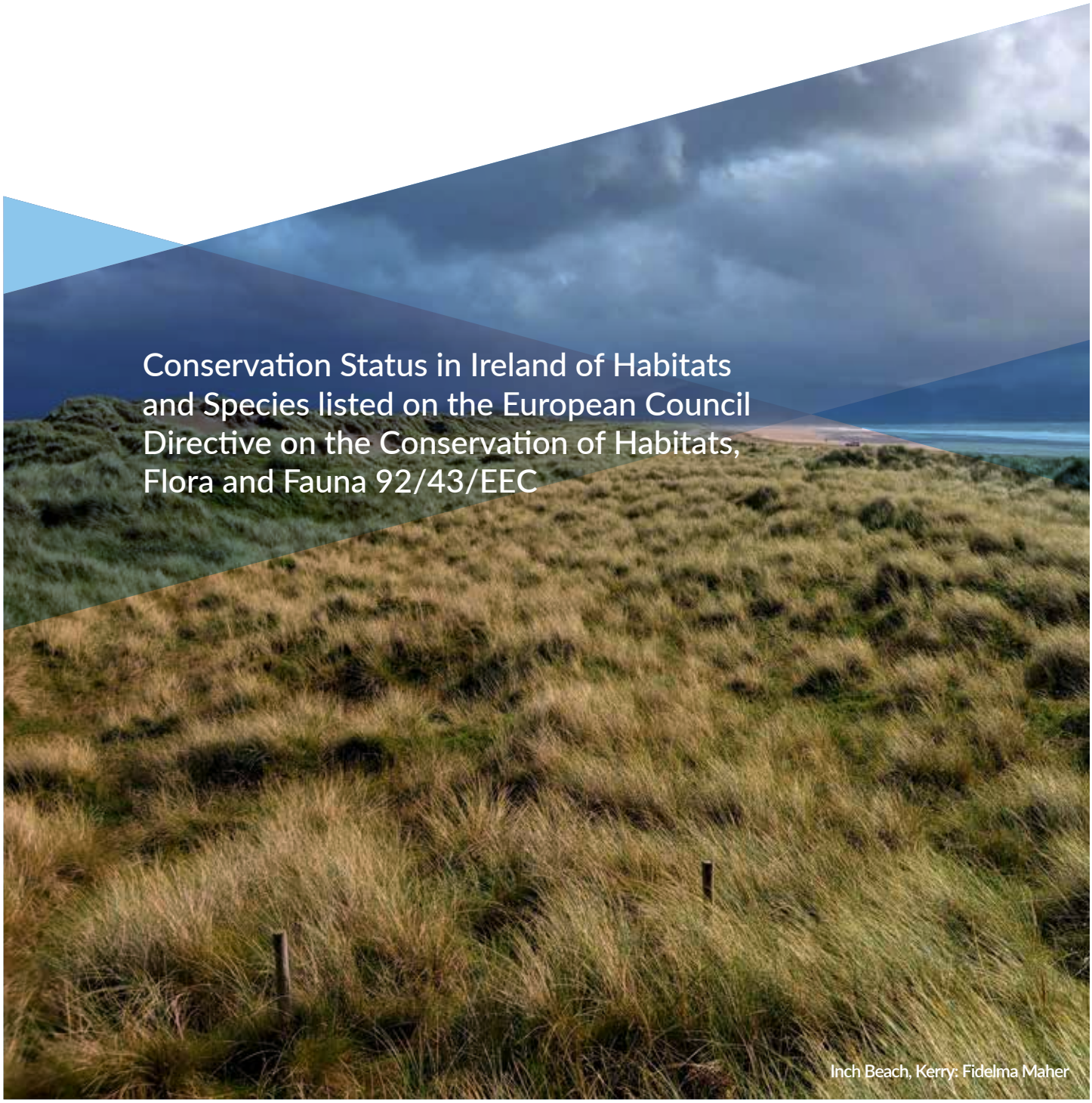
NPWS
An tSeirbhís Páirceanna Náisiúnta agus Fiadhúlra
National Parks and Wildlife Service

The Status of EU Protected Habitats and Species in Ireland

2025

The Status of EU Protected Habitats and Species in Ireland

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



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FOREWORD

by Christopher O'Sullivan T.D.

MINISTER FOR NATURE, HERITAGE AND BIODIVERSITY

This fourth national report on the status of habitats and species protected under the EU Habitats Directive provides the most detailed, up-to-date assessment of Ireland's progress in meeting our legal obligations to nature. The report has found that 90% of habitats remain in Unfavourable status, with half showing ongoing declines.

Given the huge efforts to turn the tide on biodiversity loss in recent years, these will be disappointing findings for many – but we cannot lose hope. Instead, we must be heartened by the huge effort underway across all corners of the country to protect and restore our natural world and remind ourselves of the need for patience. While nature can bounce back quickly, the recovery of habitats and species to the high standards set out in the Habitats Directive can take time.

We must also redouble our commitment to nature: continuing investment, strengthening collaboration and improving delivery as we strive to stop the loss of biodiversity and move towards a future where it is protected and restored.

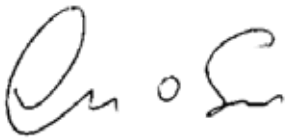
It is important to note the positive signs, too. The majority of species are assessed as being in Favourable status, with stable or improving trends for seals, Pine marten and Marsh fritillary, as well as several plant, bat, whale and dolphin species. Ireland is a European stronghold for these species, and we must not lose sight of the importance of our role as we continue to protect them.

We've also seen a landmark achievement with the recent increase in the area of Active Raised Bog, the first positive indicator for this globally important habitat since monitoring began in 2005. Thanks to both NPWS-led programmes and partnerships with BnM and local communities, we are seeing real progress in recovery. Indeed, Ireland is demonstrating how community-led, landscape-scale restoration can support a wide range of habitats, with initiatives like LIFE IP Wild Atlantic Nature, Waters of LIFE and LIFE on Machair leading the way at the interface of local action for national biodiversity goals across peatlands, uplands and coastal habitats.

Furthermore, we are making every effort to incorporate biodiversity into our agriculture, forestry and water policies, with significant resources committed under the Agri-Climate Rural Environment Scheme, the Forestry Programme 2023–2027 and the Water Action Plan 2024. These cross-sectoral initiatives will be instrumental in addressing many of the root causes of habitat decline, particularly in our freshwater and marine environments.

One of the most positive developments since the last reporting cycle has been the strengthening of our National Parks and Wildlife Service (NPWS). With a significant increase in staffing since 2020 and renewed strategic direction, NPWS is now better placed than ever to deliver on its core mandate of protecting Ireland's wildlife and overseeing the implementation of national and EU biodiversity policy. We are also investing in State-owned land and strategic acquisitions that allow for swifter delivery of conservation outcomes, while the expansion of restoration programmes and the ongoing implementation of conservation actions across Natura 2000 sites are all contributing towards improvements in habitat quality.

While many pressures on nature remain persistent, notably nutrient pollution, invasive and problematic species and the legacies of drainage and land-use change, I believe we are at a pivotal moment for nature. Looking ahead, the next reporting cycle will coincide with the implementation of the EU Nature Restoration Law, which sets legally binding targets for restoring degraded habitats, including the ones assessed in this report. To deliver on this, the NPWS is developing new ways of working with its colleagues across Government and the wider public service, growing new partnerships with communities, and working hard to build trust with farmers, fishermen and foresters. While the findings in this report may be sobering, I am optimistic that we are up for the challenge of bringing Ireland into a new era of biodiversity conservation where people and nature thrive together.



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ADDITIONAL DATA
Additional data were derived from many sources and are listed in detail in Volumes 2 and 3.

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OVERVIEW

Killarney Woodland: Nicolas Raymond

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 first 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 August 2025, Ireland submitted the fourth assessment of conservation status for 59 habitats and 60 species (including three overview assessments of species at a group level). A further eight 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. Ireland hosts 16 Priority habitats, i.e. habitats which are considered to be in danger of disappearing within the EU territory.

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 with the identification of the listed habitats in the Directive, the EU Commission publishes an *Interpretation Manual of European Union Habitats*[1]. The habitats that occur in Ireland are a good representation of Ireland's semi-natural and natural habitats covering marine, freshwater, peatland, grassland and woodland habitats.

Ireland is a stronghold for many of the species listed in the Annexes. Some species suffered past exploitation, e.g. cetaceans; others, e.g. Freshwater Pearl Mussel (*Margaritifera margaritifera*), require pristine water quality and are therefore good indicators of habitat quality.

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, a 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 2023 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].

[1] Commission of the European Communities. 2013 Interpretation Manual of European Union Habitats, version EUR 28. DG-Environment – Nature and Biodiversity. Brussels. Commission of the European Communities.

[2] http://cdr.eionet.europa.eu/help/habitats_art17

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

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

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 *Structure and 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.

Conservation measures undertaken for Annex I habitats, Annex II and V species are listed. The major pressures and threats are also listed for each habitat and species. The impacts of these pressures, threats and measures are used to determine the *Future Prospects*.

The rate of loss or the distance away from Favourable Reference Values are used to determine whether a parameter is Favourable, Unfavourable-Inadequate, Unfavourable-Bad or Unknown following a rules-based approach (see the 2023 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 Unfavourable-Bad, the Overall Assessment is also Unfavourable-Bad; any other combination results in an Unfavourable-Inadequate Overall Assessment. The Overall trend is derived from the trends for Range, Area and Structure and Functions for habitats; and Range, Population and Habitat for species, following a rules-based approach.

THE MAJOR CHANGES TO THE CURRENT REPORTING GUIDELINES

The main change in the current reporting guidelines compared to 2019 is how species population estimates for vertebrate and vascular plants are derived. These estimates are now based on the number of mature individuals rather than at a 1 km^2 grid cell level. Additional detail is now required for Habitat for the Species with a view to determining the sufficiency of both the area and quality of occupied habitat by species for their long-term survival.

The standardised list of pressures and threats has been updated and compiled into categories that better reflect the major sectoral drivers of change. The list of conservation measures has been updated to reflect the pressures that need to be addressed. Conservation measures are now required for Annex V species and not just Annex II and Annex IV species. The trend for area of habitat in good condition within Special Areas of Conservation is estimated to determine the contribution of this network towards achieving Favourable Conservation Status.

Research and survey have led to a better understanding of the distribution and ecology of many habitats or species and in some cases, this has led to a refinement of targets, reduced the number of unknowns, and potentially a change of status.

Changes between assessments in 2007, 2013 and 2019 can be explained by a combination of improved knowledge, changes in the assessment methodology and, where relevant, by genuine change.

NOTE ON MAPS

The maps presented in this report give the known or best estimate of distribution, illustrated as dark pink squares (either 10 km or 50 km grids). 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 also be permitted.

The maps are derived using an Irish National Grid coordinate reference system projection for terrestrial assessments and a LAEA (Lambert Azimuthal Equal-Area ETRS89) 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) of the Department of Housing, Local Government & Heritage and Inland Fisheries Ireland (IFI) of the Department of Climate, Energy and Environment (DCEE), in conjunction with external experts. Contributors are listed in the Acknowledgements section.

WHERE DID THE DATA COME FROM?

The data which informed the conservation assessments were collated from a number of sources, primarily from scientific monitoring programmes commissioned by NPWS and DCEE (including IFI). Additional data were sourced from, inter alia, local authority biodiversity data sets, the Environmental Protection Agency and Department of Agriculture, Food and the Marine. The National Biodiversity Data Centre provided supplementary distribution data for some species. 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. It is often difficult to provide a high-level meaningful narrative on the impact of pressures on the status of habitats and species, particularly for the diverse list of species. If more specific detail is required, the detailed assessments and associated references for habitats and species collated in Volumes 2 and 3 respectively can be consulted; these volumes are available for download on the NPWS website[3]. Finally, the publication draws conclusions and indicates conservation priorities for the next 5 years and beyond.

WHERE HAVE THE DATA BEEN SUBMITTED?

The data have 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.

WHAT WILL THE DATA BE USED FOR?

These data will be used to assess progress with targets under Ireland's National Biodiversity Plan[5], the EU Biodiversity Strategy and the Global Biodiversity Framework for the Convention on Biological Diversity[6]. The data will inform the objectives set for the Natura network. The assessment results will inform the drafting of the National Restoration Plan, which prioritises the work needed in Natura sites and the wider countryside over the next 5-25 years.

[3] http://npws.ie/publications/article17assessments/
[4] https://www.npws.ie/sites/default/files/files/4th_National_Biodiversity_Action_Plan.pdf
[5] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52020DC0380
[6] https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-04-en.pdf

HABITATS

Active Raised Bog: Fernando Fernandez

1110 SANDBANKS

The EU interpretation manual describes 'Sandbanks which are slightly covered by seawater all the time' as permanently submerged sandbanks where the water depth is seldom more than 20 m Below Chart Datum (BCD). In Irish waters this habitat, where it occurs, is comprised of distinct banks (i.e. elongated, rounded or irregular 'mound' shapes) that may arise from horizontal or sloping plains of sediment that range from gravel to fine sand. They are primarily composed of sandy sediments permanently covered by water, at depths of less than 20 m BCD, though the banks may extend to water depths greater than 20 m.

The diversity and types of community associated with this habitat are determined particularly by sediment type together with a variety of other physical, chemical and hydrographical factors. Near-shore hydrodynamics have been identified as a major control on sandbank morphology and coastal configuration. There are currently 19 identified sandbank features in Ireland.

Sandbank habitats in Irish waters are predominantly composed of a fine sand community typified by the presence of the polychaete worm *Nephtys cirrosa*. These habitats commonly record a range of species including crustaceans (*Bathyporeia elegans, Urothoe brevicornis, Pontocrates altamarinus, Pisidia longicornis*), polychaetes (*Polygordius lacteus, Saccocirrus papillocercus*, *Pisione remota, Nephtys cirrosa, Magelona mirabilis, Eumida bahusiensis, Nephtys longosetosa, Spiophanes bombyx, Glycera lapidum*) and molluscs *(Donax vittatus, Fabulina fabula*). These species are adapted to mobile substrates that are a consequence of dynamic coastal environments in ireland. All of the noted species recorded in Irish waters are also frequently found in similar shallow coastal sediment habitats. Sandbanks with a significant proportion of coarse sediment are also present, e.g. Hempton's Turbot Bank.

No significant pressures were identified as having an adverse effect on this habitat. The Overall Status is assessed as *Favourable* with a stable trend, as in the previous reporting period.

MERC

OVERALL STATUS: FAVOURABLE

1130 ESTUARIES

The EU interpretation manual describes Estuaries as the downstream part of a river valley, subject to the tide and extending from the limit of brackish waters. Estuaries are coastal inlets where there is generally a significant freshwater influence but the salinity can be highly temporally variable. Estuaries are an extremely diverse and dynamic habitat and play a major role in maintaining the health of coastal ecosystems. They support a mosaic of other habitats depending on their geomorphology and hydrology. Boulder and cobble beds frequently fringe the margins of estuaries, especially further upstream, and intertidal mudflats are often associated with the margins of estuaries where the tidal influence allows slowing of riverine flow which allows deposition of sediment.

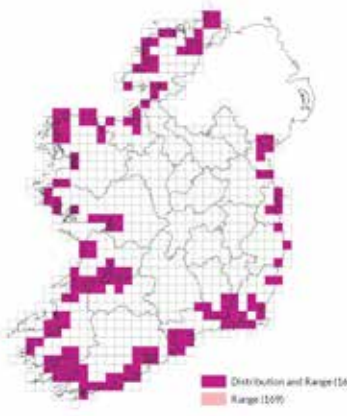
One of the most important factors in the prevailing estuarine conditions is the degree of fresh and saltwater mixing and the rate at which this mixing occurs. Mixing is influenced by the volume and flow rate of the outflowing river but also by wind waves, tidal forces, temperature and the salinity of the surrounding waters. Turbidity is a natural feature of most estuaries, particularly those formed at the mouth of larger catchments.

The range of Marine Community Types (MCT) found within estuaries is quite variable across Ireland. The most prevalent community in this habitat is the Mud to fine sand community, where a third of the national resource of this community is within the Lower River Shannon SAC. The next most prevalent MCT habitat, recognised at around 30% of Estuaries, is Fine sand to sand.

Additional Annex I habitats such as Reefs (1170) and Sandbanks (1110) are also found within this habitat. Estuarine habitats also form a significant resource for various bird and mammal species for feeding, breeding and resting.

Pressures impacting the habitat include increased nutrient enrichment from a range of sources, and disturbance due to fishing activities. The Overall Status of the habitat has been assessed as *Bad*, but this change from Inadequate in 2019 is due to improved knowledge rather than genuine change, and the trend is assessed as stable.

MERC



OVERALL STATUS: BAD

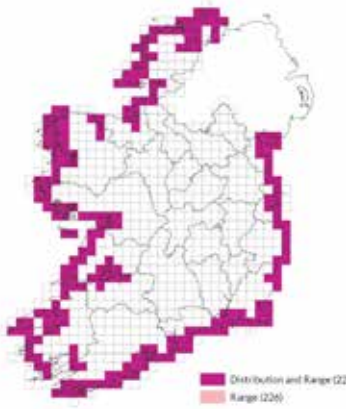
1140 TIDAL MUDFLATS AND SANDFLATS

Tidal mudflats and sandflats are comprised of the intertidal section of the coastline where sands and muds dominate. They are dynamic ecosystems, dependent on the balance of natural accretion and erosion. The fundamental building block of this habitat is sediment ranging from around 1 µm to 2 mm. The finer silt and clay sediments are dominant in mudflats and the larger sand fractions are associated with areas exposed to significant wave energy. The fine sediment of intertidal mudflats is most often associated with river deposition. The limit of tidal ingress often coincides with the beginning of flanking mudflat habitats. The competing forces of seaward-flowing freshwater meeting the flooding tide reduces net flow velocity, and consequently the carrying capacity for sediment, leading to deposition. Coarser intertidal sediment is more often found on open coasts.

The types of biological communities found in mudflats and sandflats are quite variable across Ireland. The most prevalent community identified was the Mud to fine sand community. 44% of the national resource of this community was within Lower River Shannon SAC. The next most prevalent broad community type recognised at around 40% of the habitat resource was Fine sand to sand community, and again the largest proportion of the national resource of this community was within Lower River Shannon SAC. The most abundant macrofaunal species in this habitat are burrowing bristle worms and bivalves. The only vascular plant associated with this habitat is the mainly intertidal eelgrass *Zostera noltei* and this species is found within a number of SACs.

The main pressure on Tidal mudflats and sandflats is nutrient enrichment of enclosed bays with poor mixing, due mainly to diffuse pollution as a result of agricultural and forestry activities and wastewater discharges. The Overall Status of the habitat is *Inadequate*, as in 2019. The trend has changed from deteriorating to stable due to more accurate data rather than a genuine change.

MERC



OVERALL STATUS: INADEQUATE

1150 LAGOONS*

Lagoons are expanses of coastal salt water, of varying salinity, which are wholly or partially separated from the sea. There are five morphological lagoon types in Ireland and, with the exception of karst lagoons, which are confined to the mid-west and rock/peat lagoons to the west and north-west, they occur all around the coast. The type of lagoon may determine the typical species found within it.

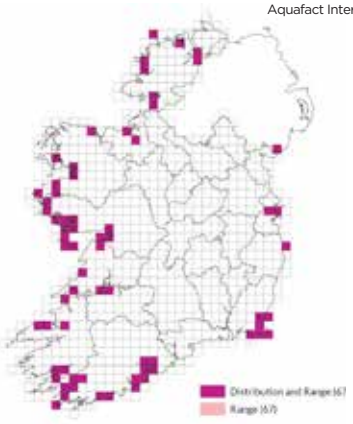
Artificial lagoons are the most common type, numerically, and represent one third of the habitat area. The classic 'sedimentary' lagoons with a sedimentary barrier represent the highest proportion of the habitat area. These may or may not have a permanent tidal inlet but more than half have a barrier of cobbles rather than sand or shingle; this is considered unusual in Europe.

Nineteen lagoons are referred to as 'rock/peat' lagoons. These lagoons, found on the west coast, are high-salinity lagoons with rock barriers similar to the Scottish 'obs' and are a particularly unusual type of lagoon in European terms. Eleven relatively small lagoons are referred to as 'karst' lagoons and are found in the limestone areas of Counties Clare and Galway. They may have a permanent tidal inlet and even a cobble barrier, but many are some distance from the sea with no visible connection to it. All receive both fresh and seawater through subterranean fissures in the bedrock. Finally, six lagoons are referred to as 'saltmarsh' lagoons; these are much like very large, permanent saltmarsh pools.

The typical species are the Beaked Tasselweed (*Ruppia maritima*), stoneworts (*Chara canescens, Chara baltica*, *Chara connivens* and *Lamprothamnium papulosum*) and the Baltic Prawn (*Palaemon adspersus*). However, many species typical of euryhalic environments occur.

Key pressures on lagoons include nutrient enrichment, hydrological alterations and drainage. *Spartina* sp. and *Sargassum muticum* were recorded in field observations but they are not considered to represent a threat at a national level at this time. The Overall Status for Lagoons is assessed as *Bad* with a deteriorating trend, unchanged since the 2019 assessment.

Aquafact International Services



OVERALL STATUS: BAD

1160 LARGE SHALLOW INLETS AND BAYS

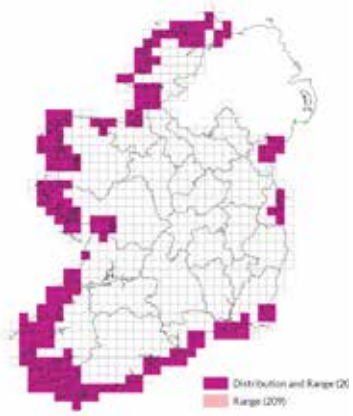
Large shallow inlets and bays are indentations of the coast where, in contrast to estuaries, the influence of freshwater is generally limited or reduced. They are typically shallower and more sheltered than open coasts. They vary widely in habitat and species diversity depending on their location, exposure, geology and sediment composition, which determine their constituent habitat communities.

The three most prevalent sediment communities include: Fine sand to sand community, Mud to fine sand community, and Muddy sands/sandy muds community. The remainder of this habitat is variously composed of hard substrate communities including geogenic subtidal and intertidal reef and sea caves. Geogenic intertidal reef dominates a high proportion of the landward margins of the habitat, especially on the west coast of Ireland. Depending on exposure, intertidal reef habitats are characterised by sheltered fucoid-dominated shores to exposed mussel (*Mytilus edulis*) and barnacle-dominated shores. Biogenic reef habitats formed from mussels and the honeycomb worm (*Sabellaria alveolata*) are also present in the intertidal areas of this habitat. Subtidal reef is also found throughout the habitat and is characterised by bedrock or cobble and boulder fields. Submerged or partially submerged sea caves are common around the coast of Ireland and host a range of distinct communities which vary considerably from the surrounding reef habitats.

A significant proportion of keystone species are found within the boundaries of Large shallow inlets and bays including Maërl and eelgrasses. A number of rare and/or unusual species also occur in this habitat including the rare anemones *Edwardsia delapiae* and *Pachycerianthus multiplicatus, and* sensitive subtidal species such as *Neopentadactyla mixta, Sabella pavonina, Virgularia mirabilis* and *Limaria hians*. The habitat also forms an important resource for various bird and mammal species for feeding, breeding and resting.

Pressures on the habitat include fish and shellfish harvesting and cultivation activities causing physical loss and disturbance of seafloor habitats, nutrient enrichment, dredging and invasive alien species. The Overall Status is assessed as *Bad* and deteriorating, the same assessment as reported in 2019.

MERC



OVERALL STATUS: BAD

1170 REEFS

Reefs are widespread marine features with immobile hard substrates available for colonisation by epifauna. Reef habitat in Irish waters ranges from the intertidal to 4,500 m below the sea surface and out to the 200 nautical miles limit. Factors influencing this habitat include tidal immersion, influence of freshwater, variation in temperature, desiccation, exposure to waves, stability of substrate, and weathering of substrate.

Intertidal reef is usually dominated by algae which provide shade and structure for a wide range of species. Subtidal reefs are largely found in exposed areas. With increasing depth less light penetrates, the prevalence of kelp and red algae reduces, and faunal communities composed of benthic sponge and anemones begin to dominate. A notable type of reef habitat is that generated by the habitat-forming accretions of animals. These biogenic reefs increase the structural complexity beyond the surrounding areas and usually result in greater biodiversity. In the inshore, these may be formed by the protective structures of worms, and in the offshore, by stony deep-water coral species. On the Rockall Bank, a highly unusual accumulation of living and dead sponges forming a complex habitat was found. These areas of potential 'sponge reef' formations are very rare and have previously only been recorded in Canadian waters.

In Mulroy Bay, Ireland's only sheltered reef, unusual species such as sponges *Dercitus bucklandi*, *Stelletta grubii*, undescribed species of *Polymastia* and the anthozoan *Parerythropodium coralloides* occur. In Kilkieran Bay an unusual sponge and ascidian community occurs characterised by the sponges *Esperiopsis fucorum*, *Haliclona simulans*, *Myxilla incrustans*, *Polymastia mamillaris*, among others, and ascidians *Ascidiella aspersa*, *Ascidia mentula*, *Ciona intestinalis*, *Corella parallelogramma* and *Dendrodoa grossularia*.

The main pressures on reefs come from fishing methods that damage the seafloor and can cause permanent loss to the keystone communities. The Overall Status of the habitat is *Bad*. The change in status from Inadequate in 2019 is mainly attributed to more accurate data becoming available.

MERC

OVERALL STATUS: BAD

1180 SUBMARINE STRUCTURES MADE BY LEAKING GASES

This marine habitat feature is defined as submarine structures consisting of sandstone slabs, pavements, and pillars up to 4 m high, formed by the aggregation of carbonate cement resulting from microbial oxidation of gas emissions, mainly methane. The formations are interspersed with gas vents that intermittently release gas. These formations support a zonation of diverse benthic communities consisting of invertebrate specialists of deeper water of hard marine substrates different from that of surrounding habitat. Sheltering fauna within the caves and interstices further contribute to the biodiversity of the habitat. A variety of sublittoral topographic features are included in this habitat such as overhangs, vertical pillars and stratified leaf-life structures with numerous indentations.

Surveys on this habitat feature noted that on the large rocks and boulders, dense clusters of the anemone *Metridium senile* occur. Dense beds of hydroids, including *Nemertesia* spp., *Hydrallmania falcata* and *Tubularia indivisa*, are widely recorded, particularly along the edge of features. A wide variety of anemones occur; these include the cerianthid *Cerianthus lloydii* on soft overlying sediment, and among others, *Alcyonium digitatum, Sagartia elegans, Urticina felina*, and *Actinothoe sphyrodeta* on harder ground, principally on pavement areas. In the crevices, overhangs and between rocks, the edible crab *Cancer pagurus* is very abundant, while squat lobsters *Munida* sp. and *Homarus gammarus* lobsters also occur. A variety of sponges, including the boring sponge *Cliona celata* and the lace sponge *Clathrina coriacea* are present, as is the bryozoan *Flustra foliacea*. The feather star *Antedon bifida* is commonly seen in the crevices and under overhangs. The fish species recorded included *Trisopterus luscus* (Bib) and *Chirolophis ascanii* (Yarrell's Blenny). None of these species would typically occur in the surrounding habitat of mobile sand.

The main pressure on this habitat comes from marine fish and shellfish harvesting activities, which cause physical loss and disturbance of seafloor habitats. The Overall Status of this habitat is assessed as *Favourable* with a stable trend, as in 2019.

NPWS

OVERALL STATUS: FAVOURABLE

1210 DRIFT LINES

Drift lines occur on sandy or shingle substrate at the upper part of the strand, around the high tide mark. Water-borne material including organic matter is deposited on the shore and provides nutrients and a seed source for vegetation. The vegetation predominantly consists of annual species, such as oraches (*Atriplex* spp.), Sea Rocket (*Cakile maritima*) and Prickly Saltwort (*Salsola kali*), which are highly specialised to deal with the harsh conditions of high salinity, wind exposure and drought. This habitat is generally very species-poor and fragmented, and tends not to 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 on shingle.

The Overall Status is assessed as *Inadequate* due to pressures associated with activities such as recreation and coastal defences, which can interfere with sediment dynamics, and the fact that the current area is still below the favourable reference area. This assessment is unchanged since 2019. However, the trend is now stable, an improvement since the 2019 report, as there were no significant losses of habitat due to anthropogenic activity.

Jim Martin

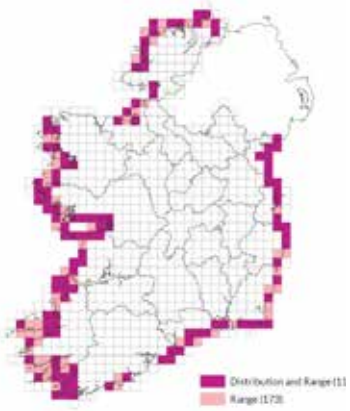
OVERALL STATUS: INADEQUATE

1220 VEGETATED SHINGLE

Vegetated shingle occurs along the coast where shingle (cobbles, pebbles, and gravel ≥2 mm wide) has accumulated to form elevated ridges or banks above the high tide mark. On the upper beach the pioneer community of this vegetation type can be characterised by perennial species such as Sea Beet (*Beta vulgaris* subsp. *maritima*), Sea-kale (*Crambe maritima*), Rock Samphire (*Crithmum maritimum*), Yellow Horned-poppy (*Glaucium flavum*), Sea Radish (*Raphanus raphanistrum* subsp. *maritimus*), Sea Campion (*Silene uniflora*), and Sea Mayweed (*Tripleurospermum maritimum*). The majority of the area within this pioneer community is usually bare shingle. At the top of the beach and moving inland, a wider range of vegetation types can be found at larger shingle sites, including a lichen-rich community and coastal forms of grassland, heath and scrub. The grassland community can be characterised by grass species such as bents (*Agrostis* spp.), False Oat-grass (*Arrhenatherum elatius*) and Cock's-foot (*Dactylis glomerata*), and broadleaf herbs such as Yarrow (*Achillea millefolium*), Thrift (*Armeria maritima*), Wild Carrot (*Daucus carota*) and Autumn Hawkbit (*Scorzoneroides autumnalis*), among other species. The scrub community is characterised by the woody species Honeysuckle (*Lonicera periclymenum*), Blackthorn (*Prunus spinosa*), Bramble (*Rubus fruticosus*), Gorse (*Ulex europaeus*) and the climber Hedge Bindweed (*Calystegia sepium*). The majority of the grassland and scrub communities are rooted within soil, whereas the pioneer community is usually rooted in gravel, sand or organic matter, such as decomposing seaweed and other plant material.

Pressures on vegetated shingle include activities causing habitat loss (e.g., rock armour, parking areas, shingle extraction, spread of invasive and problematic native species) as well as pressures that affect the structure of the habitat, such as recreational walking/trampling. The Overall Status assessment remains *Inadequate*, as in 2019, but the trend is now deteriorating, rather than stable, due to area losses.

Emmi Virkki



OVERALL STATUS: INADEQUATE

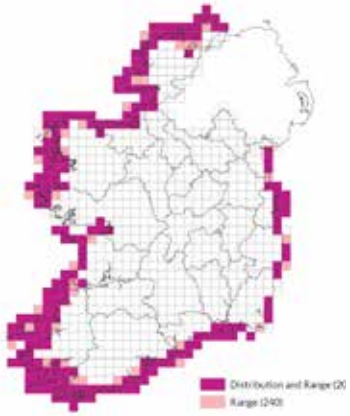
1230 VEGETATED SEA CLIFFS

All sea cliffs on the Irish coast can be considered to correspond to the EU Annex I habitat Vegetated sea cliffs of the Atlantic and Baltic coasts (1230). A sea cliff is a steep or vertical slope located on the coast, the base of which is in either the intertidal or subtidal zone. Hard cliffs, composed of hard rock such as basalt, are at least 5 m high, while soft cliffs, composed of softer substrates such as shale or boulder clay, are at least 3 m high. Sea cliff habitat covers approximately 20% of the coastline of Ireland and is primarily distributed along the southern, western and north-western seaboards. The cliff top is generally defined by an obvious reduction in gradient, with the slope below shaped by coastal erosion and the area above often formed by inland geomorphic processes. Both the cliff and cliff top are subject to maritime influence in the form of salt spray and exposure to coastal winds.

Vegetated sea cliffs support a range of plant communities including scrub, heath, grassland, and maritime annual vegetation. Typical species include Rock Samphire (*Crithmum maritimum*), Thrift (*Armeria maritima*), sea-lavenders (*Limonium* spp.), Common Scurvygrass (*Cochlearia officinalis*), Sea Plantain (*Plantago maritima*), Red Fescue (*Festuca rubra*), Sea Spleenwort (*Asplenium marinum*), Rock Sea-spurrey (*Spergularia rupicola*), Golden-samphire (*Limbarda crithmoides*), English Stonecrop (*Sedum anglicum*), Roseroot (*Rhodiola rosea*), Tree-mallow (*Malva arborea*), Spring Squill (*Scilla verna*) and Ling (*Calluna vulgaris*).

The key pressures identified in this reporting period include construction and quarrying, damage from tourism activities, natural erosion and invasive species. The Overall Status remains *Inadequate* with a stable trend, unchanged from 2019.

Orla Daly



OVERALL STATUS: INADEQUATE

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. In Ireland, three sub-types are recognised: (1) *Salicornia* type (2) *Suaeda* type and (3) the much rarer *Sagina* type. Mono-specific swards of *Salicornia* spp. growing on muddy sediments are the most common plant community belonging to this Annex I habitat type found in Ireland.

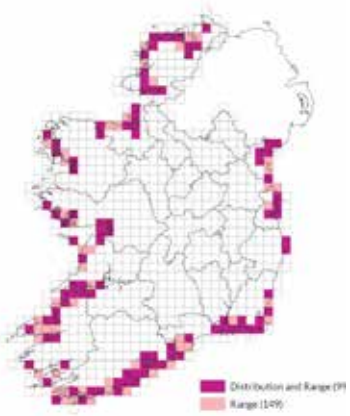
The typical species for this habitat are Common Saltmarsh-grass (*Puccinellia maritima*), glassworts (*Salicornia* spp.), Hard Grass (*Parapholis strigosa*), Buck's-horn Plantain (*Plantago coronopus*), Sea Pearlwort (*Sagina maritima*), Knotted Pearlwort (*Sagina nodosa*) and Annual Sea-blite (*Suaeda 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 Conservation Status was assessed as *Bad*, a deterioration from Favourable during the last reporting period. This change is due to a decrease in range and area of the habitat, and the assessments for structure and functions and future prospects of the habitat deteriorating to *Bad*.

Based on the results of the 2021-23 surveys, invasion by cord-grasses (*Spartina* spp.) is the main issue affecting the 1310 habitat at present. During the last round of reporting, *Spartina* was not assessed to be such an issue, with no evidence that *Spartina* cover had increased nationally since the previous reporting period in 2013. It is unclear what factors are driving the current expansion of *Spartina* cover in Ireland.

Kristi Leyden



OVERALL STATUS: BAD

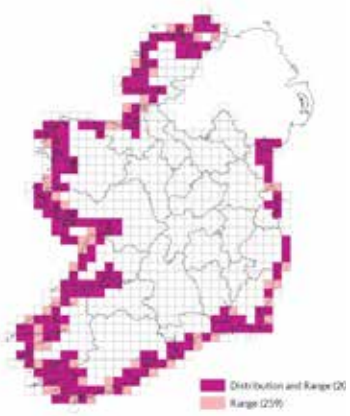
1330 ATLANTIC SALT MEADOWS

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 and 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 like glassworts (*Salicornia* spp.), Annual Sea-blite (*Suaeda maritima*) and Lax-flowered Sea-lavender (*Limonium humile*) also important. The invasive Common Cord-grass (*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 upper saltmarsh herbaceous community with Red Fescue (*Festuca rubra*), Saltmarsh Rush (*Juncus gerardii*) and Creeping Bent (*Agrostis stolonifera*).

This habitat is also important for other wildlife including wintering waders and wildfowl. 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.

The Overall Status is assessed as *Bad*. This represents a genuine change from the 2019 report, caused by further losses in habitat and a deterioration of the structure and functions of the habitat, driven mainly by pressures from agriculture (including ecologically unsuitable grazing regimes and land reclamation) and continued invasion by *Spartina*.

Marcin Penk



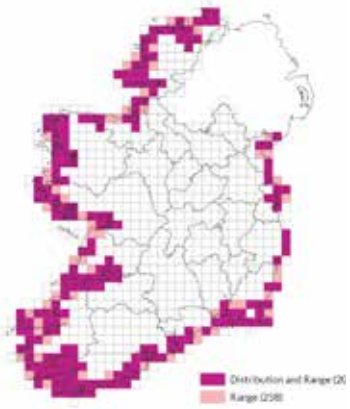
OVERALL STATUS: BAD

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 (*Juncus acutus*), along with a range of species typically found in Atlantic salt meadows, including Sea Aster (*Aster tripolium*), Sea-purslane (*Atriplex portulacoides*), Sea-milkwort (*Lysimachia maritima*), Saltmarsh Rush (*Juncus gerardii*), Parsley Water-dropwort (*Oenanthe lachenalii*), Sea Plantain (*Plantago maritima*) and Common Saltmarsh-grass (*Puccinellia maritima*).

The Overall Status is assessed as *Inadequate* with a deteriorating trend, mainly due to pressures associated with invasive species such as Common Cord-grass (*Spartina anglica*), and agriculture (e.g., overgrazing, undergrazing and land reclamation). This assessment is unchanged since the 2019 report.

John Brophy



OVERALL STATUS: INADEQUATE

1420 HALOPHILOUS SCRUB

Halophilous scrub is defined as perennial vegetation of saline muds that belongs to the phytosociological class *Sarcocornetea fruticosi*. In Ireland this habitat is characterised by the presence of a single species, Perennial Glasswort (*Sarcocornia perennis*, previously known as *Arthrocnemum perenne*) on saltmarsh. This fleshy, slightly woody perennial can grow up to 30 cm tall and often extends to form tussocks up to 1 m in diameter. The main habitat of *Sarcocornia perennis* is gravelly or sandy foreshores and relatively well-drained sediments of coastal saltmarshes. This species is very rare in Ireland and is listed on the Flora (Protection) Order, 2022. It is also listed in the Vascular Plant Red List as Vulnerable. Consequently, this habitat is the rarest Annex I saltmarsh habitat found in Ireland and has been recorded from only seven saltmarsh sites in the south-east coast of Ireland, all of which are within two SACs. Perennial Glasswort is generally found in the mid-lower saltmarsh zone, often with Common Saltmarsh-grass (*Puccinellia maritima*) and Lax-flowered Sea-lavender (*Limonium humile*). It also occurs with glasswort species (*Salicornia* spp.) and among clumps of Common Cord-grass (*Spartina anglica*).

The Overall Status is assessed as *Bad*, as in 2019. However, the trend has improved to stable, due to the recovery of the 1420 habitat at Taulaght, where the algal mats reported to have smothered the 1420 habitat in the previous monitoring period are no longer having an impact. This has restored the range back to its 2013 level.

Marcin Penk

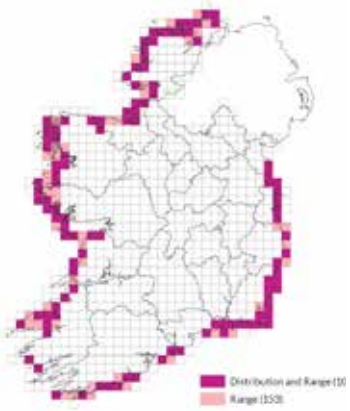
OVERALL STATUS: BAD

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 (white) dunes. Embryonic shifting dunes 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 (*Elymus junceiformis*). Other plants such as Sea Rocket (*Cakile maritima*), Sea Sandwort (*Honckenya peploides*) and Prickly Saltwort (*Salsola kali*) may also occur. The presence of these species allows for the continued accumulation of airborne sand and embryonic dune formation. These embryonic dunes are transient in nature, some are eliminated by storms, while others proceed to the next stage of succession, continuing to accumulate sand deposits.

The main pressures on this habitat relate to damage caused by recreation, coastal defences (which can interfere with sediment dynamics), the invasive species Sea-buckthorn (*Hippophae rhamnoides*), and climate change-related impacts such as storms. The Overall Status is assessed as *Inadequate*. The overall trend has been revised down to deteriorating, due to genuine losses in habitat.

Emmi Virkki



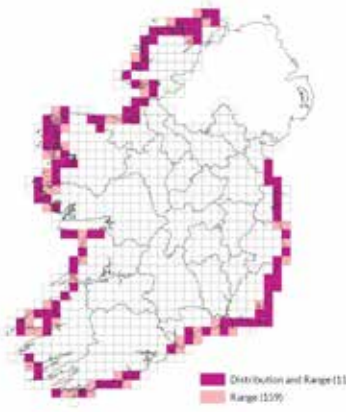
OVERALL STATUS: INADEQUATE

2120 MARRAM DUNES (WHITE DUNES)

Marram dunes (or white dunes) are dunes which 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, but vegetation cover is incomplete. The dunes can build and erode quickly because of the presence of bare sand. For this reason they are sometimes referred to as 'mobile dunes'. Typical species used in the assessment are Marram (*Ammophila arenaria*), Sand Couch (*Elymus junceiformis*) and Lyme-grass (*Leymus arenarius*). Other species also occur, 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 (*Jacobaea vulgaris*).

Pressures associated with Marram dunes include damage from recreation, and coastal defences, which may interfere with local sediment dynamics. The Overall Status is assessed as *Inadequate*, which is unchanged from 2019. However, the overall trend has been assessed as deteriorating due to a slight decrease in the percentage of the habitat that is in good condition.

Jim Martin



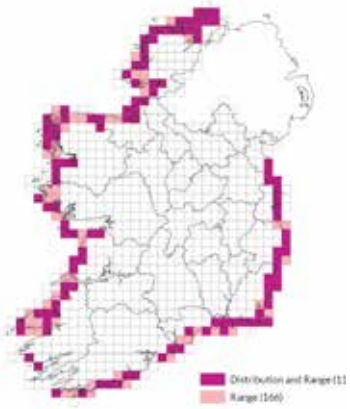
OVERALL STATUS: INADEQUATE

2130 FIXED DUNES (GREY DUNES)*

Fixed dunes are relatively sheltered with sand mobility greatly reduced in comparison to fore-dune habitats, and have developed a more or less closed carpet of vegetation. The sandy substrate is frequently overlain by a layer of humus, and lichens and mosses are often abundant. Species diversity and composition varies, but usually the fixed dune vegetation is typical of herb-rich grassland. Species such as Red Fescue (*Festuca rubra*), bent grasses (*Agrostis* spp.), Yarrow (*Achillea millefolium*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Kidney Vetch (*Anthyllis vulneraria*), Ribwort Plantain (*Plantago lanceolata*), eyebrights (*Euphrasia* spp.), Wild Thyme (*Thymus drucei*) and Lady's Bedstraw (*Galium verum*) are common. Fixed dunes can also be an important habitat for orchids such as Pyramidal Orchid (*Anacamptis pyramidalis*) and Bee Orchid (*Ophrys apifera*).

The Overall Status is assessed as *Bad* with a deteriorating trend, as in the 2019 report, due to pressures associated with recreation, a wide range of invasive species (including rabbits) and ecologically unsuitable grazing practices.

Jim Martin



OVERALL STATUS: BAD

2140 *EMPETRUM* DUNES*

Decalcified *Empetrum* dunes are either 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 become fixed over siliceous rock. Typical species include Crowberry (*Empetrum nigrum*), Ling (*Calluna vulgaris)*, Wild Thyme (*Thymus drucei*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Carnation Sedge (*Carex panicea*), and the sand-binding species Sand Sedge (*Carex arenaria*) and Marram (*Ammophila arenaria*). Decalcified *Empetrum* dunes are distinguished from Decalcified dune heath by the presence of Crowberry, which is usually the most frequent dwarf shrub, within a more open dune heath community.

The main pressures identified on the habitat were grassland abandonment, recreational activities, and bracken encroachment; however, none of these were considered to impact on the long-term viability of the habitat. The Overall Status is therefore assessed as *Favourable*, unchanged from the 2019 assessment.

Jim Martin

OVERALL STATUS: FAVOURABLE

2150 DUNE HEATH*

Decalcified dune heath is most often 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 become fixed over siliceous rock. Typical species include Ling (*Calluna vulgaris*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Sweet Vernal-grass (*Anthoxanthum odoratum*), Common Dog-violet (*Viola riviniana*) and the sand-binding species Sand Sedge (*Carex arenaria*) and Marram (*Ammophila arenaria*).

The main pressures on this habitat are associated with land abandonment, recreational activities, and bracken encroachment. The Overall Status is assessed as *Inadequate*, as in 2019, but the trend has been revised to deteriorating due to a decrease in the percentage of habitat in good condition.

Jim Martin

OVERALL STATUS: INADEQUATE

2170 DUNES WITH CREEPING WILLOW

Dunes with Creeping Willow are typically found either within dune slacks on sandy hummocks, or on the sides of dune ridges adjacent to slacks. They represent a transition between arid dune ridges and the wet conditions found in dune slacks. Although these dunes may occasionally be inundated, to be classified as this habitat the area should flood only rarely and briefly. It is characterised by a dominance of Creeping Willow (*Salix repens*), which often forms a dense ground cover. There should be an absence of the moisture-loving species typically found in dune slacks. Species associated with this habitat include Glaucous Sedge (*Carex flacca*), Sand Sedge (*Carex arenaria*), Creeping Bent (*Agrostis stolonifera*), Mouse-ear-hawkweed (*Pilosella officinarum*), eyebrights (*Euphrasia* spp.), Common Rest-harrow (*Ononis repens*) and Common Bird's-foot-trefoil (*Lotus corniculatus*).

The Overall Status is assessed as *Inadequate*, as in 2019, due mainly to pressures associated with recreation, problematic native and non-native species (e.g., Sea-buckthorn (*Hippophae rhamnoides*), Bracken (*Pteridium aquilinum*)), agricultural impacts such as intensification, ecologically unsuitable grazing, and conversion to agricultural habitat. However, a decreasing trend in the Area parameter, due to area loss caused by expansion of Sea-buckthorn, means that the overall trend has changed to deteriorating.

Orla Daly

OVERALL STATUS: INADEQUATE

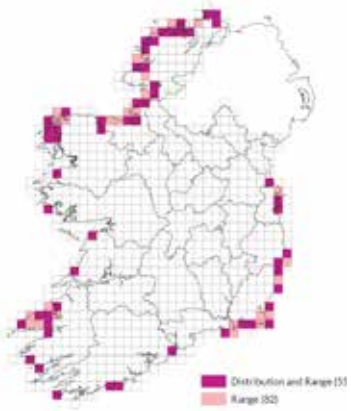
2190 DUNE SLACKS

Dune slacks are topographically the lowest lying regions within a dune system, found in hollows or depressions either behind or between dune ridges. The waterlogged condition of the soil is an important determinant of the vegetation; the water table is usually within 1 m of the surface, with diurnal, seasonal and annual fluctuations. Dune slacks can remain flooded from two to six months annually, with fluctuations in the water table based on precipitation and evapotranspiration. They can be classified as either primary or secondary, depending on how they are formed. Primary slacks are formed by rapidly advancing dune ridges cutting off former beach plains from the influence of the sea, while secondary slacks are formed by blowing out in older dunes. In each case, the wind erodes the bare sand until the groundwater level is reached and pioneer dune slack vegetation begins to colonise. Dune slacks have a number of vegetation communities demonstrating phases of succession within slacks, from pioneer to mature slacks. They are floristically rich and support wetland communities. Typical species include rushes (*Juncus* spp.), sedges (*Carex* spp.), Marsh Pennywort (*Hydrocotyle vulgaris*), Water Mint (*Mentha aquatica*), Creeping Bent (*Agrostis stolonifera*), Silverweed (*Potentilla anserina*), Bog Pimpernel (*Lysimachia tenella*) and orchids such as Marsh Helleborine (*Epipactis palustris*), marsh-/spotted-orchids (*Dactylorhiza* spp.) and Common Twayblade (*Neottia ovata*).

Pressures on the habitat come from a number of sources, including ecologically unsuitable grazing, leisure activities and drainage. Succession to scrub is also a problem, particularly where it is linked to desiccation of the slack. Area losses continue to occur, caused in the current reporting period by conversion to agriculture and expansion of Sea-buckthorn (*Hippophae rhamnoides*), which is a non-native invasive species.

The Overall Status of the habitat is assessed as *Inadequate* and deteriorating, unchanged since the 2019 assessment.

Rory Hodd



OVERALL STATUS: INADEQUATE

21A0 MACHAIR*

Machairs are complex and dynamic systems which are considered natural landforms that are the product of both wind erosion and cultural activities. They are globally restricted to the north-west coasts of Ireland and Scotland. Frequent species include Red Fescue (*Festuca rubra*), Common 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. This habitat is found in exposed locations between Galway Bay and Malin Head, Co. Donegal.

Pressures on the habitat include ecologically unsuitable grazing regimes (particularly overgrazing), invasive species and recreational activities causing disturbance. The Overall Status is assessed as *Inadequate* with a stable trend, unchanged from the 2019 report.

Aoife Delaney

OVERALL STATUS: INADEQUATE

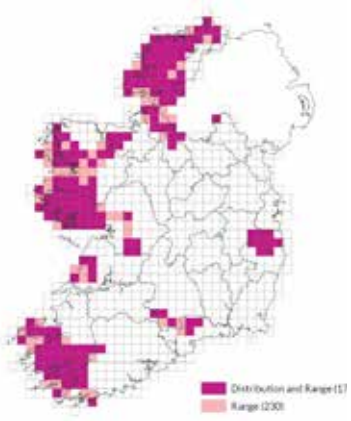
3110 OLIGOTROPHIC ISOETID LAKE HABITAT

Ireland is a European stronghold for this soft-water, nutrient-poor lake habitat. It is relatively species-poor and dominated by plants such as Quillwort (*Isoetes lacustris*) and Water Lobelia (*Lobelia dortmanna*). Other common species include Bulbous Rush (*Juncus bulbosus*) and Bog Pondweed (*Potamogeton polygonifolius*), while Pipewort (*Eriocaulon aquaticum*), Awlwort (*Subularia aquatica*) and Slender Stonewort (*Nitella gracilis*) are more notable species. This habitat is frequent in peatland catchments. It is also found in upland lakes, such as corries, and earlier references to it as a 'lowland lake' type were incorrect.

The oligotrophic isoetid lake habitat has a widespread distribution in Ireland and occurs in a large number of lakes. It is under significant pressure from drainage and other damage to peatland, and from eutrophication. Damage to peatland can result in hydrological changes in lakes, increased organic matter, water colour and turbidity, changes in sediment characteristics, acidification and even enrichment. The habitat requires oligotrophic conditions. It is recognised that ensuring the long-term future of this lake habitat requires action at catchment scale to address peatland damage, as well as to reduce nutrient and other pollution.

The Overall Status is assessed as *Inadequate* with an unknown trend. This change from the Bad status reported in 2013-2018 is the result of improved knowledge and use of a different method. Additional baseline survey and research is needed to further improve knowledge of the habitat's characteristics, ecological requirements and status.

Áine O'Connor



OVERALL STATUS: INADEQUATE

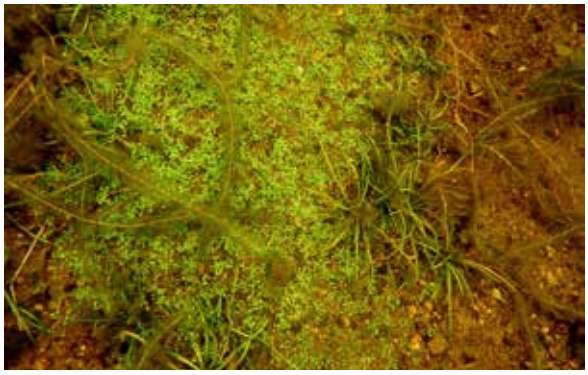
3130 SLENDER NAIAD-TYPE LAKES

Habitat 3130 is known in Ireland as the intermediate-alkalinity or Slender Naiad-type lake habitat. It is characterised by a species-rich flora and three main vegetation zones including a rare deep-water community. The deep-water community has rare and scarce typical species such as the Annex II Slender Naiad (*Najas flexilis*), *Hydrilla verticillata*, Pillwort (*Pilularia globulifera*) and the stoneworts *Nitella confervacea* and *Nitella translucens*. The habitat contains a mix of species found in more basic and more acidic lakes, and the co-occurrence of *Potamogeton perfoliatus* and *Isoetes lacustris* is characteristic.

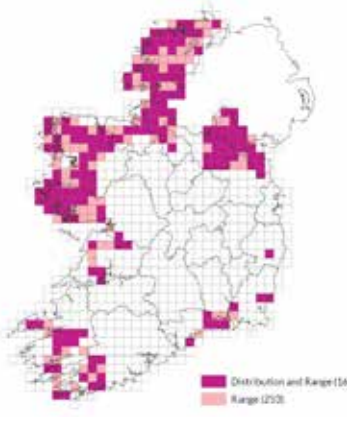
The habitat is widespread but scarce along the western fringe of Ireland, and rare in the rest of Europe. It occurs in lakes with clear water, low nutrients and alkalinity intermediate between that of oligotrophic and marl lakes, in catchments of mixed geology. Base-rich influences may come from basalt, limestone, marble, or calcareous sand, and peatland and heath are often widespread in the catchments.

The deep-water flora is highly sensitive, particularly to reductions in the amount of light reaching the lake bed caused by increased water colour and shading by large plants and phytoplankton. The habitat was in unfavourable condition at 89% of the area monitored. It has deteriorated significantly in recent years at three of its most important Irish sites, two because of eutrophication, and one owing to drainage and eutrophication. The Slender Naiad population has gone extinct at one of these lakes and collapsed at another.

The Overall Status of habitat 3130 is assessed as *Bad* and deteriorating, a change from the Inadequate Status recorded in 2019. This is due to a genuine deterioration in habitat at a number of nationally important 3130 lakes. Effective catchment management is needed to restore this important habitat to favourable status.



Cilian Roden



OVERALL STATUS: BAD

3140 HARD-WATER LAKES

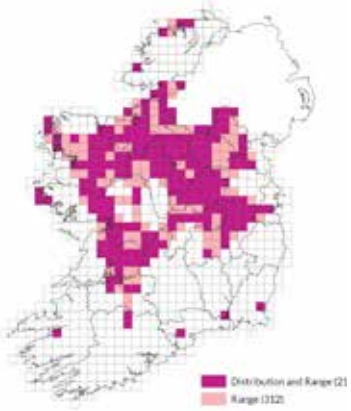
The Hard-water or marl lake habitat is strongly associated with lowland lakes over limestone bedrock. Primitive organisms dominate, particularly stoneworts (macroalgae). Stonewort diversity is high and includes rare and threatened species such as Naked Stonewort (*Chara dissoluta*), Coral Stonewort (*C. tomentosa*), Rugged Stonewort (*C. subspinosa*) and Dwarf Stonewort (*Nitella tenuissima*). Marl lakes in good condition have exceptionally clear water with stoneworts growing to depths of 10 m or more and up to six distinct, stonewort-dominated zones. Higher plants generally are sparse and restricted in distribution. Irish stony, hard-water lakes are also of international importance for 'krustenstein', a living crust with abundant cyanobacteria that covers rocks in shallow waters.

Ireland has some of the best examples of this rare and highly oligotrophic habitat in Europe and the world. Habitat 3140 occurs in a large number and variety of sites in Ireland including large stony lakes, turloughs, calcareous dune slacks, fens and canals. As a result, Ireland has particular responsibility for restoring this natural habitat to favourable conservation status within the EU.

The hard-water lake habitat is under significant pressure from eutrophication, the primary sources of nutrients and organic matter being agriculture and municipal and industrial wastewaters. Abstraction for drinking water is also a pressure.

The Overall Assessment for habitat 3140 is *Bad*, unchanged from 2019. The overall trend is reported as stable. Effective measures will need to be rolled out across catchments to improve the habitat's status and trends.

Cilian Roden



OVERALL STATUS: BAD

3150 RICH PONDWEED LAKE HABITAT

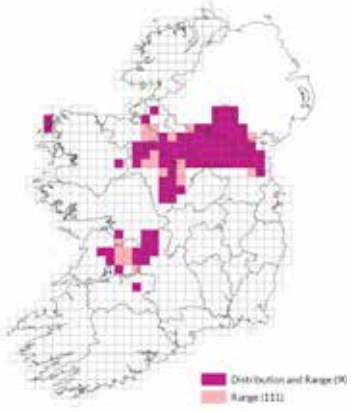
Little is known about the characteristics or ecology of the Rich pondweed lake habitat in Ireland. It can be distinguished from habitat 3130 by the absence of the oligotrophic isoetid zones and deep-water rarities, and from 3140 by the lower abundance of stoneworts. Habitat 3150 is likely to occur in lowland, base-rich lakes and to have high abundance and diversity of pondweeds (*Potamogeton* spp.). Other rooted, predominantly submerged higher plants may regularly co-occur, including *Myriophyllum spicatum*, *Hippuris vulgaris*, *Callitriche* spp., *Sagittaria sagittifolia* and *Ceratophyllum demersum*, and free-floating species such *Lemna trisulca* may be common. It has been suggested that lakes with rich pondweed floras or Frogbit (*Hydrocharis morsus-ranae*) should be targeted to better elucidate the habitat's characteristics.

The habitat is thought to be associated with large lakes in large catchments, such as those of the Shannon system, and with small, more productive lakes such as those found in the drumlin belt of Cavan, Monaghan and Leitrim, or lowlands south-east of the Burren. The pondweed-rich variant found in Ireland is considered to require mesotrophic waters, and typically has well-developed reed swamp, fen and/or marsh communities around the lake shoreline.

Lakes with habitat 3150 are found in mineral soil catchments and, hence, some of the most intensive agricultural lands in Ireland. Consequently, the habitat has been under pressure from eutrophication since the 1970s or before and it may represent a degraded community that has replaced habitats 3140, 3130 or 3110. Other significant pressures include urban wastewater, abstraction, drainage and forestry.

The Overall Assessment of the habitat is *Inadequate*, unchanged from 2019. The trend is unknown, mainly owing to the low confidence in the use of Water Framework Directive status data in the assessment of Annex I lake habitats.

Cilian Roden



OVERALL STATUS: INADEQUATE

3160 ACID OLIGOTROPHIC LAKES

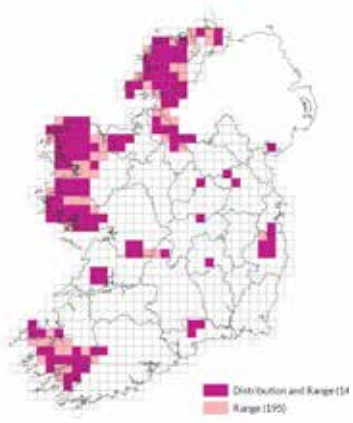
Habitat 3160, the Acid oligotrophic lake or Natural dystrophic lakes habitat, is found in pool systems and small lakes in a mosaic with blanket bog and wet heath. As for other ombrotrophic peatland habitats, habitat 3160 is botanically species-poor, but has relatively greater invertebrate species richness. It also has high algal diversity, notably in desmids. Additionally, while individual pools or lakes may be species-poor, not all sites are the same so that the habitat displays higher species richness at landscape and regional scales. Some of the typical 3160 invertebrate, bryophyte and algal species are strongly associated with, and sometimes restricted to, the habitat. The habitat also shows strong regional variation across its Irish range, with altitude, geology, and distance from the sea.

Lakes and pools with habitat 3160 are dominated by Coleoptera (water beetles), followed by Trichoptera (caddisfly larvae) and Heteroptera (aquatic bugs, such as water boatmen) and have abundant Odonata (dragonflies and damselflies).

Damage to peatland from turf cutting, foresty and agriculture results in hydrological changes in the habitat, as well as increased sedimentation, colour, turbidity, organic matter and ammonia. Fertilisation of forests can contribute to enrichment of the habitat. Conservation measures to restore raised bog have resulted in the creation of new 3160 pools, however these may be temporary and replaced by active raised bog communities through natural succession.

The Overall Assessment of habitat 3160 is *Inadequate*, unchanged from 2019, but with an increasing trend, a change from the stable trend recorded in 2019. This is a genuine change, owing to improving trends for Range and Area as a result of conservation measures on raised and blanket bog.

Giovanni Cappelli



OVERALL STATUS: INADEQUATE

3180 TURLOUGHS*

Turloughs are basins that flood annually and are restricted to regions of well-bedded, relatively pure karstified Carboniferous limestone. Water inflow and outflow is predominantly through the ground. Turloughs can be described as the floodplains of underground rivers. They show a distinctive zonation of plants related to flooding, and typically contain wetland vegetation communities in their lower zones such as lakes, fens and wet grassland, and drier vegetation communities more characteristic of limestone soils in their upper zones such as grasslands, scrub and woodlands. Turlough communities can include other Annex I habitats, notably Hard water lakes (3140), Alkaline fen (7230), Chenopodion vegetation (3270) and Limestone pavement (8240). Turloughs are also important for aquatic and terrestrial invertebrates, and for wintering and breeding birds.

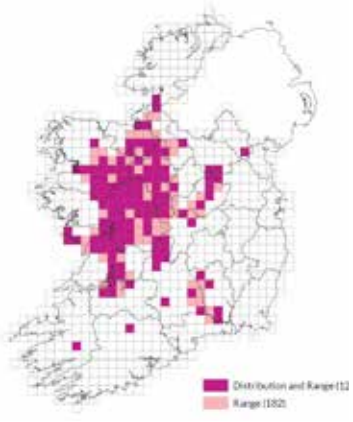
Hydrology is the key driver of turlough ecology, particularly the influence of flood duration and groundwater. Grazing is integral to the ecology of turlough habitats and it is important that appropriate levels are maintained. The climax vegetation for the drier parts of turloughs is wet woodland, but owing to grazing practices, turlough woodland is now quite rare.

The main pressures are drainage, water pollution and ecologically unsuitable grazing, and at a wider landscape scale, flood relief schemes. Recent studies indicate early signs of climate change pressures.

Twenty squares were added to the range since 2019, due to increased knowledge from remote sensing and field survey by Geological Survey Ireland, which has improved knowledge of the distribution of the habitat.

The Overall Status is assessed as *Inadequate* with a stable trend, unchanged from 2019.

Hannah Mulcahy



OVERALL STATUS: INADEQUATE

3260 VEGETATION OF FLOWING WATERS

This habitat has a broad definition, ranging from upland, flashy, oligotrophic, bryophyte- and algal-dominated rivers, to tidal reaches dominated by higher plants. In Ireland, the highest riverine conservation interest is associated with lowland depositing and tidal rivers and unmodified, fast-flowing, low-nutrient rivers. A number of rare submerged and marginal species are found in the former, including Opposite-leaved Pondweed (*Groenlandia 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 low-nutrient, high-velocity river types are associated with high bryophyte diversity, cascades, riffles and riparian woodland. Important communities also occur in groundwater-fed, base-rich oligotrophic rivers.

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. Such fines provide a rooting medium for plants and, as a result, Stream Water-crowfoot (*Ranunculus penicillatus*) has increased in abundance. In consequence, the habitat has, erroneously, become synonymous with water-crowfoots in Ireland. Crowfoot-dominated reaches frequently have low diversity and are of low conservation value, and an abundance of the species generally indicates poor condition and damage.

The main problems for river habitats in Ireland are damage through hydrological and morphological change, eutrophication and other water pollution. The EPA is also continuing to highlight the decline in high quality rivers. While not all variants of the river habitat require low nutrient conditions, this trend is a significant concern. Agriculture and municipal and industrial discharges are the most significant sources of nutrient and organic pollution. The Overall Status of the habitat is *Inadequate* and deteriorating, the same as the last two assessments.

Brian Nelson

OVERALL STATUS: INADEQUATE

3270 CHENOPODION RUBRI

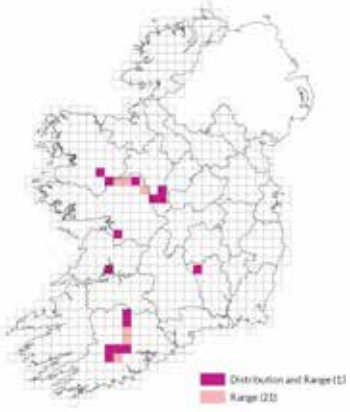
In Ireland, Chenopodion rubri habitat occurs in riverine turloughs where it is associated with late recession of flood water and summer flooding. However, the largest known site for Chenopodion vegetation in Ireland is Carrigadrohid Reservoir at the Gearagh, Co. Cork. The habitat is found on damp mineral soils, often fine, alluvial muds, but also stony substratum. Typical species are small, short-lived, fast-growing annuals. These are poor competitors that occupy the habitat because it is exposed for a short time and too late in the growing season to allow perennial species to complete their life cycles.

The on-going development of this habitat depends on a continuous supply of fine sediment. Most sites receive sediment from external sources via streams or large underground conduits. Wave action can lead to erosion, re-suspension and subsequent deposition of sediment within a basin.

Direct losses of the habitat have occurred, as well as indirect losses owing to prolonged flooding. Reduced flood duration is also a threat, with changes in precipitation regimes due to climate change. Pressures on the habitat include infrastructure such as hydropower dams, transport infrastructure, drainage and other land uses.

The Overall Status is assessed as *Inadequate* with a deteriorating trend. This represents a change from 2019, when it was assessed as Favourable with a stable trend. While this ephemeral habitat naturally varies in area each year, genuine losses have been documented at three sites. The change in status and trend is due to recorded losses of the habitat.

Hannah Mulcahy



OVERALL STATUS: INADEQUATE

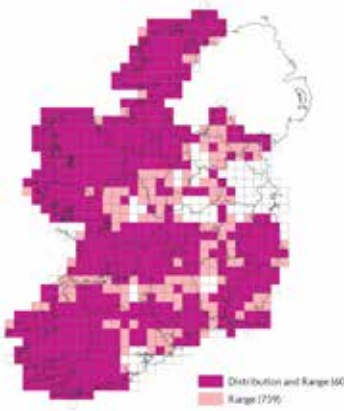
4010 WET HEATHS

Wet heath is a highly variable peatland habitat, intermediate in many regards between dry heath and blanket bog, occurring on gently sloping ground and usually on peat of 15 to 50 cm depths. It is characterised by a mix of Ling (*Calluna vulgaris),* Purple Moor-grass (*Molinia caerulea*), Cross-leaved Heath (*Erica tetralix*), Deergrass (*Trichophorum germanicum*), locally Bog Myrtle (*Myrica gale*) and other species. Not all of these need occur to qualify as wet heath since dwarf shrubs may be scarce or absent on degraded heath and replaced by dominant Deergrass or Purple Moor-grass. Ground flora is variable but *Sphagnum* mosses such as *S. capillifolium, S. papillosum, S. compactum, S. tenellum, S. subnitens* and pleurocarpous mosses such as *Pleurozium schreberi* and *Hylocomium splendens*, and *Cladonia* lichens, are characteristic.

Area losses and impacts on species, structure and functions have continued into the current reporting period, the latter reported as primarily due to overgrazing and related stock impacts on dwarf shrubs, vegetation cover and structure which can lead to erosion. Afforestation is a significant factor in area losses outside SACs. Other pressures include burning, invasive species, windfarm roads and ancillary infrastructure, paths, tracks, landslides, and erosion from recreational use. Aerial nitrogen deposition and air pollution from agricultural activities are also impacting. Climate change is acknowledged as an increasing threat, through predicted more frequent temperature extremes, more frequent or more prolonged droughts and extreme rainfall events.

The Overall Status of Wet heath is *Bad* with a deteriorating trend, unchanged from the previous reporting period.

Orla Daly



OVERALL STATUS: BAD

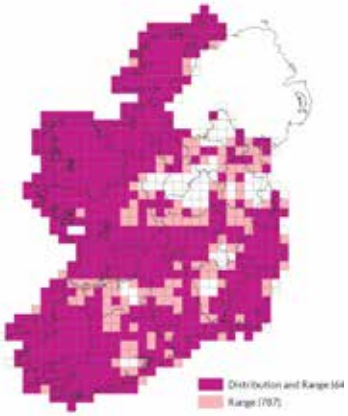
4030 DRY HEATHS

Dry heaths comprise vegetation dominated by ericaceous dwarf shrubs typically occurring on well-drained, nutrient-poor, acidic, mineral soils or on shallow peats and peaty podzols. Ling (*Calluna vulgaris*) is generally the main species but Bell Heather (*Erica cinerea*), Western Gorse (*Ulex gallii*) and Bilberry (*Vaccinium myrtillus*) may also be important components. Dry heaths occur from sea level to around 400 m, where they may transition to Alpine and Boreal heaths (4060). Calcareous dry heaths, where dwarf shrub communities have developed on leached soils over a base-rich substrate (e.g. in the Burren), are included in 4030 habitat and may support several species of calcareous grassland. Stands of *Ulex europaeus* are classed as scrub habitat and thus not included in 4030 habitat.

Losses in area were recorded in the current reporting period and attributed to afforestation, wind farms, excavation, land reclamation, landslides, and recreational activities causing erosion. Pressures reported as affecting the structure and functions of the habitat include burning and overgrazing. Climate change is acknowledged to be a potential threat to dry heaths, through predicted increased frequency of temperature and rainfall extremes and more frequent or more prolonged drought periods.

The Overall Status of Dry heath is assessed as *Bad*, as in the last two reporting periods, but the trend is now reported as deteriorating, down from stable in 2019. This is due to continuing losses in area recorded in the current reporting period and a high proportion of the habitat being in bad condition.

Orla Daly



OVERALL STATUS: BAD

4060 ALPINE AND SUBALPINE HEATH

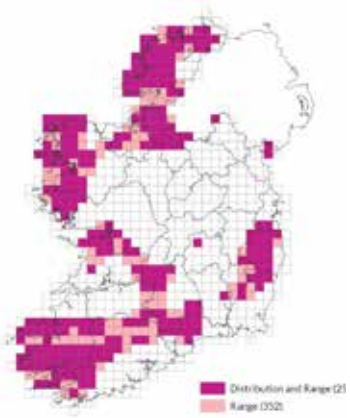
Two distinct subtypes of Alpine and subalpine heath have been identified as occurring in Ireland. The most widespread subtype occurs in an upland peatland context, mainly above 450-500 m altitude, but also occurs close to sea level in exposed coastal situations in north-western Ireland. It can also occur as secondary vegetation where blanket peat has eroded. The vegetation is characterised by the presence of low-growing, wind-clipped dwarf shrubs, the most characteristic of which is Ling (*Calluna vulgaris*), typically with an abundance of the moss *Racomitrium lanuginosum*. A suite of specialised Arctic- or Boreal-montane species may occur within 4060 habitat, especially at higher altitudes, but their presence is not a requisite to identify habitat as corresponding to 4060.

The second subtype occurs in lowland and low upland areas on karstic limestone in the Burren and adjacent areas. It consists of calcareous heath, characterised by the occurrence of the Arctic/Boreal-montane shrubs Mountain Avens (*Dryas octopetala*) and Bearberry (*Arctostaphylos uva-ursi*), alongside typical species of calcareous grassland. Where *Dryas* is prominent, these heaths have affinities to habitat 6170 Alpine and subalpine calcareous grasslands; however a recent review has concluded that, based on current data, *Dryas*-dominated heaths should remain within 4060 for now.

The main pressures on Alpine and subalpine heath are overgrazing, aerial nitrogen deposition from agricultural activities, burning, recreation activities causing erosion, and invasive alien species. Climate change is acknowledged to be a potential threat, through temperature and precipitation extremes and more prolonged periods of drought.

The Overall Status of the habitat is *Bad*, as in the previous two reporting periods, but the overall trend has changed from improving to stable, due to the stabilisation of improvements in structure and functions.

Rory Hodd



OVERALL STATUS: BAD

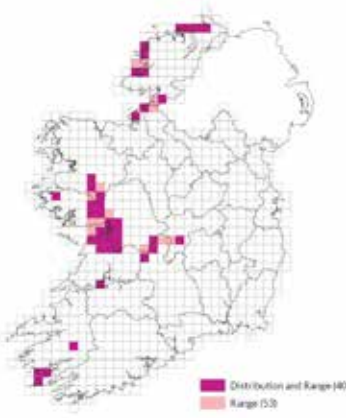
5130 JUNIPER SCRUB

In Ireland a Juniper formation is defined as a discrete area supporting 50 or more Juniper plants where no plant is more than 20 m from another. In practice this means that, in addition to reaching the 50-plant threshold, Juniper plants should achieve a minimum density of 25 plants per hectare to qualify as a formation.

Juniper formations are mostly associated with lowland dry calcareous and neutral grassland, exposed calcareous rock, dry siliceous heath, exposed siliceous rock and dry calcareous heath; however, formations can also occur on coastal dunes and at higher altitudes. Both upland and lowland juniper formations in Ireland are dominated almost exclusively by prostrate or spreading forms of *Juniperus communis*.

Local pressures were noted at some Juniper stands, including overgrazing, erosion, small areas of Juniper scrub removal and invasive species. However, any high or medium-impact pressures recorded during the last two reporting periods usually affected only small areas of the habitat, or occurred at a low frequency across the sites surveyed. None of the pressures recorded were deemed to be significant at a national level. Short periods of disturbance may even be beneficial by promoting regeneration. The Overall Status is assessed as *Favourable* and the trend is stable, the same result as in 2019.

Fionnuala O'Neill



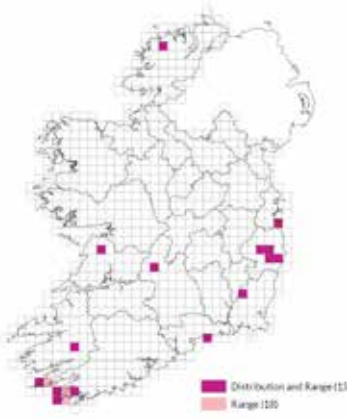
OVERALL STATUS: FAVOURABLE

6130 CALAMINARIAN GRASSLAND

Calaminarian grassland has a very restricted distribution in Ireland, occurring only on artificial spoil heaps around old mine workings that are contaminated with the heavy metals copper, lead and zinc. This habitat is unknown from natural situations in Ireland. It is characterised primarily by the presence of metallophyte bryophytes that are tolerant of high concentrations of heavy metals. These species include *Cephaloziella nicholsonii, C. integerrima, C. massalongoi, Ditrichum cornubicum, D. plumbicola, Scopelophila cataractae* and *Pohlia andalusica*, all of which are rare and threatened in Ireland and Europe. In Ireland, this habitat has very low cover of vascular plants, often being dominated by bare ground, and has few vascular plant indicators. Exceptions include Spring Sandwort (*Minuartia verna*) as well as Thrift (*Armeria maritima*) and Sea Campion (*Silene uniflora*), when found in inland, lowland sites.

This habitat is undergoing a slow, ongoing decline across most sites in Ireland, as the heavy metals are leaching out of the soil over time and vegetation succession, usually to heath, is occurring. The habitat is also vulnerable to reclamation and damage from recreational and other activities, as it is often viewed as waste ground. The Overall Status remains *Inadequate* with a deteriorating trend.

Neil Lockhart



OVERALL STATUS: INADEQUATE

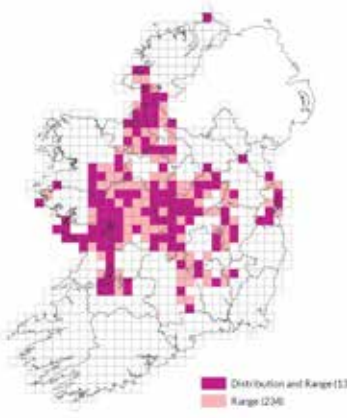
6210 ORCHID-RICH CALCAREOUS GRASSLAND*

The Annex I habitat 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) comprises species-rich plant communities found on shallow, well-drained calcareous substrates. It is considered a priority habitat only if it is an important orchid site, which in Ireland refers to sites that have any native orchid species other than the relatively common *Dactylorhiza fuchsii* and *Dactylorhiza maculata*. This habitat includes a mixture of grasses and herbs, with calcicole species typically frequent. It often occurs on obvious geological features such as eskers, outcropping limestone rock and in association with limestone pavement. The Burren (Clare/Galway) and Dartry Mountains (Sligo/Leitrim) are particularly important areas for this Annex I habitat, but it can also be found scattered across much of the midlands.

A typical sward is herb-rich and diverse, with over 40 species commonly recorded in a 4 m^2 plot. Herbs include Wild Carrot (*Daucus carota*), Lady's Bedstraw (*Galium verum*), hawkbits (*Leontodon hispidus, L. saxatilis*), Mouse-ear Hawkweed (*Pilosella officinarum*) and Bulbous Buttercup (*Ranunculus bulbosus*). Grasses and sedges include Quaking-grass (*Briza media*), Crested Hair-grass (*Koeleria macrantha*), Downy Oat-grass (*Avenula pubescens*), Spring-sedge (*Carex caryophyllea*) and Glaucous Sedge (*Carex flacca*). The highest quality calcareous grasslands include orchids and other herbs such as Mountain Everlasting (*Antennaria dioica*), Kidney Vetch (*Anthyllis vulneraria*), Harebell (*Campanula rotundifolia*), Greater Knapweed (*Centaurea scabiosa*), Autumn and Field Gentian (*Gentianella* spp.), Fairy Flax (*Linum catharticum*) and Cowslip (*Primula veris*). Additional species characteristic of calcareous rocky habitats are found in the Burren region.

Despite a number of conservation-focused farming schemes which bring about localised and regional improvements, the Overall Status is assessed as *Bad* with a deteriorating trend due to on-going habitat losses mainly associated with unsuitable grazing regimes, agricultural intensification causing loss of species-rich communities, and abandonment of farmland resulting in succession to scrub. This result is unchanged from 2019.

Maria Long



OVERALL STATUS: BAD

6230 SPECIES-RICH *NARDUS* GRASSLANDS*

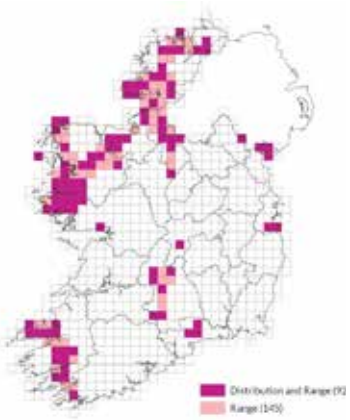
Habitat 6230 'Species-rich *Nardus* grasslands on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)' is typically found on siliceous substrates in upland areas (montane and sub-montane zone), usually near the upper limit of enclosed farmland. It has probably always been a relatively rare habitat in Ireland and it relies on extensive grazing, usually by sheep, to maintain the habitat over almost all of its range in Ireland. Habitat 6230 often occurs in a mosaic with heath. To qualify as the Annex I habitat, there must be a notable richness of species present.

Typically, this habitat occurs on slopes where there is flushing of at least mildly base-rich water, resulting in the occurrence of a range of species indicative of basic influence, such as Wild Thyme (*Thymus drucei*), Fairy Flax (*Linum catharticum*) and the moss *Ctenidium molluscum*, in association with species characteristic of acidic uplands, including Tormentil (*Potentilla erecta*) and Heath Bedstraw (*Galium saxatile*). It is this mix of species of calcareous and siliceous conditions that provides the requisite element of species richness.

A significant additional element of species richness is often provided by bryophytes, particularly in the far west of Ireland, but there should also be a species-rich element of vascular plants present. Grasslands on calcareous substrates such as limestone cannot be included within this habitat. Grasslands that show relatively high species richness but are flushed with strongly acidic water and are dominated by *Sphagnum* species or *Polytrichum commune* should also not be included within this habitat.

The Overall Status is assessed as *Bad* due to on-going pressures such as unsuitable grazing regimes (under- or overgrazing), conversion to other land use types (e.g., forestry, improved agricultural grassland), bracken encroachment and succession. The trend is deteriorating, a change from the stable trend recorded in 2019.

Rory Hodd



OVERALL STATUS: BAD

6410 *MOLINIA* MEADOWS

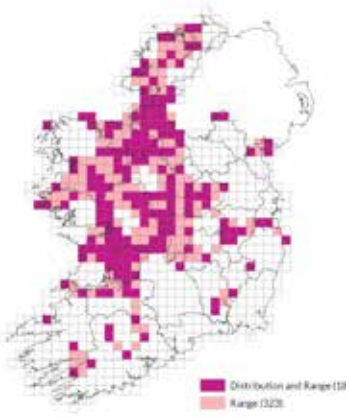
The Annex I habitat 6410 *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) is represented in Ireland by both fen and grassland communities on nutrient-poor soils. The 6410 habitat is either managed as traditional hay meadow (typically cut once a year in late summer or autumn with the hay crop removed) or more usually as 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. *Cirsium dissectum* is one of the key indicator species for the habitat, and the distributions of 6410 and *Cirsium dissectum* are similar in Ireland. The Annex I habitat is less common in the east and south of the country, with only scattered instances recorded within those regions.

Typical species of the habitat, besides Purple Moor-grass (*Molinia caerulea*) and Meadow Thistle, include Sneezewort (*Achillea ptarmica*), small sedges such as Star Sedge (*Carex echinata*), Common Sedge (*C. nigra*) and Flea Sedge (*C. pulicaris*), Marsh Hawk's-beard (*Crepis paludosa*), Meadowsweet (*Filipendula ulmaria*), Fen Bedstraw (*Galium uliginosum*), Sharp-flowered Rush (*Juncus acutiflorus*), Heath Wood-rush (*Luzula multiflora*), Adder's-tongue (*Ophioglossum vulgatum*), Greater Bird's-foot-trefoil (*Lotus pedunculatus*), Tormentil (*Potentilla erecta*), Devil's-bit Scabious (*Succisa pratensis*) and Marsh Violet (*Viola palustris*).

The Overall Status is *Bad*, as it has been for the last three monitoring periods, and the overall trend is still deteriorating, due to on-going losses of habitat. Significant historical losses of this habitat have also occurred since the EU Habitats Directive came into force. The main pressures on the habitat are associated with agricultural intensification (e.g. land drainage, fertiliser application), undergrazing and forestry.

Maria Long



OVERALL STATUS: BAD

6430 HYDROPHILOUS TALL-HERB SWAMP

Hydrophilous tall-herb fringe communities are characterised by a high proportion of tall herb species in hydrophilous or nitrophilous conditions. The habitat occurs in two situations - upland, typically on base-rich ledges, and lowland, along the unmanaged margins of slow-moving rivers, lakes and other wetlands.

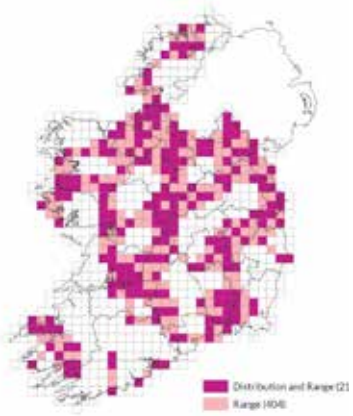
In upland situations, 6430 is a community of flushed ground with at least mildly base-rich water and a prominent component of tall herb species. It is typically restricted to fragmented, relict stands on inaccessible ledges away from grazing pressure. In the lowlands, the typical occurrence is as stands dominated by tall herbs, with a diversity of species present, fringing rivers, lakes and other wetlands, usually as a narrow strip and often seasonally inundated. There should be a diversity of tall herb species present, not a monodominant sward of one species with scattered herbs. Reeds and tall grasses and sedges do not form a significant component of the vegetation.

Tall herb species common to both variants include Wild Angelica (*Angelica sylvestris*), Marsh Hawk's-beard (*Crepis paludosa*), Meadowsweet (*Filipendula ulmaria*) and Common Valerian (*Valeriana officinalis*). Other tall herbs in the lowland variant include Cowbane (*Cicuta virosa*), Yellow Loosestrife (*Lysimachia vulgaris*), Purple-loosestrife (*Lythrum salicaria*), Greater Water-parsnip (*Sium latifolium*), Common Meadow-rue (*Thalictrum flavum*), and these are accompanied by smaller herbs such as Marsh-marigold (*Caltha palustris*), Hedge Bindweed (*Calystegia sepium*), Bittersweet (*Solanum dulcamara*) and Tufted Vetch (*Vicia cracca*). The upland variant contains such species as lady's mantles (*Alchemilla* spp.), Common Scurvygrasses (*Cochlearia officinalis* agg.), hawkweeds (*Hieracium* agg.), Alpine Saw-wort (*Saussurea alpina*) and Lesser Meadow-rue (*Thalictrum minus*).

The main pressures on the lowland habitat are invasive alien species, such as Himalayan Balsam (*Impatiens glandulifera*) and Giant Hogweed (*Heracleum mantegazzianum*), drainage, and impacts along riverbanks and canals to maintain paths for walking or access for fishing. In the uplands, overgrazing is an issue.

The Overall Status of the habitat is *Bad* with a deteriorating trend, as in the last reporting period.

Rory Hodd



OVERALL STATUS: BAD

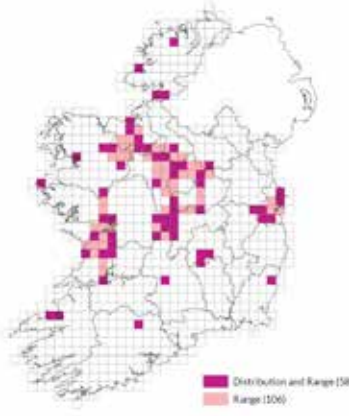
6510 HAY MEADOWS

The Annex I habitat 6510 Lowland hay meadows is represented in Ireland by mesotrophic semi-natural grasslands that are almost always managed as traditional hay meadows, typically cut once a year in late summer or autumn, with the hay crop removed. These meadows are synonymous with the fertile plains of the larger river systems such as the Shannon and Moy. However, they have been found on flatter ground amongst low hills and drumlins, and there are also some sites on the coast. Increasingly the habitat is also being found in demesnes and parks which are managed for nature. The habitat is only rarely found in submontane (200-400 m) areas. The areas of 6510 mapped in the Shannon Callows account for approximately 40% of the known area within the State.

Hay meadow grasslands are typically herb-rich and may include Yellow-rattle (*Rhinanthus minor*), Common Bird's-foot-trefoil (*Lotus corniculatus*), Oxeye Daisy (*Leucanthemum vulgare*) and orchids, as well as the nationally rare Great Burnet (*Sanguisorba officinalis*), Meadow Barley (*Hordeum secalinum*) and Smooth Brome (*Bromus racemosus*). More common species include Meadow Foxtail (*Alopecurus pratensis*), Common Knapweed (*Centaurea nigra*), Meadowsweet (*Filipendula ulmaria*), Cat's-ear (*Hypochaeris radicata*), hawkbits (*Leontodon* spp.) and Ribwort Plantain (*Plantago lanceolata*).

The Overall Status assessment for hay meadows is *Bad*, as in the previous three reporting periods. The main pressures on this habitat relate to agricultural practices such as intensification, abandonment and conversion to improved agricultural grassland. However, ecological improvements have been noted in some properties managed by State agencies where mowing regimes have been adjusted to enhance biodiversity. This has resulted in a change in overall trend from deteriorating to improving, although significant historical losses mean that the favourable reference values for range and area are still some way from being realised.

Maria Long



OVERALL STATUS: BAD

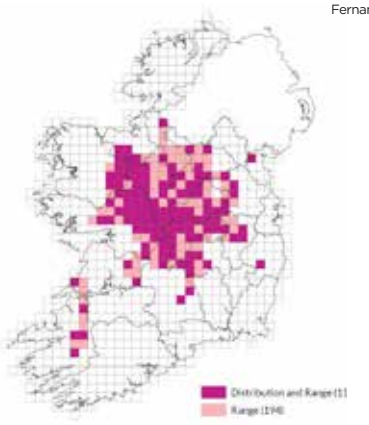
7110 RAISED BOGS (ACTIVE)*

Raised bogs are accumulations of deep acid peat (3-12 m) 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. Raised bogs are primarily rainwater-fed (ombrotrophic) and characterised by acid and nutrient-poor conditions which support a distinctive suite of vegetation types. They support specialised plant assemblages dominated by a range of mosses of the genus *Sphagnum*. The bog surface may support a patterned micro-topography of pools, hummocks and lawns that provide a range of water regimes supporting different species assemblages. Raised bogs are more frequent in the lowlands of central and mid-west Ireland, occurring principally on land below 130 m. In Ireland they are confined to areas with an annual rainfall below 1,250 mm. Two sub-types are recognised: Western raised bogs (or Intermediate) and True Midland raised bogs.

Active raised bog is characterised by the presence of an acrotelm, which is defined as the living, actively growing upper layer of a raised bog, the surface of which is composed mainly of living bog bosses (*Sphagnum* spp.). Up until this reporting period, active raised bog was defined as occurring only on the high bog. However, a growing acknowledgement of the occurrence of peat-forming vegetation on cutover areas at some sites led to an NPWS appraisal of these habitats. This concluded that Active raised bog can be found in cutover areas. These areas have the capacity to develop into embryonic Active raised bog but longer time periods (>30 years) are likely to be required for high quality habitat to develop.

The main pressures on active raised bog are peat extraction, drainage, afforestation and burning. Active raised bog is also coming under increasing pressure from ammonia emissions and climate change. The Overall Status is assessed as *Bad*, unchanged since the last assessment, but the overall trend is now improving due to continued successful restoration efforts.

Fernando Fernandez



OVERALL STATUS: BAD

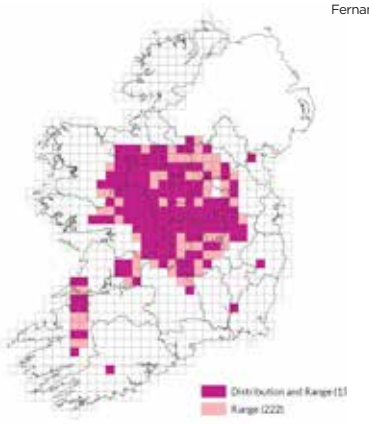
7120 DEGRADED RAISED BOGS

Raised bogs are accumulations of deep acid peat (3-12 m) 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. Raised bogs are primarily rainwater-fed (ombrotrophic) and characterised by acid and nutrient-poor conditions which support a distinctive suite of vegetation types. They support specialised plant assemblages dominated by a range of mosses of the genus *Sphagnum*. The bog surface may support a patterned micro-topography of pools, hummocks and lawns that provide a range of water regimes supporting different species assemblages. Raised bogs are more frequent in the lowlands of central and mid-west Ireland, occurring principally on land below 130 m. In Ireland they are confined to areas with an annual rainfall below 1,250 mm. Two sub-types are recognised: Western raised bogs (or Intermediate) and True Midland raised bogs.

Degraded raised bog is characterised by the complete absence (or patchy, thin cover) of an acrotelm, which is the living, peat-forming upper layer. Previously, all vegetated areas of high bog not delineated as Active raised bog were defined as Degraded raised bog, on the assumption that most could be restored to active peat-forming conditions. However, this definition changed in the last reporting period. Degraded raised bog is now defined by an eco-hydrological model that predicts where there is potential to restore active conditions on the high bog. Only areas with the physical conditions capable of supporting Active raised bog are now considered as Degraded raised bog, and these areas must still be capable of natural regeneration to active bog within 30 years. The remainder of the high bog that is neither active not degraded raised bog is now referred to as 'supporting raised bog habitat'.

The main pressures on Degraded raised bog are peat extraction, drainage, afforestation and burning. Degraded raised bog is also coming under increasing pressure from ammonia emissions and climate change. The Overall Status is assessed as *Bad*, unchanged since the last assessment, but the overall trend is now improving due to continued successful restoration efforts.

Fernando Fernandez



OVERALL STATUS: BAD

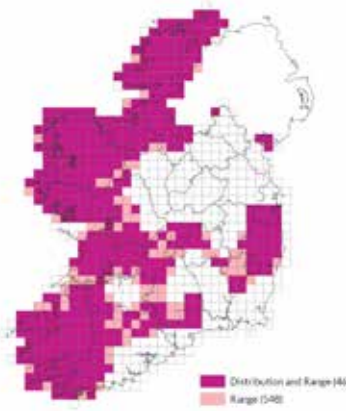
7130 BLANKET BOG (ACTIVE)*

Blanket bog is a climatic climax ecosystem occurring in Ireland's uplands and western lowlands where mean annual rainfall exceeds 1,250 mm, and on slopes up to *c*.25° in hyperoceanic areas. It occurs on peat thickness of generally >50 cm (up to 4 m on uplands and up to 8 m in lowlands). Both active and non-active 7130 habitats qualify as Annex I habitat. The former has priority status and supports areas of vegetation that are normally peat-forming. Non-active Blanket bog is defined based on likely rate of recovery of peat-forming vegetation. The assessment presented here is for the combined active and non-active Blanket bog habitat.

Plant communities and microtopography of Blanket bog are variable. Quality lowland examples typically support Black Bog-rush (*Schoenus nigricans*), Purple Moor-grass (*Molinia caerulea*), Common Cottongrass (*Eriophorum angustifolium*), Cross-leaved Heath (*Erica tetralix*), White Beak-sedge (*Rhynchospora alba*) and Ling (*Calluna vulgaris*). Hummocks of *Sphagnum rubellum* and *S. papillosum* are typical, sometimes topped by *Racomitrium lanuginosum*. Pools support aquatic species, *Sphagnum cuspidatum, S. denticulatum*, sundews (*Drosera* spp.), bladderworts (*Utricularia* spp.), and locally Pipewort (*Eriocaulon aquaticum*) and Water Lobelia (*Lobelia dortmanna*). Upland blanket bog can have considerable dwarf shrub cover of Ling, Crowberry (*Empetrum nigrum*) and Bilberry (*Vaccinium myrtillus*), and in the sward, Deergrass and Hare's-tail Cottongrass (*Eriophorum vaginatum*). In wet, intact upland bog, a well-developed bryophyte layer occurs, with *Sphagnum capillifolium* often dominant, alongside *S. papillosum, Hypnum cupressiforme, Racomitrium lanuginosum* and *Diplophyllum albicans*. Lichens of the *Cladonia* genus are characteristic of both types of blanket bog.

The main pressures are peat extraction, overgrazing, burning, afforestation, and agricultural activities causing nitrogen deposition. Climate change, with extremes in temperature and precipitation, is an increasing threat. The Overall Status is assessed as *Bad* and deteriorating, as in the last two monitoring reports.

Rory Hodd



OVERALL STATUS: BAD

7140 TRANSITION MIRES

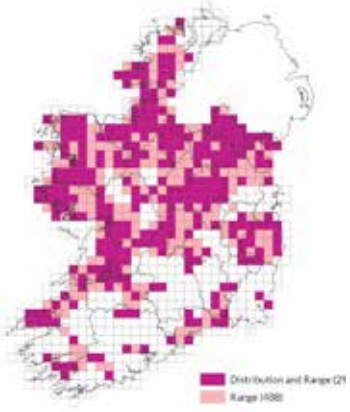
Transition mires are peat-forming communities, typically occurring as swards or floating mats over saturated peat or open water. The habitat encompasses a broad range of plant communities characteristic of ombrotrophic to soligenous waters. Vegetation ranges from extensive floating mats of small to medium sedges with *Sphagnum*, to localised basic flushes over acid peat with base-tolerant *Sphagnum* and some brown mosses. Aquatic and semi-aquatic vegetation is frequently present.

Transition mires are generally mineral-rich (but not necessarily calcium-rich), and have oligotrophic to mesotrophic water with slightly basic to moderately acidic pH. Transition mires may occupy a transitional zone between bog and fen vegetation (such as in the lagg zone of a raised bog), or where groundwater seeps through deep peat (upland soligenous flushes, for instance). They can also represent a transitional stage between groundwater-fed fen and rainwater-fed bog, as peat accumulates and isolates the vegetation from groundwater.

This habitat is widespread but localised in Ireland. It has been recorded in blanket bog regions in the north and west, in limestone regions in the north-west and midlands, and in inter-drumlin hollows and lakes in the border counties. A number of rare and protected species occur in, or are confined to, transition mire habitats in Ireland, such as the Flora (Protection) Order 2022 species Shining Sickle Moss (*Hamatocaulis vernicosus*) (also an Annex II species, 6216), Bog Orchid (*Hammarbya paludosa*) and Slender Cottongrass (*Eriophorum gracile*).

The main pressures are water pollution, drainage and hydrological changes, as well as grazing/agricultural management. The Overall Status is assessed as *Bad*, as in the last three reporting periods. The trend is assessed as deteriorating, this change from the stable trend recorded in 2019 being due to the availability of more accurate data from a recent national fen survey.

Joanne Denyer



OVERALL STATUS: BAD

7150 RHYNCHOSPORION DEPRESSIONS

The habitat 'Depressions on peat substrates of the Rhynchosporion', which is defined by the presence of *Rhynchospora alba* and/or *R. fusca* and a number of other species, is considered to be an integral part and microhabitat of active raised bog and blanket bog.

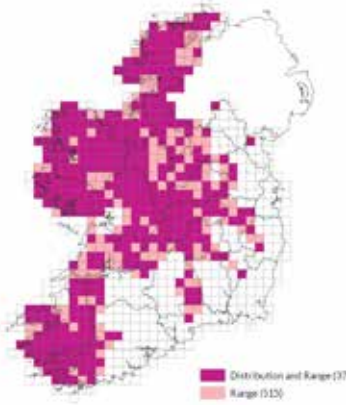
In raised bogs, *Rhynchospora* vegetation communities are only considered as 7150 when they occur in their most developed form in the wettest sections of the active raised bogs, which correspond with pools, *Sphagnum* lawns and hollows.

It is also an integral part of blanket bog ecosystems, particularly of lowland blanket bog along the western seaboard. Only when *Rhynchospora* species are associated with plant communities of the naturally wetter, sometimes quaking and hydrologically most sensitive areas of blanket bog, and associated wetland habitats, are they identified as 7150. Within such areas, 7150 habitat tends to occur in hollows or small depressions or as extensive water tracks and interconnecting shallow pool areas around hummocks, along pool margins and on low-level flats or lawns that often form an interface between hummocks and pools. It can also occur within flushed areas.

Data from extensive blanket bog surveys show that Rhynchosporion vegetation does not appear to occur on Ireland's blanket bog above 300 m. *Rhynchospora alba* can be found extensively as a single species in modified habitats, such as degraded raised and blanket bogs. It can rapidly colonise disturbed areas and form a depauperate community that lacks the other species indicative of the 7150 habitat and is therefore not considered to correspond with this habitat in the Irish context.

The main pressures on 7150 habitat are associated with activities impacting on the supporting bog habitats, especially peat extraction, overgrazing, burning, drainage, afforestation and agricultural activities causing nitrogen deposition. Climate change is identified as a potential threat, through predicted greater temperature extremes, more frequent and or/prolonged droughts and precipitation extremes. The Overall Status of the habitat is assessed as *Inadequate*, a change since 2019 that is primarily due to use of a different method in the assessment of structure and functions. The overall trend of deteriorating is unchanged.

Orla Daly



OVERALL STATUS: INADEQUATE

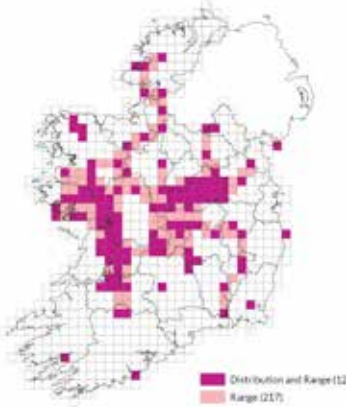
7210 *CLADIUM* FENS*

The Annex I habitat *Cladium* fens refers to *Cladium mariscus* beds which are in contact with species-rich vegetation of small-sedge fens (i.e., *Cladium mariscus* and species of the Caricion davallianae). This can occur where there are species-rich open swards of *Cladium mariscus* with elements of small-sedge fen, fen meadow and tall-herb fen, or where mono-dominant stands of *Cladium mariscus* transition to or form a mosaic with small-sedge fen, fen meadow and tall-herb fen habitats. This latter situation tends to be more common in Ireland. In these instances, the whole stand of *Cladium mariscus*, including areas that support species-poor vegetation, is referable to the Annex I habitat.

Cladium fen can occur in a wide range of habitats, in both topogenous and soligenous situations, such as the emergent zone of calcareous lakes, valley fens, floodplains, wet meadows and mineral-rich flush areas within blanket bogs in the west of Ireland. The habitat is characterised by waterlogged peat soils, a high water table (at or above the surface), and near neutral to alkaline, oligotrophic to mesotrophic water. *Cladium* fens are found throughout Ireland, most commonly in lowland areas in the midlands and west. They are occasional elsewhere.

The main pressures on the habitat are from drainage, pollution and issues related to abandonment. The Overall Status is assessed as *Bad* with a deteriorating trend. The change in status and trend, from Inadequate and stable in 2019, is due to the availability of more accurate data from a recent national fen survey.

Joanne Denyer



OVERALL STATUS: BAD

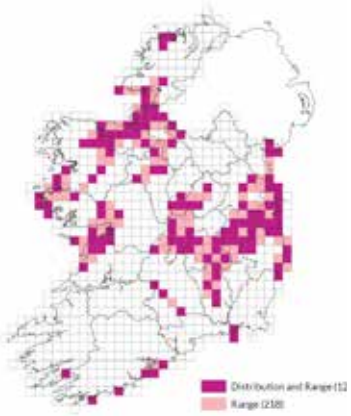
7220 PETRIFYING SPRINGS*

Petrifying springs are a specialised habitat that forms where calcareous waters deposit tufa, a porous rock made of calcium carbonate. The tufa formation may be small deposits around the bases of plants within the spring, or very large mounds and cascades. The resulting ecological conditions, with high pH, constant inundation by water and deposition of precipitated calcium carbonate, constitute a challenging environment for species to colonise, and the communities associated with petrifying springs are therefore highly specialised. Springheads may be distinct point locations giving rise to small streams immediately below the point of emergence, or water may seep to the surface in a more diffuse pattern over a larger area. Petrifying springs can occur in semi-natural habitats such as coastal cliffs, upland fens and wooded springs, but are also found in artificial habitats such as quarries, seepages on walls and roadside ditches.

Irish petrifying springs are usually dominated by bryophytes, including *Bryum pseudotriquetrum, Campylium stellatum, Didymodon tophaceus, Palustriella* spp., *Philonotis calcarea* and *Scorpidium* spp. Vascular plants include Few-flowered Spike-rush (*Eleocharis quinqueflora*), Bog Pimpernel (*Lysimachia tenella*), Grass-of-Parnassus (*Parnassia palustris*), Common Butterwort (*Pinguicula vulgaris*) and Lesser Clubmoss (*Selaginella selaginoides*). The stonewort *Chara vulgaris* is also characteristic. High-quality positive indicator species, which include Yellow Saxifrage (*Saxifraga aizoides*) and the bryophytes *Mesoptychia bantriensis, Moerckia flotoviana, Catoscopium nigritum, Seligeria* spp. and *Tomentypnum nitens*, are largely restricted to western springs, particularly in the north-west.

The key pressures on the habitat relate to water quality, changes to hydrology, and abandonment. The Overall Status for petrifying springs is *Inadequate*, as in 2019, but the overall trend is now reported as stable rather than deteriorating due to more accurate data.

Melinda Lyons



OVERALL STATUS: INADEQUATE

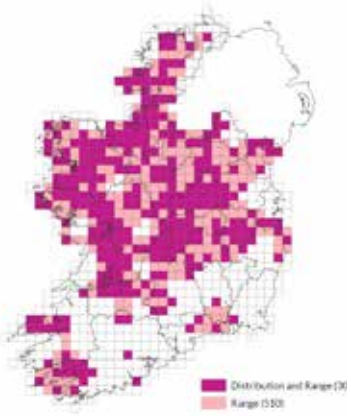
7230 ALKALINE FENS

Alkaline fens are groundwater-fed, generally peat-forming systems with extensive areas of species-rich small sedge and brown moss communities. They occur in areas where there is a high water table and a base-rich, often calcareous, water supply. Alkaline fens can develop in areas where vertical water movement predominates (topogenous), such as poorly drained basins or hollows and open water transitions; or where horizontal water movement is also important (soligenous), such as flushes, valley fens and the laggs of raised bogs. However, this distinction is not always clear, such as in large floodplain fens which can include both elements.

Alkaline fens are relatively widespread in Ireland. The most extensive areas of alkaline fens occur in lowland basins associated with limestone groundwater bodies (most often in western and midland areas). Alkaline fens associated with flushes and open water transitions tend to be smaller, but may be more widespread than those in lowland basins.

The main pressures on the habitat are from drainage and other hydrological changes (e.g., for agriculture or forestry), conversion to a different land-use type, pollution and issues related to overgrazing or abandonment. The Overall Status is assessed as *Bad* with a deteriorating trend, unchanged from 2019.

Joanne Denyer



OVERALL STATUS: BAD

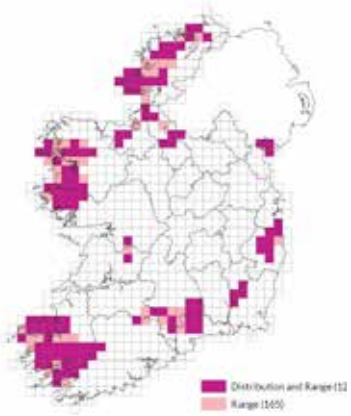
8110 SILICEOUS SCREE

Siliceous scree habitat in Ireland consists of accumulations of siliceous rock fragments on slopes below upland cliffs or on exposed/frost-shattered mountain summits or ridges. While there is no strict lower altitudinal threshold, this habitat is interpreted as referring to examples of scree occurring in a broadly upland landscape context. Rock sizes may vary from large blocks ('talus') that can be very stable, to smaller fragments that may be highly mobile. Areas of loose rock on summits or plateaux exposed by erosion of peat and areas akin to fell-field are not included in 8110 habitat, nor are screes beneath a vegetation cover that indicates other habitats (e.g. dry heath or scrub).

Siliceous scree vegetation can be very sparse and consist chiefly of bryophyte and lichen assemblages, though calcifuge ferns (e.g. Broad Buckler-fern (*Dryopteris dilatata*) and Wilson's Filmy-fern (*Hymenophyllum wilsonii*) and, in western areas, the saxifrage species St. Patrick's-cabbage (*Saxifraga spathularis*) are typically present. Siliceous scree supports several species of high conservation value including legally protected (Flora Protection Order, 2022) and Red-listed bryophytes, particularly those of the 'mixed northern hepatic mat' community, including *Adelanthus lindenbergianus*, which are also rare or threatened on a European scale.

The only medium-influence pressure identified as impacting on siliceous scree is overgrazing, with all other pressures rated as being of low influence. Climate change is identified as an increasing threat, through more frequent temperature and precipitation extremes and more frequent or more prolonged droughts. The Overall Status is *Inadequate* with a stable trend, unchanged since the 2019 assessment.

Rory Hodd



OVERALL STATUS: INADEQUATE

8120 CALCAREOUS SCREE

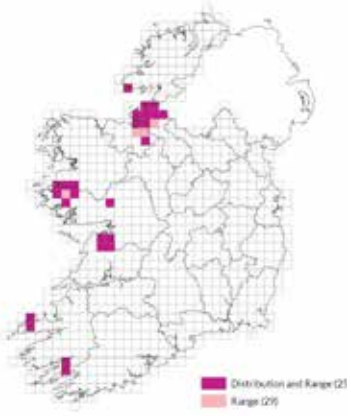
Calcareous scree habitat in an Irish upland context consists of accumulations of calcareous rock fragments on slopes below upland cliffs and on rocky slopes. Rocks may vary in size from large blocks ('talus') that can be very stable, to smaller fragments that can be highly mobile. Most areas of calcareous scree in Ireland are derived from a limestone bedrock, but in some instances are derived from other sedimentary rocks, as well as metamorphic rocks, such as Connemara marble. Areas of scree beneath woodland, scrub or other habitats are not included within this habitat and should be assigned to the covering habitat. While there is no strict altitudinal threshold, 8120 habitat is limited to examples of scree occurring in a broadly upland landscape context.

The vegetation may be very sparse and can chiefly comprise bryophyte and lichen assemblages, although calcicole ferns, including Maidenhair Spleenwort (*Asplenium trichomanes*) and Black Spleenwort (*A. adiantum-nigrum*), are typically present, alongside a suite of other characteristic vascular plants of calcareous habitats.

There are no rare bryophytes specifically associated with calcareous scree, although some rare bryophytes, such as *Didymodon maximus*, which is listed on the Flora (Protection) Order, 2022, may occur in this habitat. While the presence of arctic-alpine species, such as Northern Rock-cress (*Cardaminopsis petraea*), Purple Saxifrage (*Saxifraga oppositifolia*), Holly-fern (*Polystichum lonchitis*) and Green Spleenwort (*Asplenium viride*), indicates high-quality examples of the habitat, their presence is not deemed an essential requisite.

The only medium-influence pressure identified as impacting on calcareous scree is overgrazing, with all other pressures rated as being of low influence. Climate change is identified as an increasing threat, through more frequent temperature and precipitation extremes and more frequent or more prolonged droughts. The Overall Status is *Inadequate* with a stable trend, unchanged since the 2019 assessment.

Rory Hodd



OVERALL STATUS: INADEQUATE

8210 CALCAREOUS ROCKY SLOPES

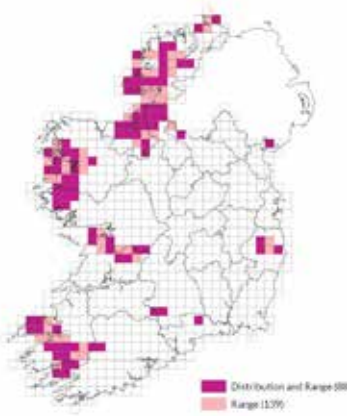
Calcareous rocky slopes habitat is defined as vegetation occurring in crevices, cracks and overhangs of rock ('chasmophytic' vegetation) where there is a calcareous influence. The bedrock can be strongly basic limestone, as well as sandstone or other siliceous rocks, where base-rich water is flushed out of localised bands of rock with higher base content. This habitat also occurs on rocks of metamorphic origin, for example mica schist and Connemara marble. 8210 habitat is limited to a broadly upland context and excludes areas of rockface vegetated with heath, grassland or tall herbs.

The key characteristic indicator species of this habitat are calcicole fern and saxifrage species, including the ferns Green Spleenwort (*Asplenium viride*), Maidenhair Spleenwort (*A. trichomanes*), Holly-fern (*Polystichum lonchitis*) and Brittle Bladder-fern (*Cystopteris fragilis*), and the saxifrages Purple Saxifrage (*Saxifraga oppositifolia*) and Yellow Saxifrage (*S. aizoides*). Saxicolous bryophytes are also an important component of this habitat, with characteristic species including *Tortella tortuosa, Neckera crispa* and *Orthothecium rufescens*. Although not currently on the list of indicator species, the mosses *Amphidium mougeotii* and *Anoectangium aestivum* are strongly indicative of this habitat where the substrate is primarily siliceous.

A range of rare and protected vascular plant and bryophyte species are restricted, or almost restricted, to this habitat in Ireland including Alpine Saxifrage (*Micranthes nivalis)*, Northern Rock-cress (*Cardaminopsis petraea)*, and the bryophytes *Encalypta rhaptocarpa*, *Myurella julacea* and *Gymnomitrion coralloides*. The presence of arctic-alpine species is not an essential requisite, but they are an indicator of high-quality examples of the habitat.

Pressures on the habitat are associated with overgrazing, agricultural activities generating air pollution, and the non-native invasive plant New Zealand Willowherb (*Epilobium brunnescens*). Climate change is identified as an increasing threat, through more frequent temperature and precipitation extremes and more frequent or more prolonged droughts. The Overall Status is assessed as *Inadequate* with a stable trend. This result is unchanged since the previous assessment in 2019.

Rory Hodd



OVERALL STATUS: INADEQUATE

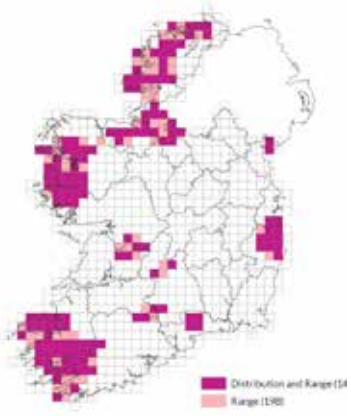
8220 SILICEOUS ROCKY SLOPES

Siliceous rocky slopes habitat in an Irish upland context comprises vertical or near vertical exposures of siliceous bedrock with clefts, crevices, fissures, and overhangs that support chasmophytic vegetation (i.e., vegetation in crevices). While there is no strict lower altitudinal threshold, this habitat is interpreted as referring to examples of chasmophytic vegetation occurring in a broadly upland landscape context. The vegetation is characterised by calcifuge ferns such as Broad Buckler-fern (*Dryopteris dilatata*) and Wilson's Filmy-fern (*Hymenophyllum wilsonii*), saxifrages (especially St. Patrick's-cabbage (*Saxifraga spathularis*) in the west and south) and saxicolous bryophytes (e.g. *Isothecium myosuroides* and *Diplophyllum albicans*) that require moist, shaded, infertile microhabitats.

This is a highly important habitat for bryophytes, with upland siliceous rocks supporting many rare and threatened species. Areas of heath, grassland or tall herb communities growing on rock faces or ledges are not included in 8220 habitat and while the presence of arctic-alpine species indicates high-quality examples of the habitat, they are not deemed an essential requisite.

The only medium-impact pressure recorded for this habitat is the non-native invasive plant New Zealand Willowherb (*Epilobium brunnescens*). All other impacts have been assessed as low influence. Climate change is identified as an increasing threat, through more frequent temperature and precipitation extremes and more frequent or more prolonged droughts. The Overall Status is assessed as *Inadequate* with a stable trend. This result is unchanged since the previous assessment in 2019.

Rory Hodd



OVERALL STATUS: INADEQUATE

8240 LIMESTONE PAVEMENT*

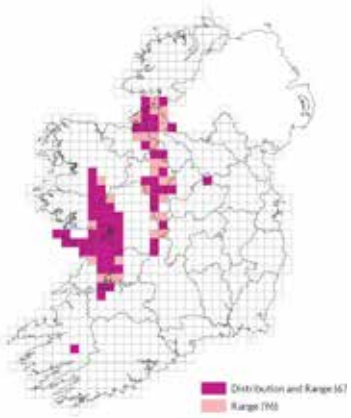
Limestone pavement is a priority EU Annex I habitat. The structure of limestone pavement habitat typically consists of blocks of rock, known as clints, separated by fissures or grikes. Sometimes due to weathering this structure is less defined, especially in the 'shattered' variant of pavement. Limestone pavement can occur as areas of exposed rock with very little vegetation or in association with grassland, heath, scrub, or woodland communities.

The main vascular plant species associated with limestone pavement habitat include scattered low-growing woody species such as Hazel (*Corylus avellana*), Ivy (*Hedera helix*), Holly (*Ilex aquifolium*), Burnet Rose (*Rosa spinosissima*) and Bramble (*Rubus fruticosus*), and herbaceous species such as Blue Moor-grass (*Sesleria caerulea*), Wood Sage (*Teucrium scorodonia*), Wall Lettuce (*Mycelis muralis*), Herb-Robert (*Geranium robertianum*), Carline Thistle (*Carlina vulgaris*) and Glaucous Sedge (*Carex flacca*). A suite of calcicole ferns are also usually found, including Wall-rue (*Asplenium ruta-muraria*), Rustyback (*Asplenium ceterach*) and, in the deeper grikes, the shade-loving Hart's-tongue (*Asplenium scolopendrium*). Characteristic bryophytes are *Ctenidium molluscum*, *Tortella tortuosa* and *Neckera crispa*.

The wooded variant of limestone pavement has been recorded in areas of Hazel woodland with a low canopy of at least 3 m and minimal soil depth. Under canopy, the surface of the limestone pavement is sometimes completely covered by bryophytes such as *Eurhynchium striatum, Neckera crispa* and *Thamnobryum alopecurum*.

The Overall Status is assessed as *Inadequate* due to continuing area losses associated with conversion to agricultural land and housing construction, as well as scrub encroachment caused by undergrazing. The trend is stable. This is unchanged since the 2019 assessment.

Jim Martin



OVERALL STATUS: INADEQUATE

8310 CAVES

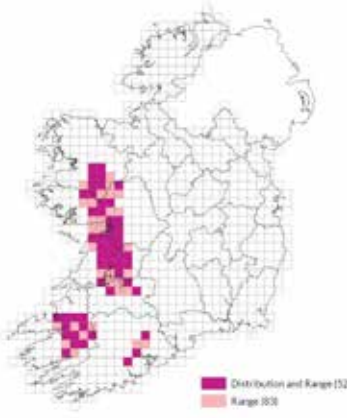
There is little evidence that Irish caves support much in the way of specialised or endemic fauna. However, the Lesser Horseshoe Bat (*Rhinolophus hipposideros*), which is listed on Annex II of the Habitats Directive, occurs in caves in Ireland. Consequently, in practice, this EU habitat is confined in Ireland to caves which are not used for tourism and host important numbers of Lesser Horseshoe Bat.

The Lesser Horseshoe Bat is mainly restricted to six 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) and winter flooding can cause mortalities of bats in certain caves, no significant pressures or threats have been identified for this habitat nationally. Most of the important cave sites are protected as SACs. Many of the vulnerable bat caves are already protected from disturbance through grilling. Regular monitoring is underway to identify further vulnerable cave sites and where necessary these will also be grilled.

Therefore, despite an overall assessment of Inadequate for the typical species (Lesser Horseshoe Bat), the Overall Status of the cave habitat has been assessed as *Favourable*, as it has been over the last three reporting periods. The trend is improving, which is a change from the last reporting period. This is due to the expansion in range of the Lesser Horseshoe Bat.

F. Greenaway



OVERALL STATUS: FAVOURABLE

8330 SEA CAVES

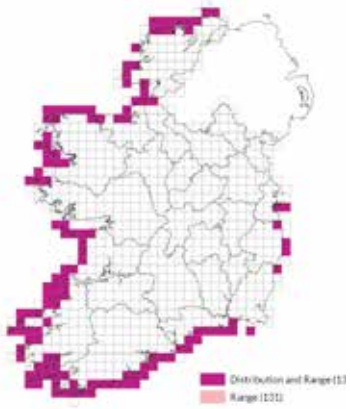
In Ireland, sea caves are defined as caves which are fully submerged below sea level, or which have an intertidal component to them. The entrances of sea caves usually occur on sea cliff faces, with the cave extending both above and below sea level. A number of sea caves are known to be completely submerged, others form tunnels or caverns. Some sea caves, such as Poll na bPéist, Inis Mór, Co. Galway, have openings both below sea level and on the surface.

In Ireland, sea caves present a marked difference from the surrounding reef habitat due to their different physical characteristics such as inclination, wave surge, scour, and shade. These can change rapidly from the cave entrance to the inner parts of the cave, leading to a marked zonation in the communities present. Where a bank of boulders or other hard substrate is present at the back of a cave and where the area is not continually submerged, it may be used as a haul-out area by Grey Seals.

Sea caves appear to be extensive around the coast of Ireland. The west coast of Ireland has a varied geology that includes large areas of limestone bedrock, which is particularly suitable to the formation of sea caves. Sea caves are also known to occur on the south and north coasts of Ireland, and to a lesser degree in the east. However, their distribution along the south-east coast appears to be limited due to geological factors.

There are no signficant pressures impacting on this habitat, and the Overall Status is assessed as *Favourable*. This is the same assessment as in the last three reporting periods.

MERC



OVERALL STATUS: FAVOURABLE

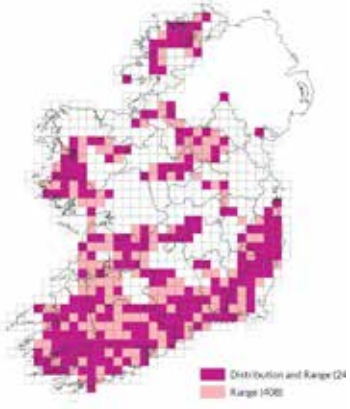
91A0 OLD OAK WOODLAND

Old oak woodland is characterised by a number of diverse elements coming together in a fully functioning system. The soil is usually acidic, often a podzol, brown earth or grey-brown podzol, and generally well drained. This supports a characteristic flora. In areas with high rainfall a western oceanic subtype occurs that is rich in bryophytes, lichens and filmy ferns. A drier, comparatively species-poor subtype occurs on less rocky terrain. A third, more base-rich subtype is also found, differing from the previous two in the greater diversity of tree and herb species.

Well-developed old oak woods are multi-layered, having a canopy, understorey, shrub, dwarf shrub, field and ground layers. Sessile Oak (*Quercus petraea*) or the hybrid *Quercus* x *rosacea* should make up much of the canopy, with birches (*Betula* spp.) and Rowan (*Sorbus aucuparia*) also present. Holly (*Ilex aquifolium*) and Hazel (*Corylus avellana*) are generally frequent in the shrub layer. A dwarf shrub layer of low woody species such as Bilberry (*Vaccinium myrtillus*) or Ling (*Calluna vulgaris*) often occurs. A field layer of ferns such as Hard-fern (*Blechnum spicant*), polypodies (*Polypodium* spp.) and buckler-ferns (*Dryopteris* spp.), and flowering plants such as Great Wood-rush (*Luzula sylvatica*) and Wood-sorrel (*Oxalis acetosella*) are typical. Bluebell (*Hyacinthoides non-scripta*) may be present on more nutrient-rich soils. The ground (bryophyte) layer is usually well developed, consisting of a diverse range of mosses, including *Rhytidiadelphus* spp., *Dicranum* spp., *Polytrichum formosum, Loeskeobryum brevirostre, Mnium hornum*, *Plagiothecium undulatum, Pseudotaxiphyllum elegans,* and liverworts such as *Diplophyllum albicans, Saccogyna viticulosa* and *Scapania* spp. Other liverwort species, such as *Calypogeia* spp., *Frullania* spp. *Plagiochila* spp., *Lepidozia* spp. and *Bazzania trilobata*, may also occur, particularly in western Sessile Oak woodlands where epiphytes are typically abundant.

Historical habitat loss has occurred and still continues, although at a very low level. However, the greatest on-going pressures on these woods come from invasive non-native species such as *Rhododendron ponticum*, Cherry Laurel (*Prunus laurocerasus*) and Beech (*Fagus sylvatica*), and overgrazing by deer. The Overall Status assessment is *Bad* with a deteriorating trend, unchanged since the 2019 report.

Orla Daly



OVERALL STATUS: BAD

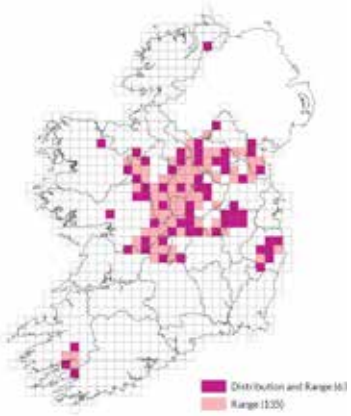
91D0 BOG WOODLAND*

Bog woodland occurs in three distinct habitats in Ireland: on intact raised bogs, where it is associated with low-flow flushes on the high bog; on cutover bog, where it occurs in association with a weak groundwater influence; and within Sessile Oak woodlands in association with nutrient-poor flushes. They are mostly found in the midlands, the mid-west, the drumlin belt of the north midlands and in upland valleys. Bog woodlands are dominated by Downy Birch (*Betula pubescens*), with small amounts of willow, mostly Eared Willow (*Salix aurita*) or Grey Willow (*Salix cinerea*). Locally, there may be small amounts of Scots Pine (*Pinus sylvestris*), especially on raised bogs. The dwarf shrub and field layers may be poorly to well developed. Dwarf shrub species can include Ling (*Calluna vulgaris*), Bilberry (*Vaccinium myrtillus*) and Cranberry (*Vaccinium oxycoccos*). Field layer species can include Purple Moor-grass (*Molinia caerulea*), Soft Rush (*Juncus effusus*) and ferns (e.g. *Dryopteris* spp.). The bryophyte layer has a characteristic luxuriant growth of *Sphagnum* species. *Polytrichum commune* and *Aulacomnium palustre* are also typical.

Bog woodlands are closely linked to precise hydrological conditions that are required for both their initiation and maintenance. These conditions are characteristically restricted to small areas, and consequently the area of individual bog woodlands is typically small. The long-term dynamics of bog woodlands is still poorly understood. Bog woodlands on raised bog and within Sessile Oak woodlands are considered more or less permanent, provided hydrology remains stable, whereas bog woodlands on cutover may represent a more transient community that gradually reverts to raised bog or dries out to become another woodland type.

A number of pressures have been identified in the current reporting period, including invasive species, overgrazing by deer, expansion of Bracken (*Pteridium aquilinum*) due to drying out, drainage and damage from burning. The Overall Status assessment is *Bad* with a deteriorating trend. This change from the Favourable assessment in 2019 is due to genuine change and the use of a different method when assessing grazing.

Fionnuala O'Neill



OVERALL STATUS: BAD

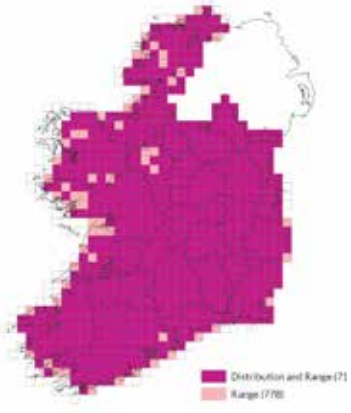
91E0 ALLUVIAL WOODLAND*

Two classes of this habitat exist in Ireland, both occurring on heavy soils that are periodically inundated by the rise of water levels. The more common type is that of the riparian forests of Ash (*Fraxinus excelsior*) and Alder (*Alnus glutinosa*) (*Alno-Padion*) of temperate and Boreal Europe lowland and hill watercourses. The other type is the gallery forests of tall willows (*Salix* spp.) (*Salicion albae*) that occur alongside lowland river channels and occasionally on river islands, where the tree roots are almost continuously submerged. These distinctive woodlands are dominated by archaeophyte willows, such as White Willow (*Salix alba*), Osier (*S. viminalis*) and Almond Willow (*S. triandra*), sometimes accompanied by the native Grey Willow (*S. cinerea*), but Alder should be rare. In addition to these two classes, the interpretation of the habitat for Ireland has been broadened to include lakeside wet woodland: Alder carr (*Alnion glutinosae*) dominated by Alder, and Willow carr (*Salicion cinereae*) dominated by Grey Willow.

The typical canopy species in alluvial woodland are willows, Ash and Alder, and one or more of these should comprise the majority of the canopy. Birches (*Betula* spp.) and Hawthorn (*Crataegus monogyna*) are frequently found, with other tree species such as Pedunculate Oak (*Quercus robur*) and Wych Elm (*Ulmus glabra*) occurring on better-drained soils. A luxuriant and diverse herb layer is characteristic of all variations of the habitat, with typical plants including Reed Canary-grass (*Phalaris arundinacea*), Meadowsweet (*Filipendula ulmaria*), Water Mint (*Mentha aquatica*), Remote Sedge (*Carex remota*), Gypsywort (*Lycopus europaeus*), Yellow Iris (*Iris pseudacorus*) and Common Nettle (*Urtica dioica*). Vernal species such as Lesser Celandine (*Ficaria verna*) and Wood Anemone (*Anemone nemorosa*) may also occur. The bryophyte layer contains robust pleurocarps such as *Thamnobryum alopecurum, Climacium dendroides* and *Calliergonella cuspidata*.

The main pressures are invasive plant species, notably Himalayan Balsam (*Impatiens glandulifera*), overgrazing by deer, the fungal disease Ash dieback, and hydrological pressures such as drainage and modification of hydrological flow. The Overall Status assessment is *Bad* with a deteriorating trend, unchanged since the 2019 report.

Orla Daly



OVERALL STATUS: BAD

91J0 YEW WOODLAND*

Yew woodland is a highly restricted habitat type in Ireland, only occurring at a limited number of sites in the south-west of the country, predominantly on shallow soils over limestone pavement or outcrops. The canopy of this woodland is typically dominated by Yew (*Taxus baccata*), with other canopy species including Ash (*Fraxinus excelsior*) and the introduced Beech (*Fagus sylvatica*). Hazel (*Corylus avellana*) and Holly (*Ilex aquifolium*) are components of the shrub layer, although typically occurring in small quantities. The woodland's dense evergreen canopy can restrict regeneration, which is typically limited or absent.

The field layer is characteristically both species-poor and limited in cover, with the most frequent and abundant species being Ivy (*Hedera helix sensu lato*), which is locally dominant, False Brome (*Brachypodium sylvaticum*), Common Dog-violet (*Viola riviniana*) and ferns, in particular Hart's-tongue (*Asplenium scolopendrium*). The rocky woodland floor can often support an extensive carpet of bryophytes, dominated by a few robust pleurocarpous mosses including *Thamnobryum alopecurum* and *Isothecium myosuroides*. In east Galway (Kylagowan), Yew woodland with Sessile Oak (*Quercus petraea*) and Holly occurs on podzols over acidic tills, and the associated field layer is typical of the Annex I 91A0 old oak woodland habitat. Yew occurs as the dominant species in the sub-canopy within this woodland. Yew is fairly common throughout the woodlands and plantations in the vicinity.

The main pressures on this habitat are overgrazing by deer, invasive plant species (including Sycamore (*Acer pseudoplatanus*), *Rhododendron ponticum* and Cherry Laurel (*Prunus laurocerasus*)), and Ash dieback disease. The Overall Status assessment is *Bad* with a stable trend, unchanged since the 2019 report.

Orla Daly

OVERALL STATUS: BAD

SPECIES

Sphagnum moss: Fernando Fernandez

6985 KILLARNEY FERN *(Vandenboschia speciosa)*

ANNEX II, IV

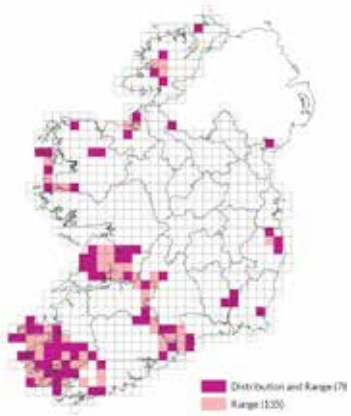
The Killarney Fern (*Vandenboschia speciosa*) is a large-sized, evergreen, perennial filmy fern in the family Hymenophyllaceae. It is restricted to damp, shady and humid habitats and is extremely sensitive to desiccation. It has a typical fern two-stage life cycle, the fern frond stage is known as the sporophyte and the moss-like stage is the gametophyte, which, in the case of *V. speciosa* gametophytes, consists of a filamentous structure (rather than the more usual heart-shaped fern prothallus) which becomes interwoven to form felted mats or wefts. Both the sporophyte and gametophyte stages are capable of asexual reproduction by means of rhizomes (in the former) and gemmae (in the latter). Gametophyte colonies can persist and reproduce in the absence of sporophytes.

In Ireland, when the sporophyte and gametophyte generations occur together they occupy similar habitats in dripping caves, cliffs, crevices and gullies by waterfalls, crevices in woodland, and occasionally the floor of damp woodland; all deeply shaded humid habitats. Sporophyte colonies, however, are more limited in their distribution in Ireland than gametophyte colonies. Niches that gametophytes can occupy are not always suitable for the growth of sporophytes, e.g. shallow crevices in otherwise open habitats that provide adequate shade for gametophytes, but not for the larger sporophytes.

The pressures identified are generally local issues and none are considered to be impacting on the long-term viability of the species or its habitat. The problem of invasive non-native species, identified at a number of sites, is difficult to manage as they often provide essential cover to *V. speciosa* colonies.

The Overall Status of the species continues to be *Favourable*, as it has been over the last three assessments.

Emer Ní Dhúill



OVERALL STATUS: FAVOURABLE

1528 MARSH SAXIFRAGE *(Saxifraga hirculus)*

ANNEX II, IV

Marsh Saxifrage (*Saxifraga hirculus*) is a herbaceous perennial, which, in Ireland, grows only in mineral flushes in mainly lowland blanket bog. The species is now restricted to a small area of North Mayo and Sligo, having been lost from a number of sites in the Midlands of the country due to peat extraction and drainage by the early 20th Century.

It is a distinctive species when in flower, with bright yellow petals that have orange spots near the base. Flowering stems can grow up to 35 cm and can bear up to seven flowers, but typically there are two to three flowers per stem. The leaves are oblong, arranged alternately along short stems. Reproduction occurs both sexually, by insect pollination, and asexually by clonal spread via runners, with the runners decaying over time, so that the clonal plants grow independently. The seeds can only travel short distances, so dispersal is generally limited to within the flush in which the parent plant occurs.

This species requires an open habitat to thrive, as it is a weak competitor. Therefore, an appropriate grazing regime and intact hydrology are key to its survival. Moderate levels of grazing are necessary to keep the habitat sufficiently open, but grazing levels that are too high are detrimental to the species' survival. A water table close to the surface is essential, as is water movement. Drainage for peat cutting and other activities is highly damaging to the habitat of *S. hirculus*.

Saxifraga hirculus is listed on the Flora (Protection) Order, 2022 (S.I. No. 235/2022), and is assessed as Near Threatened on the Irish vascular plant red list.

Undergrazing or lack of grazing, drainage and changes in precipitation due to climate change were identified as having a potential impact on Marsh Saxifrage locally. However, there is no evidence of any major pressures currently impacting this species nationally, and therefore the Overall Status is assessed as *Favourable*, as it has been for the last three monitoring periods, and the trend remains stable.

Rory Hodd

OVERALL STATUS: FAVOURABLE

1833 SLENDER NAIAD *(Najas flexilis)*

ANNEX II, IV

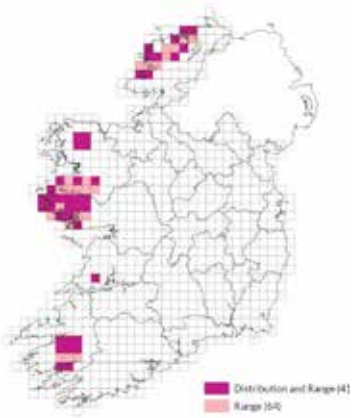
The Slender Naiad (*Najas flexilis*) is a fragile, annual plant that grows at depth in clear lowland lakes. It has a restricted distribution in Europe and Asia, with the core of its European range being Ireland and Scotland. It is rare and declining in most countries. The Slender Naiad occurs in 55 lakes in counties Clare, Donegal, Galway, Kerry and Mayo, with most sites found near the west coast. It is a glacial relict species that does not readily colonise new sites, rather it has occupied the same lakes throughout the Holocene.

The Slender Naiad has exacting environmental requirements that include clear water, moderate alkalinity and circum-neutral pH. It is typically found in habitat 3130, and is highly sensitive to environmental change, particularly to reduction in the amount of light reaching the lake bed. Wastewaters, agriculture and forestry increase the loads of dissolved and particulate organic matter and nutrients and are the significant pressures impacting on the species in Ireland. Continuation and intensification of agricultural and forestry uses on peat and peaty soils are a particular concern.

Slender Naiad is considered to have gone extinct in six lakes, three of these extinctions having occurred since the Directive came into force. The species has also suffered recent population collapse owing to eutrophication at Lough Leane, which formerly held the largest population in Ireland and, likely, in Europe.

The Overall Status of Slender Naiad is assessed as *Bad* with a deteriorating trend, which is a change in status from Inadequate in 2019. The deterioration in status is due to habitat degradation and population decline. Effective catchment management is needed to restore the Slender Naiad to favourable status.

Cilian Roden



OVERALL STATUS: BAD

6216 SHINING SICKLE MOSS *(Hamatocaulis vernicosus)*

ANNEX II

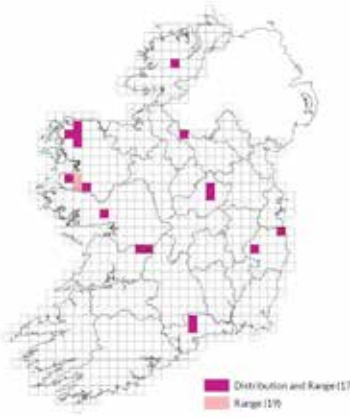
Shining Sickle Moss, or Slender Green Feather-moss (*Hamatocaulis vernicosus*) is a perennial pleurocarpous moss with neatly hooked shoot tips and branches held at around 90° to the stem. Its longitudinally pleated leaves taper gradually from a broad base and are strongly curved from the middle. The leaf bases are often distinctively tinged red, with redness often concentrated in a patch at the top of the stem where it bends over. This species is dioecious (male and female reproductive organs occur on separate plants). Sporophytes are very rare across its global distribution and have never been recorded in Ireland. As specialised asexual propagules are unknown, reproduction and spread must occur by fragmentation.

Hamatocaulis vernicosus has a circumboreal distribution and is widespread across Europe, although it is listed as Vulnerable on the European red list of bryophytes, as many populations have been lost due to destruction of wetland habitats. It is currently known from 16 localities in Ireland, five of which have been discovered since the last reporting period. These populations are scattered across Ireland, with large populations in the lowlands, and smaller more scattered populations in the uplands.

The favoured habitat of *Hamatocaulis vernicosus* is transition mires, intermediate fens and flushes where there is an influence of mineral-rich groundwater. It does not occur in strongly calcareous habitats, preferring sites with a neutral to mildly basic pH.

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. Although undergrazing and possible impacts from climate change have been recorded in the current monitoring period, there are no significant pressures currently impacting the species on a national scale. Therefore the Overall Status is assessed as *Favourable*, as it has been for the last three assessments, and the trend remains stable.

Rory Hodd.



OVERALL STATUS: FAVOURABLE

1395 PETALWORT *(Petalophyllum ralfsii)*

ANNEX II

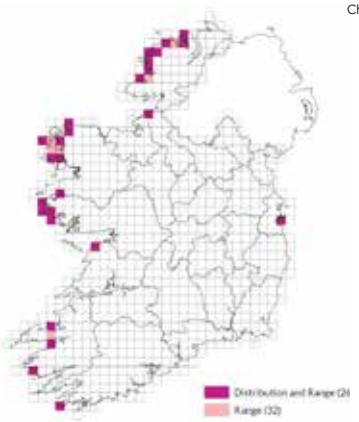
Petalwort (*Petalophyllum ralfsii*) is a thallose liverwort that is a pioneer species of damp and compacted bare sand, and of short turf in coastal areas. It grows mainly in base-rich dune slacks and machair, where inundation occurs during the winter.

The species forms small thalli, typically less than 1 cm across, that resemble a miniature lettuce, due to the presence of erect, parallel lamellae on the upper surface of the thallus. During the summer, the above-ground parts of the plants often die back and the plant persists as underground tubers. Thalli are often solitary, but can also grow in mats consisting of many individuals. This is a dioicous species (male and female parts are borne on separate plants) and sporophytes are produced in spring and early summer. It is thought that, if environmental conditions become unsuitable for the species, spores can persist in the soil until conditions once again become suitable for the production of new plants. No specialised asexual propagules are known, but plants can reproduce clonally.

The distribution of *Petalophyllum ralfsii* in Europe is Mediterranean-Atlantic, and Ireland has one of the largest populations of this species in Europe. Within Ireland, most populations occur on the west coast, with one extant population known from the east coast. Human disturbance and high levels of grazing are beneficial to this species, as they maintain a short turf and open, compacted sand, enabling the species to persist. However, overgrazing by livestock can lead to eutrophication and poaching which is damaging to the species, and climate change and coastal erosion are recognised as potential threats in the future.

The Overall Status of *Petalophyllum ralfsii* remains *Favourable* with a stable overall trend.

Christina Campbell



OVERALL STATUS: FAVOURABLE

1376 MAËRL *(Lithothamnion corallioides)*

ANNEX V **OVERALL STATUS: BAD**

1377 MAËRL *(Phymatolithon calcareum)*

ANNEX V

Lithothamnion corallioides and *Phymatolithon calcareum* are Annex V species of calcified red seaweed and two of a number of species collectively known as Maërl. These slow-growing species live freely over mud, sand or gravel substrates. Morphology is variable but frequently presents as branched nodules. Differentiation in the field can be difficult but *Phymatolithon calcareum* may be slightly larger than *Lithothamnion corallioides* and may form a more pronounced stag-horn morphotype. Individuals may be 4-7 cm across and, whilst alive, are usually pink or brownish in colour but appear a blanched white when dead. Maërl species in Ireland are considered habitat-forming species and are often frequently incorrectly thought of as coral because of the calcareous bodies and broad similarity in shape.

The distribution of Maërl species is influenced by temperature, salinity and light penetration. Although slow-growing, and only growing when temperatures exceed 12-13°C, where abundant they can form an extensive covering of the underlying substrate. Species are limited by the penetration of light to the substrate and are usually found within a depth of less than 20 m, occasionally 30 m, but always below the lowest astronomical tide. In Ireland, more than 85% of Maërl habitat is recorded within those bays sheltered to some extent from large swell waves on the Atlantic coast, from Roaringwater Bay in Cork to Mulroy Bay in Donegal.

The fauna within Maërl beds is very diverse, and a number of rare species occur, including the rare filamentous red alga *Spyridia filamentosa*, a number of rare anemones, *Edwardsia claparedii*, *Scolanthus callimorphus*, *Mesacmaea mitchellii* and *Aureliana heterocera*, and the possibly endemic epiphytic algae *Gelidiella calcicola*.

The Overall Status of Maërl remains *Bad* with a deteriorating trend, as in 2019, due to the deterioration in the quality of the Maërl beds caused by the deposition of pseudofaeces and/or extensive algal cover on the beds, the presence of negative indicator species such as the opportunistic ascidian *Ascidiella aspersa,* and the presence of the invasive alien species *Sargassum muticum.*

MERC

OVERALL STATUS: BAD

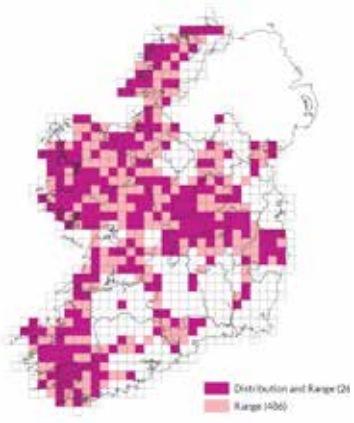
1400 WHITE CUSHION MOSS *(Leucobryum glaucum)*

ANNEX V

White Cushion Moss (*Leucobryum glaucum*) is a densely tufted moss, forming glaucous green cushions which can extend to 1 m across and to 15 cm high. The plant can hold water like a sponge. Male and female parts are on separate plants and this species rarely produces sporophytes in Ireland. It grows in acidic mires, including wet heath, raised and blanket bog, and is widely distributed throughout Ireland. The current taxonomic concept of *Leucobryum glaucum s.str.* follows recent molecular and morphological research. Deep and extensive hummocks of *Leucobryum glaucum* plants of open moorland and heath are likely to remain as *L. glaucum*, albeit in the new, more narrowly defined sense. However, smaller plants of *Leucobryum* in open habitats and others in shaded habitats could be either *L. glaucum* or *L. albidum*. At present the distribution of *L. glaucum s.str.* is incompletely known, but will probably not be too different from that given in the 2014 Atlas of British and Irish brophytes.

Although some of the habitats in which the species occurs are impacted by pressures, there is enough habitat of sufficient quality to support the species and there is no evidence that pressures are operating to compromise the status of this species. Therefore the Overall Status of this species has been assessed as *Favourable*, as in the previous assessment, with a stable trend.

Neil Lockhart



OVERALL STATUS: FAVOURABLE =

1409 *SPHAGNUM* SPECIES *(Sphagnum* spp.*)*

ANNEX V

Sphagnum mosses are the key peat-forming species in most acid bogs, including raised bogs and blanket bogs, and can occur in a variety of other wetland habitats such as wet heaths, wet woodland, transition mires and alkaline fens. These mosses usually form carpets or hummocks made up of vertically growing shoots and can hold up to 20 times their own dry weight in water. Their morphology depends on the wetness and exposure of the habitat but all require high rainfall to survive. There are 33 *Sphagnum* species recorded from Ireland out of a total of c. 55 known species recorded in Europe.

Collection of *Sphagnum* spp. is unlikely to pose a conservation problem. However, although this genus occurs in many widespread habitats, the condition of these habitats is considered to be inadequate due to pressures such as peat extraction, drainage and eutrophication and as a result the taxon's future prospects are rated as Inadequate. The Overall Status for the group is thus *Inadequate*, as in the last three monitoring periods, and the trend remains stable.

Robert Thompson

OVERALL STATUS: INADEQUATE

1413 *LYCOPODIUM* GROUP *(Lycopodium* spp.*)*

ANNEX V

Clubmosses (family Lycopodiaceae) are an ancient group of vascular plants that, like ferns, produce spores rather than seeds. In Ireland four species of Clubmoss are included under the *Lycopodium* species group (code 1413): *Diphasiastrum alpinum* (Alpine Clubmoss), *Huperzia selago* (Fir Clubmoss), *Lycopodium clavatum* (Stag's-horn Clubmoss) and *Lycopodiella inundata* (Marsh Clubmoss). The first three occur on upland heaths, bogs and rocky areas, while *Lycopodiella inundata* is a lowland species, found on lake margins and on open patches on peaty soil in heathland, flushes and bog. *Huperzia selago* is the most widespread and frequently occurring of the four. *Diphasiastrum alpinum* and *Lycopodium clavatum* are much less common and are largely restricted to high mountain sites. *Lycopodiella inundata* is the rarest of the four species. There is no evidence of the exploitation or commercial collecting of any of these species in Ireland.

Excessive grazing has been identified as a negative pressure on habitats for this group nationally, particularly on lower-altitude sites for *Huperzia selago*. The Overall Status of *Lycopodium* spp. is assessed as *Inadequate*, based on unfavourable assessments for the Habitat for the species and Future prospects parameters for *Huperzia selago* and *Lycopodium clavatum*. *Lycopodium clavatum* also received an unfavourable assessment for Population. The overall trend in conservation status is stable. This assessment result is unchanged from 2019.

Orla Daly

OVERALL STATUS: INADEQUATE

1378 *CLADONIA* *(Cladina* morphotype*)*

ANNEX V

The former genus *Cladina* is no longer recognised as a taxonomically valid unit, even as a subgenus, consisting as it does of at least two unrelated groups, with a similar morphology derived by convergent evolution, and it is more useful to refer to the group here as the Reindeer Lichens. Currently there are four species of Reindeer Lichen confirmed from Ireland: *Cladonia arbuscula*, *C. ciliata*, *C. portentosa* and *C. rangiferina*. *Cladonia portentosa* and *C. ciliata* are the commonest and most widespread of the four in Ireland. A fifth species, *C. azorica*, has also been recorded in Ireland, from two locations but recent research has questioned its taxonomic standing and further research is required.

Reindeer Lichens, collectively, are found on low-productivity acid soils, predominantly on drier soils but extending on to drier bog peats. They are poor competitors with vascular plants, particularly grasses, and require habitats where vascular plant vegetation is naturally supressed and low, or set back by periodic fires or by grazing. In Ireland they occur in a wide range of habitats, including dry heaths, wet heaths, alpine and subalpine heaths, raised bogs, blanket bogs, siliceous screes, rocky slopes, fixed coastal dunes, dune heaths, mature vegetated shingle and on rocks, including in old Oak woodland.

No evidence of the exploitation/commercial collecting in Ireland of any of the Reindeer Lichen species has been found. The Overall Status of this taxon is *Inadequate* due to pressures on the habitats in which it occurs. The overall trend has been assessed as stable as there is still likely to be sufficient habitat to support populations of these species. This assessment is unchanged since the previous reporting period.

Roy Anderson

OVERALL STATUS: INADEQUATE

1013 GEYER'S WHORL SNAIL *(Vertigo geyeri)*

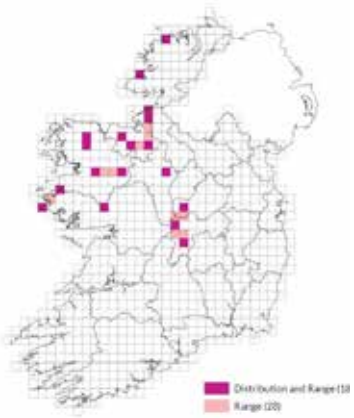
ANNEX II

Vertigo geyeri is one of eight species of whorl snail (genus *Vertigo*) present in Ireland. The whorl snails are among the smallest of the Irish land molluscs and *V. geyeri* is less than 2 mm tall. *V. geyeri* is consistent in where it lives, within the saturated and decaying roots of small sedges, particularly Long-stalked Yellow Sedge (*Carex lepidocarpa*) and Common Yellow-sedge (*C. demissa*), and associated fen mosses (e.g. *Scorpidium revolvens* and *Campylium stellatum*). It is stringent in its requirement for saturated water conditions in calcareous, groundwater-fed flushes. This microhabitat is generally found in mosaics of suitable patches that are often limited in size to a few square metres within wider fen habitats, which in Ireland can themselves fall within wider site habitats as diverse as raised bog laggs, transition mires, lake shores, hill or mountain slopes, and wetlands associated with coastal dunes and machair. It requires an openness of habitat that prevents succession by shade-loving plants and more competitive shade-loving snails. There is a general requirement for stable conditions and *V. geyeri* is particularly sensitive to changes in hydrology. Within its macro-habitat, *V. geyeri* needs constancy of hydrological conditions, but with enough variation to provide refugia for the meteorological extremes that the habitat must endure.

Vertigo geyeri is found locally in calcareous fens in central Ireland and more widely in western coastal counties from Galway to Donegal. *V. geyeri* is considered to be under threat in Ireland and was assessed as Vulnerable on the Irish Red List.

The Overall Status of *V. geyeri* is *Bad* and deteriorating, the same result as in 2019. This constitutes a continued decline for the species including a contraction in its range. The main pressures acting on the species include undergrazing, the drying out of suitable habitat (possibly due to climate change-related changes in rainfall patterns), and drainage.

Roy Anderson



OVERALL STATUS: BAD

1014 NARROW-MOUTHED WHORL SNAIL *(Vertigo angustior)*

ANNEX II

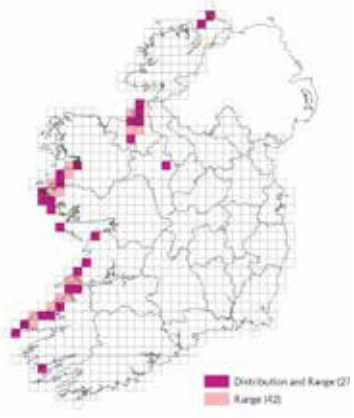
Vertigo angustior is one of eight species of whorl snail present in Ireland. The whorl snails are amongst the smallest of the Irish land molluscs and *V. angustior* grows up to 2 mm tall. The shells of *V. angustior* are yellowish-brown with fine vertical raised lines (striations). The mouth of the shell is on the left when viewed from the front, as the shell is sinistrally coiled, and has five teeth.

The Irish distribution of *V. angustior* is primarily western, mainly found on Atlantic-facing dune systems from Kerry to Donegal, though there are some inland sites. Habitats occupied by *V. angustior* include dunes, damp grassland, fen and marsh, salt marsh and floodplain. While *V. angustior* may be found in a wide range of habitat types, the specific micro-conditions required by the species are rare, and a lot of habitat that is "almost correct" is devoid of the snail, while other sites have an appropriate ecotone restricted to a narrow band only a few metres wide.

V. angustior is considered to be under threat in Ireland and Europe and has been assessed as Vulnerable on the Irish and European Red Lists.

The Overall Status of *V. angustior* is *Bad* and deteriorating. This is a change from the Inadequate deteriorating assessment of 2019, and constitutes a continued decline for the species including a constriction in its range. The main pressures acting on the species include the drying out of otherwise suitable habitat (possibly due to climate change-related changes in rainfall patterns), and inappropriate grazing levels. Lesser pressures include trampling and coastal erosion.

Roy Anderson



OVERALL STATUS: BAD

1016 DESMOULIN'S WHORL SNAIL *(Vertigo moulinsiana)*

ANNEX II

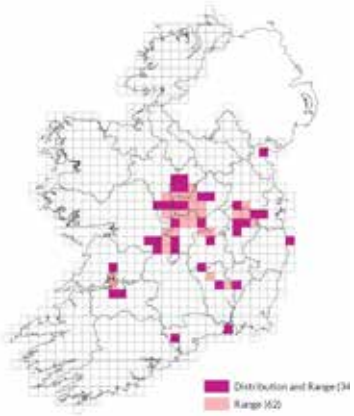
Vertigo moulinsiana is the largest of all the *Vertigo* species, growing to between 2.2 and 2.7 mm in height. All whorl snails favour damp or wet habitats, where they live mostly in moss, leaves and decaying vegetation. They feed on bacterial films and decaying vegetation. *V. moulinsiana* lives on living and dead stems and leaves of tall wetland plants. It has a requirement for tall structured vegetation containing tall riparian grasses and sedges, particularly Reed Sweet-grass (*Glyceria maxima*), Common Reed (*Phragmites australis*), Greater Pond-sedge (*Carex riparia*) and Great Fen-sedge (*Cladium mariscus*).

Sites are usually at the upper end of a hydroseral succession and unmanaged, allowing the build-up of litter. As well as the tall vegetation structure of the habitats, *V. moulinsiana* requires a stable hydrology with the water table at, or slightly above, the ground surface for much of the year and very low-amplitude seasonal flooding. It climbs tall vegetation in the summer and autumn, but in drought conditions aestivates on the lower leaves of plants. In winter it descends to the litter level and becomes less active.

Populations *of V. moulinsiana* are found widely in central and southern Ireland. It is found mainly in calcareous, lowland wetlands, especially swamps, fens and marshes bordering rivers, canals, lakes and ponds. *V. moulinsiana* is considered to be under threat in Ireland and Europe and was assessed as Endangered on the Irish Red List.

The Overall Status of *V. moulinsiana* is assessed as *Inadequate* and deteriorating, unchanged from the 2019 assessment. The main pressures are associated with natural succession resulting in species composition change and drying out of the habitat, including drying out as a result of drainage. The sites are mainly unmanaged because of their natural wetness, so grazing and mowing are less significant impacts on a national scale, though they do occur on some sites.

John Brophy



OVERALL STATUS: INADEQUATE

1024 KERRY SLUG *(Geomalacus maculosus)*

ANNEX II, IV

Geomalacus is a genus of slugs found only in Spain, Portugal and Ireland. This species, *Geomalacus maculosus*, remains the only *Geomalacus* species found outside the Iberian Peninsula. Kerry Slug individuals vary in colour from black with white spots to brown with cream spots. The black form is found in open habitat and the brown form in woodland. This colour variation is related to the amount of dark pigment in their bodies; animals living in open habitat produce more dark pigment in response to increased insolation.

The Kerry Slug occurs in two main habitats: woodland, and blanket bog/wet heathland. It is found on trees in woodland and on boulders in the open habitats, and feeds on mosses, lichens and liverworts. It only occurs on acidic geology, mainly on Devonian Old Red Sandstone in Ireland, although it was recently observed on granite at a locality in Connemara where the species is considered introduced.

Kerry Slugs emerge to feed in very damp and humid conditions, on very cloudy warm damp days either during or after rain, or at dawn, dusk and during the night if it is not too cold or dry. In a 2011 study, the number of slugs seen in open habitats was correlated to the amount of previous rainfall, with fewest seen when conditions were dry. Studies and evidence from environmental impact assessments of potential windfarm sites have shown that Kerry Slug can be abundant on conifer trees. The species will also recolonise boulder habitat when the wood is clearfelled.

There are no significant pressures on Kerry Slug, and the Overall Status is *Favourable* and improving, driven in part by the large populations in conifer plantations. This is the same result as in 2019.

Roy Anderson

OVERALL STATUS: FAVOURABLE

1029 FRESHWATER PEARL MUSSEL *(Margaritifera margaritifera)*

ANNEX II, V

The Freshwater Pearl Mussel is a large, long-lived, bivalve mollusc found in clean, fast-flowing rivers. Individuals can grow to very large sizes relative to other freshwater molluscs, slowly building up thick calcareous shells in rivers with relatively soft water and low levels of calcium. In natural conditions, individual mussels can live to over a hundred years of age in Ireland. Following genetic research, the pearl mussel population in the River Nore (formerly *M. durrovensis*, species code 1990) is included within the reporting for the *Margaritifera margaritifera* taxon (species code 1029).

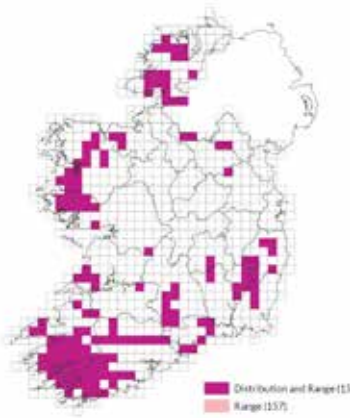
The Freshwater Pearl Mussel has a complex life cycle. Mussels mature between 7 and 15 years of age, and have a prolonged fertile period lasting into old age. The species produces glochidial larvae that use a temporary salmonid host, typically Atlantic Salmon and Sea Trout in Ireland, but also Brown Trout. Juvenile mussels occupy interstitial habitats in the river bed for 5 years or more.

The Freshwater Pearl Mussel is critically endangered in Ireland and across Europe as a result of habitat deterioration: a combination of hydrological and morphological changes, sedimentation and enrichment. Riverbeds have become so clogged with silt, algae and rooted plants that young mussels can no longer survive. In many rivers, adult mussels have become stressed and are prematurely dying owing to habitat deterioration.

The pressures impacting on the species come from a wide variety of sources (e.g. forestry, farming, pollution from urban wastewater, and development activities), often quite removed from the habitat of the species. The species also suffers direct impacts from in-stream works such as channelisation, bridge repairs/construction and recreational fishery structures. Flow changes, caused by activities such as land drainage, have been highlighted as an important contributor to the species' demise. Ensuring the long-term future of the Freshwater Pearl Mussel requires significant, integrated catchment management to restore the natural hydrological regime and to reduce losses of sediment and nutrients from all indirect sources.

The Overall Status of the species remains *Bad* with a deteriorating trend, as in 2019.

Evelyn Moorkens



OVERALL STATUS: BAD

1092 WHITE-CLAWED CRAYFISH *(Austropotamobius pallipes)*

ANNEX II, V

The White-clawed Crayfish (*Austropotamobius pallipes*) is the largest freshwater arthropod found in Ireland. There is good evidence that the Irish population is an introduced one from a French population dating from around 1680 and, in support of this, the White-clawed Crayfish of France, UK and Ireland have been found to be genetically rather uniform.

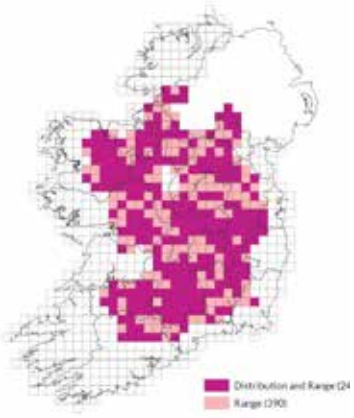
In Ireland, White-clawed Crayfish utilises a broad spectrum of habitats extending from smallest streams and drains to large rivers and medium-sized lakes wherever there is sufficient lime. The distribution in Ireland reflects this need for lime as it is widespread in central Ireland but absent from areas with acidic geology such as Kerry and west Cork, the west of Galway and Mayo, and most of Donegal.

The White-clawed Crayfish is generally associated with good-quality waters, but this is not necessarily the case in Ireland where it can occur in water of lower quality. It is now generally considered as a keystone species rather than as a bioindicator, because of its traditional importance and its large size, longevity and dominant position in the ecosystem.

White-clawed Crayfish faces an existential threat from twin impacts of non-indigenous crayfish species (NICS) and Crayfish Plague, which is a water-borne disease specific to freshwater crayfish caused by the oomycete *Aphanomyces astaci*. NICS impact the White-clawed Crayfish through direct predation and competition but also act as carriers of Crayfish Plague.

The Overall Status of the species is *Bad* with a deteriorating trend, unchanged from the 2019 assessment. The *Bad* status is due to population decline and poor future prospects for the species due to the presence of the Crayfish Plague organism across seventeen catchments.

Brian Nelson



OVERALL STATUS: BAD

1065 MARSH FRITILLARY *(Euphydryas aurinia)*

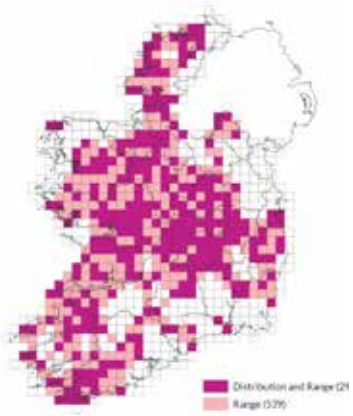
ANNEX II

The Marsh Fritillary (*Euphydryas aurinia*) is a butterfly with chequered wings marked in brown, orange, black and white. The adults have a short flight period of 4-6 weeks in May and June. Most Marsh Fritillary are sedentary, rarely dispersing beyond 750 m, although long-range dispersal over longer distances of 5 to 20 km can occur allowing colonisation and functioning of metapopulations. The larval stage is the longest part of the annual lifecycle, lasting nine months. From August until October the brown-black spiny caterpillars feed together on Devil's-bit Scabious (*Succisa pratensis*) leaves, protected inside a silken web. During the winter they hibernate together in a small web hidden within the vegetation. The caterpillars emerge on sunny days in February or early March to feed, basking on exposed dead grass or leaf litter. As their feeding requirements increase, they separate into smaller and smaller groups, eventually becoming solitary feeders. The larvae pupate in late April, with adults emerging two to three weeks later.

Marsh Fritillary requires a low, open sward, ideally 25 cm or less, with abundant foodplant. The quality and quantity of the food plant is an important determinant of population size. However, the adults also require access to nectar supplies and areas of taller vegetation which provide shelter and perches. Colonies have been recorded on sand dunes, fens, cutover raised bogs, blanket bogs, wet heaths, unimproved wet, neutral or calcareous grasslands, calcareous and coastal heaths. These sites are maintained by a variety of management, accidental or deliberate, including grazing and burning. Most sites are in lowland situations below 200 m, but it has been recorded up to 350 m and perhaps higher in recent years. Colonies also exist on exposed coastal headlands and small offshore islands which indicates a tolerance of exposed conditions.

The Overall Status of Marsh Fritillary is *Favourable*, which represents a genuine improvement since the Inadequate assessment reported in 2019. The change is because of an improvement in the future prospects for range, population and habitat for the species. Threats and pressures do exist but are not considered to be severe or extensive. The overall trend is improving.

Brian Nelson



OVERALL STATUS: FAVOURABLE ▲

1095 SEA LAMPREY *(Petromyzon marinus)*

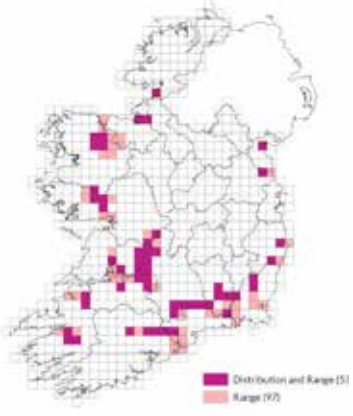
ANNEX II

The life cycle of the Sea Lamprey (*Petromyzon marinus*) contains a freshwater phase followed by a marine phase. Adult Sea Lamprey at sea are external parasites on host fish or marine mammals and grow in length from 60 to 100 cm before migrating in spring into freshwater to excavate redds or spawning nests in gravelled areas of large rivers. They are a notable parasite on basking shark and have been frequently observed attached. Upriver migration occurs at a time of generally falling water levels and substantial spawning activity has been recorded in gravelled areas downstream of large weirs in the major Irish SAC rivers. Sea Lamprey spawning has also been recorded in the far upper reaches of river systems where there are no barriers to upstream migration, such as the Laune in Co. Kerry. Substantial areas of gravel suitable for spawning have been recorded in SAC main-stem rivers but low utilisation of these areas by spawning Sea Lamprey has been recorded, both upstream and downstream of barriers to migration.

Egg laying follows nest excavation and the resulting larvae or 'ammocoetes' hatch out within days. These swim or drift downstream to areas of fine sediment into which they can burrow. The larva 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 the juvenile Sea Lamprey migrate downriver to estuarine waters and the open sea in late autumn-winter.

The Sea Lamprey is listed in the most recent Irish Red Data Book as Near Threatened. Pressures on Sea Lamprey include barriers to upstream migration (e.g. weirs), which limit access to spawning beds and juvenile habitat; changes in precipitation due to climate change; and impacts from fishing on prey species availability. The Overall Status of this species is assessed as *Bad*, as in the last two assessments, but there is a change in trend from stable to deteriorating.

Eddie Dunne



OVERALL STATUS: BAD ▼

1096 BROOK LAMPREY *(Lampetra planeri)*

ANNEX II

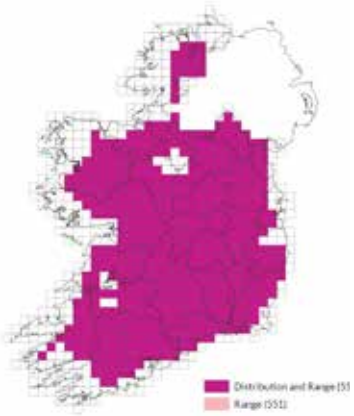
The Brook Lamprey (*Lampetra planeri*) is the smallest of the three lampreys recorded in Ireland, typically reaching no more than 15-18 cm in length. Unlike the Sea lamprey and River Lamprey, the Brook Lamprey is non-parasitic and non-migratory as an adult, living its entire life in freshwater. Adults spawn in spring, excavating shallow nests in relatively small-sized gravels in areas of reduced flow. After hatching, the larvae ('ammocoetes') drift or swim downstream to areas of riverbed or margins with fine silt deposits. They burrow into this substrate 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.

The majority of records for Brook Lamprey are for the larval life stage of *Lampetra* sp., in addition to a small number of adult and post-metamorphic juvenile (macrophthalmia) records. While the sampling methodology for larval lamprey is robust, the reliability of the data is not guaranteed. It is not possible to distinguish between the larvae of Brook Lamprey and River Lamprey and it is therefore likely that a proportion of records in the distribution map are of River Lamprey. Larval records upstream of substantial barriers on many river systems are more likely to be Brook Lamprey than River Lamprey, as the latter is a migratory species and its upstream passage can be impeded or prevented by major barriers.

Due to the widespread distribution of Brook Lamprey, while several pressures have been identified, these pressures are often indirect, usually acting in combination, and deemed as having low influence. Their effects are typically restricted to specific catchments and hence act on a minority of the population.

The Overall Status remains *Favourable*, as it has been for the last three reporting periods.

Eddie Dunne



OVERALL STATUS: FAVOURABLE

1099 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 riverine sections comprising fine gravels and small stones. After hatching, the larvae or 'ammocoetes' drift or swim downstream to areas of riverbed or margins with fine silt deposits. They burrow into this bed material where they live as filter feeders over a period of years before transforming into young adult fish and migrating downriver to estuarine and marine habitats. As adults they are parasitic, attaching to and feeding on larger fish in coastal waters. They can grow up to 25-30 cm at maturity, at which stage they return to freshwater habitats to spawn, attracted by pheromones exuded by their larvae within the system. The adult fish die after spawning.

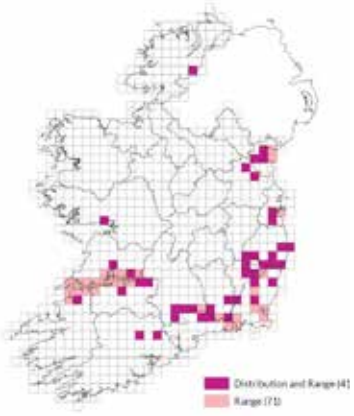
River and Brook Lamprey are indistinguishable as larvae. The mature adult forms are, however, clearly distinguishable based on body size. River and brook Lampreys are considered by many in the same context as the brown trout / sea trout pairing, with a similar absence of genetic discriminators.

The inability to distinguish between River and Brook Lamprey larvae, and the challenges associated with sampling for adult River Lamprey, meant that an evaluation of their actual range and population size was unknown in the previous reporting period. Records for adult River Lamprey, though difficult to obtain, are considered more appropriate for making a true assessment of this species. A targeted sampling programme for adult River Lamprey was instigated for the current reporting cycle.

Habitat quality was considered as deteriorating due to a range of prevailing pressures and future threats including barriers to migration, increases in river discharge due to several factors including climate change, nutrient pollution due to anthropogenic activities, and impacts at sea such as commercial fishing that may impact on prey or host species.

The Overall Status assessment for River Lamprey has changed from Unknown to *Inadequate* with more accurate data recorded in this reporting period.

Sean Rooney



OVERALL STATUS: INADEQUATE

5046 KILLARNEY SHAD *(Alosa killarnensis)*

ANNEX II, V

The Killarney Shad (*Alosa killarnensis*) is unique to Ireland and is only recorded in Lough Leane in the Killarney National Park SAC. It is listed in the Irish Red Data Book as 'Vulnerable'. Anecdotal reports and observations indicate that the species spawns within Lough Leane along shallow gravelled shores and on gravel shoals adjoining the various islands. The adult fish live in shoals in the lake, feeding on zooplankton. Thus, the full life-cycle is undertaken within the lake. The species is considered to derive from ancestral post-glacial populations that became isolated in the lake. Lough Leane has unimpeded connectivity to the transitional waters of Castlemaine Harbour via the River Laune, but has never been found outside Lough Leane.

The continual presence of adult fish in successive fish surveys indicates an on-going successful spawning effort. The quality of the habitat is considered good on the basis of water quality and physical habitat requirements of the species. Lough Leane is unique among Irish lakes in that its fish community contains a predominance of native species and an absence of Pike, a significant predator, and of widespread introductions – the Roach or Dace. However, Bream and Rudd x Bream hybrids were recorded in Lough Leane for the first time in the most recent survey (2024). Bream has the potential to quickly alter both the physico-chemistry and community composition of limnic systems, mostly through indirect bottom-up effects.

Lough Leane has been subject to considerable pressure, primarily due to nutrient enrichment. Tourism in Killarney leads to a very substantial, transient increase in human population over several months each year with a consequent pressure on water supply and the local wastewater treatment works. The Killarney Shad population appears to have survived impacts of eutrophication in the 1970s and early 1980s. However, the potential for adverse impact on Lough Leane from anthropogenic eutrophication, particularly in combination with reduced summer water levels, remains.

The entire range of the Killarney Shad is protected within Killarney National Park. The Overall Status is assessed as *Favourable*, as it has been in the last three assessments, and the trend remains stable.

Emma Morrissey

OVERALL STATUS: FAVOURABLE

1103 TWAITE SHAD *(Alosa fallax)*

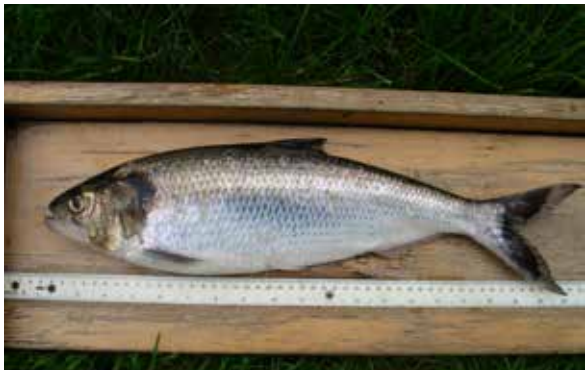
ANNEX II, V

Twaite Shad (*Alosa fallax*) is a member the herring family (*Clupeidae*). Its range extends from Iceland (at its northern-most limit) south to Morocco, east to Scandinavia and the Baltic Sea and it occurs throughout the Mediterranean as far east as Turkey.

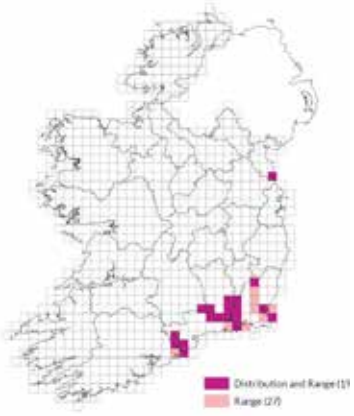
The species spends most of its life in estuaries and coastal waters but it returns to freshwaters to spawn during April to July. Twaite Shad appears to exhibit natal homing and the species is iteroparous, with spawners from previous years often representing over 50% of the spawning run. Spawning occurs in main-stem rivers with a moderate gradient and the substrate of the spawning grounds is dominated by cobbles and boulders with a high percent cover of algae, mosses and aquatic plants. The species matures at 2-9 years, with the majority of females maturing at age 4-5 years and the males one year earlier. Spawning takes place at night and eggs and sperm are broadcast into the water column. The majority of fertilised eggs sink to the channel bed and remain in crevices until they hatch 3-5 days later. Juveniles can reach up to 100 mm at the end of the first year and limited knowledge indicates that Irish Twaite Shad may live in estuarine waters for at least two full years prior to going to sea.

In Ireland, there are four spawning populations which occur in the Barrow, Nore, Suir and Munster Blackwater rivers, all of which are SACs for this species. Twaite Shad can migrate long distances into freshwaters but, in Ireland, they spawn in transitional waters at the upper limits of tidal influence.

Numbers of Twaite Shad have declined across its range, with the main causes attributed to dam construction, pollution, overexploitation and habitat destruction. The combined influence of deteriorating water quality, the challenges of climate change and the hydrological and physico-chemical impacts of weirs have implications for the conservation status of this species. The Overall Status remains *Bad*, and the overall trend is now deteriorating, a change from the stable trend reported in 2019.



William Roche



OVERALL STATUS: BAD

5076 POLLAN *(Coregonus pollan)*

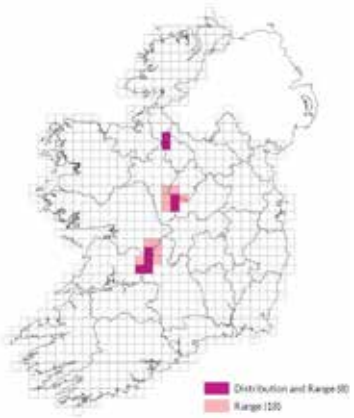
ANNEX V

Pollan (*Coregonus pollan*) is a species of the whitefish or Coregonidae group unique to the island of Ireland. The species is found in three large lakes on the River Shannon – Lough Derg, Lough Ree and Lough Allen – as well as Lough Erne and Lough Neagh in Northern Ireland. With the exception of Lough Neagh, these lakes are characterised by significant areas of deep water where the fish retreats during warm weather. The Coregonidae have a circumpolar distribution and the Irish populations are at the southern extremes of the group's geographical range. The majority of Coregonid species are diadromous, spending part of the life cycle in freshwater and part in the marine. The Irish populations differ in being entirely freshwater in habit.

The Pollan 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. Netting surveys showed Pollan to be distributed throughout the water column in overnight sampling in July and September in all three Shannon lakes. However, similar sampling effort in February recorded a virtual absence of the species from the open water. Spawning is thought to occur on gravelled areas in the shallow exposed lake shores in the December-January period. Visual surveys on Lough Ree and Lough Allen have indicated the presence of extensive areas of suitable spawning grounds – exposed shorelines around headlands and islands with shallow-water littoral beds of gravels.

Pollan once constituted a significant proportion of fish biomass in the Shannon lakes; however, that is no longer the case. The extent and intensity of the pressures impacting on the biology and ecology of this species are poorly understood and more investigative work is required. The low numbers of Pollan recorded in Loughs Ree and Derg are a concern and the Overall Status is assessed as *Bad* with a stable trend, as in 2019.

Emma Morrissey



OVERALL STATUS: BAD

1106 ATLANTIC SALMON *(Salmo salar)*

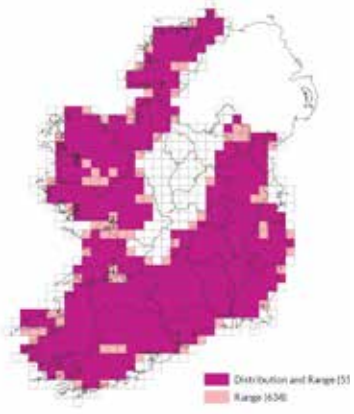
ANNEX II, V

The Atlantic Salmon (*Salmo salar*) is an anadromous species indigenous to the North Atlantic. In freshwater it is found in an arc from northern Portugal in the east, to Connecticut River, New England, United States in the west. The Irish population generally comprises fish that spend two years (small numbers spend one or three years) as sub-adults in freshwater before going to sea as smolts. The majority of fish spend one winter at sea before returning to their natal rivers, mainly during the summer, as grilse. Smaller numbers spend two winters at sea, returning mainly in spring, hence 'spring' salmon. A small proportion of the adult population returns to the sea post-spawning (known at this spent stage as a kelt) and can return to spawn again.

Large potential habitat areas capable of supporting this species on the largest rivers in the country, including the Shannon, Erne and Lee, have been removed from the species' range due to the presence of impassable barriers associated with hydroelectric schemes, preventing use of upstream habitat. In addition, population abundance in general has decreased for this reporting period. However, the area of occupied habitat by Salmon is currently considered sufficient for long-term survival, and the trend in habitat area occupied has not changed since previous reporting periods. The quality of occupied habitat varies enormously between river systems and it is currently unknown whether the habitat quality is sufficient for the long-term survival of Salmon in all occupied habitat areas.

A substantial number of habitat threats and pressures impact Salmon, including aquaculture, declining quality of water and habitat, and physical barriers to migration, including from hydroelectric schemes. Although the protection for this species is in freshwater, there are also marine pressures that are influencing the population viability. The Overall Status is assessed as *Bad* and deteriorating, a decline from Inadequate and stable in the last assessment.

Mike Brown



OVERALL STATUS: BAD

6284 NATTERJACK TOAD *(Epidalea calamita)*

ANNEX IV

The Natterjack Toad (*Epidalea calamita*) is widespread across continental Europe but lives at the edge of its climatic range in Ireland. It is one of only three native amphibians found here and is confined to a small number of coastal sites around the Dingle and Iveragh peninsulas in West Kerry, with one translocated population in Wexford.

The toad is the last of our amphibians to emerge from hibernation, normally appearing at the very end of March or early April. Males take up residence in traditional breeding ponds where, in the evenings, they call to females. Mating pairs form and eggs are laid in strings. In warm weather the resulting 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 due to pond desiccation, good years can see large numbers of strings laid and thousands of juveniles emerge successfully. Consequently, significant population fluctuations can be apparent 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.

Poor water quality is the most common pressure on the species, followed by lack of grassland management and predation of tadpoles and eggs by invertebrates. Also of concern are ponds becoming overgrown with emergent vegetation, making them unsuitable for breeding. Invasive species – New Zealand Pigmyweed (*Crassula helmsii*) and Sea-buckthorn (*Hippophae rhamnoides*) can also cause problems for the toad.

Historical losses in range and population have been recorded, leading to small isolated meta-populations and the risk of further decline. The Overall Status of the species is *Bad*, with a stable trend, as reported in the previous monitoring period.

NPWS

OVERALL STATUS: BAD

1213 COMMON FROG *(Rana temporaria)*

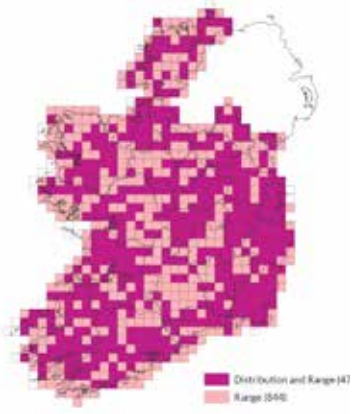
ANNEX V

Common Frog (*Rana temporaria*) is one of only three amphibians native to Ireland. It is a widespread and very abundant species throughout the country, occurring in a broad range of habitats from uplands to urban gardens.

Adults congregate to spawn in ponds, marshes 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, but adult frogs are also an important prey item for several predators including otters and herons. Young frogs spend 2-3 years on land, feeding on terrestrial invertebrates, before returning to freshwater to breed. Life expectancy of 3-4 years would be typical.

The Common Frog is a widespread and very abundant species in Ireland. It is found throughout the country, has a broad habitat niche and is adaptable to changes in land practices. The species has colonised garden ponds in urban areas and drainage ditches in agricultural areas. It appears largely unaffected in Ireland by pollution and disturbance. The most recent national survey estimated the population at over 150 million adults, making it one of the most numerous vertebrates in the country. Given the widespread, abundant and adaptable nature of the frog, there are no significant pressures currently impacting on the conservation status of this species. Overall Status is considered to be *Favourable*, with a stable trend.

Joan O'Neill



OVERALL STATUS: FAVOURABLE

1223 LEATHERBACK TURTLE *(Dermochelys coriacea)*

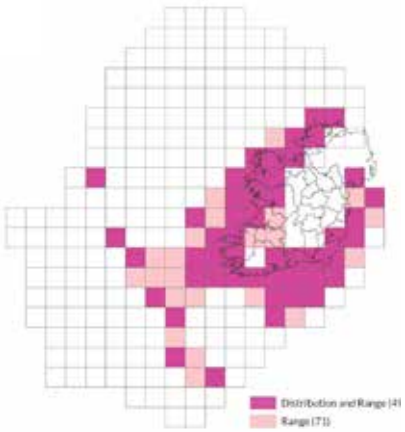
ANNEX IV

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 it, unlike other marine turtles, to forage seasonally into cooler temperate waters. Consequently, Leatherback populations have a very dynamic range. 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 North Atlantic Leatherbacks head north towards cooler temperate waters. Some of these individuals head towards the North-East Atlantic and Irish waters where they forage on jellyfish for the summer months before turning south again in the autumn as water temperatures decline.

There are significant difficulties associated with reporting on this species. Despite previous studies and more recent, vast surveys of the Irish off-shore, as well as work underway elsewhere in the NE and NW Atlantic and in the Caribbean, the population ecology, range and habitat utilisation of this species in the North Atlantic are not fully understood. Although there is evidence of significant declines of leatherbacks 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 some nesting beaches. Nonetheless, mortalities of nesting adults and juveniles is a cause for concern in some areas, and fishing causes further mortality during the animal's trans-Atlantic migrations. The Overall Status of this species is considered *Unknown*.

Ferdia Marnell



OVERALL STATUS: UNKNOWN

1303 LESSER HORSESHOE BAT *(Rhinolophus hipposideros)*

ANNEX II, IV

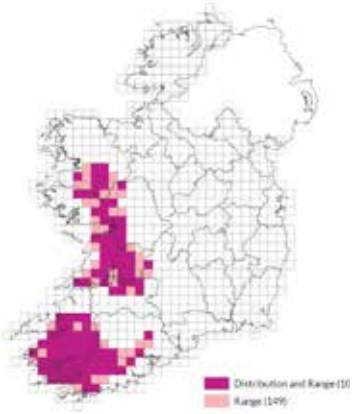
The Lesser Horseshoe Bat (*Rhinolophus hipposideros*) is widely distributed through western, central and southern Europe, as well as northern Africa and the Arabian Peninsula. Its range extends as far east as Uzbekistan. Ireland represents the most north-westerly limit of the species' distribution and here it is largely confined to six west coast counties: Mayo, Galway, Clare, Limerick, Cork and Kerry.

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

Significant range expansion and positive short-term and long-term population trends provide grounds for genuine optimism about the future prospects of this species. Our understanding of roosting requirements continues to improve and investment continues in roost and habitat enhancement. A significant proportion of this bat's summer and winter roosts are protected within SACs. Additionally there is a robust licensing system in place supported and underpinned by a strong planning system. The implementation of, and stakeholder engagement with, the Species Action Plan provides further encouragement.

Overall, the trend is considered to be improving. However, until the distribution gap is bridged in West Limerick/North Kerry, the species' Range, and therefore the Overall Status assessment, remain *Inadequate*.

Sinead Biggane



OVERALL STATUS: INADEQUATE

1309 COMMON PIPISTRELLE *(Pipistrellus pipistrellus)*

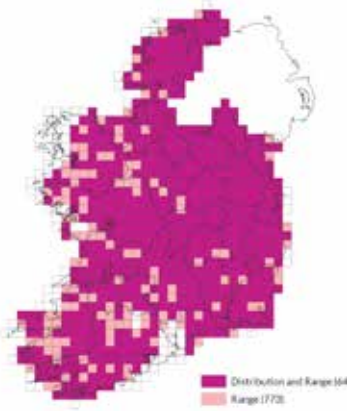
ANNEX IV

The Common Pipistrelle (*Pipistrellus pipistrellus*) is one of Ireland's smallest mammals. It is widespread throughout the country and commonly encountered during bat surveys, although it may be less common or even absent from some parts of the far west. It is a habitat generalist, 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. This species has rarely been found hibernating in Ireland, but the available records for bats in winter are from modern dwelling houses.

This species has a very wide distribution across the island including some off-shore islands and there is no evidence of any decline in Range or in Habitat. The most recent estimates suggest a population size in the order to 2-4 million animals, making it one of the most common mammals in Ireland. Ongoing car-based bat monitoring indicates that the population is increasing. Furthermore, there is no indication of any major pressures currently impacting the population and Future prospects are considered good. Overall, the species is assessed as *Favourable* and the overall trend is demonstrating an on-going increase.

Frank Greenaway



OVERALL STATUS: FAVOURABLE

5009 SOPRANO PIPISTRELLE *(Pipistrellus pygmaeus)*

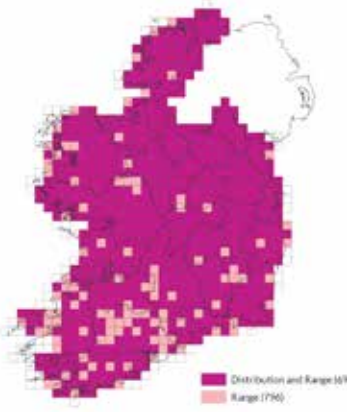
ANNEX IV

The Soprano Pipistrelle (*Pipistrellus pygmaeus*) is present across much of central Europe and into southern Scandinavia and Greece, but may be absent from parts of France and southern Italy. It is the most widespread bat species on the island of Ireland, occurring in all counties including the extreme north, west and south. It is the second most commonly encountered species in the national bat monitoring programme, although its abundance is variable across the island, with no particular north-south or east-west pattern apparent.

Summer roosts are usually in buildings, including modern suburban houses, old abandoned mansions, churches, amenity buildings and farm sheds. Bat boxes are also used. Soprano Pipistrelles 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 >1,500 individuals 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.

The Soprano Pipistrelle is the most widespread bat species on the island of Ireland. Recent estimates for this species suggest a population size in the order of 1.2-2.7 million animals. There are no indications of any major pressures currently impacting populations, and numbers appear to be increasing. The Overall Status assessment is *Favourable* with an improving trend, unchanged from the previous assessment.

Frank Greenaway



OVERALL STATUS: FAVOURABLE

1317 NATHUSIUS' PIPISTRELLE *(Pipistrellus nathusii)*

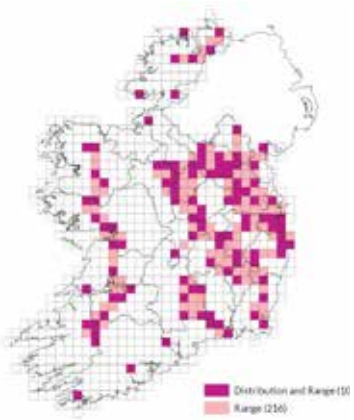
ANNEX IV

The Nathusius' Pipistrelle (*Pipistrellus nathusii*) was recognised as a resident bat species on the island of Ireland following the discovery in 1997 of a maternity colony of 150 bats in Co. Antrim, Northern Ireland. Up to then it was described as a migrant species in Ireland (and Britain) based on a number of autumn and spring records during the 1980s and 1990s. The first bat detector record in Northern Ireland was made in Derry in August 1996, with further detector records from the Republic of Ireland in 1997 and 1998.

This pipistrelle is typically a migrant species, found in eastern Europe in summertime and in south-western Europe in the winter. Ireland and the UK appear to lie in a transitional region, with resident bats being supplemented during winter by the migratory individuals returning from the north-east of the species range. To date, despite extensive survey work and an increasing number of roosts identified in the Republic of Ireland, there has been no maternity roost recorded, nor any confirmed hibernation records for the species. Winter roosts for the species in Europe tend to occur in tree holes, wood piles, crevices in buildings and cliffs.

It is not clear what pressures or threats may impact on this species in the Republic of Ireland. Elsewhere in its European range, mortalities at wind farms are a significant concern, particularly during periods of migration. For now, no pressures are considered significant but wind farms are listed as a potential threat. Although the species' range in the Republic of Ireland has steadily increased over the last 15 years, and population modelling suggests that its numbers are also increasing, it has not been possible to establish favourable reference values for either of these parameters. Therefore, while significant areas of suitable habitat remain to be exploited, and future prospects are generally good, the Overall Status assessment remains *Unknown*, as it has been for the last two reporting periods.

Frank Greenaway



OVERALL STATUS: UNKNOWN

1322 NATTERER'S BAT *(Myotis nattereri)*

ANNEX IV

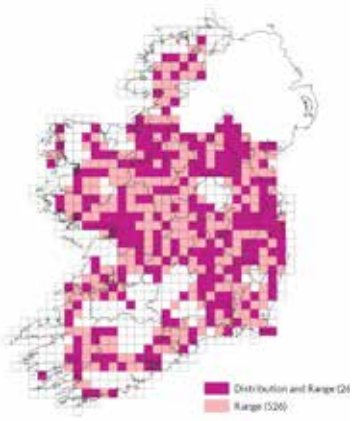
The Natterer's Bat (*Myotis nattereri*) is widespread across Europe and is found from Portugal and north-west Africa to the Urals and the near East. It is widely distributed in Ireland, though records are relatively scarce.

Summer roosts are normally in old stone buildings or masonry bridges. Usually only small numbers of bats are present, often hidden in narrow spaces where they are difficult to locate. A few larger roosts (>50 bats) have been found in Church of Ireland churches. A number of important autumnal swarming sites have been identified. This species is seldom recorded in winter, but occasionally individuals have been observed in bridges, mines and caves. Detector records have been limited due to the difficulty of distinguishing the *Myotis* species, but, more recently, improved bat ID technology is allowing detector records to be distinguished and confirmed more reliably.

This bat gleans most of its prey (spiders, beetles, caterpillars, moths) from foliage, rather than catching it in the air. Woodland habitats, river corridors and pastures appear to be favoured for foraging.

Pressures impacting on Natterer's bats can be divided into those affecting roosts and those reducing the quality or availability of their foraging habitat, although their impact is considered to be low. A monitoring scheme has been set up and is being gradually expanded nationwide. It will be several years before Population trend can be calculated and in the meantime the trend and therefore future prospects of this parameter are unknown. Nonetheless, the Overall Status for the species remains *Favourable*, as in the last three assessments.

Frank Greenaway



OVERALL STATUS: FAVOURABLE

1314 DAUBENTON'S BAT *(Myotis daubentonii)*

ANNEX IV

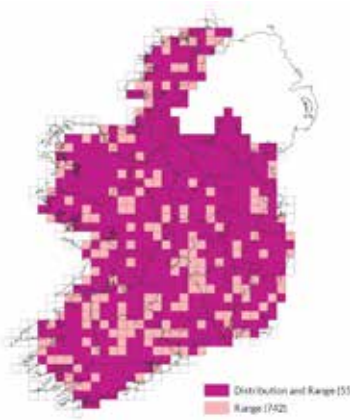
The Daubenton's Bat (*Myotis daubentonii*) is found throughout Ireland. It forages over water and is particularly associated with slow-moving rivers and with lakes. It favours waterways with riparian vegetation, particularly broadleaf woodlands, and is positively associated with good water quality and invertebrate diversity. It is less likely to be present where there are street lights or flood lights. It also tends to avoid areas of peatland and is negatively associated with increasing altitudes. This species forages over the surface of water bodies, gaffing aquatic insects such as non-biting midges, caddis-flies and mayflies with its large feet.

The majority of roosts known for this species are in masonry bridges and stone buildings such as castles and ruins. Confirmed hibernacula for the species are extremely rare in Ireland. 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 of 55,000-77,000 individuals. Ongoing monitoring indicates a relatively stable trend. There is no evidence of decline in suitable habitat. Although some pressures/threats have been noted, there is no indication of any major pressures currently impacting on the species and future prospects are considered good. Overall, the species is assessed as *Favourable*.

Over the previous reporting period, the trend in Population was considered to be increasing, but the current Population trend is considered to be stable in the long term, resulting in an Overall conservation trend of stable.

Frank Greenaway



OVERALL STATUS: FAVOURABLE

1330 WHISKERED BAT *(Myotis mystacinus)*

ANNEX IV

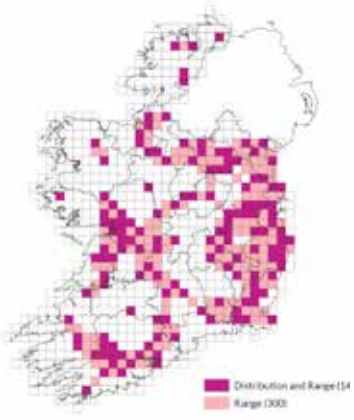
The Whiskered Bat (*Myotis mystacinus*) is widespread across much of Europe although it is absent from northern Scotland and northern Scandinavia. There are records from throughout Ireland, from Donegal to Wexford, but the species is not common and its distribution is dispersed and disjunct.

Summer roosts are normally in old stone buildings. Usually only small numbers of bats are present, although a couple of larger roosts are known. This species often roosts between rafters and felt and in other narrow spaces where they are difficult to locate. Bridge roosts are also known. A number of important autumnal swarming sites have been identified, and small numbers of wintering animals have been recorded in caves. Detector records have been limited due to the difficulty of distinguishing the *Myotis* species, but, more recently, improved bat ID technology is allowing detector records to be distinguished and confirmed more reliably.

This bat is a woodland specialist, foraging selectively in broadleaved and mixed woodland as well as riparian corridors. In Ireland, farmland pasture and wet grassland is also used for foraging.

Pressures impacting on Whiskered Bats can be divided into those affecting roosts and those reducing the quality or availability of their foraging habitat, although their impact is considered to be low. A monitoring scheme has been set up and is being gradually expanded nationwide. It will be several years before Population trend can be calculated and in the meantime the trend and therefore future prospects of this parameter are unknown. Nonetheless, the Overall Status for the species remains *Favourable*, as in the last three assessments.

Frank Greenaway



OVERALL STATUS: FAVOURABLE

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 and studies have found that almost all bats will forage within 1.5 km of the roost. However, its manoeuvrability means that it can access cluttered habitats, and flightless arthropod prey make up a large proportion of its diet, confirming the importance of gleaning as a foraging strategy for the species. Habitat suitability 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 generally avoided.

Brown Long-eared Bats rely heavily on man-made 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. This species shows 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.

There is a dedicated and robust monitoring scheme in place for this species since 2007. Recent estimates put the Irish population of Brown Long-eared Bats at 65,000-*c.*100,000 animals. There is no indication of any major pressures currently impacting the population and Future prospects are considered good.

Overall, the species is assessed as *Favourable*, as it has been over the last three reporting periods. The overall trend is deemed to be stable, a change from the increasing trend recorded in the last reporting period.

Frank Greenaway

OVERALL STATUS: FAVOURABLE

1331 LEISLER'S BAT *(Nyctalus leisleri)*

ANNEX IV

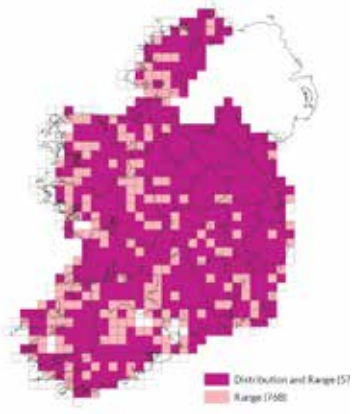
Leisler's Bat (*Nyctalus leisleri*) has been described as a 'typically Irish bat' due to its abundance in Ireland compared to the rest of Europe, where it is uncommon or absent. Its abundance in Ireland has been attributed to the absence of larger competing species, such as the closely related Noctule (*N. noctula*). On continental Europe, Leisler's Bat is considered a tree-dwelling species across most of its distribution. The majority of known 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.

Leisler's bat is widespread across Ireland, but monitoring indicates it is more abundant in the east and south of the country. The most recent estimates for this species suggest a population size of *c.*100,000-200,000 animals with monitoring over the last 20 years indicating an increasing trend. Two threats/pressures have been identified: threats from wind farms, and the loss of roosts associated with deliberate or accidental exclusion from houses. However, the true impacts of these pressures need to be investigated further.

The Overall Status of the species is assessed as *Favourable* and the overall trend is demonstrating an on-going increase.

Frank Greenaway



OVERALL STATUS: FAVOURABLE

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, *Lepus timidus* occurs as a distinct, endemic sub-species, *Lepus timidus hibernicus*, the Irish Hare. Genetics indicates that the Irish Hare's unique morphology and ecology is the result of adaptation due to the isolation from other Mountain Hare populations for at least 35,000-57,000 years. One of the notable differences between the Irish Hare and *Lepus timidus* in other regions is that the former does not undergo complete winter whitening.

The Irish Hare is the only native hare in Ireland and while a number of introductions of the Brown Hare (*Lepus europaeus*) are known from the nineteenth century, this latter species is currently only known from isolated populations in Northern Ireland.

The Irish Hare 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. 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. The species can show significant inter-annual fluctuations in population, making it difficult to estimate trends. Density estimates stratified by habitat show that hares 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.

The range for this species covers nearly the entire landmass of Ireland including some off-shore islands. Despite natural inter-annual fluctuations in population density, the animal is widespread and in places abundant. Agricultural intensification is leading to some reduction in habitat quality and a number of related threats have been identified, but the hare has a broad habitat niche, so the impacts of these changes on habitat extent and quality are taken as unknown.

Overall the animal is considered to remain in *Favourable* status with a stable trend.

Mike Brown

OVERALL STATUS: FAVOURABLE

1355 OTTER *(Lutra lutra)*

ANNEX II, IV

Ireland continues to remain a stronghold for the Eurasian Otter (*Lutra lutra*). Five national surveys have been conducted to date. The first in 1980/81 found signs of Otter throughout the country, at 88% of sites surveyed. There have been some declines since then, but the most recent survey (2023/24) indicates that the population has stabilised overall and that the species remains widespread.

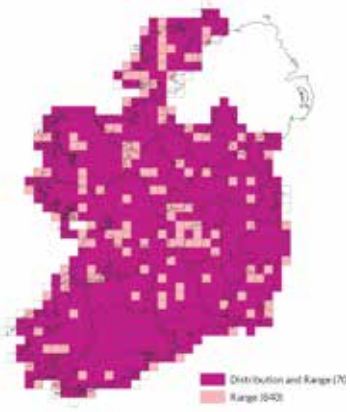
Otters have two basic requirements: aquatic prey and safe refuges where they can rest. In Ireland, Otter populations are found along rivers, lakes and coasts, where fish and other prey are abundant, and where the bank-side habitat offers plenty of cover. The Otter is an opportunistic predator with a broad and varied diet. In coastal areas fish, crabs and molluscs are 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.

A total of 44 SACs have been designated for the Otter comprising extensive stretches of river channels and coastline (including off-shore islands) as well as lakes and blanket bog systems. The main threats to the Otter include water pollution, habitat disturbance and accidental deaths (road traffic).

The otter remains widespread across Ireland and its population appears to be relatively stable. There are some concerns about declining water quality nationally as well as ongoing pressures on riparian habitats through drainage works and riparian scrub/woodland clearance, but it is not clear how these changes might impact on Otter.

The Overall Status assessment remains *Favourable*, and the trend is taken as stable, a change from the improving trend recorded in 2019.

Eddie Dunne



OVERALL STATUS: FAVOURABLE

1357 PINE MARTEN *(Martes martes)*

ANNEX V

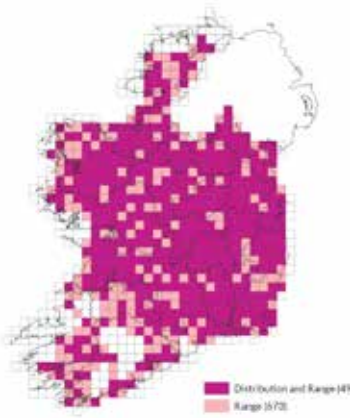
The Pine Marten (*Martes martes*) is a medium-sized arboreal carnivore, typically inhabiting forested ecosystems or landscapes with substantial woodland or scrub. It is an opportunistic feeder on small mammals, berries, nuts, frogs, lizards, birds and invertebrates.

Pine Martens do not produce young until their third year, with females giving birth to 2-4 cubs thereafter, every one or two years. Pine Martens maintain territories and typically occur in low densities. Young animals disperse to find their own territories and the mortality at this stage may be high. Adults in productive habitats may live for 5 or 6 years.

The Pine Marten was formerly widespread in Ireland but declined 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. However, the species is now undergoing a phase of re-colonisation. It has greatly increased its range in recent decades and although its population is still low, it is rising. The animal's resurgence is largely attributed to the banning of strychnine and other poisons, the legal protection afforded the species since 1976 under the Wildlife Acts, and the steady increase in afforestation.

While some threats have been identified, none of them are considered sufficiently serious to undermine the continued recovery of the species. The Overall Status assessment of the Pine Marten remains *Favourable* with an improving trend, unchanged since the previous reporting period.

Mike Brown



OVERALL STATUS: FAVOURABLE

1364 GREY SEAL *(Halichoerus grypus)*

ANNEX II, V

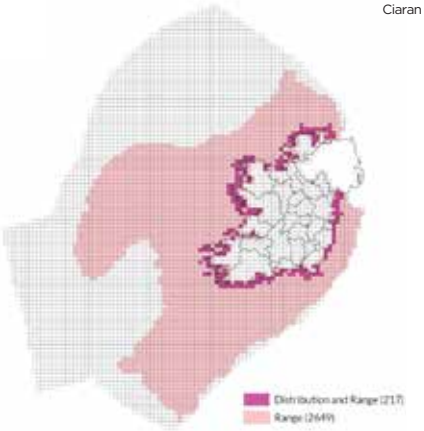
The Grey Seal (*Halichoerus grypus*) is the larger of the two seal species that commonly breed around Ireland and inhabit its inshore and offshore waters. Notable by a pronounced sexual dimorphism, adult males can measure 2.0-2.5 m in length and weigh up to 300 kg in comparison to adult females, which tend to be less than 2 m in length and weigh less than 180-190 kg. When the animal's head is clearly visible, Grey Seals can be identified by their characteristic long muzzle and comparatively straight or convex snout from forehead to nose. Fur colouration can be highly variable in juveniles and adults of both sexes, ranging from a slate-grey dorsal surface and a lighter, mottled ventral surface to uniformly dark grey or brown with lighter blotches.

Grey Seals are primarily pelagic or demersal in their feeding habits and can be wide-ranging. They are only found in the Northern Hemisphere, mainly in cold temperate and sub-polar waters, in the North-East Atlantic from Iceland and Norway to the French coast. Those in Ireland are generally considered part of a larger population or meta-population that also inhabits adjacent jurisdictions (i.e. the UK and France at least).

Pressures on this species in Irish waters mainly involve commercial vessel-based activities such as impacts arising from geophysical seismic exploration or from local/regional prey removal by fisheries or bycatch in fisheries. Other possible impacts may occur from coastal tourism and localised human disturbance at haul-out sites. While the effect of these pressures may act on a temporary and/or regional scale, none is considered to be of sufficient magnitude to adversely impact on Grey Seal populations in Irish waters.

Given the current state of knowledge of the species' distribution, population, ecology and prevailing pressures, the Overall Status of the Grey Seal is *Favourable* with an improving trend, unchanged from 2019.

Ciaran O'Keeffe



OVERALL STATUS: FAVOURABLE

1365 HARBOUR SEAL *(Phoca vitulina)*

ANNEX II, V

The Harbour Seal (*Phoca vitulina*) is the smaller of two seal species that commonly breed around the coast of Ireland and inhabit its inshore and offshore waters. Unlike the larger Grey Seals, Harbour Seals do not show a very pronounced sexual dimorphism when mature. Adult males can measure up to 1.9 m in length and weigh between 70 kg and 150 kg, while adult females may be up to 1.7 m in length and weigh between 60 kg and 110 kg. At all ages, Harbour Seal fur colouration patterns can be highly variable, ranging from yellow-brown, tan or mid-brown to grey-black and with variable spotted, dappled or speckled markings along the body length.

Harbour Seals are one of the most widespread species of pinniped, inhabiting the Northern Hemisphere from warm temperate and even subtropical waters to northern polar regions. Substantial declines and die-offs have been recorded both historically and recently in this species, including via viral disease in Europe and elsewhere.

In Ireland, Harbour Seals occur in estuarine, coastal and fully marine areas and also occupy regular haul-out sites about which animals breed, moult, rest and engage in social activity.

Pressures on this species in Irish waters mainly involve commercial vessel-based activities such as impacts arising from geophysical seismic exploration or from local/regional prey removal by fisheries or bycatch in fisheries. Other possible impacts may occur from coastal tourism and localised human disturbance at haul-out sites. While the effect of these pressures may act on a temporary and/or regional scale, none is considered to be of sufficient magnitude to adversely impact on Harbour Seal populations in Irish waters.

Given the current state of knowledge of the species' distribution, population, ecology and prevailing pressures, the Overall Status of the Harbour Seal is *Favourable* with a stable trend, unchanged from 2019.

Oliver Ó Cadhla

OVERALL STATUS: FAVOURABLE

1345 HUMPBACK WHALE *(Megaptera novaeangliae)*

ANNEX IV

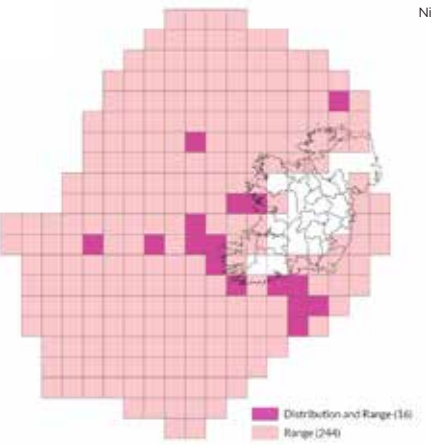
The Humpback Whale (*Megaptera novaeangliae*) is the fourth largest baleen whale species found in Ireland. It is readily identifiable at close range due to several diagnostic features including its characteristic low 'bushy' blow, a small irregularly-shaped dorsal fin, uniquely long, white and flexible pectoral fins, and white patterning on the underside of the tail flukes. Humpback Whales feed on small shoaling fish, krill and zooplankton, and they commonly move between cold, high-latitude feeding grounds in summer and warm tropical waters in winter, during which calving and mating occurs. Some identifiable individuals have repeatedly returned to forage off Ireland's south-west and south coasts in autumn/winter. Individuals have also been recorded in Iceland or Norway, underlining the species' tendency for long-range movement and migration.

Having been hunted intensively into the early 20th century, this species has seen some post-whaling recovery in parts of its range, yet records are uncommon in offshore Irish waters compared to more numerous whale species like Fin and Minke Whales. It is possible that Humpback Whales are under-recorded, e.g., due to difficulties in distinguishing them from other whales in the open sea; nevertheless, sightings off the Irish coast have increased substantially over the last two decades.

The species' natural range in Irish waters is a small component of its wider North Atlantic migratory range with the main known pressures relating to entanglement and ship strikes. Pressures on this species in Irish waters mainly involve commercial vessel-based activities such as impacts arising from geophysical seismic exploration or from local/regional prey removal by fisheries. While the effect of these pressures may act on a temporary and/or regional scale, none is considered to be of sufficient magnitude to adversely impact this species populations in Irish waters.

The Overall Status of Humpback Whale in Ireland is *Favourable* with a stable trend. This is a change from the 2019 assessment of Unknown and is due to the availability of more accurate data on the species.

Nicholas Massett



OVERALL STATUS: FAVOURABLE

1349 BOTTLENOSE DOLPHIN *(Tursiops truncatus)*

ANNEX II, IV

The Common Bottlenose Dolphin (*Tursiops truncatus)* is found throughout the world's tropical and temperate marine waters, though in the North-East Atlantic it is rarely recorded in the Baltic Sea or north of the Faroe Islands. Classified by the IUCN as a species of Least Concern, partly due to its global distribution and abundance, the Bottlenose Dolphin is regularly recorded in Irish coastal and offshore waters, while some communities show a level of residency in quite discrete coastal areas.

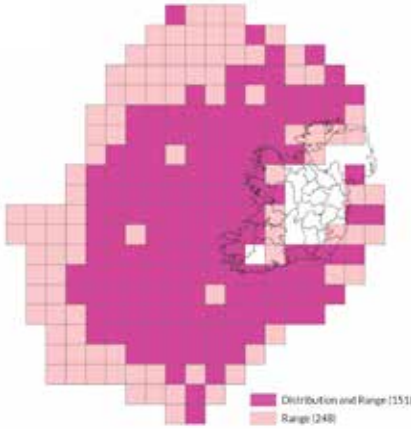
Bottlenose Dolphins are one of the most frequently recorded and familiar cetaceans occurring in Ireland. With adults averaging up to 3.0-3.8 m in length, they are quite readily identifiable, bearing a substantial curved grey dorsal fin, a short but pronounced rounded beak, and lacking an obvious pattern in their grey body colouration except for a paler ventral surface.

Genetic and/or ecological separation of coastal and offshore populations of Bottlenose Dolphins has been demonstrated in the western and eastern North Atlantic. Across European Atlantic waters, genetic analysis has identified five distinct coastal populations occupying the following regions: Shannon Estuary, west coast of Ireland, English Channel, Galicia coast, east coast of Scotland and Wales/west Scotland. In Irish waters three distinct populations occur: Atlantic pelagic, west coast, and Shannon.

Pressures on this species in Irish waters mainly involve commercial vessel-based activities such as impacts arising from geophysical seismic exploration or from local/regional prey removal by fisheries or bycatch in fisheries. While the effect of these pressures may act on a temporary and/or regional scale, none is considered to be of sufficient magnitude to adversely impact on populations of bottlenose dolphin in Irish waters.

The Overall Status of Common Bottlenose Dolphin in Ireland remains *Favourable*. This overall result is the same as the previous three assessments.

Machiel Oudejans



OVERALL STATUS: FAVOURABLE

1350 SHORT-BEAKED COMMON DOLPHIN *(Delphinus delphis)*

ANNEX IV

The Short-beaked Common Dolphin (*Delphinus delphis*) is one of the smallest dolphin species occurring in Irish waters, with adults averaging to just 1.7-2.0 m in length. Found throughout the world's oceans and in the North-East Atlantic from Norway to West Africa, it is classified by the IUCN as a species of Least Concern since its global distribution and abundance estimates indicate that it is well above thresholds for a threatened category.

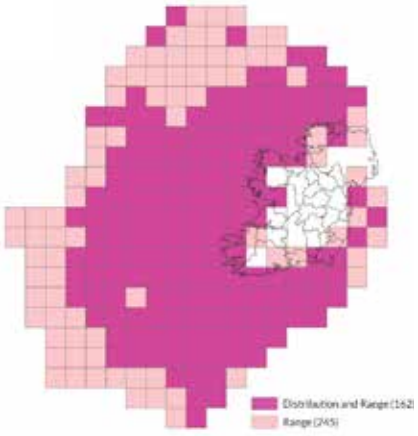
Short-beaked Common Dolphins are the most frequently recorded dolphin species in Irish waters, partly due to a tendency to closely approach moving vessels. They are quite readily identifiable when they break clear of the surface showing the species' characteristic pronounced beak, relatively tall curved dorsal fin and an extended horizontal 'hourglass' colour pattern on the flanks.

Although Short-beaked Common Dolphins are broadly pelagic in their population ecology and foraging ecology, and may conduct seasonal movements in some regions, separate breeding stocks and clear latitudinal patterns in movement by populations in the North-East Atlantic are not apparent.

The species' natural range in Irish waters is a small component of its wider North Atlantic range with movements occurring both within and outside the marine jurisdictions of many States in which the species may be subject to a range of pressures. The estimated level of Short-beaked Common Dolphin bycatch significantly exceeded the modelled threshold/removal limit in the North-East Atlantic Assessment Unit, which includes all of Ireland's EEZ. Pressures on this species in Irish waters mainly involve commercial vessel-based activities such as impacts arising from geophysical seismic exploration or from local/regional prey removal by fisheries or bycatch in fisheries.

The Overall Status of Short-beaked Common Dolphin in Ireland remains *Favourable*. This overall result is the same as the previous three assessments.

Gary Burrows



OVERALL STATUS: FAVOURABLE

1351 HARBOUR PORPOISE *(Phocoena phocoena)*

ANNEX II, IV

The Harbour Porpoise (*Phocoena phocoena)* is the smallest cetacean species occurring in Irish waters, with adults averaging just 1.4-1.8 m long. Inhabiting only the Northern Hemisphere, the species is mainly found in cold temperate and sub-polar waters, in the North-East Atlantic from Iceland and northern Norway to north-west Africa. Harbour Porpoises are the only cetaceans to regularly occur in the Baltic Sea, but they do not commonly occur in the Mediterranean. A reproductively isolated population occurs in the Black Sea. The population structure of Harbour Porpoise is currently under investigation, as some evidence of genetic differentiation from the North Atlantic population has been observed in western Greenland and the Baltic Sea.

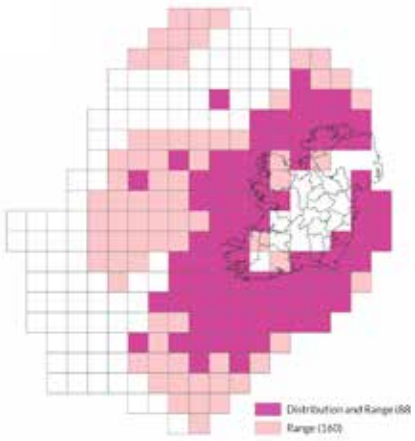
Classified by the IUCN as a species of Least Concern due to its wide occurrence and overall abundance estimates, the Harbour Porpoise is one of the most frequently recorded cetacean species in Irish waters but is recorded with greater difficulty offshore and in the open Atlantic due to its small size and inconspicuous nature.

Although Harbour Porpoises may conduct large scale and/or seasonal movements in some regions, distinct breeding populations, or stocks, and patterns in movement/ distribution by populations in western Europe are not well understood.

The species' natural range in Irish waters is a small component of its wider North Atlantic range with movements occurring both within and outside the marine jurisdictions of many States in which the species may be subject to a range of pressures. The estimated level of Harbour Porpoise bycatch significantly exceeded the modelled threshold/removal limit in the North-East Atlantic Assessment Unit, which includes all of Ireland. Pressures on this species in Irish waters mainly involve commercial vessel-based activities such as impacts arising from geophysical seismic exploration or from local/regional prey removal by fisheries or bycatch in fisheries.

The Overall Status of Harbour Porpoise in Ireland is *Inadequate* with a stable trend. This is a change from the T assessment recorded in 2019. The change is partly due to more accurate data and to less favourable future prospects, but also to unknown factors, with the population of Harbour Porpose recorded in this reporting period lower than in the last.

Gary Burrows



OVERALL STATUS: INADEQUATE

2027 KILLER WHALE *(Orcinus orca)*

ANNEX IV

The Killer Whale (*Orcinus orca*) is the largest of the dolphin family Delphinidae that occurs in Irish waters. Found mostly in temperate and sub-polar regions, its North Atlantic populations appear to range mainly from the Gulf of Mexico, north-west Africa and the Mediterranean, north to Greenland, Iceland and Norway.

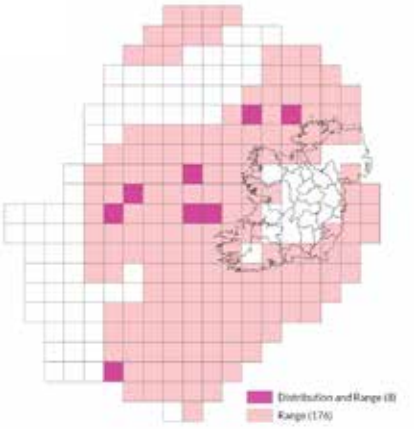
Killer Whales are classified by the IUCN as a Data Deficient species due to ongoing taxonomic uncertainties. With further research globally into their ecology and recognised subspecies, it is possible that distinct species may be established in the future. At least three genetically distinct populations have been identified in the North Atlantic so far; this is apparently linked to the distribution of their main prey species (i.e., herring, mackerel, tuna).

With adults reaching up to 6.5-9 m in length, their characteristic tall black dorsal fin and very distinctive white/near-white patches behind the eye and dorsal fin, Killer Whales are readily identifiable at sea. In Ireland, they are recorded annually in small numbers, and at least some of the whales photo-identified in Ireland are known from coastal Scotland.

The species' natural range in Irish waters is a small component of its wider range, with movements occurring both within and outside the marine jurisdictions of many States in which the species may be subject to a range of pressures. The main pressures thought to be acting on this species in Irish waters are considered to involve potential pollutant burdens from man-made Polychlorinated Biphenyl compounds (PCBs), plus other persistent organic pollutants (POPs), as well as impacts from commercial vessel-based activities such as geophysical seismic exploration and local/regional prey removal by fisheries.

The Overall Status of Killer Whale in Ireland remains *Unknown* due to limited ongoing information on the species' occurrence and population ecology in Irish waters. This overall result is the same as the previous three assessments.

Róisín Pinfield



OVERALL STATUS: UNKNOWN

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

ANNEX IV

The Long-finned Pilot Whale (*Globicephala melas*) is one of the largest members of the dolphin family Delphinidae occurring in Ireland, with adults averaging up to 6 m long. Found in temperate and sub-polar regions, its North Atlantic populations range from Greenland, Iceland and the Barents Sea to the Tropic of Cancer, including the western and central Mediterranean Sea. In 2018, its IUCN status was revised to Least Concern due to abundance information and a low threat assessment for its populations.

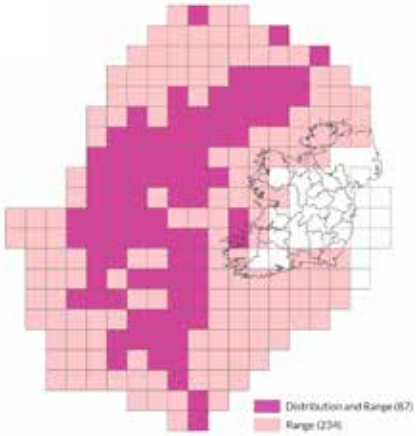
Long-finned Pilot Whales are frequently recorded in offshore Atlantic waters, usually over the continental shelf and slope, and deeper ocean basins. They are often found to associate with distinct bathymetric features, for example, underwater canyons and troughs. They are quite readily identifiable due to their body size and mainly black/dark grey colour, a notably broad-based dorsal fin and a bulbous melon (forehead) lacking an obvious beak.

This highly social and mainly squid-eating species is known to be deep-diving in its foraging ecology, and it may conduct seasonal inshore movements in some areas.

Pressures acting on this species in Irish waters mainly involve commercial vessel-based activities that occur primarily on a local or regional scale and/or on a temporary or intermittent basis, such as impacts arising from shipping movements or geophysical seismic exploration. Other pressures throughout the species' range include incidental mortality from fisheries, anthropogenic sound and contaminants.

Given the current knowledge of the species' population size, distribution, ecology and the prevailing pressures on the species, the Overall Status of Long-finned Pilot Whale in Ireland remains *Favourable*. This overall result is the same as in the previous three assessments.

Gary Burrows



OVERALL STATUS: FAVOURABLE

2030 RISSO'S DOLPHIN *(Grampus griseus)*

ANNEX IV

The Risso's dolphin (*Grampus griseus*) is one of the larger dolphins occurring in Irish waters, its adults averaging up to 4.0 m long. Found throughout the world's oceans and in the Atlantic from Norway to South Africa, it is classified by the IUCN as a species of Least Concern since its global range and abundance indicate that the species is well above the thresholds for a threatened category.

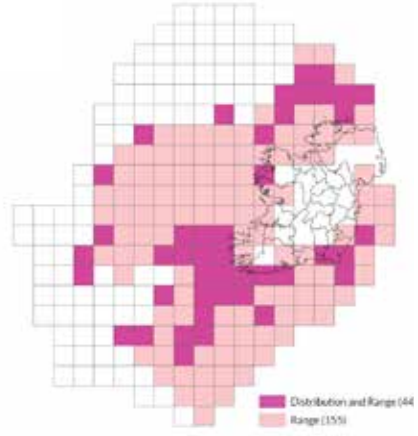
Risso's Dolphins have historically been one of the least frequently recorded dolphin species in Ireland, especially offshore. However, records have been growing, perhaps partly due to increased or improved surveillance. They are quite readily identifiable at sea, having an unusually tall dorsal fin, no noticeable beak and with many individuals showing scarred whitened backs, especially in front of the dorsal fin.

Although the species may conduct seasonal movements in some regions, separate breeding stocks and clear latitudinal patterns in movement by populations in the North Atlantic are not apparent.

Pressures on this species in Irish waters mainly involve commercial vessel-based activities such as impacts arising from geophysical seismic exploration or from local/regional prey removal by fisheries. Another potential pressure is the use of military sonars in the deeper ocean and adjacent continental margins which, while not employed by the Irish Naval Service, is known and documented to occur in the waters of Ireland's EEZ. None of these pressures are considered to adversely impact populations of the species in Irish waters.

Given the current knowledge of the species' population size, distribution, ecology and the prevailing pressures on the species, the Overall Status of Risso's Dolphin in Ireland is assessed as *Favourable* with a stable trend, unchanged from 2019.

Nicholas Massett



OVERALL STATUS: FAVOURABLE

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

ANNEX IV

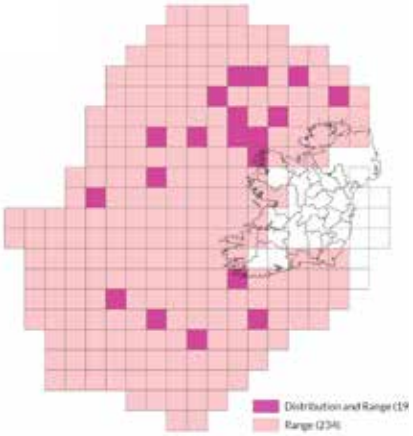
The Atlantic White-sided Dolphin is one of several medium-sized dolphin species occurring in Irish waters, its adults averaging c. 2.2-2.7 m in length. Like its close relative, the White-beaked Dolphin, it is confined to the North Atlantic and mainly found in cold temperate and sub-polar waters; in the east, from Iceland and northern Norway, to the Iberian Peninsula.

Classified by the IUCN as a species of Least Concern since its broad range and abundance estimates indicate that it is well above the thresholds for a threatened category, it is quite commonly recorded in Irish Atlantic waters but less so coastally. White-sided Dolphins can be difficult to distinguish at sea due to their small size, inconspicuous dorsal fin and black/dark grey dorsal colouration. They are more readily identified when breaking clear of the water, showing a characteristic short stubby beak, thick tail stock and horizontal white into sandy colour bands on the rear flanks of the body.

While it is known to feed mainly on small pelagic schooling fish and squid, this species' wider population ecology in the North-East Atlantic is not well understood.

Pressures acting on this species in Irish waters mainly involve commercial vessel-based activities such as impacts arising from geophysical seismic exploration and from local/regional prey removal by fisheries. None of these are considered to be having an adverse impact on the population in Irish waters. Given the current knowledge of the species' population size, distribution, ecology and the prevailing pressures on the species, the Overall Status of Atlantic White-sided Dolphin in Ireland remains *Favourable*. This overall result is the same as the previous three assessments.

Oliver Ó Cadhla



OVERALL STATUS: FAVOURABLE

2032 WHITE-BEAKED DOLPHIN *(Lagenorhynchus albirostris)*

ANNEX IV

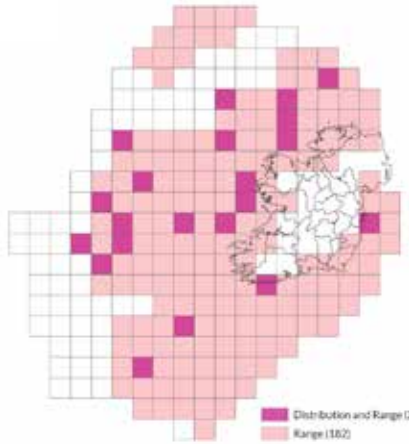
The White-beaked Dolphin (*Lagenorhynchus albirostris*) is one of several medium-sized dolphin species confined to the Northern Hemisphere, where it is predominantly found in cold temperate and sub-polar waters. In the North-East Atlantic, it occurs from Iceland and northern Norway south to the Bay of Biscay and Portugal.

Classified by the IUCN as a species of Least Concern since its broad North Atlantic range, abundance and status indicate that it is well above the thresholds for a threatened category, White-beaked Dolphins are regularly recorded in Irish offshore waters and coastally.

Although challenging to distinguish from other dolphin species at sea, White-beaked Dolphins are quite readily identifiable at close range via their characteristic short stub-like white/grey beak, conspicuously tall dorsal fin relative to body size, stocky appearance and large pale white-coloured bands or patches on the flanks of the body. Known to feed on a variety of small pelagic schooling fish, squid and crustaceans, White-beaked Dolphins do not currently demonstrate separate breeding stocks or clear patterns in movement in the eastern North Atlantic.

The main pressures acting on this species in Irish waters involve commercial shipping-based or vessel-based activities such as impacts arising from geophysical seismic exploration and from local/regional prey removal by fisheries. While the effect of these pressures may act on a temporary and/or regional scale, none is considered to be of sufficient magnitude to be causing an adverse impact on populations of White-beaked Dolphin in Irish waters. Given the current knowledge of the species' population size, distribution, ecology and the prevailing pressures on the species, the Overall Status of White-beaked Dolphin in Ireland remains *Favourable*. This overall result is the same as the previous three assessments.

Róisín Pinfield



OVERALL STATUS: FAVOURABLE

2034 STRIPED DOLPHIN *(Stenella coeruleoalba)*

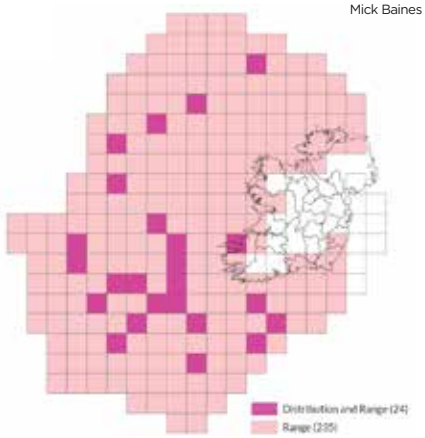
ANNEX IV

The Striped Dolphin (*Stenella coeruleoalba*) is one of the smallest dolphin species occurring in Ireland, its adults averaging just 1.8-2.5 m in length. It is found globally in tropical and warm temperate waters from the Faroe Islands to South Africa, with a notable prevalence in the Mediterranean. There are indications that such populations may be genetically distinct from those in the Atlantic.

Classified by the IUCN as a species of Least Concern due to its global distribution, abundance information and limited threats to populations in the open ocean, each year Striped Dolphins are recorded in small numbers in Irish waters. However, they can be difficult to distinguish at sea due to their size and traits that are shared with many dolphin species, particularly Short-beaked Common Dolphins. They are more easily identified at close range when their characteristic pale flanks and white ventral surface, and narrow grey/black stripes extending laterally from the eye, can be observed. Comparatively little is known of the species' population ecology or movements in the North Atlantic.

The main pressures acting on this species in Irish waters involve commercial shipping-based or vessel-based activities such as impacts arising from geophysical seismic exploration and from local/regional prey removal by fisheries. While the effect of these pressures may act on a temporary and/or regional scale, none is considered to be of sufficient magnitude to be causing an adverse impact on populations of Striped Dolphin in Irish waters. Given the current knowledge of the species' population size, distribution, ecology and the prevailing pressures on the species, the Overall Status of Striped Dolphin in Ireland remains *Favourable*. This overall result is the same as the previous three assessments.

Mick Baines & Maren Reichelt



OVERALL STATUS: FAVOURABLE

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

ANNEX IV

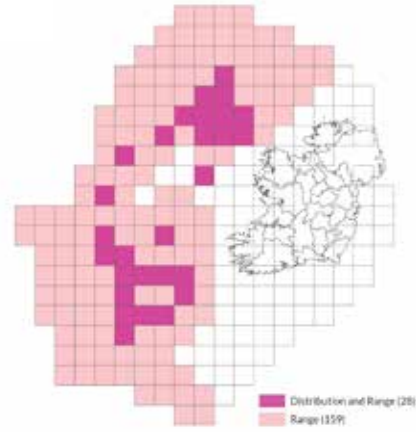
The Cuvier's Beaked Whale (*Ziphius cavirostris*) is a distinctive short-beaked toothed whale measuring up to 5.5-6.5 m in length and found in all of the world's oceans except polar regions. Its range in the eastern Atlantic extends from Iceland and Norway to waters off southern Africa. It is the only beaked whale species commonly occurring in the Mediterranean.

Cuvier's Beaked Whales can be difficult to identify in the open sea due, for example, to elusive or evasive behaviour in the presence of vessels and the absence of many features observable at long range. They may be identified more readily at close range due to their distinctive skin colouration/scarring, a short prominent blunt beak, a small curved dorsal fin about two-thirds of the way along the back, and the absence of a central notch in the tail flukes.

Live records of this species in Irish waters are infrequent, although it is the most frequently stranded beaked whale around Ireland. Knowledge of its population structure or seasonal movements remains limited due to the historical scarcity of data; however, information has improved since 2015.

Pressures acting on this species in Irish waters mainly involve commercial shipping-based or vessel-based activities such as impacts arising from geophysical seismic exploration and from local/regional prey removal by fisheries. Another potential pressure is the use of military sonars in the deeper ocean and adjacent continental margins which, while not employed by the Irish Naval Service, is known and documented to occur in the waters of Ireland's EEZ. None of these pressures are considered to be significantly impacting on populations of the species in Irish waters. Given the current knowledge of the species' population size, distribution, ecology and the prevailing pressures on the species, the Overall Status of Cuvier's Beaked Whale in Ireland is assessed as *Favourable*, unchanged from 2019.

Fleur Visser



OVERALL STATUS: FAVOURABLE

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

ANNEX IV

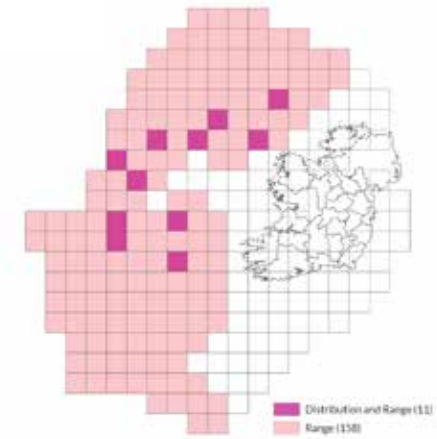
The Sowerby's Beaked Whale (*Mesoplodon bidens*) is a smaller member of the beaked whale family (Ziphiidae), averaging up to 5-6 m in adult body length. It is found only in the North Atlantic, where it occurs in temperate and sub-polar regions. One of at least three *Mesoplodon* species to occur in Ireland, its range in the eastern Atlantic extends from Iceland and Norway to the Azores and Canary Islands, and excludes the Mediterranean and Baltic Seas.

While it is classified by the IUCN as a Least Concern species whose population status and trends remain uncertain, Sowerby's Beaked Whales are quite readily identifiable in the field. This is due to their long slender beak which is often clearly visible when the animal surfaces, to the absence of a central notch in the tail flukes, and its skin colouration which tends to be dark grey on the dorsal surface and often contains elongated scarring on the flanks.

Live records in Irish waters are infrequent, with individuals occasionally stranding around the coast. Knowledge of population structure or movements remains limited due to the historical scarcity of data, but information has improved since 2015.

Pressures acting on this species in Irish waters mainly involve commercial shipping-based or vessel-based activities such as impacts arising from geophysical seismic exploration and from local/regional prey removal by fisheries. None of these pressures are considered to be of sufficient magnitude to adversely impact on population of Sowerby's beaked whale in Irish waters. Given the current knowledge of the species' population size, distribution, ecology and the prevailing pressures on the species, the Overall Status of Sowerby's Beaked Whale in Ireland is assessed as *Favourable*, unchanged from 2019.

Dave Cade



OVERALL STATUS: FAVOURABLE

2618 MINKE WHALE *(Balaenoptera acutorostrata)*

ANNEX IV

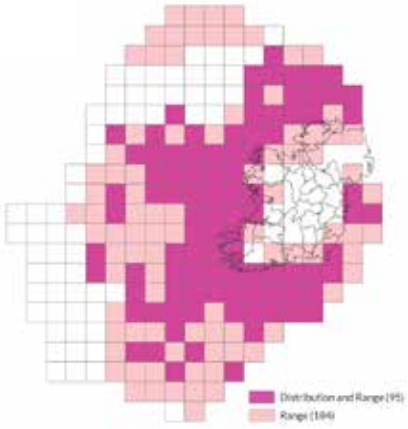
The Minke Whale (*Balaenoptera acutorostrata*) is the smallest baleen whale species occurring in Irish waters, with adults averaging to just 8.5 m in body length. Found only in the Northern Hemisphere, the species is recorded more frequently in Irish waters than its larger Baleanopterid relatives the Blue Whale, Fin Whale and Sei Whale, although this may be partly due to a greater tendency to occupy shallower coastal and continental shelf waters.

Minke Whales have been observed all around Ireland's coast and offshore in deep ocean basins, as well as over the continental shelf and slope. Known also to enter coastal bays or to be seen close to headlands, individual whales may approach slow-moving boats and other vessels. 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 thought to prey on small fish and swimming crustaceans and it is thought that they undertake some migratory movement to warmer waters in the winter. In Ireland, Minke Whales are seen in all seasons, though usually as single individuals or in loose associations of up to ten animals linked to localised feeding activity.

Pressures on this species in Irish waters mainly involve commercial shipping-based or vessel-based activities such as impacts arising from shipping movements, geophysical seismic exploration or from local/regional prey removal by fisheries. None of these pressures are considered to be of sufficient magnitude to adversely impact on populations of Minke Whale in Irish waters. Given the current knowledge of the species' population size, distribution, ecology and the prevailing pressures on the species, the Overall Status of the Minke Whale in Ireland is assessed as *Favourable*. This overall result is the same as the previous three assessments.

Colin Barnes



OVERALL STATUS: FAVOURABLE

2621 FIN WHALE *(Balaenoptera physalus)*

ANNEX IV

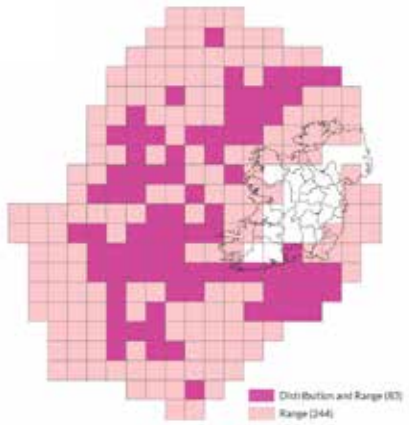
The Fin Whale (*Balaenoptera physalus*) is the second largest whale species in the world. It is the most frequently recorded large whale species in Irish waters, being seen more often than either of its close relatives of similar size, the Blue Whale and Sei Whale.

Once hunted intensively throughout the North Atlantic in the late 19th and early 20th centuries, Fin Whales are recorded in all Irish waters from deep ocean basins to continental slope and shelf areas, and even seasonally in inshore waters off the south-west, south and south-east coasts. Over the last 15-20 years, the annual occurrence of numerous whales off the Cork, Waterford and Wexford coasts has enabled a growing whale-watching industry and led to several ecological studies.

While Fin Whales can be difficult to distinguish at sea from other whales, their asymmetrical light grey to white skin pigmentation in the right jaw and head area is striking and useful for identification. Fin Whales are usually observed in small numbers of one to three individuals or in loose associations of up to twenty animals linked to localised feeding activity. This species preys mainly on small fish, swimming crustaceans and zooplankton, and though it is often considered to be a migratory species, Fin Whales are recorded in all seasons in Ireland.

Pressures acting on this species in Irish waters mainly involve commercial shipping-based or vessel-based activities such as shipping movements, geophysical seismic exploration or local/regional prey removal by fisheries. None of these are considered to be of sufficient magnitude to adversely impact on populations of Fin Whale in Irish waters. The Overall Status of Fin Whale in Ireland is assessed as *Favourable*, given the current knowledge of the species' distribution, ecology and prevailing pressures on the species. This overall result is the same as in the previous three assessments.

Róisín Pinfield



OVERALL STATUS: FAVOURABLE =

5020 BLUE WHALE *(Balaenoptera musculus)*

ANNEX IV

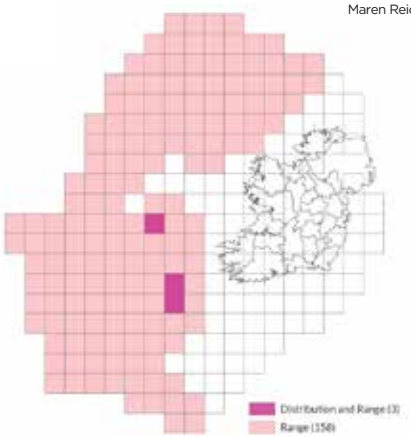
The Blue Whale (*Balaenoptera musculus*) is the world's largest animal species, measuring up to 30 m in length, but it remains one of the most rarely observed cetaceans in Irish waters. This is probably due to severe population depletion as a result of intensive hunting throughout its North Atlantic range, as well as a mainly oceanic and temporary occurrence.

Blue Whales commonly migrate between cold, high-latitude feeding grounds in summer and warm temperate or tropical waters in winter, during which calving and mating occurs. 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 10 m high, a very small triangular dorsal fin, and blue-grey skin colouration with lighter-coloured blotches or patches.

The species feeds on swimming crustaceans and zooplankton in oceanic, continental slope and even shelf waters. Records from Ireland remain limited, usually consisting of one to two animals in deep waters far off the west and south-west coasts. While information on the species' true occurrence and ecology remains patchy, there is some growing evidence of animals migrating through Irish waters in the autumn and early winter, and also of active foraging during such transits.

Pressures acting on this species in Irish waters mainly involve commercial shipping-based or vessel-based activities such as impacts arising from shipping movements or geophysical seismic exploration. None of these are considered to be of sufficient magnitude to adversly impact on populations of Blue Whale in Irish waters. The Overall Status of the Blue Whale continues to be *Unknown* due to limitations in information on its occurrence and population ecology in Ireland's extensive marine waters. This overall result is the same as in the previous three assessments.

Maren Reichelt & Mick Baines



OVERALL STATUS: UNKNOWN

2624 SPERM WHALE *(Physeter macrocephalus)*

ANNEX IV

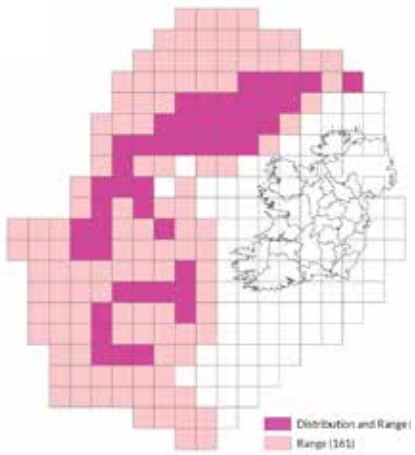
The Sperm Whale (*Physeter macrocephalus*) is the largest toothed cetacean occurring in Irish waters. Mature males measure up to 16-18 m in body length while females are smaller (c. 10-12 m). This familiar deep-diving species is widely found from equatorial to polar regions and has been regularly recorded during oceanic surveys to the west of Ireland.

Sperm Whales are quite readily identified due to their body size, their notably blunt forehead and low, bushy exhalation blow, and their characteristic low, bump-like dorsal fin that can be difficult to observe at sea. Some populations are known to make seasonal movements but clear latitudinal migrations are not commonly described. However, the segregation of adults is well described, with only males occupying cold temperate and sub-polar latitudes. Records of females or calves stranding in Ireland are rare.

Ireland is one of a few EU member states inhabited by this predominantly squid-eating species, which remains classified as Vulnerable due to numbers being reduced by industrial hunting on a wide spatial and temporal scale.

Pressures acting on this species in Irish waters mainly involve commercial shipping-based or vessel-based activities such as impacts arising from shipping movements or geophysical seismic exploration. None of these are considered to be of sufficient magnitude to adversely impact on populations of Sperm Whale in Irish waters. The Overall Status of Sperm Whale is assessed as *Favourable* given the current knowledge of the species' population size, distribution, ecology and prevailing pressures on the species. This overall result is the same as in 2019.

William Hunt



OVERALL STATUS: FAVOURABLE =

5033 NORTHERN BOTTLENOSE WHALE *(Hyperoodon ampullatus)*

ANNEX IV

The Northern Bottlenose Whale (*Hyperoodon ampullatus*) is the largest of the beaked whale family (Ziphiidae) occurring in Ireland, its adults averaging up to 7-9 m long. It is found only in the North Atlantic, mainly in temperate and sub-polar regions; in the east, its range stretches from Greenland and northern Norway to the Azores and north-west Africa but excluding the Mediterranean and Baltic Seas.

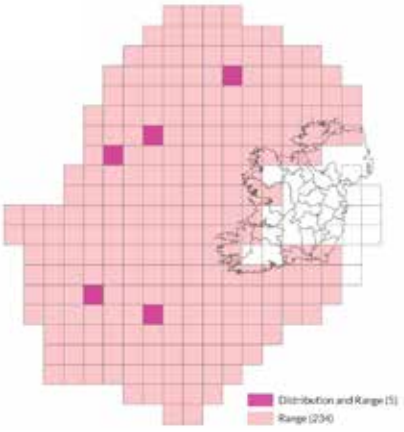
It is classified by the IUCN as a Data Deficient species whose population status and trends remain uncertain after depletion through intensive whaling. Northern Bottlenose Whales have a large, long, robust body with a small, triangular, hooked dorsal fin located about two-thirds down their back. They have a distinct bulbous melon (forehead) and prominent but short rounded beak.

Northern Bottlenose Whales are generally found in deep oceanic habitats. Records from Irish waters have been infrequent and sporadic with the occasional coastal occurrence. It is one of the most frequently sighted and stranded species of beaked whale in Irish waters. Knowledge of this deep-diving species' population structure, breeding habits and movements remains very limited due to the historical scarcity of data, but information has improved somewhat since 2015.

Pressures acting on this species in Irish waters mainly involve commercial shipping-based or vessel-based activities such as impacts arising from geophysical seismic exploration and from shipping movements. Another potential pressure is the use of military sonars in the deeper ocean and adjacent continental margins which, while not employed by the Irish Naval Service, is known and documented to occur in the waters of Ireland's EEZ. None of these pressures are considered to adversely impact populations of the species in Irish waters.

The Overall Status of the Northern Bottlenose Whale is *Unknown*, as it was for the last three assessments, due to limited ongoing information on the species' occurrence and population ecology in Irish waters.

Eilidh Siegal



OVERALL STATUS: UNKNOWN

2619 SEI WHALE *(Balaenoptera borealis)*

ANNEX IV

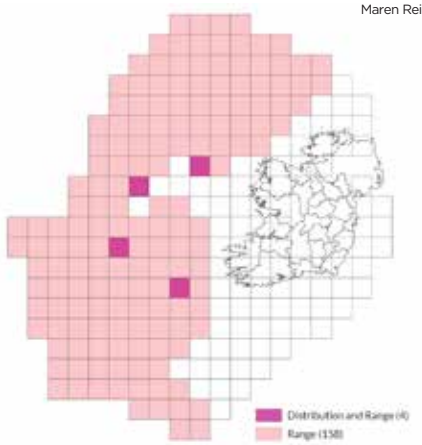
The Sei Whale (*Balaenoptera borealis*) is the third largest whale species found in Ireland but is one of the least frequently recorded. In addition to severe population depletion as a result of hunting, an apparently oceanic occurrence may partly explain why records remain low compared to more coastally-occurring species such as the Fin and Humpback Whale. It is also possible that the species is somewhat under-recorded due to difficulties in distinguishing it from other large whales.

Sei Whales are believed to 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 sparse nature of Irish records makes its seasonal occurrence and distribution unclear. Individual whales are only readily identifiable in good sea conditions or within close range where diagnostic features, including its surfacing behaviour, characteristic upright and comparatively tall dorsal fin, and the absence of asymmetrical skin colouration can be observed.

Sei Whales feed mainly on small shoaling fish, swimming crustaceans and zooplankton in oceanic, continental slope and shelf waters. Having been intensively hunted into the mid-late 20th century, there is little sign of any recovery in North-East Atlantic populations.

Pressures acting on this species in Irish waters mainly involve commercial shipping-based or vessel-based activities such as impacts arising from shipping movements or geophysical seismic exploration. None of these are of sufficient magnitude to adversely impact on populations of Sei Whale in Irish waters. The Overall Status of the Sei Whale in Ireland remains *Unknown*. This result is the same as in the previous three assessments due to limited ongoing information on the species' occurrence and population ecology in Irish waters.

Maren Reichelt & Mick Baines



OVERALL STATUS: UNKNOWN

VAGRANT SPECIES

1348 NORTHERN RIGHT WHALE *(Eubalaena glacialis)*

ANNEX IV

The Northern Right Whale (*Eubalaena glacialis*) is one of six species of cetacean (i.e., whales, dolphins and porpoises) that have been very rarely recorded in Irish waters and are therefore termed vagrant species. Distinctive by its V-shaped exhalation blow, the complete 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 north-west of Ireland in the early 1900s.

Little is known about the occurrence or ecology of this species in the North-East Atlantic, while remnant populations inhabiting North American waters remain extremely vulnerable to ongoing human impacts and potential extinction.

The Overall Status of Northern Right Whale is considered to be *Unknown* since only one live record has 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.

2028 FALSE KILLER WHALE *(Pseudorca crassidens)*

ANNEX IV

False Killer Whale (*Pseudorca crassidens*) is one of six species of cetacean (i.e., whales, dolphins and porpoises) that have been very rarely recorded in Irish waters and are therefore termed vagrant species. 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 slenderer in appearance, with a more rounded or blunt head-shape also notable.

Little is known about the occurrence or ecology of this species in the North-East 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. In the last 50 years, rare sightings have occurred off the European continental shelf and in the mid-Atlantic, while only a few sporadic live records have been confirmed from Irish waters in the last 15-25 years.

The Overall Status of the False Killer Whale is considered to be *Unknown* due to the rarity of sighting and/or stranding records.

2037 TRUE'S BEAKED WHALE *(Mesoplodon mirus)*

ANNEX IV

True's Beaked Whale (*Mesoplodon mirus*) is one of six species of cetacean (i.e., whales, dolphins and porpoises) that have been very rarely recorded in Irish waters and are therefore termed vagrant species. Difficult to identify in the open ocean, 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 relative 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 North-East 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 south-west of Ireland.

The Overall Status of True's Beaked Whale is considered to be *Unknown*.

2622 PYGMY SPERM WHALE *(Kogia breviceps)*

ANNEX IV

Pygmy Sperm Whale (*Kogia breviceps*) is one of six species of cetacean (i.e., whales, dolphins and porpoises) that have been very rarely recorded in Irish waters and are therefore termed vagrant species. It is distinctive by its small size (up to 3.5 m 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 North-East 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 and rare stranding of individual animals.

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.

5029 BELUGA / WHITE WHALE *(Delphinapterus leucas)*

ANNEX IV

Beluga or White Whale (*Delphinapterus leucas*) is one of six species of cetacean (i.e., whales, dolphins and porpoises) that have been very rarely recorded in Irish waters and are therefore termed vagrant species. 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 North-East Atlantic. It is normally a polar or sub-polar species found in Arctic regions where it feeds on fish and crustaceans. Prior to the Directive's introduction, just two live records had been confirmed from Ireland, one from County Mayo and another from County Cork. Three live sighting records were recorded in 2015, with one sighting record comprising three individuals, far offshore during an aerial survey in December 2015.

The Overall Status of the Beluga or White Whale is considered to be *Unknown* due to the rarity of sighting and/or stranding records.

5034 GERVAIS' BEAKED WHALE *(Mesoplodon europaeus)*

ANNEX IV

Gervais' Beaked Whale (*Mesoplodon europaeus*) is one of six species of cetacean (i.e., whales, dolphins and porpoises) that have been very rarely recorded in Irish waters and are therefore termed vagrant species. 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 Whale is also tricky to separate from its close relative, 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 North-East 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.

The Overall Status of Gervais' Beaked Whale is considered to be *Unknown*.

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 individuals have been collected off the south-east coast. Like other anadromous herring species, Allis Shad enters freshwater to breed, with long migrations upstream reported, particularly in larger continental rivers in Europe. Maturity is reached after four to five years and broadcast spawning is undertaken in larger rivers. There is some evidence of Allis Shad entering Irish rivers, with one fish recorded some 40 km from the sea on the Slaney. Nonetheless, only a small number of Allis Shad have ever been recovered in Irish fresh water and while there is an established breeding population of Twaite Shad in south-eastern Irish rivers, the only evidence of breeding by Allis Shad is the presence of Allis-Twaite hybrids. It is closely related to this species and can only be distinguished by the number of gill-rakers present. No juvenile Allis Shad have been found during survey work of Irish river systems. Overall, it would appear that the Allis Shad is an opportunistic spawner in Irish waters, if at all. Until evidence of an established breeding population is found, Allis Shad is considered a vagrant.

1320 BRANDT'S BAT *(Myotis brandtii)*

ANNEX IV

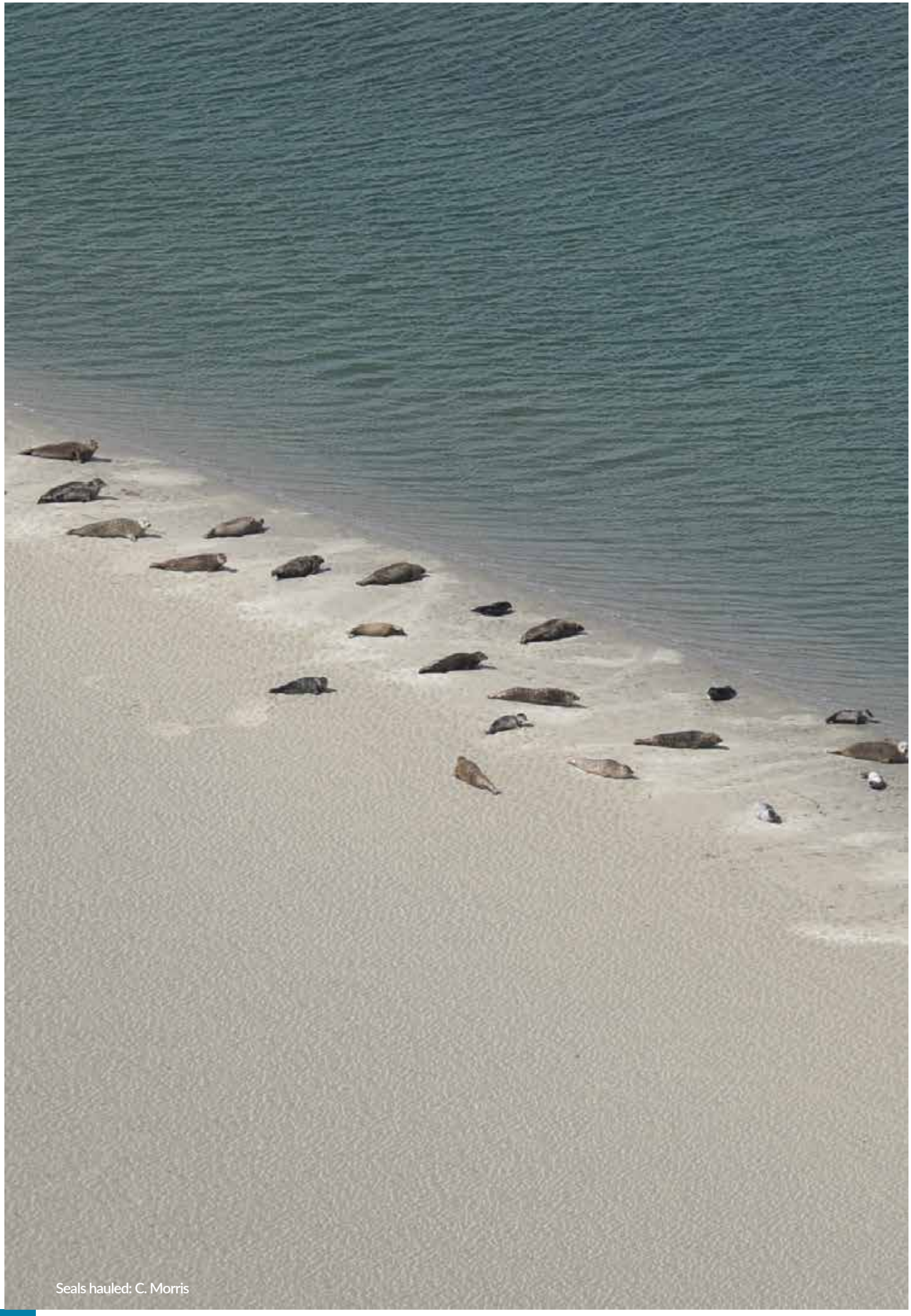
Brandt's Bat (*Myotis brandtii*) is a cryptic species, requiring genetic determination to separate it from the Whiskered Bat (*M. mystacinus*). Following the initial confirmation of a specimen of Brandt's Bat in Wicklow in 2006, further records were expected. However, extensive survey work at potential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

1304 GREATER HORSESHOE BAT *(Rhinolophus ferrumequinum)*

A single Greater Horseshoe Bat (*Rhinolophus ferrumequinum*) was recorded in the winter of 2012-2013 in south-east Ireland. There have been no verified records since then. The species is considered a vagrant and was not assessed in the current report.

RESULTS

Alluvial Woodland: Orla Daly



Seals hauled: C. Morris

RESULTS

HABITAT OVERALL ASSESSMENTS

The overall status of habitats as depicted in Figure 1a is that 90% of habitats are in Unfavourable (i.e. Inadequate and Bad) status, with 51% of habitats demonstrating ongoing deteriorating trends (Figure 1b).

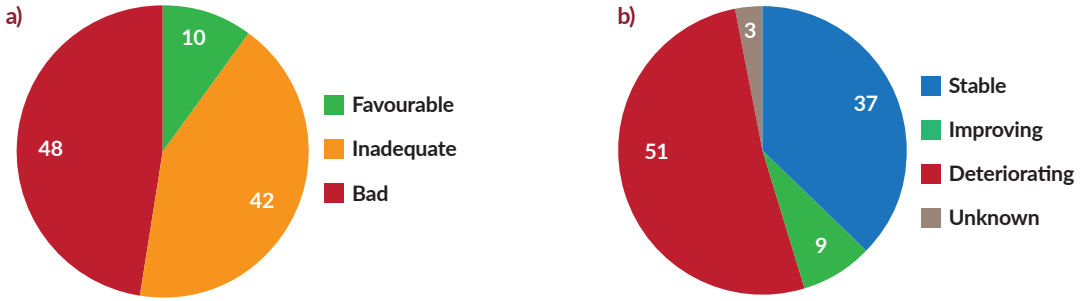


Figure 1: a) Percentage of habitats in Favourable, Unfavourable-Inadequate or Unfavourable-Bad status b) Percentage of habitats with Stable, Improving or Deteriorating trends. *n*=59

An overview of the results of the 59 individual habitat assessments for 2025 is presented in Table 1. The overall assessment results for 2007, 2013, and 2019 are presented for comparison. Many of the changes from previous assessments are due to improved knowledge and dedicated surveys being undertaken e.g. marine habitats, improving trends due to some conservation measures e.g. Hay meadows, Active raised bogs, and Rynchosporion depressions, or changes in the thresholds for Structure and Functions e.g. Bog woodland. Therefore, the actual status (i.e. Favourable, Unfavourable-Inadequate or Unfavourable-Bad) of habitats has remained largely unchanged over time but with ongoing deteriorating trends still impacting half of all habitats, as illustrated in Figure 1b. Although some habitats had insufficient Range and Area when the Directive came into force (e.g. Active raised bog, Hay meadows and many woodland habitats), it is the Structure and Functions of the habitats that is driving the Overall Assessment results in many cases, with inadequate conservation measures in place to improve the Future Prospects. Deteriorating trends are particularly notable in marine, aquatic, grassland and woodland habitats.

Table 1: Assessment results by habitat for 2007, 2013, 2019 and 2025.

Code	Common name	2007 Overall status	2013 Overall status and operator	2019 Overall status and trend	2025 Overall status and trend	2025 Range	2025 Area	2025 Structure & Functions	2025 Future Prospects
1110	Sandbanks	●	●	=	=	=	=	×	●
1130	Estuaries	●	▲	▼	=	=	=	=	●
1140	Tidal mudflats and sandflats	●	▲	▼	=	=	=	=	●
1150	Lagoons*	●	=	▼	▼	=	=	▼	●
1160	Large shallow inlets and bays	●	▲	▼	▼	=	=	▼	●
1170	Reefs	●	▼	=	=	=	=	×	●
1180	Submarine structures made by leaking gases			=	=	=	=	=	●
1210	Drift lines	●	▼	▼	=	=	=	=	●
1220	Vegetated shingle	●	=	=	▼	=	▼	=	●
1230	Vegetated sea cliffs	●	=	=	=	=	=	=	●
1310	*Salicornia mud*	●	▼	=	▼	▼	▼	▼	●
1330	Atlantic salt meadows	●	=	▼	▼	=	▼	▼	●
1410	Mediterranean salt meadows	●	=	▼	▼	=	▼	▼	●
1420	Halophilous scrub	●	▼	▼	=	=	=	=	●
2110	Embryonic shifting dunes	●	=	=	▼	=	▼	=	●
2120	Marram dunes (white dunes)	●	=	=	▼	=	▼	▼	●
2130	Fixed dunes (grey dunes)*	●	=	▼	▼	=	▼	▼	●
2140	*Empetrum* dunes*	●	=	=	=	=	=	=	●
2150	Dune heath*	●	=	=	▼	=	=	▼	●
2170	Dunes with Creeping Willow	●	=	=	▼	=	▼	=	●
2190	Dune slacks	●	▼	▼	▼	=	▼	=	●
21A0	Machair*	●	=	=	=	=	▼	▲	●
3110	Oligotrophic isoetid lake habitat	●	▼	=	×	=	=	×	●
3130	Slender Naiad-type lakes	●	=	▼	▼	=	=	▼	●
3140	Hard-water lakes	●	▼	▼	=	=	=	=	●
3150	Rich pondweed lake habitat	●	=	=	×	=	=	×	●
3160	Acid oligotrophic lakes	●	▼	=	▲	▲	▲	=	●
3180	Turloughs*	●	=	=	=	=	=	×	●
3260	Vegetation of flowing waters	●	▼	▼	▼	=	=	▼	●
3270	Chenopodion rubri	●	●	=	▼	×	▼	=	×

STATUS: ● Favourable ● Unfavourable-Inadequate ● Unfavourable-Bad ● Unknown

TREND: ▲ Improving = Stable ▼ Deteriorating × Unknown/Uncertain

Changes in assessment results may be due to a variety of factors, please read the full assessment reports for context.

Code	Common name	2007 Overall status	2013 Overall status and operator	2019 Overall status and trend	2025 Overall status and trend	2025 Range	2025 Area	2025 Structure & Functions	2025 Future Prospects
4010	Wet heaths	●	=	▼	▼	=	▼	=	●
4030	Dry heaths	●	=	=	▼	=	▼	×	●
4060	Alpine and subalpine heath	●	▲	▲	=	=	×	=	●
5130	Juniper scrub	●	=	=	=	=	=	=	●
6130	Calaminarian grasslands	●	=	▼	▼	▼	▼	=	●
6210	Orchid-rich calcareous grassland*	●	=	▼	▼	▼	▼	=	●
6230	Species-rich *Nardus* grassland*	●	▼	=	▼	=	▼	=	●
6410	*Molinia meadows*	●	▼	▼	▼	▼	▼	=	●
6430	Hydrophilous tall-herb swamp	●	=	▼	▼	▼	▼	▼	●
6510	Hay meadows	●	=	▼	▲	▲	▲	▲	●
7110	Raised bog (active)*	●	▼	▼	▲	=	▲	▲	●
7120	Degraded raised bogs	●	▼	▼	▲	=	▲	▲	●
7130	Blanket bog (active)*	●	▼	▼	▼	=	▼	=	●
7140	Transition mires	●	×	=	▼	=	▼	×	●
7150	Rhynchosporion depressions	●	▼	▼	▼	=	▼	=	●
7210	*Cladium fens**	●	×	=	▼	=	▼	×	●
7220	Petrifying springs*	●	=	▼	=	=	=	=	●
7230	Alkaline fens	●	×	▼	▼	=	▼	×	●
8110	Siliceous scree	●	▲	=	=	=	=	=	●
8120	Calcareous scree	●	=	=	=	=	=	=	●
8210	Calcareous rocky slopes	●	=	=	=	=	=	=	●
8220	Siliceous rocky slopes	●	=	=	=	=	=	=	●
8240	Limestone pavement*	●	=	=	=	=	▼	▲	●
8310	Caves	●	●	=	▲	▲	▲	=	●
8330	Sea caves	●	●	=	=	=	=	=	●
91A0	Old oak woodland	●	▲	▼	▼	=	▼	=	●
91D0	Bog woodland*	●	●	=	▼	=	=	▼	●
91E0	Alluvial woodland*	●	▲	▼	▼	=	▼	=	●
91J0	Yew woodland*	●	▲	=	=	=	=	=	●

STATUS: ● Favourable ● Unfavourable-Inadequate ● Unfavourable-Bad ● Unknown

TREND: ▲ Improving = Stable ▼ Deteriorating × Unknown/Uncertain

Changes in assessment results may be due to a variety of factors, please read the full assessment reports for context.

HABITAT PRESSURES/THREATS

The standardised list of pressures and threats is classified into 14 categories corresponding to the main sectoral drivers. These high-level categories are listed in Table 2 together with explanations or major subdivisions where appropriate.

Table 2: Standardised categories for pressures and threats.

	Pressure/Threat categories	Notes on sub-categories
PA	**Agriculture-related practices**	Includes land conversion, grazing, abandonment, burning, enrichment, drainage and associated pollution
PB	**Forestry-related practices**	Includes land conversion, grazing, forestry management practices such as clear felling, removal of dead wood, burning, enrichment, drainage and associated pollution
PC	**Extraction of resources (minerals, peat, non-renewable energy resources)**	Includes geotechnical surveying, peat extraction and pollution arising from extraction activities
PD	**Energy production processes and related infrastructure development**	Includes wind, electricity, oil and gas infrastructure and associated pollution
PE	**Development and operation of transport systems**	Includes road, paths, shipping lanes and associated light and noise pollution
PF	**Development, construction and use of residential, commercial, industrial and recreational infrastructure and areas**	Includes urbanisation, industrialisation, recreation and associated pollution
PG	**Extraction and cultivation of biological living resources (other than agriculture and forestry)**	Includes hunting, poisoning, fishing, aquaculture and pollution arising from aquaculture
PH	**Military action, public safety measures, and other human intrusions**	Includes vandalism and disturbance
PI	**Alien and problematic species**	Also includes diseases, pathogens and pests
PJ	**Climate change**	Includes temperature rise, drought, sea level rise and increased precipitation
PK	**Mixed source pollution**	Where the main driver of pollution is uncertain
PL	**Human-induced changes in water regimes**	Includes abstractions, landfill, modification of water flow
PM	**Geological events, natural processes and catastrophes**	Includes erosion, succession, competition, predation, storms, floods and fire
X	**Unknown pressures, no pressures and pressures from outside the Member State**	

Pressures are negatively-impacting activities that have taken place during the reporting period (i.e. 2019-2024); threats are negatively-impacting activities that are expected to continue over the next 12 years. A combined maximum of 10 Medium and/or High-influence pressures/threats per habitat or species have been listed, with a maximum of five of High influence.

Pressures and threats are recorded in 54 of the 59 habitats assessed. The most frequent pressures recorded in habitats relate to the agriculture category (Figure 2). 69% of habitats are impacted by pressures relating to agricultural practices, and the pressure is ranked as High importance in more than 50% of habitats (Figure 3). The most prevalent sub-category of agricultural pressures is "PA07 Intensive grazing or overgrazing by livestock" (Figure 4), which is recorded in 59% of habitats in which agricultural impacts are noted (41% of habitats overall), the next most frequent agricultural pressure being "PA22 Drainage for use as agricultural land", which is noted at 41% of habitats impacted by agriculture (29% of habitats overall). This is followed by "PA08 Extensive grazing or undergrazing by livestock" and "PA17 Agricultural activities generating pollution to surface or ground waters", both recorded in 39% of habitats impacted by agriculture (27% of habitats overall). Inappropriate grazing (either too much or too little) is recorded in 73% of all habitats where agricultural impacts are reported, and in 51% of habitats overall. The 16 habitats affected by pollution to surface or ground waters from agriculture include some marine, coastal, upland, fen, lake or other groundwater-dependent habitats. Quantitative analysis of the proportion of habitat exceeding Nitrogen deposition thresholds arising from "PA18 Agricultural activities generating air pollution" has highlighted Blanket Bog, Transition Mires, Rhynchosporion Depressions, Dry Heath, Alpine Heath and Wet Heath as particularly vulnerable to this type of pollution.

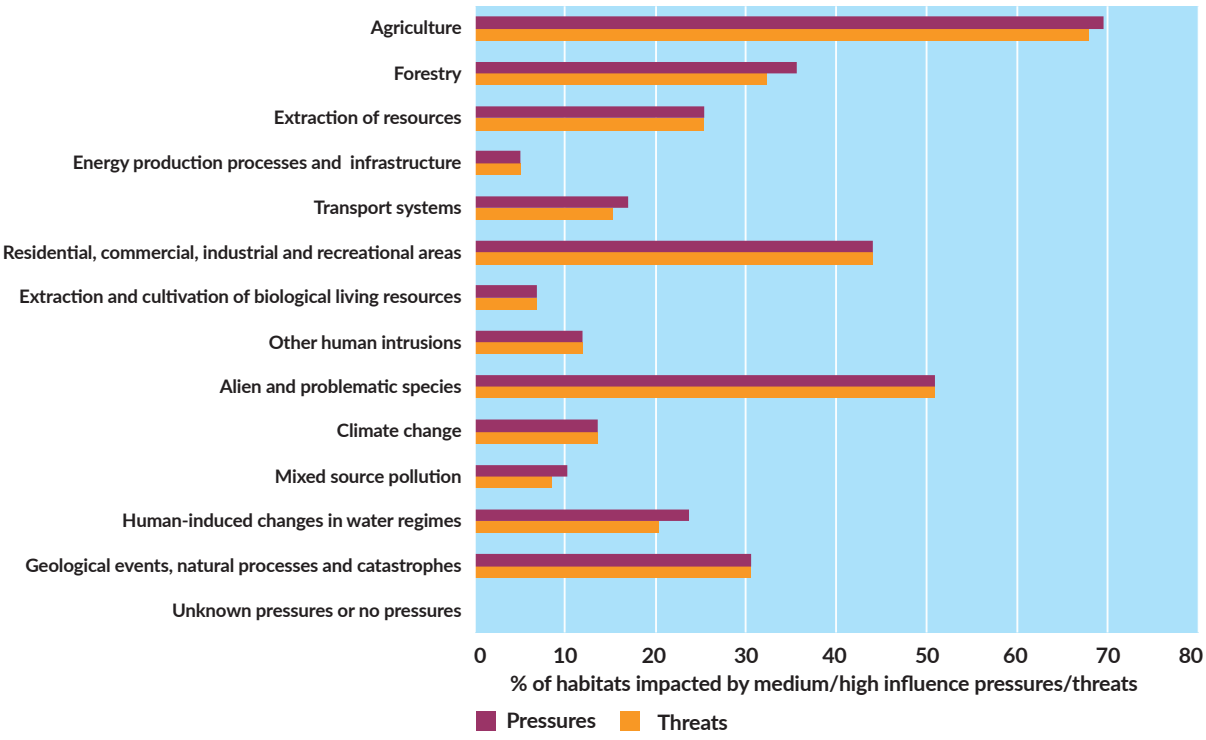


Figure 2: Percentage of habitats impacted by pressure/threat (combined medium and high influence pressures/threats)

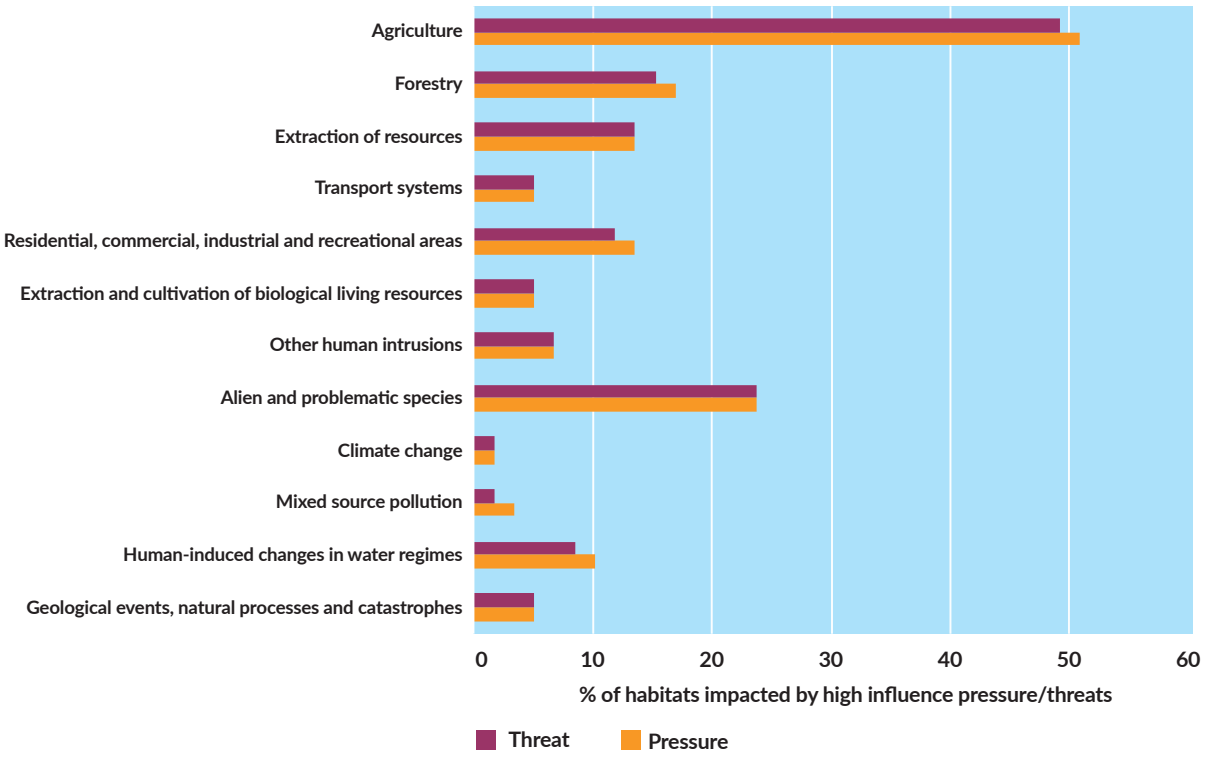


Figure 3: Percentage of habitats impacted by high influence pressure/threat

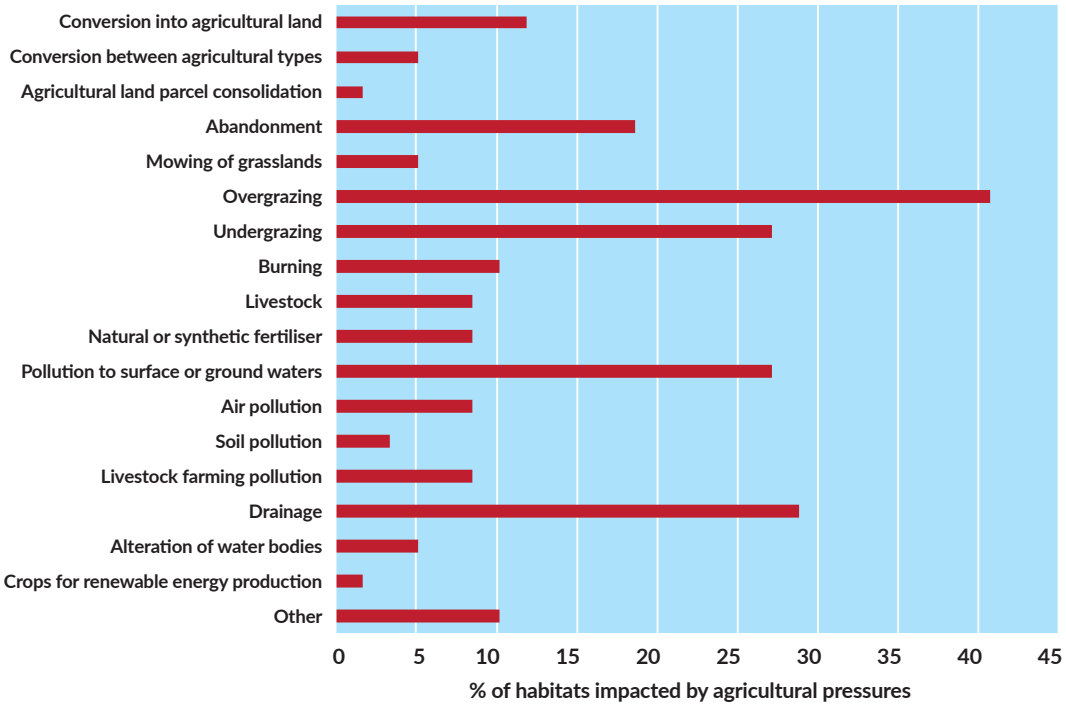


Figure 4: Percentage of habitats impacted by agricultural pressures (medium and high influence pressures combined). The names of pressures have been adapted from the standardised list

The next most frequent category of pressure to be recorded in habitats is "PI Alien and problematic species" (listed as a pressure in 51% of habitats), closely followed by "PF Development, construction and use of residential, commercial, industrial and recreational infrastructure and areas", a pressure in 44% of habitats (Figure 2). Additionally, alien and problematic species is the most common high-influence pressure after agriculture at 24% of habitats, while forestry-related high-influence pressures are third at 17% of all habitats. Both infrastructure and extraction of resources are recorded at 14% of all habitats (Figure 3). By far the most frequent impact associated with alien and problematic species is "PI02 Other invasive alien species (other than species of Union concern)", recorded in 25 habitats – of high-influence in 10 habitats and medium-influence in 15; problematic native species, particularly Bracken (*Pteridium aquilinum*), are a pressure in 13 habitats, high-influence in four habitats and medium-influence in nine. The alien species of note are Rhododendron (*Rhododendron ponticum*), Cherry Laurel (*Prunus laurocerasus*), Sea Buckthorn (*Hippophae rhamnoides*), Common Cord-grass (*Spartina anglica*), Canadian Waterweed (*Elodea canadensis*) and New Zealand Willowherb (*Epilobium brunnescens*); however the relative impact of each species is very different, with Rhododendron, for example, severely impacting the structure of many woodlands while the actual impact of New Zealand Willowherb on the functioning of upland rocky habitats is less clear. One factor of note regarding invasive alien species is that a wide range of habitats are affected: terrestrial and aquatic, freshwater and marine, rocky habitats, saltmarsh, grasslands and woodlands. The most frequent sub-category of pressure associated with category PF is "PF07 Sports, tourism and leisure activities" (e.g. hiking, walking), which is recorded in 31 of the 42 habitats in which this category was recorded. Not surprisingly, habitats affected include coastal habitats such as dunes, Machair and Sea Cliffs, as well as some types of heath and bog, all of which are usually located in areas popular with walkers and tourists.

"PF06 Deposition and treatment of waste/rubbish from built-up areas" and "PF07 Residential and commercial activities and structures generating pollution to surface or ground waters" are the next most frequent "PF" category impacts, occurring at 11 of the 42 habitats where category PF was recorded. These are followed by "PF15 Modification of coastline, estuary and coastal conditions for built-up areas" at nine of the 42 habitats; the majority of these are associated with coastal protection works.

The frequency of threats is similar to the frequency of pressures across all habitats, implying that there is no evidence that there will be any major decline in pressures over the next 12 years. For "PJ Climate change", which is listed equally as a pressure and threat, this highlights the impact it is currently having and also acknowledges the likely impact of climate change within the next 12 years on many of our more vulnerable habitats based on the recent increased frequency of extreme weather events. The sub-categories listed most frequently are "PJ03 Changes in precipitation regimes" and "PJ04 Sea-level rise", each noted at four of the eight habitats where climate change was recorded as a medium or high-influence pressure, and this was followed by "PJ01 Temperature changes and extremes" at three habitats.

HABITAT CONSERVATION MEASURES

Conservation measures are reported as being undertaken in 54 habitats, an increase of 18 habitats from the previous assessment. For 31 habitats the main purpose of the measures is to restore the habitat. For 20 of these habitats, the main purpose of the conservation measures is to maintain the Range, Area or Structure and Functions of the habitat, while for three the purpose of the measures is to increase the habitat area.

The conservation measures implemented are broadly in line with the main pressures noted. The measures listed most often relate to combating pressures associated with agriculture (n = 99). A total of 45 habitats have measures put in place for agriculture, and they are usually associated with implementation of agricultural schemes such as ACRES, EIP, GLAS or EU LIFE programmes. The primary agricultural conservation measure is "MA03 Maintain existing extensive practices and landscape features" (n = 23). The next measure is "MA05 Adapt mowing, grazing and other equivalent agricultural activities" (n = 20), followed by "MA10 Reduce/eliminate source pollution to surface and ground waters from agriculture" (n = 14) and "MA06 Stop mowing, grazing and other equivalent agricultural activities" (n = 11). The main habitat groups in which agricultural measures are being implemented are grasslands, coastal, lake, upland, heath and rocky habitats.

Control of problematic species is recorded as being implemented across 14 habitat types. These control measures are undertaken in equal frequency on alien invasive and problematic native species (mainly deer, Rhododendron and Bracken), despite the fact that most of the impacts recorded in this category are associated with invasive alien species. Habitats being remediated include Machair, dunes, upland grassland, Limestone Pavement, heaths, bogs, woodlands, Sea Cliffs, and rocky habitats.

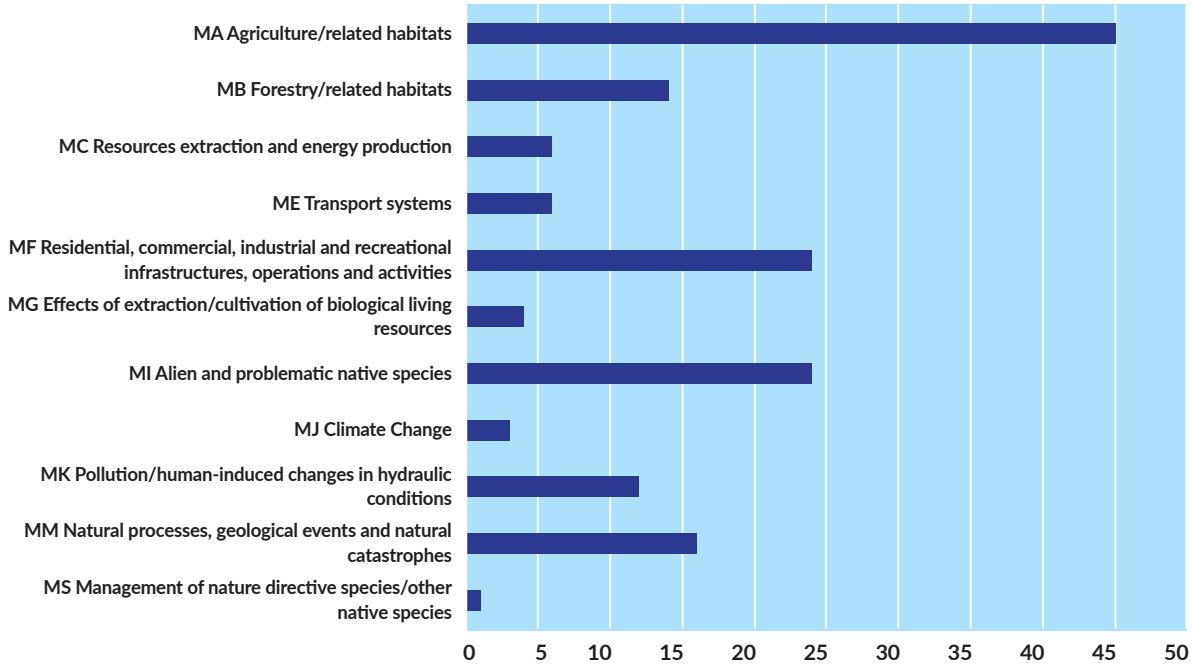


Figure 5: Number of habitats with associated measures in place

SPECIES ASSESSMENTS

Of the 69 Habitats Directive-listed species in Ireland, nine species have been described as vagrants. These include six cetacean species, Allis Shad (*Alosa alosa*), Brandt's Bat (*Myotis brandtii*), and Greater Horseshoe Bat (*Rhinolophus ferrumequinum*). The former two species have been assigned to this category since 2007 as there is no evidence of breeding populations of these species. Similarly, the Greater Horseshoe Bat was added this reporting round due to a non-breeding record from the winter of 2012-2013. The Nore Pearl Mussel (*Margaritifera durrovensis*) is no longer considered a separate species from the Freshwater Pearl Mussel.

The overall status of the remaining 60 species (including three species groups) as depicted in Figure 6a is that 58% of species are in Favourable status and 32% are in Unfavourable status (i.e. Inadequate and Bad), with 70% demonstrating stable or improving trends while 18% demonstrate ongoing deteriorating trends (Figure 6b).

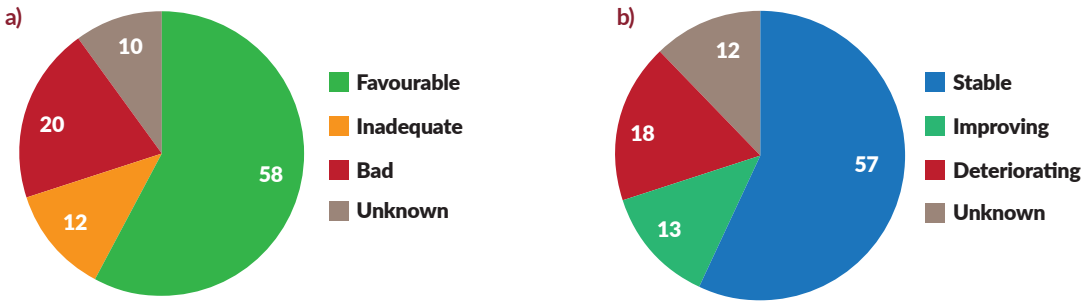


Figure 6: a) Percentage of species in Favourable, Inadequate or Bad status.
b) Percentage of species with Stable, Improving or Deteriorating trends. *n*=60

An overview of the results of the 69 individual species assessments for 2025 is presented in Table 3. The overall assessment results for 2007, 2013, and 2019 are presented for comparison.

Sligo/Leitrim. Deirdre Lynn

Table 3: Assessment results by species for 2007, 2013, 2019 and 2025.

Code	Species name	Annex	2007 Overall status	2013 Overall status and operator	2019 Overall status and trend	2025 Overall status and trend	2025 Range	2025 Population	2025 Habitat for the species	2025 Future Prospects
6985	Killarney Fern *(Vandenboschia speciosa)*	II, IV	Favourable	Favourable	Stable	Stable	Stable	Stable	Stable	Favourable
1528	Marsh Saxifrage *(Saxifraga hirculus)*	II, IV	Favourable	Favourable	Stable	Stable	Stable	Stable	Stable	Favourable
1833	Slender Naiad *(Najas flexilis)*	II, IV	Unfavourable-Inadequate	Unfavourable-Inadequate Stable	Unfavourable-Inadequate Deteriorating	Unfavourable-Bad Deteriorating	Unfavourable-Inadequate Stable	Unfavourable-Bad Deteriorating	Unfavourable-Bad Deteriorating	Unfavourable-Bad
6216	Shining Sickle Moss *(Hamatocaulis vernicosus)*	II	Favourable	Favourable	Stable	Stable	Stable	Stable	Stable	Favourable
1395	Petalwort *(Petalophyllum ralfsii)*	II	Favourable	Favourable	Stable	Stable	Stable	Stable	Stable	Favourable
1376	Maërl *(Lithothamnion corallioides)*	V	Unfavourable-Inadequate	Unfavourable-Inadequate Improving	Unfavourable-Bad Deteriorating	Unfavourable-Bad Deteriorating	Stable	Stable	Unfavourable-Bad Deteriorating	Unfavourable-Bad
1377	Maërl *(Phymatholithon calcareum)*	V	Unfavourable-Inadequate	Unfavourable-Inadequate Improving	Unfavourable-Bad Deteriorating	Unfavourable-Bad Deteriorating	Stable	Stable	Unfavourable-Bad Deteriorating	Unfavourable-Bad
1400	White Cushion Moss *(Leucobryum glaucum)*	V	Unfavourable-Inadequate	Favourable	Stable	Stable	Stable	Stable	Stable	Favourable
1409	*Sphagnum* genus (*Sphagnum* spp.)	V	Unfavourable-Inadequate	Unfavourable-Inadequate Stable	Unfavourable-Inadequate Stable	Unfavourable-Inadequate Stable	Favourable	Favourable	Unfavourable-Inadequate	Unfavourable-Inadequate
1413	*Lycopodium* group (*Lycopodium* spp.)	V	Unfavourable-Inadequate	Unfavourable-Inadequate Stable	Unfavourable-Inadequate Stable	Unfavourable-Inadequate Stable	Favourable	Unfavourable-Inadequate	Unfavourable-Inadequate	Unfavourable-Inadequate
1378	*Cladonia* (*Cladina* morphotype) species (*Cladonia* (*Cladina*) subsp.)	V	Unfavourable-Inadequate	Unfavourable-Inadequate Stable	Unfavourable-Inadequate Stable	Unfavourable-Inadequate Stable	Favourable	Favourable	Unfavourable-Inadequate	Unfavourable-Inadequate
1013	Geyer's Whorl Snail *(Vertigo geyeri)*	II	Unfavourable-Inadequate	Unfavourable-Inadequate Deteriorating	Unfavourable-Bad Deteriorating	Unfavourable-Bad Deteriorating	Unfavourable-Bad Deteriorating	Unfavourable-Bad Deteriorating	Unfavourable-Bad Deteriorating	Unfavourable-Bad
1014	Narrow-mouthed Whorl Snail *(Vertigo angustior)*	II	Unfavourable-Inadequate	Unfavourable-Inadequate Deteriorating	Unfavourable-Inadequate Deteriorating	Unfavourable-Bad Deteriorating	Unfavourable-Bad Deteriorating	Unfavourable-Bad Deteriorating	Unfavourable-Inadequate Deteriorating	Unfavourable-Bad
1016	Desmoulin's Whorl Snail *(Vertigo moulinsiana)*	II	Unfavourable-Bad	Unfavourable-Inadequate Deteriorating	Unfavourable-Inadequate Deteriorating	Unfavourable-Inadequate Deteriorating	Favourable Improving	Unfavourable-Inadequate Deteriorating	Unfavourable-Inadequate Deteriorating	Unfavourable-Inadequate
1024	Kerry Slug *(Geomalacus maculosus)*	II, IV	Favourable	Favourable	Favourable Improving	Favourable Improving	Favourable Improving	Favourable Improving	Favourable Stable	Favourable
1029	Freshwater Pearl Mussel *(Margaritifera margaritifera)*	II, V	Unfavourable-Bad	Unfavourable-Bad Deteriorating	Unfavourable-Bad Deteriorating	Unfavourable-Bad Deteriorating	Unfavourable-Inadequate Stable	Unfavourable-Bad Deteriorating	Unfavourable-Bad Deteriorating	Unfavourable-Bad
1990	Nore Pearl Mussel *(Margaritifera durrovensis)*	II, V	Unfavourable-Bad	Unfavourable-Bad Deteriorating						
1092	White-clawed Crayfish *(Austropotamobius pallipes)*	II, V	Unfavourable-Inadequate	Unfavourable-Inadequate Stable	Unfavourable-Bad Deteriorating	Unfavourable-Bad Deteriorating	Unfavourable-Inadequate Deteriorating	Unfavourable-Bad Deteriorating	Unknown	Unfavourable-Bad
1065	Marsh Fritillary *(Euphydryas aurinia)*	II	Unfavourable-Inadequate	Unfavourable-Inadequate Deteriorating	Unfavourable-Inadequate Improving	Favourable Improving	Favourable Improving	Favourable Improving	Favourable Improving	Favourable
1095	Sea Lamprey *(Petromyzon marinus)*	II	Unfavourable-Inadequate	Unfavourable-Bad Stable	Unfavourable-Bad Stable	Unfavourable-Bad Deteriorating	Unfavourable-Bad Stable	Unfavourable-Bad Stable	Unfavourable-Inadequate Deteriorating	Unfavourable-Bad
1096	Brook Lamprey *(Lampetra planeri)*	II	Favourable	Favourable	Favourable Stable	Favourable Stable	Favourable Stable	Favourable Stable	Favourable Stable	Favourable
1099	River Lamprey *(Lampetra fluviatilis)*	II, V	Favourable	Favourable	Unknown	Unfavourable-Bad Unknown/Uncertain	Unknown	Unknown	Unfavourable-Inadequate Deteriorating	Unknown
5046	Killarney Shad *(Alosa killarnensis)*	II, V	Favourable	Favourable	Favourable Stable	Favourable Stable	Favourable Stable	Favourable Stable	Favourable Stable	Unknown
1103	Twaite Shad *(Alosa fallax)*	II, V	Unfavourable-Bad	Unfavourable-Bad Stable	Unfavourable-Bad Stable	Unfavourable-Bad Deteriorating	Favourable Stable	Unfavourable-Bad Stable	Unfavourable-Inadequate Deteriorating	Unfavourable-Bad
5076	Pollan *(Coregonus pollan)*	V	Unfavourable-Bad	Unfavourable-Bad Unknown/Uncertain	Unfavourable-Bad Stable	Unfavourable-Bad Stable	Favourable Stable	Unfavourable-Bad Stable	Unfavourable-Inadequate Stable	Unfavourable-Bad
1106	Atlantic Salmon *(Salmo salar)*	II, V	Unfavourable-Bad	Unfavourable-Inadequate Stable	Unfavourable-Inadequate Stable	Unfavourable-Bad Deteriorating	Unfavourable-Bad Deteriorating	Unfavourable-Bad Deteriorating	Unfavourable-Inadequate Stable	Unfavourable-Bad
6284	Natterjack Toad *(Epidalea calamita)*	IV	Unfavourable-Bad	Unfavourable-Bad Improving	Unfavourable-Bad Stable	Unfavourable-Bad Stable	Unfavourable-Bad Stable	Unfavourable-Bad Unknown/Uncertain	Unfavourable-Inadequate Stable	Unfavourable-Bad
1213	Common Frog *(Rana temporaria)*	V	Unfavourable-Inadequate	Favourable	Favourable Stable	Favourable Stable	Favourable Stable	Favourable Stable	Favourable Stable	Favourable
1223	Leatherback Turtle *(Dermochelys coriacea)*	IV	Unfavourable-Inadequate	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
1303	Lesser Horseshoe Bat *(Rhinolophus hipposideros)*	II, IV	Favourable	Favourable	Unfavourable-Inadequate Deteriorating	Unfavourable-Inadequate Improving	Unfavourable-Inadequate Improving	Favourable Improving	Unfavourable-Inadequate Improving	Favourable
1309	Common Pipistrelle *(Pipistrellus pipistrellus)*	IV	Favourable	Favourable	Favourable Improving	Favourable Improving	Favourable Stable	Favourable Improving	Favourable Stable	Favourable
5009	Soprano Pipistrelle *(Pipistrellus pygmaeus)*	IV	Favourable	Favourable	Favourable Improving	Favourable Improving	Favourable Stable	Favourable Improving	Favourable Stable	Favourable

STATUS: Favourable · Unfavourable-Inadequate · Unfavourable-Bad · Unknown · Vagrant

TREND: Improving · Stable · Deteriorating · Unknown/Uncertain

Changes in assessment results may be due to a variety of factors, please read the full assessment reports for context.

Code	Species name	Annex	2007 Overall status	2013 Overall status and operator	2019 Overall status and trend	2025 Overall status and trend	2025 Range	2025 Population	2025 Habitat for the species	2025 Future Prospects
1317	Nathusius' Pipistrelle *(Pipistrellus nathusii)*	IV	●	○	○	○	✕	✕	=	●
1322	Natterer's Bat *(Myotis nattereri)*	IV	●	●	=	=	=	✕	=	●
1314	Daubenton's Bat (*Myotis daubentonii)*	IV	●	●	▲	=	=	▼	=	●
1330	Whiskered Bat *(Myotis mystacinus)*	IV	●	●	=	=	=	✕	=	●
1326	Brown Long-eared Bat *(Plecotus auritus)*	IV	●	●	▲	=	=	=	=	●
1331	Leisler's Bat *(Nyctalus leisleri)*	IV	●	●	▲	▲	=	▲	=	●
1334	Mountain Hare *(Lepus timidus)*	V	●	●	=	=	=	=	✕	●
1355	Otter *(Lutra lutra)*	II, IV	●	●	▲	=	=	=	✕	●
1357	Pine Marten *(Martes martes)*	V	●	●	▲	▲	▲	▲	▲	●
1364	Grey Seal *(Halichoerus grypus)*	II, V	●	●	▲	▲	=	▲	=	●
1365	Harbour Seal *(Phoca vitulina)*	II, V	●	●	=	=	=	=	=	●
1345	Humpback Whale *(Megaptera novaeangliae)*	IV	○	○	○	=	=	✕	=	●
1349	Common Bottlenose Dolphin (*Tursiops truncatus)*	II, IV	●	●	=	=	=	✕	=	●
1350	Short-beaked Common Dolphin (*Delphinus delphis)*	IV	●	●	=	=	=	=	=	●
1351	Harbour Porpoise *(Phocoena phocoena)*	II, IV	●	●	=	=	=	✕	=	●
2027	Killer Whale (*Orcinus orca)*	IV	○	○	○	○	=	✕	=	○
2029	Long-finned Pilot Whale (*Globicephala melas)*	IV	○	●	=	=	=	✕	=	●
2030	Risso's Dolphin *(Grampus griseus)*	IV	○	○	=	=	▲	✕	=	●
2031	White-sided Dolphin (*Lagenorhynchus acutus)*	IV	●	●	=	=	=	✕	=	●
2032	White-beaked Dolphin (*Lagenorhynchus albirostris)*	IV	○	●	=	=	=	✕	=	●
2034	Striped Dolphin *(Stenella coeruleoalba)*	IV	○	●	=	=	=	✕	=	●
2035	Cuvier's Beaked Whale *(Ziphius cavirostris)*	IV	○	○	=	=	=	✕	=	●
2038	Sowerby's Beaked Whale (*Mesoplodon bidens)*	IV	○	○	=	=	=	✕	=	●
2618	Minke Whale *(Balaenoptera acutorostrata)*	IV	●	●	=	=	=	✕	=	●
2621	Fin Whale *(Balaenoptera physalus)*	IV	●	●	=	=	=	✕	=	●
5020	Blue Whale *(Balaenoptera musculus)*	IV	○	○	○	○	=	✕	=	○
2624	Sperm Whale *(Physeter macrocephalus)*	IV	○	○	=	=	▲	✕	=	●
5033	Northern Bottlenose Whale *(Hyperoodon ampullatus)*	IV	○	○	○	○	=	✕	=	○
2619	Sei Whale *(Balaenoptera borealis)*	IV	○	○	○	○	=	✕	=	○

STATUS: ● Favourable ● Unfavourable-Inadequate ● Unfavourable-Bad ○ Unknown ● Vagrant

TREND: ▲ Improving = Stable ▼ Deteriorating ✕ Unknown/Uncertain

Changes in assessment results may be due to a variety of factors, please read the full assessment reports for context.

Table 3: Assessment results by species for 2007, 2013, 2019 and 2025.

Code	Species name	Annex	2007 Overall status	2013 Overall status and operator	2019 Overall status and trend	2025 Overall status and trend	2025 Range	2025 Population	2025 Habitat for the species	2025 Future Prospects
1348	Northern Right Whale *(Eubalaena glacialis)*	IV	●	●	●	●	●	●	●	●
2028	False Killer Whale *(Pseudorca crassidens)*	IV	●	●	●	●	●	●	●	●
2037	True's Beaked Whale *(Mesoplodon mirus)*	IV	●	●	●	●	●	●	●	●
2622	Pygmy Sperm Whale *(Kogia breviceps)*	IV	●	●	●	●	●	●	●	●
5029	Beluga/White Whale *(Delphinapterus leucas)*	IV	●	●	●	●	●	●	●	●
5034	Gervais' Beaked Whale *(Mesoplodon europaeus)*	IV	●	●	●	●	●	●	●	●
1102	Allis Shad *(Alosa alosa)*	II, V	●	●	●	●	●	●	●	●
1320	Brandt's Bat (*Myotis brandtii)*	IV	●	●	●	●	●	●	●	●
1304	Greater Horseshoe Bat *(Rhinolophus ferrumequinum)*	II, IV	●	●	●	●	●	●	●	●

STATUS: ● Favourable ● Unfavourable-Inadequate ● Unfavourable-Bad ● Unknown ● Vagrant

TREND: ▲ Improving = Stable ▼ Deteriorating ✕ Unknown/Uncertain

Changes in assessment results may be due to a variety of factors, please read the full assessment reports for context.

Many species remain in Favourable status. Population increases and Range expansion have been observed for several bat species, including the Lesser Horseshoe bat (*Rhinolophus hipposideros*), Marsh Fritillary (*Euphydryas aurinia*), Kerry Slug (*Geomalacus maculosus*) and Pine Marten (*Martes martes*). Ongoing declines are reported for a number of species including all whorl snails, Freshwater Pearl Mussel (*Margaritifera margaritifera*), Atlantic Salmon (*Salmo salar*), Slender Naiad (*Najas flexilis*) and Maërl species. Knowledge has improved for many whale species and all data point to Favourable status for all species, apart from Harbour Porpoise (*Phocoena phocoena*) where population has been assessed as Inadequate with a Stable trend. A re-assessment of River Lamprey (*Lampetra fluviatilis*) and Humpback Whale (*Megaptera novaeangliae*) due to improved knowledge has resulted in the move from Unknown assessments in 2019 to an Inadequate and Favourable assessment, respectively.

SPECIES PRESSURES/THREATS

The percentage of species impacted by Medium and High-importance pressures and threats is presented in Figure 7. Both pressures and threats are identified as impacting all 44 of the taxa assessed. Some impacts (pressures and threats) are specific to a particular species group. Most marine mammals, as well as Sea Lamprey (*Petromyzon marinus*), River Lamprey (*Lampetra fluviatilis*), Twaite Shad (*Alosa fallax*) and Maërl species, suffer impacts due to "PG01 Marine fish and shellfish harvesting causing reduction of species/prey populations and disturbance of species (professional)". Several fish species are affected by "PD02 Energy - Hydropower (dams, weirs, run-off the river and infrastructure)", primarily because these structures act as barriers to movement of the species, restricting the area available for spawning. All marine mammals are subject to a certain level of disturbance due to geotechnical marine surveys (pressure category "PC Extraction of resources"), although it should be noted that, in relation to seismic exploration, a robust regulatory and management regime is applied in order to avoid potentially significant impacts on marine mammals. Several marine mammal species are also affected by commercial shipping and transport, with "PE02 Shipping lanes and ferry lanes transport operations" affecting whale species in particular.

Impacts from agricultural activities, and to a lesser extent forestry, are reported as having a negative effect on a wide range of species, including fish, molluscs, terrestrial mammals and vascular plants. This is because of the wide sphere of influence of some of these activities which, though implemented at relatively local levels, may influence a much wider area, particularly if they affect groundwater supplies or nearby watercourses. Examples include drainage, fertiliser application and clear-felling. Unlike the Annex I habitats, inappropriate grazing is less of a problem for listed species in general, although undergrazing or abandonment are a significant problem for the whorl snails and Marsh Fritillary butterfly, whose habitats frequently occur in agricultural systems. The Agriculture category represents the highest percentage of High-importance pressures (Figure 8) relative to other categories, with the incidence predicted to increase over the next 12 years; this has been linked to the threat from fertiliser and pollution on selected fish species.

The issue of alien species is a cross-cutting one, as it is for habitats, but it is recorded as a pressure for species much less frequently; however, the impact is predicted to increase over the next 12 years. These invasive species are having a greater impact on freshwater or marine species, for example the White-clawed Crayfish (*Austropotamobius pallipes*) is impacted by the crayfish plague fungus (*Aphanomyces astaci*); Slender Naiad (*Najas flexilis*) is impacted by the Canadian Waterweed (*Elodea canadensis*); Twaite Shad and Pollan (*Coregonus pollan*) are impacted by the Asian Clam (*Corbicula fluminea*); Pollan is additionally impacted by Zebra Mussels (*Dreissena polymorpha*); Maërl species are impacted by the invasive alga Wireweed (*Sargassum muticum*); Natterjack Toad (*Epidalea calamita*) is impacted by the aquatic New Zealand Pygmyweed (*Crassula helmsii*). The only terrestrial invasive species noted were Sea Buckthorn (*Hippophae rhamnoides*) impacting Natterjack Toad and Rhododendron (*Rhododendron ponticum*) in woodlands reported as having a negative impact on the habitat of the Kerry Slug (*Geomalacus maculosus*).

In general, lower numbers of pressures and threats are reported for bat species than the other species groups, with no significant impacts noted for seven of the nine bat species assessed. Many bat populations are increasing, which may be partly linked with climate change and protection under Irish and EU legislation. The Lesser Horseshoe Bat, although increasing in both Population and Range, still has a notable disjunction between populations in the south-west and the western populations. The assessments indicated that climate change is predicted to have the greatest negative impact on fish species in the near future.

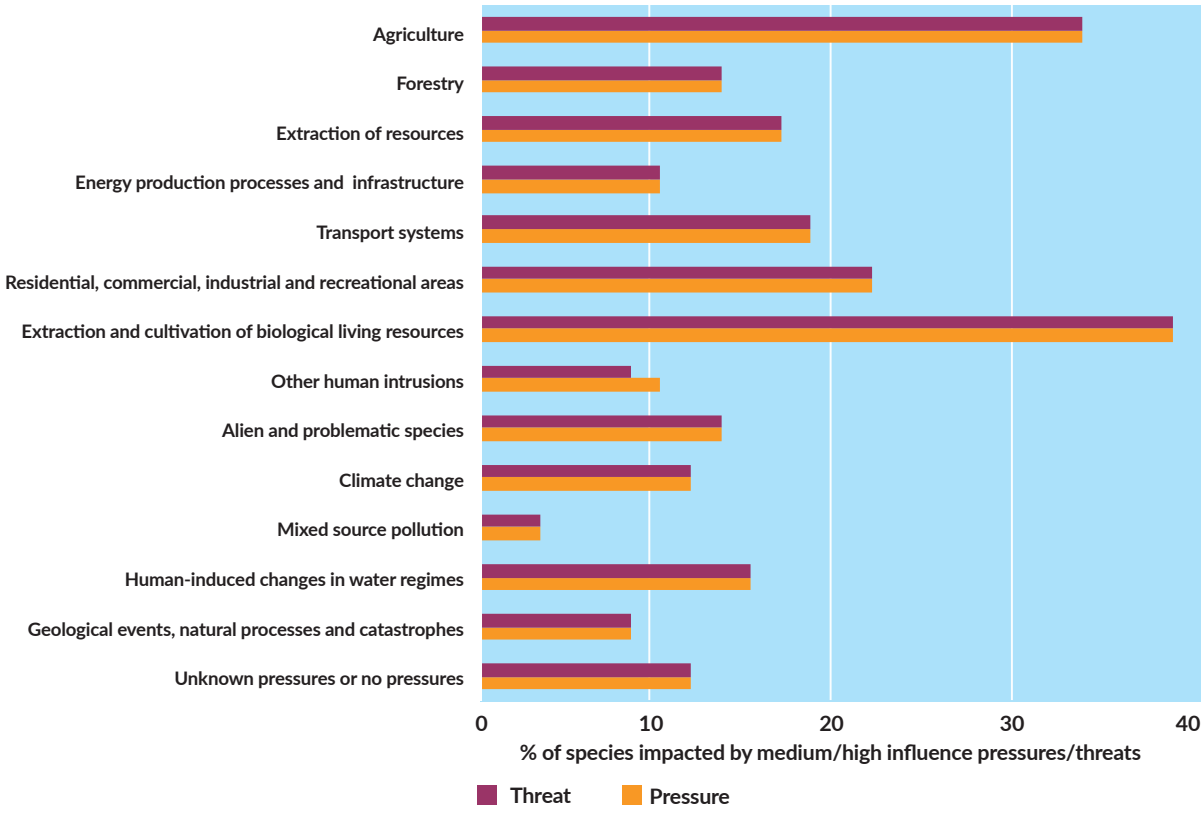


Figure 7: Percentage of species impacted by medium/high influence pressures/threats

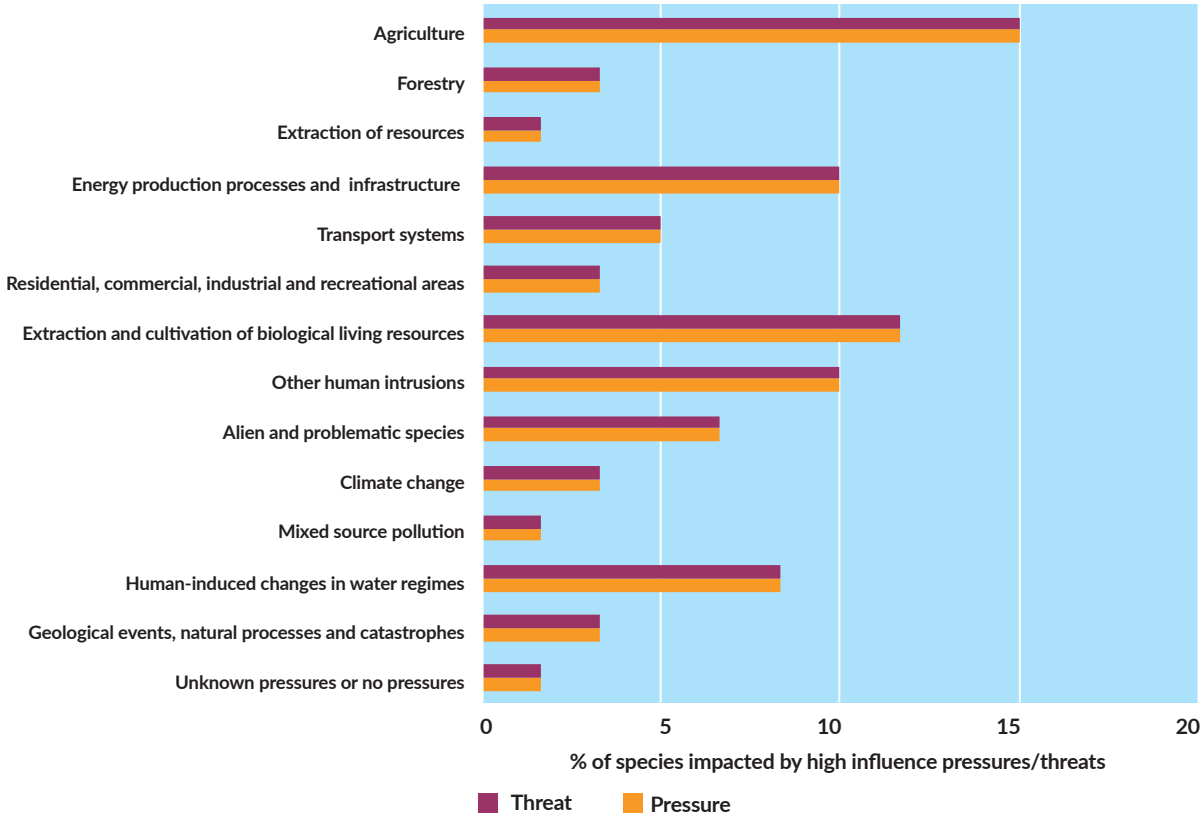


Figure 8: Percentage of species impacted by high influence pressure/threat (Vagrants not included)

SPECIES CONSERVATION MEASURES

Conservation measures are reported for Annex II and V species. Conservation measures (n = 82) are being implemented for 21 of the 54 Annex II species assessed. The most frequent purpose of the measures implemented is maintenance of Range/Population/Habitat for the species (10 species), followed by restoration of habitat (eight species), expansion of range (two species), and increasing population size and/or improvement of population dynamics (one species).

The most widely recorded conservation measure category among the species is "MA Measures related to agricultural practices and agriculture-related habitats", with 17 species listed as having at least one sub-category of this measure implemented. This is followed by "MF Measures related to residential, commercial, industrial and recreational infrastructures, operations and activities" with 14 species. For four marine species the sub-category "MF09 Infrastructure - Reduce/eliminate pollution, incl. noise, light, heat, soil pollution" is listed, and this is primarily linked to reducing the effects of seismic activity. For five fish species, measures relating to both "MC04 Extraction and energy - Reduce impact of hydropower operation and infrastructure" and "MK03 Mixed source pollution - Restoration of habitats impacted by multi-purpose hydrological changes" are required to manage changes in hydrological and coastal systems and regimes, as this includes management of barriers such as weirs and dams.

Agricultural measures are the most frequent (n = 36), with three agricultural measures implemented in relation to the Freshwater Pearl Mussel alone. The most frequent subcategory of agriculture measures recorded is "MA09 Agriculture - Manage use of fertilisers as well as chemicals in agriculture" (n=10). This is mainly identified for aquatic species but also Otter and Lesser Horseshoe Bat. This is followed by "MA10 Agriculture - Reduce/eliminate source pollution to surface and ground waters from agriculture" (n = 8), "MA13 Manage agricultural drainage and water abstraction" (n = 5), and "MA03 Maintain existing extensive practices and landscape features" (n = 4). These measures are delivered through targeted schemes such as NPWS Farm Plans, ACRES, Results-based agri-environment payment schemes (RBAPS), EU LIFE projects and European Innovation Partnership (EIP) projects.

When all other sub-categories of a measure are counted, the next most frequent categories listed for species, outside of agriculture, are "ME01 Transport - Reduce impact of transport operation and infrastructure", and "MF04 Infrastructure - Reduce/eliminate pollution to surface or ground waters", both of which are recorded in eight species assessments.

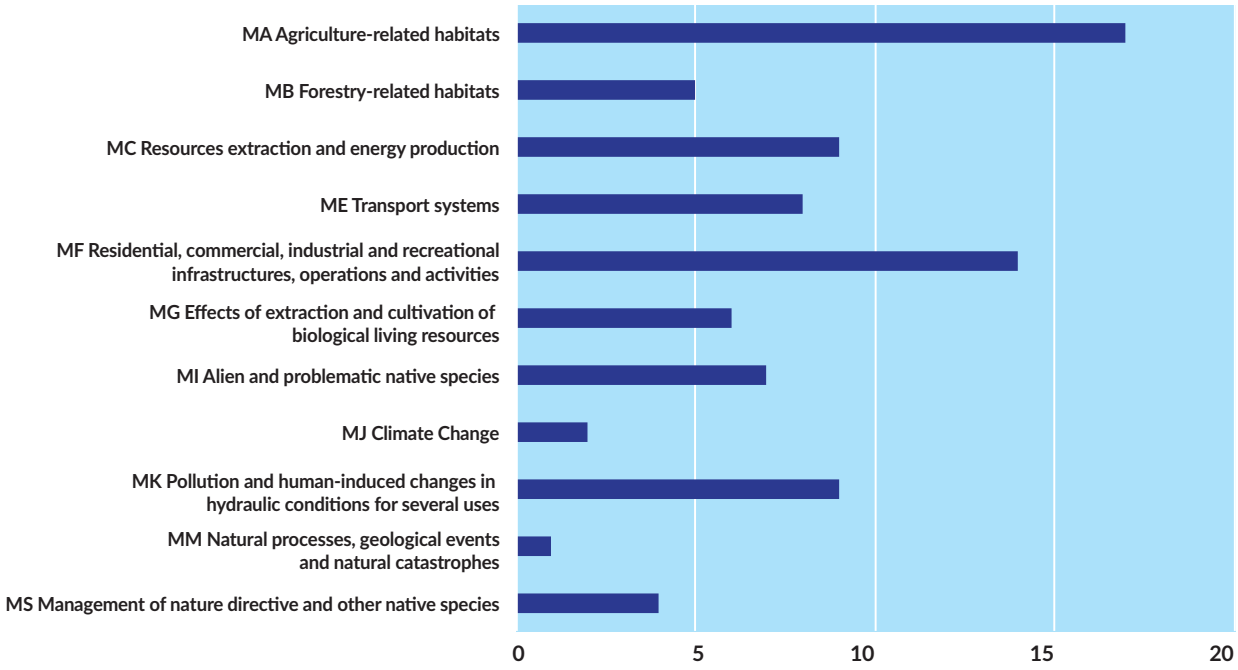


Figure 9: Number of species with associated measures in place

CONTRIBUTION OF THE SAC NETWORK

The trend of habitat in good condition and population trend is determined within the SAC network for habitats and species respectively. This does not take into account whether or not the habitat or species is a selection feature in each SAC. The SAC network affords a greater level of protection for one habitat but no species (Figure 10 a and b). One of these species and three habitats have worse population trends and habitat condition inside the SAC network. For Kerry Slug (*Geomalacus maculosus*), there was an increasing trend nationally but a stable trend within the SAC network, this apparent decrease is likely due to being an artefact of an increase in range for the species nationally in comparison to within SAC networks. A similar artefact has occurred for Hay Meadows with both losses and gains inside and outside the network but a significant net gain of 30.17 ha occurring outside the SAC network. The majority of these gains were recorded in State-owned public parks and demesnes that have been consistently managed by sustained annual mowing for the last 10 years, with conservation condition steadily improving year after year. Both Raised Bog (active)* and Degraded Raised Bogs have stable trends within the network in comparison to increasing trends outside the network. This is due to a balance of some losses and gains observed in outcomes reported in 2019 and 2025. The figure for the condition of these habitats could not be calculated in 2019 and only an estimate could be given. However, there is an increasing trend nationally due to the extensive restoration works currently being undertaken and these habitats should be better off in the next reporting round.

The overall shift in trend for habitats and species is likely to be due to improved knowledge on the state of biodiversity in Ireland, thus reducing the number of unknowns compared to previous reporting rounds.

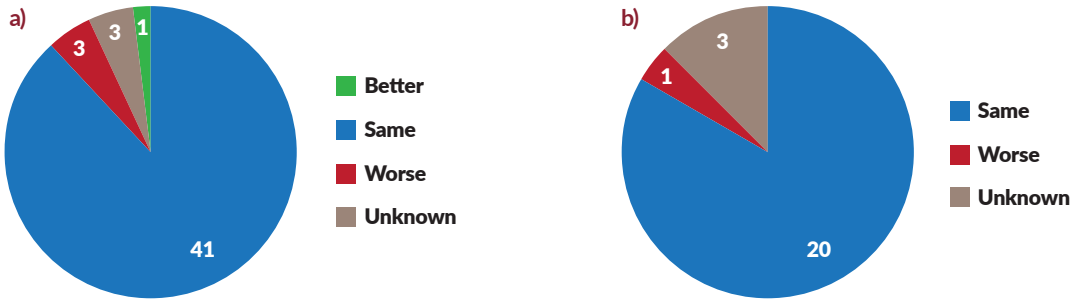


Figure 10: Number of (a) habitats and (b) species that are better, same or worse within the SAC network

CONCLUSIONS

Sanguisorba officinalis: Jim Martin

CONCLUSIONS

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

HABITAT STATUS

90% of Irish habitats listed in the Habitats Directive are currently in Unfavourable status, with over half showing continued decline. Agricultural pressures remain widespread, in particular grazing regimes that are of excessively high or low intensity which are compromising species-rich swards and/or soil structure. While alien invasive species are commonly reported, they vary according to habitat type, with Common Cordgrass (*Spartina anglica*) recorded in salt marsh habitats, Himalayan Balsam (*Impatiens glandulifera*) in wetlands and Rhododendron (*Rhododendron ponticum*) in woodlands. Impacts associated with recreation and tourism are commonly encountered on cliffs and dune habitats, and coastal defences affect dynamic coastal habitats. Pollution, and specifically nutrient enrichment, affects freshwater and marine habitats, while hydrological impacts are common in wetland habitats. While impacts on condition are more widespread, ongoing losses are significant in grassland and fen habitats.

SPECIES STATUS

The species status assessments are generally faring better, with 58% in Favourable status, including most of the bat species, seals, and cetaceans. A declining trend is reported for 18% of species, with freshwater species most at risk, particularly from pollution. However, an improving trend is reported for 13% of species, with populations of species such as the Marsh Fritillary, Kerry Slug and Pine Marten and many bat species expanding. A small number of species are assessed as being in Unfavourable-Bad status and continue to require concerted efforts to protect and restore them.

Fish species such as the Atlantic Salmon, Sea Lamprey, Pollan and Twaite Shad remain in Bad status. The Sea Lamprey is prevented from reaching suitable breeding habitat in rivers 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 IFI have identified a number of barriers blocking fish species movement in rivers, e.g. weirs. It is hoped that action can now be taken to remove these to improve Range, Population size and Quality of habitat for these species. The greatest concern continues to be the Freshwater Pearl Mussel, as only a few rivers have populations that show juvenile recruitment.

CONSERVATION ACTIONS AND PROGRESS

Despite the challenges, significant conservation actions are underway to improve the status of Ireland's habitats and species in the short and medium term. The National Parks and Wildlife Service (NPWS), responsible for nature conservation and wildlife protection, has seen a significant increase in staff numbers since 2020. Additionally, strategic investments have been made in land acquisition and restoration projects, including Ireland's first marine National Park. These measures are expected to improve conservation status, particularly in National Park areas.

A conservation measures programme is being rolled out across Natura 2000 sites. Notably, peatland habitat restoration efforts, including those for Active Raised Bogs, are showing progress. Active Raised Bogs in Ireland increased by 7% between 2018 and 2024, marking the first positive change for this habitat since assessments began in 2007. This improvement is largely due to reduced damage from activities like drainage and peat extraction, as well as increased restoration efforts led by NPWS and Bord na Móna.

The NPWS has also initiated the development of a management and conservation planning framework for designated blanket bog sites in Ireland. This includes the development of National Good Practice Guidelines for the restoration of blanket bogs; an assessment of the restoration potential of conifer plantations within designated sites; the prioritisation of restoration of blanket bog sites on State land within SACs/ Natural Heritage Areas and the development of blanket bog SAC-level provisional restoration

recommendation assessments and the implementation of restoration action plans (RAPs) in several areas. This work is currently being expanded across Blanket Bog SACs. Additionally, the Glenveagh Woodland Management Strategy was published by the NPWS. This aims to restore the ecological value of the park's ancient sessile oak woods and peatland habitats by removing non-native trees and replanting native species. Some of the critical components of the management strategy include managing the deer population to reduce browsing, using native tree species grown in a new in-house nursery, identifying and removing invasive and problematic species, e.g. Rhododendron (*Rhododendron ponticum*), development of a monitoring programme, and implementing conservation measures to protect the woods. These types of strategies are planned to be rolled out to other sites over the coming years.

The NPWS, along with other key stakeholders, has also developed the Lesser Horseshoe Bat Action Plan. Significant range expansion and positive short/long-term population trends provide grounds for genuine optimism about the future prospects for this species. Through dedicated work, our understanding of roosting requirements continues to improve and is informed by an up-to-date assessment of the resilience and priority needs of individual roosts. The NPWS continues to invest in maintaining and improving roost locations and enhancing the species habitats. A significant proportion of this bat's summer and winter roosts is protected within SACs. Additionally, there is a robust licencing system in place supported and underpinned by a strong planning system. Although the species assessment overall is Inadequate (due to a gap in range), the status trend is considered to be improving.

EU LIFE programmes are contributing significantly to improving the status of key habitats. For example, LIFE on Machair focuses on sustainable management of coastal grasslands in SACs, while LIFE INSULAR aims to restore fixed dune habitats. LIFE Lough Carra and Waters of LIFE IP are working to enhance the health of freshwater and coastal ecosystems.

Additionally, the Wild Atlantic Nature LIFE Integrated Project supports farming communities in SAC areas, aiming to add value to ecosystem services while promoting conservation. This initiative has led to the creation of Natura Communities, a network that empowers local communities to lead nature conservation and ecosystem restoration efforts.

There is an increased focus on biodiversity across many policies, with the €1.5 billion Agri-Climate Rural Environment Scheme (ACRES) under the Common Agricultural Policy playing a key role. The scheme offers targeted actions for farmers, particularly in areas dominated by semi-natural vegetation and Natura 2000 sites.

The Forestry Programme 2023-2027 also incentivizes the planting of native woodlands and the conservation of existing forests, with measures in place to protect key habitats such as those of the Freshwater Pearl Mussel.

In 2021, Coillte, Ireland's largest landowner, launched a new vision to enhance biodiversity on its estate. The company has committed to restoring 20% of existing biodiversity and improving ecological management, with plans to expand areas managed primarily for nature to 50% by 2030.

The Water Action Plan 2024 outlines Ireland's roadmap for protecting rivers, lakes, estuaries, and groundwater. The plan includes a multi-billion Euro investment in wastewater infrastructure, a new River Barriers Mitigation Programme, and a Community Water Development Fund to support local conservation projects.

Ireland also secures funding through the European Innovation Partnership Scheme. A number of biodiversity-positive initiatives have been implemented during the reporting cycle and are likely to result in a positive impact on upland, coastal and freshwater habitats.

A new national River Barriers Mitigation Programme will ramp up efforts to remove river-blocks that impact on species like salmon and lamprey swimming upstream to spawn, and a review of arterial drainage requirements and the underpinning Arterial Drainage Act will be undertaken in the context of land use.

Since the last reporting round the All-Ireland Pollinator Plan has made key steps forward in

aiding pollinators and enhancing the habitats they use. The current 2021–2025 plan expanded from 81 to 186 actions. To date over 14,000 actions have been taken across all sectors and more than 5,000 sites have been identified, accounting for approximately 8.3 km^2. While strong progress has been achieved, the plan highlights that continued action is essential to ensure a healthy environment for pollinators into the future.

Linked with the implementation of the All-Ireland Pollinator Plan, NPWS recorded an improving trend for Hay Meadows during the current reporting period. All parameters showed an increasing trend, with Range and Area both increasing over the last two reporting periods (by 9.3% and 14% respectively) and the percentage of habitat with good Structure and Functions increasing from 53% in the last reporting period to 66.8% in the current reporting period. Improvements were due to nature-positive conservation management such as maintaining agricultural practices, extensive mowing and managing fertiliser input. These measures are expected to continue into the next reporting period.

FUTURE CHALLENGES AND GOALS

Although significant progress has been made, challenges remain. Some habitats, particularly lake and coastal marine habitats, continue to suffer from nutrient pollution, and recovery may take years. Additionally, measures implemented in some areas have yet to show detectable improvements, and in some cases, declines elsewhere have offset gains.

Looking ahead, the effects of climate change will present additional challenges, particularly for peatland habitats and aquatic species. However, Ireland is committed to scaling up conservation efforts in the next 6-year period, including by developing a Nature Restoration Plan by 2026. This plan will aim to halt and reverse the decline of Annex I habitats, with the EU's Nature Restoration Regulation setting legally binding restoration targets.

Although considerable work is being undertaken to roll out conservation measures, we must continue to improve our understanding of the ecological requirements of the habitats and species. Pressures can interact and be exacerbated; climate change can cause unexpected consequences. The outcomes of conservation measures can be slow to materialise. Given the many unknowns that still need to be addressed, the role of research and monitoring cannot be underestimated. Without a sound scientific basis our efforts may end up misguided or ineffective.

The next reporting period, due in 2031, will require ongoing restoration, monitoring, and continued cooperation across sectors and society, which will be essential to meet national and EU biodiversity goals. Ongoing collaboration with farmers, in particular, cannot be underestimated as they play a vital role in delivering sustainable practices that support healthy soils and resilient ecosystems. Ireland's progress, backed by science and funding, offers hope for improving the conservation status of its protected habitats and species.

APPENDIX

All Saints Bog and Esker: Bord na Móna

Table 1: Assessment results by habitat for 2007, 2013, 2019 and 2025.

Code	Common name	2007 Overall status	2013 Overall status and operator	2019 Overall status and trend	2025 Overall status and trend	2025 Range	2025 Area	2025 Structure & Functions	2025 Future Prospects
1110	Sandbanks	U-I	Fav	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav (Un)	Fav
1130	Estuaries	U-I	U-I (I)	U-I (D)	U-B (S)	Fav (S)	Fav (S)	U-B (S)	U-B
1140	Tidal mudflats and sandflats	U-I	U-I (I)	U-I (D)	U-I (S)	Fav (S)	Fav (S)	U-I (S)	U-I
1150	Lagoons*	U-B	U-B (S)	U-B (D)	U-B (D)	Fav (S)	Fav (S)	U-B (D)	U-B
1160	Large shallow inlets and bays	U-I	U-I (I)	U-B (D)	U-B (D)	Fav (S)	Fav (S)	U-B (D)	U-B
1170	Reefs	U-I	U-B (D)	U-I (S)	U-B (S)	Fav (S)	Fav (S)	Unk	U-B
1180	Submarine structures made by leaking gases	Not assessed	Not assessed	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav
1210	Drift lines	U-I	U-I (D)	U-I (D)	U-I (S)	Fav (S)	U-I (S)	Fav (S)	U-I
1220	Vegetated shingle	U-I	U-I (S)	U-I (S)	U-I (D)	Fav (S)	U-I (D)	U-I (S)	U-I
1230	Vegetated sea cliffs	U-I	U-I (S)	U-I (S)	U-I (S)	Fav (S)	Fav (S)	U-I (S)	U-I
1310	*Salicornia mud*	U-I	U-I (D)	Fav (S)	U-B (D)	U-I (D)	U-I (D)	U-B (D)	U-B
1330	Atlantic salt meadows	U-I	U-I (S)	U-I (D)	U-B (D)	Fav (S)	U-I (D)	U-B (D)	U-B
1410	Mediterranean salt meadows	U-I	U-I (S)	U-I (D)	U-I (D)	Fav (S)	U-I (D)	U-I (D)	U-I
1420	Halophilous scrub	U-B	U-B (D)	U-B (D)	U-B (S)	Fav (S)	U-B (S)	U-I (S)	U-B
2110	Embryonic shifting dunes	U-I	U-I (S)	U-I (S)	U-I (D)	Fav (S)	U-I (D)	U-I (S)	U-I
2120	Marram dunes (white dunes)	U-B	U-I (S)	U-I (S)	U-I (D)	Fav (S)	U-I (D)	U-I (D)	U-I
2130	Fixed dunes (grey dunes)*	U-B	U-B (S)	U-B (D)	U-B (D)	Fav (S)	U-I (D)	U-B (D)	U-B
2140	*Empetrum* dunes*	U-B	U-I (S)	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav
2150	Dune heath*	U-B	U-I (S)	U-I (S)	U-I (D)	Fav (S)	Fav (S)	U-I (D)	U-I
2170	Dunes with Creeping Willow	U-I	U-I (S)	U-I (S)	U-I (D)	Fav (S)	U-I (D)	U-I (S)	U-I
2190	Dune slacks	U-B	U-I (D)	U-I (D)	U-I (D)	Fav (S)	U-I (D)	U-I (S)	U-I
21A0	Machair*	U-B	U-B (S)	U-I (S)	U-I (S)	Fav (S)	U-I (D)	U-I (I)	U-I
3110	Oligotrophic isoetid lake habitat	U-B	U-B (D)	U-B (S)	U-I (Un)	Fav (S)	Fav (S)	U-I (Un)	U-I
3130	Slender Naiad-type lakes	U-B	U-I (S)	U-I (D)	U-B (D)	Fav (S)	Fav (S)	U-B (D)	U-B
3140	Hard-water lakes	U-B	U-B (D)	U-B (D)	U-B (S)	Fav (S)	Fav (S)	U-B (S)	U-B
3150	Rich pondweed lake habitat	U-B	U-I (S)	U-I (S)	U-I (Un)	Fav (S)	Fav (S)	U-I (Un)	U-I
3160	Acid oligotrophic lakes	U-B	U-I (D)	U-I (S)	U-I (I)	Fav (I)	Fav (I)	U-I (S)	U-I
3180	Turloughs*	U-I	U-I (S)	U-I (S)	U-I (S)	Fav (S)	Fav (S)	U-I (Un)	U-I
3260	Vegetation of flowing waters	U-B	U-I (D)	U-I (D)	U-I (D)	Fav (S)	Fav (S)	U-I (D)	U-I
3270	Chenopodion rubri	Fav	Fav	Fav (S)	U-I (D)	Fav (Un)	U-I (D)	Fav (S)	Unk

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Code	Common name	2007 Overall status	2013 Overall status and operator	2019 Overall status and trend	2025 Overall status and trend	2025 Range	2025 Area	2025 Structure & Functions	2025 Future Prospects
4010	Wet heaths	U-B	U-B (S)	U-B (D)	U-B (D)	Fav (S)	U-I (D)	U-B (S)	U-B
4030	Dry heaths	U-I	U-B (S)	U-B (S)	U-B (D)	Fav (S)	U-I (D)	U-B (Un)	U-B
4060	Alpine and subalpine heath	U-I	U-B (I)	U-B (I)	U-B (S)	Fav (S)	U-I (Un)	U-B (S)	U-B
5130	Juniper scrub	U-I	U-I (S)	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav
6130	Calaminarian grasslands	U-I	U-I (S)	U-I (D)	U-I (D)	U-I (D)	U-I (D)	U-I (S)	U-I
6210	Orchid-rich calcareous grassland*	U-B	U-B (S)	U-B (D)	U-B (D)	U-I (D)	U-B (D)	U-I (S)	U-B
6230	Species-rich *Nardus* grassland*	U-B	U-B (D)	U-B (S)	U-B (D)	Fav (S)	U-B (D)	U-I (S)	U-B
6410	*Molinia meadows*	U-B	U-B (D)	U-B (D)	U-B (D)	U-I (D)	U-B (D)	U-B (S)	U-B
6430	Hydrophilous tall-herb swamp	U-I	U-B (S)	U-B (D)	U-B (D)	U-I (D)	U-B (D)	U-B (D)	U-B
6510	Hay meadows	U-B	U-B (S)	U-B (D)	U-B (I)	U-B (I)	U-B (I)	U-B (I)	U-I
7110	Raised bog (active)*	U-B	U-B (D)	U-B (D)	U-B (I)	U-B (S)	U-B (I)	U-B (I)	U-B
7120	Degraded raised bogs	U-B	U-B (D)	U-B (D)	U-B (I)	U-B (S)	U-B (I)	U-B (I)	U-B
7130	Blanket bog (active)*	U-I	U-B (D)	U-B (D)	U-B (D)	Fav (S)	U-I (D)	U-B (S)	U-B
7140	Transition mires	U-B	U-B (Un)	U-B (S)	U-B (D)	Fav (S)	U-B (D)	U-B (Un)	U-B
7150	Rhynchosporion depressions	Fav	U-I (D)	U-B (D)	U-I (D)	Fav (S)	U-I (D)	U-I (S)	U-I
7210	*Cladium fens**	U-B	U-B (Un)	U-I (S)	U-B (D)	Fav (S)	U-B (D)	U-B (Un)	U-B
7220	Petrifying springs*	U-B	U-I (S)	U-I (D)	U-I (S)	Fav (S)	Fav (S)	U-I (S)	U-I
7230	Alkaline fens	U-B	U-B (Un)	U-B (D)	U-B (D)	Fav (S)	U-B (D)	U-B (Un)	U-B
8110	Siliceous scree	U-I	U-I (I)	U-I (S)	U-I (S)	Fav (S)	Fav (S)	U-I (S)	U-I
8120	Calcareous scree	U-I	U-I (S)	U-I (S)	U-I (S)	Fav (S)	Fav (S)	U-I (S)	U-I
8210	Calcareous rocky slopes	U-I	U-I (S)	U-I (S)	U-I (S)	Fav (S)	Fav (S)	U-I (S)	U-I
8220	Siliceous rocky slopes	U-I	U-I (S)	U-I (S)	U-I (S)	Fav (S)	Fav (S)	U-I (S)	U-I
8240	Limestone pavement*	U-I	U-I (S)	U-I (S)	U-I (S)	Fav (S)	U-I (D)	U-I (I)	U-I
8310	Caves	Fav	Fav	Fav (S)	Fav (I)	Fav (I)	Fav (I)	Fav (S)	Fav
8330	Sea caves	Fav	Fav	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav
91A0	Old oak woodland	U-B	U-B (I)	U-B (D)	U-B (D)	Fav (S)	U-B (D)	U-B (S)	U-B
91D0	Bog woodland*	U-I	Fav	Fav (S)	U-B (D)	Fav (S)	Fav (S)	U-B (D)	U-B
91E0	Alluvial woodland*	U-B	U-B (I)	U-B (D)	U-B (D)	Fav (S)	U-B (D)	U-B (S)	U-B
91J0	Yew woodland*	U-B	U-B (I)	U-B (S)	U-B (S)	U-B (S)	U-B (S)	U-B (S)	U-B

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Table 2: Assessment results by species for 2007, 2013, 2019 and 2025.

Code	Species name	Annex	2007 Overall status	2013 Overall status and operator	2019 Overall status and trend	2025 Overall status and trend	2025 Range	2025 Population	2025 Habitat for the species	2025 Future Prospects
6985	Killarney Fern *(Vandenboschia speciosa)*	II, IV	Fav	Fav	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav
1528	Marsh Saxifrage *(Saxifraga hirculus)*	II, IV	Fav	Fav	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav
1833	Slender Naiad *(Najas flexilis)*	II, IV	U-I	U-I (S)	U-I (D)	U-B (D)	U-I (S)	U-B (D)	U-B (D)	U-B
6216	Shining Sickle Moss *(Hamatocaulis vernicosus)*	II	Fav	Fav	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav
1395	Petalwort *(Petalophyllum ralfsii)*	II	Fav	Fav	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav
1376	Maërl *(Lithothamnion corallioides)*	V	U-I	U-I (I)	U-B (D)	U-B (D)	Fav (S)	Fav (S)	U-B (D)	U-B
1377	Maërl *(Phymatholithon calcareum)*	V	U-I	U-I (I)	U-B (D)	U-B (D)	Fav (S)	Fav (S)	U-B (D)	U-B
1400	White Cushion Moss *(Leucobryum glaucum)*	V	U-I	Fav	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav
1409	*Sphagnum* genus (*Sphagnum* spp.)	V	U-I	U-I (S)	U-I (S)	U-I (S)	Fav (N/A)	Fav (N/A)	U-I (N/A)	U-I
1413	*Lycopodium* group (*Lycopodium* spp.)	V	U-I	U-I (S)	U-I (S)	U-I (S)	Fav (N/A)	U-I (N/A)	U-I (N/A)	U-I
1378	*Cladonia* (*Cladina* morphotype) species (*Cladonia* (*Cladina*) subsp.)	V	U-I	U-I (S)	U-I (S)	U-I (S)	Fav (N/A)	Fav (N/A)	U-I (N/A)	U-I
1013	Geyer's Whorl Snail *(Vertigo geyeri)*	II	U-I	U-I (D)	U-B (D)	U-B (D)	U-B (D)	U-B (D)	U-B (D)	U-B
1014	Narrow-mouthed Whorl Snail *(Vertigo angustior)*	II	U-I	U-I (D)	U-I (D)	U-B (D)	U-B (D)	U-B (D)	U-I (D)	U-B
1016	Desmoulin's Whorl Snail *(Vertigo moulinsiana)*	II	U-B	U-I (D)	U-I (D)	U-I (D)	Fav (I)	U-I (D)	U-I (D)	U-I
1024	Kerry Slug *(Geomalacus maculosus)*	II, IV	U-I	Fav	Fav (I)	Fav (I)	Fav (I)	Fav (I)	Fav (S)	Fav
1029	Freshwater Pearl Mussel *(Margaritifera margaritifera)*	II, V	U-B	U-B (D)	U-B (D)	U-B (D)	U-I (S)	U-B (D)	U-B (D)	U-B
1990	Nore Pearl Mussel *(Margaritifera durrovensis)*	II, V	U-B	U-B (D)	Not assessed	Not assessed	Not assessed	Not assessed	Not assessed	Not assessed
1092	White-clawed Crayfish *(Austropotamobius pallipes)*	II, V	U-I	U-I (S)	U-B (D)	U-B (D)	U-I (D)	U-B (D)	Unk	U-B
1065	Marsh Fritillary *(Euphydryas aurinia)*	II	U-I	U-I (D)	U-I (I)	Fav (I)	Fav (I)	Fav (I)	Fav (I)	Fav
1095	Sea Lamprey *(Petromyzon marinus)*	II	U-I	U-B (S)	U-B (S)	U-B (D)	U-B (S)	U-B (S)	U-I (D)	U-B
1096	Brook Lamprey *(Lampetra planeri)*	II	Fav	Fav	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav
1099	River Lamprey *(Lampetra fluviatilis)*	II, V	Fav	Fav	Unk	U-I (Un)	Unk	Unk	U-I (D)	Unk
5046	Killarney Shad *(Alosa killarnensis)*	II, V	Fav	Fav	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Unk
1103	Twaite Shad *(Alosa fallax)*	II, V	U-B	U-B (S)	U-B (S)	U-B (D)	Fav (S)	U-B (S)	U-I (D)	U-B
5076	Pollan *(Coregonus pollan)*	V	U-B	U-B (Un)	U-B (S)	U-B (S)	Fav (S)	U-B (S)	U-I (S)	U-B
1106	Atlantic Salmon *(Salmo salar)*	II, V	U-B	U-I (S)	U-I (S)	U-B (D)	U-B (D)	U-B (D)	U-I (S)	U-B
6284	Natterjack Toad *(Epidalea calamita)*	IV	U-B	U-B (I)	U-B (S)	U-B (S)	U-B (S)	U-B (Un)	U-I (S)	U-B
1213	Common Frog *(Rana temporaria)*	V	U-I	Fav	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav
1223	Leatherback Turtle *(Dermochelys coriacea)*	IV	U-I	Unk	Unk	Unk	Unk	Unk	Unk	Unk
1303	Lesser Horseshoe Bat *(Rhinolophus hipposideros)*	II, IV	Fav	Fav	U-I (D)	U-I (I)	U-I (I)	Fav (I)	U-I (I)	Fav
1309	Common Pipistrelle *(Pipistrellus pipistrellus)*	IV	Fav	Fav	Fav (I)	Fav (I)	Fav (S)	Fav (I)	Fav (S)	Fav
5009	Soprano Pipistrelle *(Pipistrellus pygmaeus)*	IV	Fav	Fav	Fav (I)	Fav (I)	Fav (S)	Fav (I)	Fav (S)	Fav
1317	Nathusius' Pipistrelle *(Pipistrellus nathusii)*	IV	Fav	Unk	Unk	Unk	Unk	Unk	Fav (S)	Fav
1322	Natterer's Bat *(Myotis nattereri)*	IV	Fav	Fav	Fav (S)	Fav (S)	Fav (S)	Unk	Fav (S)	Fav
1314	Daubenton's Bat *(Myotis daubentonii)*	IV	Fav	Fav	Fav (I)	Fav (S)	Fav (S)	Fav (D)	Fav (S)	Fav
1330	Whiskered Bat *(Myotis mystacinus)*	IV	Fav	Fav	Fav (S)	Fav (S)	Fav (S)	Unk	Fav (S)	Fav

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1326	Brown Long-eared Bat *(Plecotus auritus)*	IV	Fav	Fav	Fav (I)	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav
1331	Leisler's Bat *(Nyctalus leisleri)*	IV	Fav	Fav	Fav (I)	Fav (I)	Fav (S)	Fav (I)	Fav (S)	Fav
1334	Mountain Hare *(Lepus timidus)*	V	U-I	Fav	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Unk	Fav
1355	Otter *(Lutra lutra)*	II, IV	U-I	Fav	Fav (I)	Fav (S)	Fav (S)	Fav (S)	Fav (Un)	Fav
1357	Pine Marten *(Martes martes)*	V	Fav	Fav	Fav (I)	Fav (I)	Fav (I)	Fav (I)	Fav (I)	Fav
1364	Grey Seal *(Halichoerus grypus)*	II, V	Fav	Fav	Fav (I)	Fav (I)	Fav (S)	Fav (I)	Fav (S)	Fav
1365	Harbour Seal *(Phoca vitulina)*	II, V	Fav	Fav	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav
1345	Humpback Whale *(Megaptera novaeangliae)*	IV	Unk	Unk	Unk	Fav (S)	Fav (S)	Unk	Fav (S)	Fav
1349	Common Bottlenose Dolphin *(Tursiops truncatus)*	II, IV	Fav	Fav	Fav (S)	Fav (S)	Fav (S)	Fav (Un)	Fav (S)	Fav
1350	Short-beaked Common Dolphin *(Delphinus delphis)*	IV	Fav	Fav	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav (S)	Fav
1351	Harbour Porpoise *(Phocoena phocoena)*	II, IV	Fav	Fav	Fav (S)	U-I (S)	Fav (S)	U-I (Un)	Fav (S)	U-I
2027	Killer Whale *(Orcinus orca)*	IV	Unk	Unk	Unk	Unk	Fav (S)	Unk	Fav (S)	Unk
2029	Long-finned Pilot Whale *(Globicephala melas)*	IV	Unk	Fav	Fav (S)	Fav (S)	Fav (S)	Fav (Un)	Fav (S)	Fav
2030	Risso's Dolphin *(Grampus griseus)*	IV	Unk	Unk	Fav (S)	Fav (S)	Fav (I)	Fav (Un)	Fav (S)	Fav
2031	White-sided Dolphin *(Lagenorhynchus acutus)*	IV	Fav	Fav	Fav (S)	Fav (S)	Fav (S)	Unk	Fav (S)	Fav
2032	White-beaked Dolphin *(Lagenorhynchus albirostris)*	IV	Unk	Fav	Fav (S)	Fav (S)	Fav (S)	Fav (Un)	Fav (S)	Fav
2034	Striped Dolphin *(Stenella coeruleoalba)*	IV	Unk	Fav	Fav (S)	Fav (S)	Fav (S)	Unk	Fav (S)	Fav
2035	Cuvier's Beaked Whale *(Ziphius cavirostris)*	IV	Unk	Unk	Fav (S)	Fav (S)	Fav (S)	Unk	Fav (S)	Fav
2038	Sowerby's Beaked Whale *(Mesoplodon bidens)*	IV	Unk	Unk	Fav (S)	Fav (S)	Fav (S)	Unk	Fav (S)	Fav
2618	Minke Whale *(Balaenoptera acutorostrata)*	IV	Fav	Fav	Fav (S)	Fav (S)	Fav (S)	Fav (Un)	Fav (S)	Fav
2621	Fin Whale *(Balaenoptera physalus)*	IV	Fav	Fav	Fav (S)	Fav (S)	Fav (S)	Unk	Fav (S)	Fav
5020	Blue Whale *(Balaenoptera musculus)*	IV	Unk	Unk	Unk	Unk	Fav (S)	Unk	Fav (S)	Unk
2624	Sperm Whale *(Physeter macrocephalus)*	IV	Unk	Unk	Fav (S)	Fav (S)	Fav (I)	Fav (Un)	Fav (S)	Fav
5033	Northern Bottlenose Whale *(Hyperoodon ampullatus)*	IV	Unk	Unk	Unk	Unk	Fav (S)	Unk	Fav (S)	Unk
2619	Sei Whale *(Balaenoptera borealis)*	IV	Unk	Unk	Unk	Unk	Fav (S)	Unk	Fav (S)	Unk
1348	Northern Right Whale *(Eubalaena glacialis)*	IV	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant
2028	False Killer Whale *(Pseudorca crassidens)*	IV	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant
2037	True's Beaked Whale *(Mesoplodon mirus)*	IV	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant
2622	Pygmy Sperm Whale *(Kogia breviceps)*	IV	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant
5029	Beluga/White Whale *(Delphinapterus leucas)*	IV	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant
5034	Gervais' Beaked Whale *(Mesoplodon europaeus)*	IV	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant
1102	Allis Shad *(Alosa alosa)*	II, V	Unk	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant
1320	Brandt's Bat *(Myotis brandtii)*	IV	Fav	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant
1304	Greater Horseshoe Bat *(Rhinolophus ferrumequinum)*	II, IV	Not present	Not present	Not present	Vagrant	Vagrant	Vagrant	Vagrant	Vagrant

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