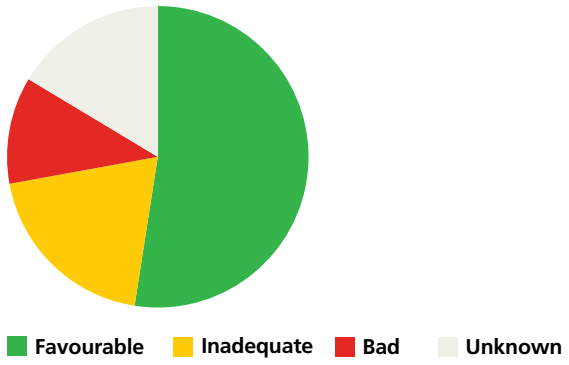


Figure 6 The Overall assessment results for species

A full breakdown of the Overall assessment including qualifiers is presented in Figure 7.

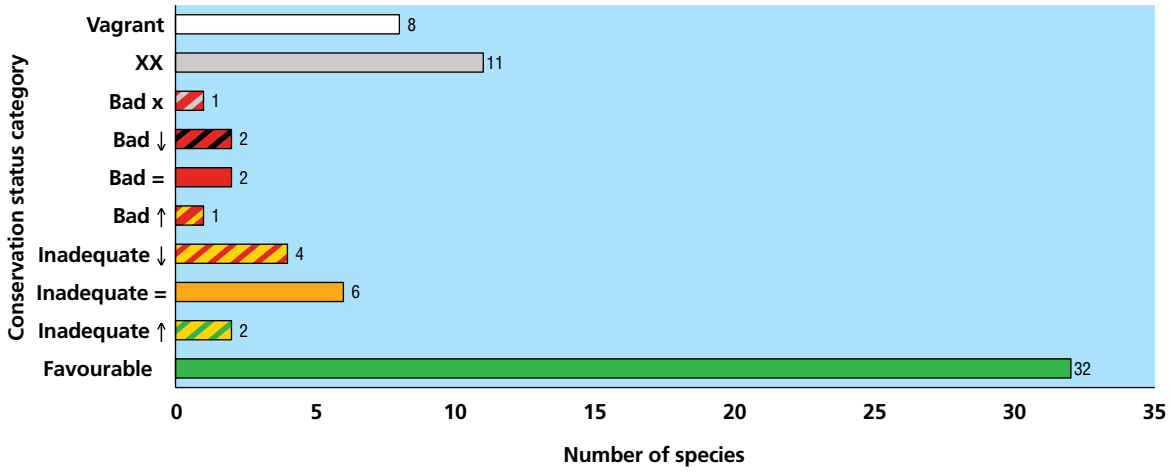


Figure 7 - The Overall assessment results for species subdivided by qualifiers for Unfavourable categories. ↑ = improving, = = stable, ↓ = declining, xx = unknown.

Since 2007, 4 (6%) species demonstrate a genuine improving trend, 6 (10%) species are considered to be declining, with no genuine change reported for 50 species (82%) (Figure 8). These results also include movement between categories as well as changes indicated by the qualifiers.

An unknown trend was reported for pollan due to uncertainty around population estimates.

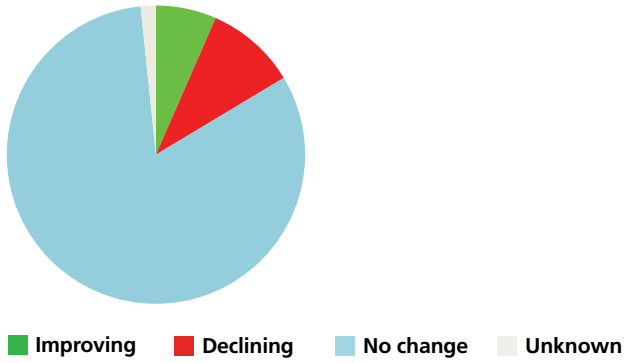


Figure 8 Trends in assessment results for species

Many species remain in "Favourable" status. Population increases and Range expansion have been observed for otter and pine marten respectively. Improvements in habitat extent for natterjack toad have been achieved by conservation action. However, on-going declines are reported for all *Vertigo* and pearl mussel species and marsh fritillary.

SPECIES PRESSURES

The proportion of species impacted by Pressure or Threat category at High, Medium and Low intensity is presented in Figure 9. The proportion of species impacted by high level Pressure or Threat category is presented in Figure 10.

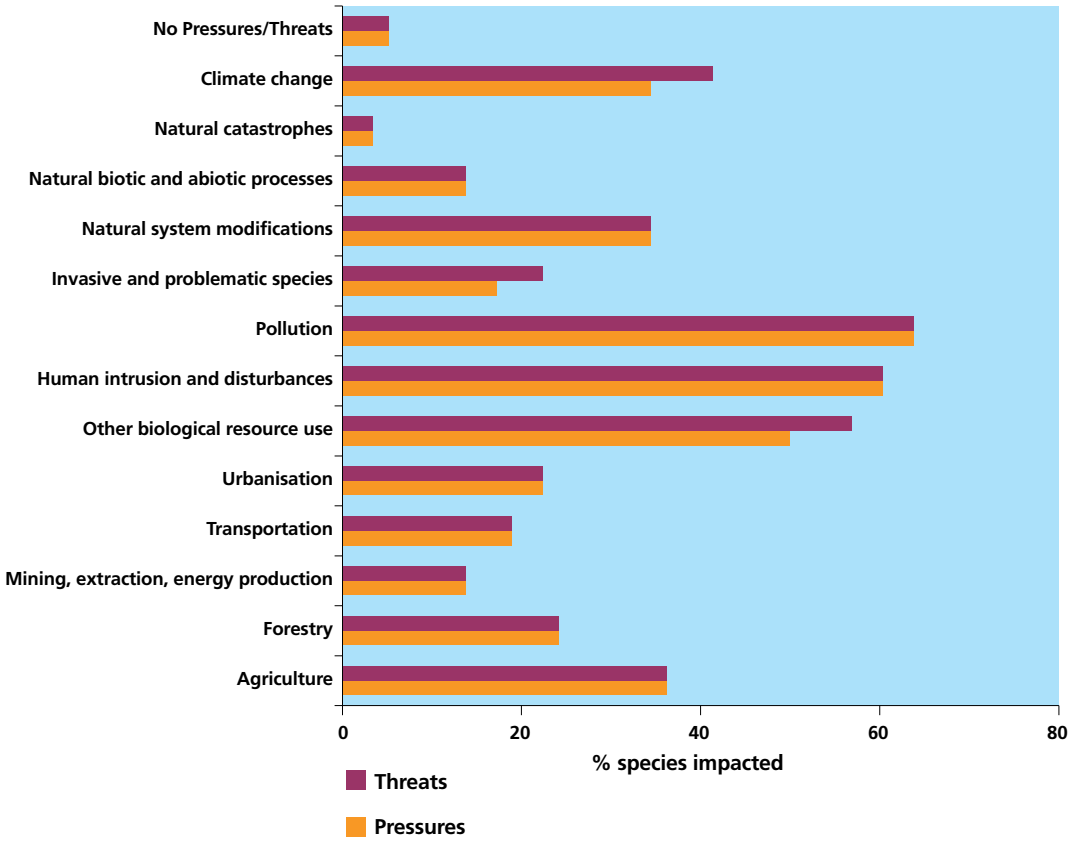


Figure 9 The proportion of species impacted by Pressure or Threat category at High, Medium and Low intensity

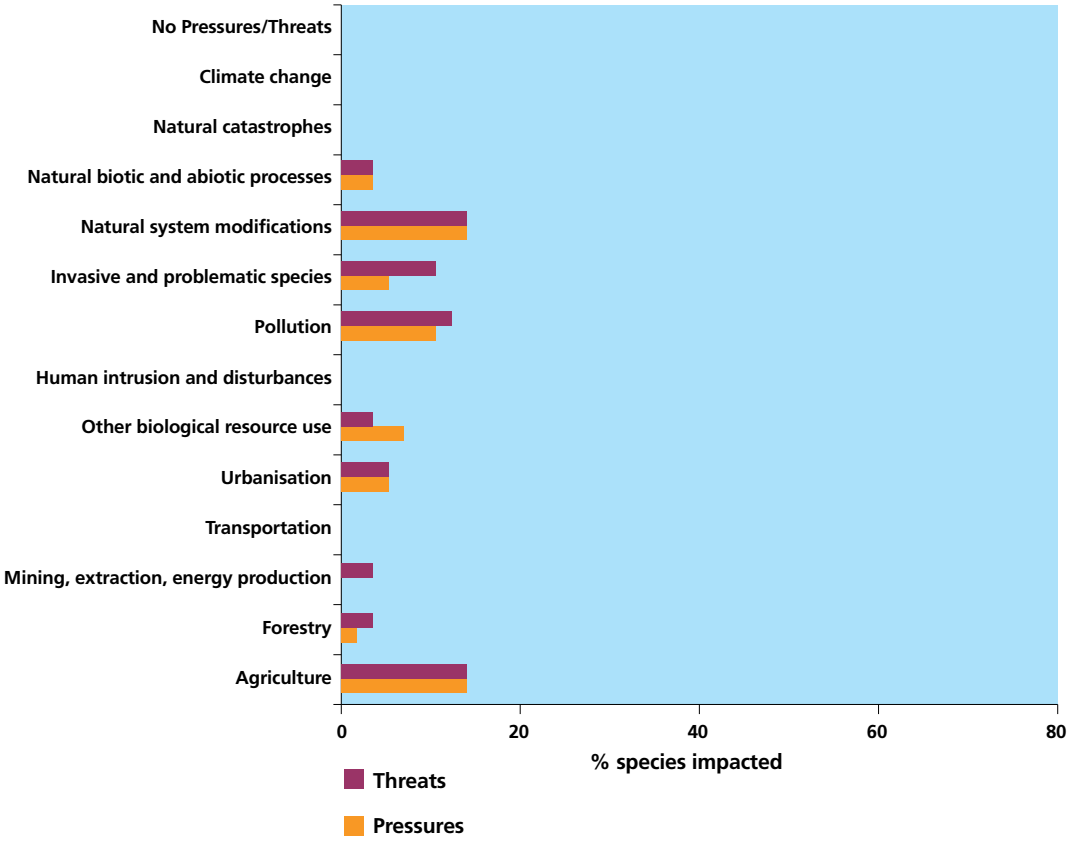


Figure 10 The proportion of species impacted by Pressure or Threat category at a High intensity

There is a much lower incidence of pressures and threats on species, particularly at High intensity, than on habitats. There is no evidence that there will be any major decline in the incidence of pressures over the next 12 years. However, the impact of aquaculture related pressures on maërl species (both listed under "Other biological resource use") should reduce. Invasive species are considered likely to increase as a threat to a number of species. Bat species are predicted to be increasingly impacted by wind energy and forestry management (e.g. forestry clearance).

Pollution is considered the biggest pressure and threat impacting the conservation status of species. Human intrusion and disturbances was reported frequently but never at a High intensity. Agricultural have a High intensity impact on species that occur within agricultural systems, e.g. *Vertigo* species and marsh fritillary.

CONCLUSIONS

CONCLUSIONS

This is the second Irish report on the status of habitats and species that are protected under the EU Habitats Directive.

The conclusion is that many Irish habitats are in unfavourable status and many are still declining, although a range of positive actions are underway. The majority of EU-protected species are, however, in "Favourable" status in Ireland, and stable, although a small number are considered to be in "Bad" status and continue to require concerted efforts to protect them.

Before further evaluating the results, it is worth recalling that these habitats and species were considered threatened in Ireland and across Europe, and listed in the Directive for protection for that very reason. In many cases it will take a substantial period of time for protective or restorative measures to take effect. The assessments are based on data collected across the whole national territory, thereby including many areas which have no statutory protection. The strict guidelines for assessment set high thresholds and it is difficult for a habitat or species to achieve a "Favourable" rating, even if it was entirely confined to protected areas.

The main pressures to habitats are ecologically unsuitable grazing levels – which can be undergrazing (or even abandonment) as well as some continued overgrazing; pollution of freshwaters, drainage/and or cutting of peatlands and wetlands; invasive species; and recreational pressures, including some building works. However pressures from urbanisation, fertiliser use and road-building have reduced since the first reporting period (2001-2006).

The habitats of most pressing concern are those that have reduced range and/or area, notably raised bogs and species-rich grasslands. Although very substantial progress has been made towards the protection of SAC raised bogs from cutting, these will continue to dry out and lose the active peat-forming areas until restoration work is commenced. An end to turf cutting will of itself not restore active raised bog habitat but it is the essential precursor to blocking the drains and allowing natural bog-building processes to start up again. Meanwhile undesignated bogs are still used for peat and therefore the national resource will continue to show a decline.

Grasslands, such as orchid-rich calcareous grasslands, are threatened either by intensification of farming or the opposite, insufficient grazing and abandonment. The spread of coniferous forestry in unprotected areas also causes loss of certain grassland types. The reformed Common Agricultural Policy does little at EU level that would reverse this trend in Ireland, but it provides opportunities within national rural development measures for beneficial agri-environment schemes. However, there have been some considerable improvements, in particular through the Burren Farming for Conservation Scheme, which encourages farmers to use their traditional knowledge to restore the native grassland flora and the limestone pavement habitat.

The area of native woodlands is also deemed to be "Bad" as typically they are small and fragmented and therefore their area is considered insufficient for full ecological functionality. However there are improvements in management, some supported by the EU LIFE fund and others through the Forest Service's Native Woodland Scheme, leading to a conclusion of "Bad but improving".

As well as genuine improvements, there are some reported changes in status assessment (both improvements and declines) which are due to better ecological knowledge or understanding of pressures, rather than actual change on the ground. Our knowledge of the distribution and condition of habitats and species has improved again in this reporting period. However some habitat baseline surveys are still needed, in particular for fens.

Most of the other habitats considered in "Bad" status are subject to ongoing pressures which show little sign of abating in the near future. These include some types of lake habitat, which are affected by excessive nutrient loading from the surrounding catchment, and which could take a long time to fully recover; and dune/machair habitats which are under pressure from a combination of recreational, agricultural and sometimes abandonment pressures.

Some habitats have been the subject of significant conservation measures in recent years but either the time taken for recovery is too great for improvements to be detected as this stage, or the measures in one area have been offset by declines elsewhere. Thus for example, improved management

of sheep in the uplands, through the Commonage Framework Plans, has allowed re-vegetation of many areas and has resulted in some recovery of bird species, such as the red grouse, but it will take years for full plant communities to re-establish. In the meantime some other areas are now under-grazed, and in addition there has been some serious damage by fires both deliberate and perhaps accidental.

Legal protection has improved substantially since 2007, with the introduction of new regulations concerning fisheries and aquaculture as well as Environment Impact Assessment affecting wetlands and grasslands. There is now ecologically-based regulation of aquaculture which gives better future prospects for some coastal and estuarine habitats. The EU Water Framework Directive and Marine Strategy Framework Directive are being implemented, and there have been updates to the Planning Acts and the national regulations implementing the EU Birds and Habitats Directives. Ongoing improvements of waste water treatment and fertiliser use will result in cleaner freshwaters and estuaries. However the continued loss of the very cleanest stretches of rivers is of great concern, particularly as they are the habitat of the freshwater pearl mussel which, though still numerous, is in serious decline.

The species conclusions are much better, with 52% favourable, including most species of bat, dolphin and whale (the status of the most elusive species is still unknown). The number of species considered declining in status is low. Aquatic species are most at risk, although species such as the otter and especially the frog are doing very well. The natterjack toad is assessed as "Bad but improving", as its very restricted range is being extended by a scheme to encourage farmers to provide ponds that the toad needs to breed. The salmon, which is one of the most highly managed species in Ireland, is stable though still in low numbers, and is susceptible to a wide range of pressures during its time in the ocean as well as in freshwater. Other fish such as the sea lamprey, pollan and twaite shad remain in "Bad" status. The lamprey is prevented from reaching breeding stretches of river by weirs; the pollan is impacted by nutrient enrichment in the large lakes where it lives, and by introduced competing fish species, and there are concerns about the habitat quality at spawning sites for twaite shad. The greatest concern continues to be the freshwater pearl mussel, as only a few rivers have populations with even near- adequate replenishment.

There are many challenges to address between now and 2019, when the next report in this series is due. Much will depend on the development of measures and farm schemes under the next Rural Development Plan and national Operational Programmes using EU funding instruments. The ongoing financial difficulties in Ireland have provided some respite from development pressures but also hamper provision of resources for nature conservation. However the continuing implementation of national and EU legislation will have positive impacts, and continued use of EU funds such as LIFE can have very beneficial results in key areas. As always, cooperation between the many sectors who have an interest in the land, in the landscape and in nature will be essential.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