Climate Change Studies and Research in the European Union

Biodiversity loss: Record of Locally Endangered Species

The Magazine insert is a list of Irish endangered species being studied by students in Galway Community College as part of an Erasmus+ project on Climate Change Studies and Research in the European Union This project is a research collaboration between 3 schools from 3 different countries working with national wildlife NGO's to research and compile information about locally endangered species.
For more information visit www.galwaycc.ie/page/Erasmus-Project

SALMO SALAR
Atlantic Salmon
Brádan

INTRODUCTION
Irish salmon are Atlantic salmon and are native to Ireland. They are an iconic fish are included in much Irish folklore and also appeared on old Irish money. They are a protected species.

TAXONOMY
Order Salmoniformes, Family Salmonidae, Subfamily Salmoninae Genus Salmo Linnaeus, Species *Salmo salar*

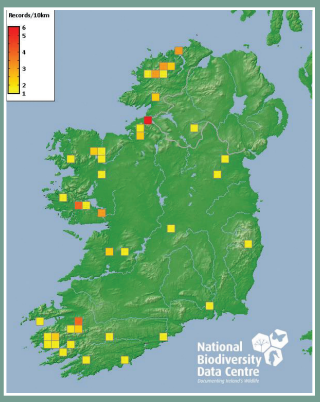
DISTRIBUTION
Widespread in large and medium river systems in Ireland.

MORPHOLOGY
The Atlantic salmon is a slender fish with a small head, blunt nose, small eyes, and a mouth that gapes back below it eyes. Scales are relatively small with 100-130 along the lateral line. Red colouration often present. Adult may reach 120cms in length but the range 40-100cms in more usual.

NATURAL HISTORY
Salmon are born in freshwater and migrate to the sea. They return to freshwater to breed. Their ideal habitat is well oxygenated, good quality, fast-flowing running freshwater ideally with a gravel or cobble bed. Spawning occurs between late Autumn and early Spring. Most adults die after spawning.

THREATS
Agricultural intensification. Poaching. Pollution to surface waters from household sewage, waste waters, agricultural and forestry activities. Intensive fish farming, intensification

Atlantic Salmon
© Mike Brown



Distribution map from National Biodiversity Data Centre.

CORRECTIVE ACTION
Continued legal protection of the species and its habitats. Control Of fishing and poaching. Improving water quality of rivers and Lakes. Adaptation of forest management.

BIBLIOGRAPHY
National Biodiversity Data Centre.

EPIDALEA CALAMITA
Natterjack Toad
Buaf

INTRODUCTION
The natterjack toad is Ireland's rarest amphibian, and the most endangered of our native amphibian species.

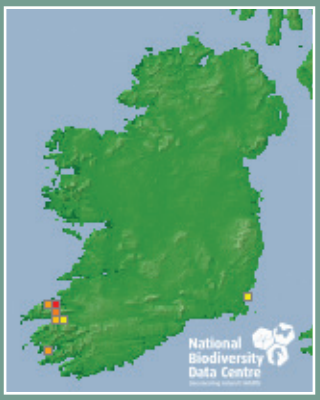
TAXONOMY
Order Anura, Family Bufonidae, Genus Epidalea, Species *E.calamita*

DISTRIBUTION
Restricted to small number of coastal sites on the Dingle and Iveragh peninsulas in west Kerry. Also small introduced population in Wexford. Does not occur in Northern Ireland.

MORPHOLOGY
The natterjack toad has much shorter legs than the common frog, which gives it a unique gait and prevents it from hopping in the same way as the frog. Adults are up to 8cm in length, green brown or cream colour with dark 'warts' on their backs. The most prominent identifying feature is the yellow line that runs along the length of the toad's back; a feature that is not found in the common frog.

NATURAL HISTORY
The natterjack toad has very specific habitat requirements for breeding. They require a shallow water-body, with a gentle slope, and minimal aquatic and border vegetation. The breeding season typically occurs between April and July, during which time, males will call out to attract females. Unlike the common frog, which breeds explosively over a short period, natterjack toads tend to stagger their breeding efforts, with some individuals breeding early in the season while others breed later. Spawn is laid in strings rather than clumps.

Natterjack Toad. Picture from biodiversity Ireland



Distribution map from National Biodiversity Data Centre.

THREATS
Loss of aquatic and terrestrial habitats (e.g. drainage, agricultural intensification), but also deterioration of habitat quality (e.g. reed encroachment of ponds; undergrazing of terrestrial habitats around ponds leading to rank vegetation and poor foraging conditions).

CORRECTIVE ACTION
Protection and conservation of coastal dune, sandy and marshland areas.

BIBLIOGRAPHY
National Biodiversity Data Centre. (Amphibian, Reptile & Freshwater Fish Red List 2011 – Native Species Accounts)
The Herpetological Society of Ireland

SCIURUS VULGARIS
Eurasian Red Squirrel
Iora Rua

INTRODUCTION
Red squirrels have furry coats of a reddish brown with a darker tint on the back. They are smaller is size to the grey squirrel and are probably the most agile mammal in Ireland.

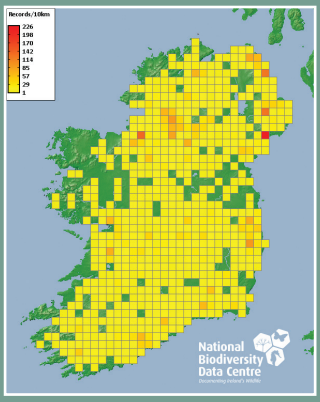
TAXONOMY
Order Rodentia, Family Sciurudae, Group Mammal

DISTRIBUTION
Low population density in Ireland, concentrated in the south and east. Scarce in the north and western seaboard.

MORPHOLOGY
Adults can grow up to 25cm in length with a long bushy tail equal to the length of the head and body combined. Adult male and female red squirrels are similar in size weighing up to 400 grams each but can vary in weight by up to 10% at certain times of the year depending on the seasonal availability of food. The fore feet leave a four toed footprint while the larger hind feet have five toes and measure up to 6cm in length.

NATURAL HISTORY
They seem to have been present in Ireland by prehistoric times before the arrival of the ice age made them extinct in this country, they returned after the retreating glaciers and have also been brought to Ireland and released in large numbers over several periods up until the 19th century. Currently they can be found in any county which supports open forest areas, large parks or connected wooded gardens. Red squirrel's habit of hoarding stores of nuts and seeds are important to the ecosystem of forests as this activity spreads tree seeds over large areas at the vital time of Autumn.

Eurasian Red Squirrel.
© Mike Brown



Distribution map from National Biodiversity Data Centre.

THREATS
Status Currently as a protected species
Grey squirrel is dominant over the red squirrel for habitat and foraging. Increase in domestic cats and dogs causing a decrease in numbers. Deaths on roads is also on the increase

CORRECTIVE ACTION
Increase in coniferous only woodlands. Tunnels under roads

BIBLIOGRAPHY
National Biodiversity Data Centre 2009 Irish Red List of Terrestrial Mammals. Marnell, F. et al 2009. ConserveIreland

APUS APUS
Swift
Gabhlán gaoithe

INTRODUCTION
Perhaps the most iconic and intriguing of our urban bird species, Swifts are a small migratory bird that visits Ireland each year to nest. They travel from southern Africa where they spend over eight months of the year.

TAXONOMY
Family Apodidae, Genus Apus, Species *A. apus*

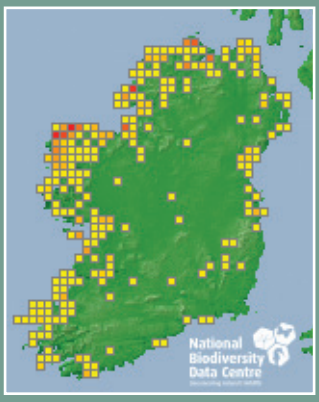
DISTRIBUTION
Widespread throughout Ireland from May to early September. Declining in numbers however.

MORPHOLOGY
The swift is similar in size to a swallow but is all dark in colour. It spends all its life airborne so is never seen resting on wires like the swallow or martin. It has very distinctive scythe shaped wings during flight, held straight out from the body. It is one of the fastest flying birds in Ireland.

NATURAL HISTORY
The swift is on the amber list of bird of conservation concern in Ireland because its population has declined by over 40% in the last 15 years. It breeds mostly in small holes in buildings. It returns to the same nest every year. The swift migrates from tropical Africa, south of the Sahara arriving here in the end of April onwards. Feeds on flying insects only.

THREATS
The restructuring and renovation of buildings that the swift would usually use as home is the major threat to this bird.

Swift Close-up © Catherine Casey (BirdWatch Ireland)



Distribution map from National Biodiversity Data Centre.

CORRECTIVE ACTION
Protection of nesting sites and provision of nest boxes.

BIBLIOGRAPHY
National Biodiversity Data Centre, Birdwatch Ireland, Swift conservation Ireland

CARDUELIS FLAVIROSTRIS

Twite

Gleoiseach sléibhe

INTRODUCTION

Part of the Finch family the twite is often recognised by its distinctive, slightly nasal 'tweeht' call.

TAXONOMY

Family Fringillidae, Subfamily Carduelinae Species *L. flavirostris*

DISTRIBUTION

A declining breeding species mainly on the north and west coast of Ireland. A scarce winter visitor to north-eastern coasts. The breading population is joined in the winter by the Scottish population which tend to winter in Ireland.

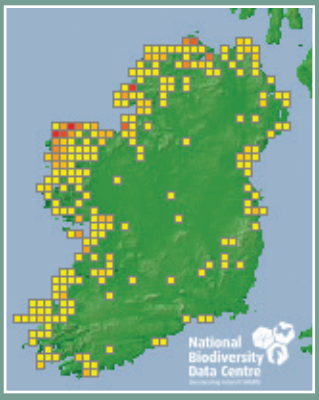
MORPHOLOGY

Very similar to a female Linnet and good views are needed to safely identify Twite. Has a smaller, more conical bill than Linnet. Adult summer male Twite have extensive black streaking on the back and breast, with a rather plain brown head. Most distinctive is the pink patch on the rump. The bill is grey. Adult winter male, adult females and juveniles are largely indistinguishable from each other. In this plumage, note the yellow bill, pale brown wash to the underparts with less extensive black streaking than shown on adult summer males.

NATURAL HISTORY

The twite is now a very rare breeding species (ca. 100 pairs), confined to the coastal bogs of Counties Mayo and Donegal. Formerly bred along all coasts, including County Dublin but was never common. Feeds on seeds, split grain, buds and some insects, especially when feeding young. The belmullet peninsula is one of the strongholds of the resident breading population.

Twite © Mike Brown



Distribution map from National Biodiversity Data Centre.

THREATS

Status: threatened species.

Threats include habitat loss. Changes in agriculture practice and overgrazing of heather in the hillsides.

CORRECTIVE ACTION

Protection of habitats including coastal bogs and heather. Introduction of sustainable grazing of hillsides.

BIBLIOGRAPHY

National Biodiversity Data Centre, Birdwatch Ireland

LEPTIDEA SINAPIS

Wood White butterfly

Bánóg Choille

INTRODUCTION

The wood white is a small white, delicate butterfly. It is a near threatened species in Ireland but is not yet legally protected

TAXONOMY

Order Lepidoptera, Family Pieridae, Genus Leptidea, Species *L.sinapis*

DISTRIBUTION

Found throughout Britain and Europe. In Ireland it is mostly confined to the Burren and the western shores of Lough Corrib

MORPHOLOGY

A small butterfly with white wings with grey tips and grey to light green underneath, Wingspan 40-42mm. Very similar and difficult to differentiate from the Cryptic Wood White butterfly. Delicate appearance with weak fluttering flight. Rounded wings with no bold markings

NATURAL HISTORY

Found mostly on grassy forest clearings and limestone pavement, such as the Burren in Clare. May be found resting on flower heads in dull weather. Eggs are laid on tall protruding plants, under the leaves. The larva hatch around September and overwinter, turning into butterflies from April to July.

THREATS

Status Near Threatened. There has been a 50% reduction in population over the last 15 years. Natural limestone pavements are vulnerable in Ireland then the wood white is also threatened.

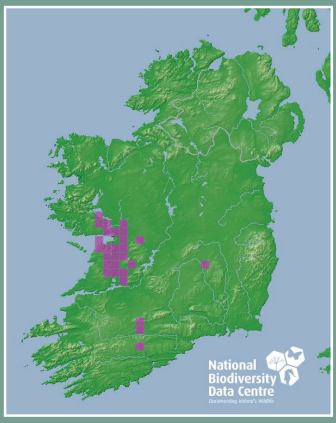
CORRECTIVE ACTION

Protection of natural limestone pavement habitats and coastal dune areas.

BIBLIOGRAPHY

National Biodiversity Data Centre (Ireland Red list No.4 butterflies)

Wood white butterfly,
© Mike Brown



Distribution map from National Biodiversity Data Centre.

SQUATINA SQUATINA
Angel Shark
Bráthair

INTRODUCTION
The angelshark is a small shark that lives in sandy seabeds. They have flat bodies and horizontal pectoral and pelvicl fins. Their lower jaw can move upwards and outwards to catch prey.

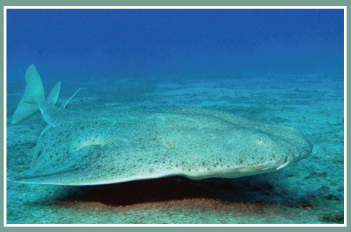
TAXONOMY
Species Squatina Genus Squatina, Family Squatinidae

DISTRIBUTION
Tralee Bay is the main center of its distribution in Ireland, with Clew Bay a secondary area.

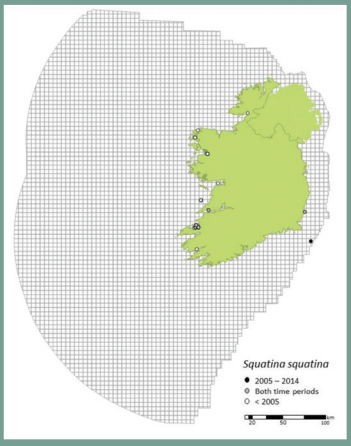
MORPHOLOGY
Angel Sharks are unusual in having flattened bodies and broad pectoral fins that give them a strong resemblance to rays. have a skate-like appearance and are medium sized. They can reach up to 2.5m TL. Angel shark are live bearing and produce 7-25 embryos. The gestation period is 10 months.

NATURAL HISTORY
Once common over large areas of the Northeast Atlantic from Norway, Sweden, Morocco, and the Canary Islands, to the Mediterranean and Black Seas, there is now significant fishing pressure which has resulted in significant population decline

THREATS
Often a by-product of commercial fishing where the shark gets trapped in gillnets, tramell nets and bottom longlines. The fact that they live in shallow water close to the shore means they are caught even when not the target fish. Once considered abundant in the Atlantic Ocean, the angel shark was recently classified as “critically endangered”.



Angel Shark (Squatina squatina)
© Philippe Guillaume, CC BY 2.0



Distribution map of Angel Shark. © National Parks and Wildlife Service 2016

CORRECTIVE ACTION
Protection of the species and restriction of fishing within the range of the angel shark. Anglers should adopt the catch-and-release programme and any bycatch should be returned to the sea, preferably after being tagged.

BIBLIOGRAPHY
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Clarke, M., Farrell, E.D., Roche, W., Murray, T.E., Foster, S. and Marnell, F. (2016) Ireland Red List No. 11: Cartilaginous fish [sharks, skates, rays and chimaeras]. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. Dublin, Ireland.

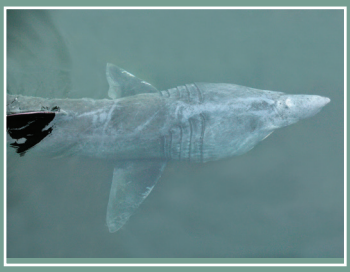
CETORHINUS MAXIMUS
Basking Shark
Ainmhi Sheoil

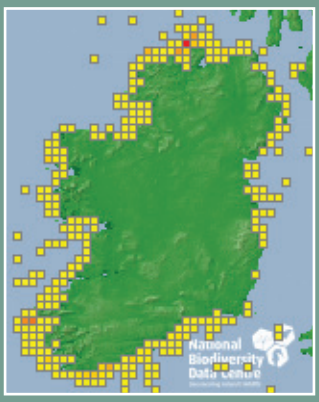
INTRODUCTION
Basking sharks are the worlds' second largest fish but despite their size these sharks feed primarily on plankton, even though they do have several rows of small teeth. Ireland has an important historic association with these sharks, the first record dating back to the 16th Century.

TAXONOMY
Order Lamniformes, Family Cetorhinidae, Genus Cetorhinus, Species *C. maxiumus*

DISTRIBUTION
Basking sharks can be seen on the south coast, from West Cork to West Kerry, and the North West coasts of Mayo, Sligo and Donegal in Ireland. A recent study by GMIT, which involved tagging, suggests that these sharks may have overwintered near the US east coast before swimming back to Irish waters. Basking sharks have recently been classified as endangered.

MORPHOLOGY
The basking shark is a large slow-swimming filter feeder that fuels its enormous bulk by sieving tiny plankton through specially adapted "gill rakers". It has the distinctive torpedo-like body shape, with a conical, almost pointed snout, large dorsal and pectoral fins and a crescent-shaped tail.


Basking shark © Mike Brown



Distribution map from National Biodiversity Data Centre.

NATURAL HISTORY
The basking shark is the largest fish in the North Atlantic, and second largest in the world. In spring and early summer these huge, harmless plankton-feeders arrive in numbers around the Irish coast and can be seen from Mizen Head in the south to Malin Head in the north, sometimes just metres from the shore. Basking Sharks were hunted regularly in Ireland from at least the 18th Century up to the mid-20th Century, especially off Connemara, Co Galway and Achill Island, Co Mayo.

THREATS
Basking sharks are at risk globally because of the value of their fins, for which they are directly targeted. They are also at risk of propeller damage from collision with boats and of entanglement in fishing gear, particularly the lines for static gear such as pots and creels for catching lobsters and crabs. The basking shark is currently not listed as a protected or restricted fish species under Irish National marine or conservation legislation.

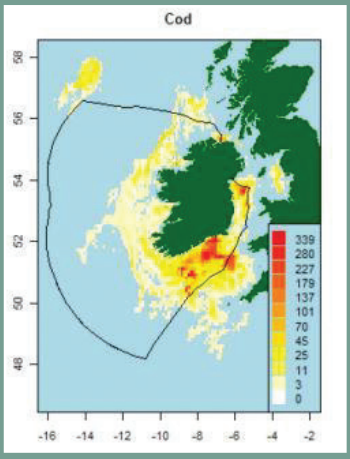
CORRECTIVE ACTION
Restrict the fishing of the fish by offering it legal protection.

BIBLIOGRAPHY
National Biodiversity Data Centre. IBSG. Lieber, L., Hall, G., Hall, J. et al. Spatio-temporal genetic tagging of a cosmopolitan planktivorous shark provides insight to gene flow, temporal variation and site-specific re-encounters. Sci Rep 10, 1661 (2020). https://doi.org/10.1038/s41598-020-58086-4

GADUS MORHUA
Atlantic Cod
Féileán

INTRODUCTION
Atlantic cod was fished for a thousand years by north European fishers who followed it across the North Atlantic Ocean to North America. The Atlantic cod was once very plentiful and as such a very important commercial fish in Irish water but stocks are now in serious decline and the species is now in serious threat. The Atlantic cod is labelled vulnerable on the IUCN Red List of Threatened Species.


Atlantic Cod (Wikipedia)



Distribution map for Atlantic Cod (Biodiversity Data Centre)

TAXONOMY
Order Gadiformes, Family Gadidae, Genus Gadus, Species *Gadus morhua*

DISTRIBUTION
Widely distributed in the north Atlantic and the Arctic regions. Irish stocks spawn in two main sites in the western and eastern Irish sea. They are a primarily pelagic fish and prefer cold water in the 2 to 8°C range, although can be found in water up to 20°C.

MORPHOLOGY
A large bilaterally symmetric fish between 60 and 120cm but can grow up 150cm. Colouring is brown or green, with spots on the dorsal side, shading to silver ventrally with a stripe along its lateral line.

NATURAL HISTORY
Cod are carnivorous and will eat a wide variety of species including mussels, squids, crustaceans and other small fish. Adult cod are cannibalistic and will readily eat smaller cod. Studies have shown that cod migrate substantial distances between their feeding and spawning grounds every year. These migrations can be up to 500km. During these lengthy migrations large shoals of cod travel at depths of 300 to 400 metres using the deep ocean currents to speed their travel.

THREATS
The main threats to the Atlantic Cod is over fishing and the development of newer fishing technologies such as larger nets and sonar.

CORRECTIVE ACTION
Careful management of fish quotas for the Atlantic Cod and introduction of no-fishing zones around known spawning grounds.

BIBLIOGRAPHY
National Biodiversity Data Centre. Wikipedia

TYTO ALBA
Barn Owl
Scréachóg reilige

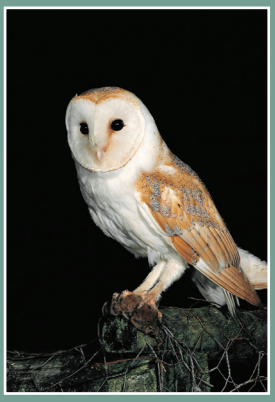
INTRODUCTION
The barn owl *(Tyto alba)* is the most widely distributed species of owl in the world and one of the most widespread of all species of birds, being found almost everywhere in the world. There has been a significant decline in the breeding population in Ireland and as such the barn owl is on the red list as a threatened species.

TAXONOMY
Genus Tyto, Phylum Chordata, Family Tytonidae, Species *T. alba*

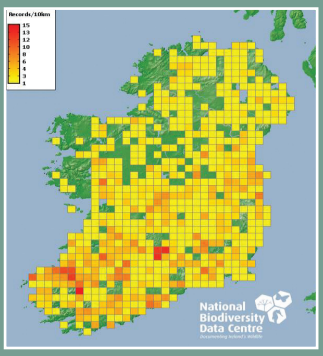
DISTRIBUTION
Most of the barn owl population in Ireland is concentrated in the midlands and the southwest. Barn owls are difficult to count because they are nocturnal, so population sizes are hard to estimate. The number of breeding barn owls fluctuates year to year but the overall trend in recent years is for their population to decline to be levelling off. Despite the clear halt in speed decline in their numbers, their population is still vulnerable.

MORPHOLOGY
The barn owls are characterized by large heads with a heart shaped facial disc, round ear openings, and have long legs and powerful feet; barn owls may also be distinguished from true owls by their sternum, which has a broad carina that becomes slightly narrower ventrally, and the ventral edge of which has slight imaginations on either side.

NATURAL HISTORY
Like most owls, the barn owl is nocturnal, relying on its acute sense of hearing when hunting in complete darkness. It often becomes active shortly before dusk but can sometimes be seen during the day when relocating from one roosting site to another. The barn owl does not 'hoot', instead produces the characteristic shree scream, an eerie, long-drawn-out shriek that is painful for humans to hear at close range. It feeds mostly on rodents and small animals. Relative to its size, barn owls consume more rodents—often regarded as pests by humans—than possibly any other creature. Barn owls nest in holes in trees, cliff ledges, caves, burrows in riverbanks and in many human structures e.g., houses haystacks and church steeples.



Barn owl © Mike Brown



Distribution map from National Biodiversity Data Centre.

THREATS
Poison bait placed by farmers in an attempt to control rodent populations is a serious threat to barn owls with many wild barn owls testing positive for rat poison.

CORRECTIVE ACTION
The most effective way found to increase the population of barn owls has been to provide nest boxes in suitable locations. Avoiding the use of poison bait in pest control is another way to prevent population decline.

BIBLIOGRAPHY
National Biodiversity Data Centre. Birdwatch Ireland.

RHINOLOPHUS HIPPOSIDEROS

Lesser Horseshoe Bat

Crú-ialtóg Bheag

INTRODUCTION

The lesser horseshoe bat is one of many species of horseshoe bat found worldwide, but the only horseshoe species to occur in Ireland. It gets its name from folds of skin around their nostrils, called a noseleaf, that form a horseshoe shape. In its roost the bat hangs from its feet and folds its wings around its body. The lesser horseshoe bat is protected under the wildlife acts of 1976 and 2000 and under the EC Directive on the Conservation of Natural Habitats and of Wild Fauna

TAXONOMY

Family Rhinolophidae Gray, Genus Rhinolophus Lacépède, Species *Rhinolophus hipposideros*

DISTRIBUTION

The lesser horseshoe bat is found worldwide but in Ireland it is found only in the 6 western counties, Mayo, Galway, Clare, Limerick, Cork and Kerry. Evidence from prehistoric bones found in caves indicated that this species once lived in Co. Waterford also.

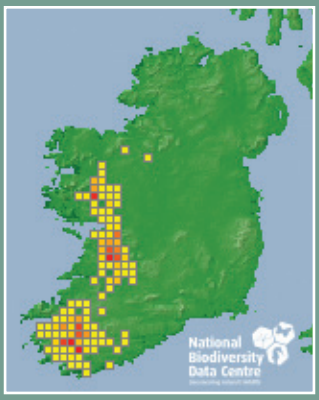
MORPHOLOGY

It can be easily identified by, and gets its Latin name from, a horseshoe-shaped flap of skin surrounding the nostrils. Adult horseshoe bats have buff brown fur while the fur of those until the first moult is grey. The wing span ranges 22-25cm, body length is 35-39mm and it weighs 6-9g. These bats eat insects such as crane-flies and midges.

NATURAL HISTORY

Unlike the other eight bat species found in Ireland, the lesser horseshoe bat is unable to crawl so must fly, swallow-like, into a roost where it then turns upside down to hang from a surface by its feet. The Irish population of this species is estimated at 14,000 individuals and is considered of International Importance because it has declined dramatically and become extinct in many other parts of Europe. In Ireland, this species is found in or near deciduous woodland and scrub often associated with limestone areas. In such places it uses old abandoned stone buildings with slate or corrugated iron over thatch roofs for its summer roosts. It tends to hibernate in caves, mines and cellars.

Lesser horseshoe bat,
© Mike Brown



Distribution map from National Biodiversity Data Centre.

THREATS

The biggest threat to these bats in Ireland are habitat loss and the recent trend towards very cold winters that can kill the juveniles. The fact that the bat only exists in the most western counties in Ireland may be due to the effect of the gulfstream resulting in shorter, less harsh winters in these counties. Also the presence of limestone caves in these regions for winter hibernation.

CORRECTIVE ACTION

Introduction of bat boxes to support nesting. Protection of natural habitat in these western counties.

BIBLIOGRAPHY

National Biodiversity Data Centre. Bat Conservation Ireland, Vincent Wildlife Trust

ALOSA FALLAX KILLARNENSIS

Killarney Shad

Gabhairin

INTRODUCTION

The Killarney Shad or Gureen as its commonly known, is small fish, that lives only in one lake in Co. Kerry in Ireland. As such it is a protected species that is on the critically endangered list. Unlike the closely related similar species Twaite Shad and Allis shad which migrate from the sea to freshwater to span the Killarney shad is non-migratory, never leaving freshwater.

Killarney shad © Biodiversity Data Centre

Distribution map from National Biodiversity Data Centre.

TAXONOMY

Famiy Clupeidae

DISTRIBUTION

The only known population of these fish is in Lough Leane in the Killarney National Park in Co. Kerry.

MORPHOLOGY

Like other shads, Killarney shad are deep bodied and herring- like in appearance, with a sharp keel, radiating lines on the operculum and a distinct notch in the upper jaw. Adults grow to about 20cm in length.

NATURAL HISTORY

The Killarney shad are descended from the Twaite shad that lived in the lake at the end of the last ice age, 16,000 years ago. As the ice sheet retreated the fish became landlocked and quickly evolved to adapt to its unique environment.

THREATS

As this species lives only in this one lake it has been listed as critically endangered by the IUCN. Threats to this species include Eutrophication from algae bloom and the introduction of alien fish such as common roach and common bream. The Killarney shad is also very sensitive to pollution.

CORRECTIVE ACTION

Protection of the lake from pollution and close control and monitoring of fish species in the lake.

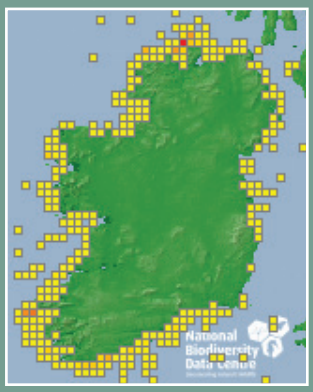
BIBLIOGRAPHY

National Biodiversity Data Centre, Wikipidia, Fisheriesireland.

FRATERCULA ARCTICA
Atlantic Puffin
Puifín

INTRODUCTION
The Atlantic puffin also known as the common puffin is the only puffin native to the Atlantic Ocean. The puffin is an iconic, adorable seabird that is a summer visitor to Ireland spending most of the winter out to sea and coming to the coast to breed during the summer. The generic name Fratercula comes from the Medieval Latin fratercula, friar, a reference to the black and white plumage which resembles monastic robes.


Atlantic puffin © Mike Brown



Distribution map from National Biodiversity Data Centre.

TAXONOMY
Order Charadriiformes, Family Alcidae, Genus Fratercula, Species *F. arctica*

DISTRIBUTION
The atlantic puffin is found in Ireland, Scotland, and other regions of Northern Europe. In Ireland the puffin is mainly found on the west coast with a few east coast sites. Places include the Great Saltee in Wexford, the Cliffs of Moher in Clare, Horn Head in Donegal and the Skelligs in Kerry. The skelligs have one of the largest puffin populations and is of international importance.

MORPHOLOGY
A black and white seabird, about 28 to 30cm in length, with black above and white below. The eye looks almost triangular in shape because of a small, peaked area of horny blue-grey skin above it and a rectangular patch below. In the breeding season the parrot like multi-coloured bill and large white patch on the face make adults distinctive and easily recognisable at close quarters. The bill is smaller on the adult in winter and much smaller on the juvenile. From a distance it can be identified from Guillemot by its small size, thicker body, larger, heavier head and darker underwing. The external appearance of the adult male and female are identical, though the male is usually slightly larger.

NATURAL HISTORY
The puffin lives on its own whilst out at sea during the winter. Whilst breeding during the summer months it lives in colonies, mostly on Islands with no terrestrial predators. It nests in burrows and in cracks in steep cliffs. The female puffin lays a single white egg that is incubated by both parents. Their diet consists almost entirely of fish. The puffin can swim fast in the water, can dive to considerable depths and stay submerged for up to 1 minute.

THREATS
A big threat to the puffin whilst out at sea is pollution from oil spills. Crude oil is very difficult to remove from the feathers. Oil reduces its ability to insulate and makes it less buoyant in the water. They are also greatly affected by the accumulation of heavy metals such as mercury and arsenic in the food chain. In 2015 the International Union for Conservation of Nature upgraded its status to vulnerable. As they are a pelagic bird, feeding mostly on fish, climate change and shifting fish populations can have a dramatic effect on the birds populations.

CORRECTIVE ACTION
The best way we can protect these birds whilst on land breeding is to protect their breeding sites from excessive human interference including tourism and from the introduction of terrestrial predators such as rats and stoats. Reduction in the number of oil spills would protect the puffin whilst at sea.

BIBLIOGRAPHY
National Biodiversity Data Centre. Wikipedia, Birdwatch Ireland

NUMENIUS ARQUATA
Eurasian Curlew
Crotach

INTRODUCTION
The Eurasian Curlew or Curlew, as its commonly known, is one of the most iconic birds of the Irish countryside. Its distinctive 'cur..lee, cur..lee' call filling the air of a summers evening. Sadly, Curlew, along with other breeding wader species have suffered drastic declines in recent years and have almost disappeared from the Irish countryside.

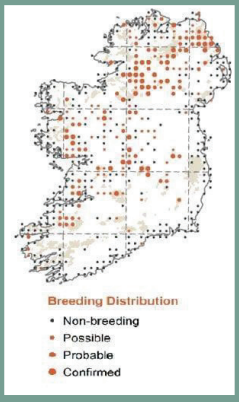
TAXONOMY
Family Scolopacidae rafinesque Genus Numenius brisson, Species *Numenius arquata*

DISTRIBUTION
The Curlew is a winter visitor to Ireland, arriving from Scotland and Scandinavia. There is an Irish breeding population living throughout Ireland in costal and inland, marshy floodplains and bog-lands. This breeding population has declined substantially in recent decades by up to 90%. There are now no more than 150 breeding pairs of Curlew left in Ireland.

MORPHOLOGY
The Curlew is the largest of the wader type birds. It is approx. 50–60cm in length, with an 89–106cm wingspan and has a body weight of 410–1,360g. It is mainly greyish brown, with a white back, greyish-blue legs and a very long curved bill. Males and females look identical, but the bill is longest in the adult female

NATURAL HISTORY
The Curlew is generally a wary bird that will fly at a distance with any approach. Is nest is a bare scrape on a meadow or similar long grass, Each curlew lays between 3 and 6 eggs in April or May and incubates them for about a month until they begin to hatch. They feed mostly on invertebrates, particularly rag-worms, crabs and molluscs. They are usually well dispersed while feeding, but roost communally, usually along salt marshes and sand banks. The UK and Irish population account for approx. one quarter of the global population of Curlew. The recent population decline of up to 90% of the Irish breeding population has resulted in the Curlew being put on the Irish red list for threatened species.

Eurasian Curlew © Mike Brown



Distribution map for the Eurasian Curlew (BirdWatch Ireland)

THREATS
The main threats to the Curlew are habitat loss due to increased afforestation and improvements in agricultural land by means of draining marsh and bog lands.

CORRECTIVE ACTION
Protection of coastal and inland marsh and bog lands from development and drainage.

BIBLIOGRAPHY
National Biodiversity Data Centre. Wikipedia, Birdwatch Ireland

CIRCUS CYANEUS
Hen Harrier
Cromán na gCearc

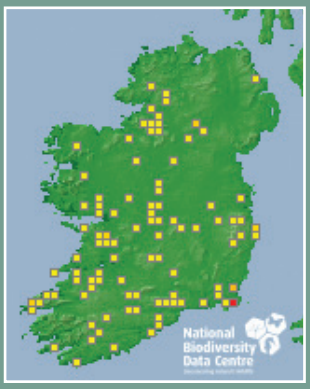
INTRODUCTION
The Hen Harrier is a bird of prey belonging to the raptor family. Its latin name Circus refers to its circling flight. Hen harriers have a distinctive flight with wings held in a shallow 'v' usually gliding low in search of food.

TAXONOMY
Class Aves, Family Accipitridae, Genus circus, Species *C. cyaneus*

DISTRIBUTION
The Hen Harrier is a widespread but patchily distributed breeding bird across much of northern and central Europe. Breeding birds are confined largely to heather moorland and young forestry plantations, where they nest on the ground. In Ireland, Hen Harriers are found mainly in Counties Laois, Tipperary, Cork, Clare, Limerick, Galway, Monaghan, Cavan, Leitrim, Donegal and Kerry.

MORPHOLOGY
The Hen Harrier is 41 to 52cm long with a wingspan of between 97cm and 122cm. Females and juveniles are similar in appearance with brown with white rump and dark rings on the tail, hence often referred to collectively as 'ringtails'. Females are bigger than males. Males are very distinctive, appearing strikingly pale below, with blue grey upper parts and jet black wing-tips. Hen Harriers have somewhat of an owl-like face, particularly accentuated in female birds.


Hen harrier © Mike Brown



Distribution map from National Biodiversity Data Centre.

NATURAL HISTORY
Hen Harrier mostly prey on small birds and mammals. Open habitats support greater numbers of the Hen Harriers' preferred prey species, such as Meadow Pipit and Skylark. Will sometimes use cover, such as woodland edges and bushes, to surprise prey. Spends winter in more coastal and lowland areas throughout Ireland hence most easily seen on the coast in the winter months. An amazing and spectacular trait of the Hen Harrier is the food pass. The male, carrying prey in his talons will call to the female as he approaches the nest area. The female will rise to meet the male and as she comes near him, will somersault upside down, and the food is passed from his talons to hers in mid-air.

THREATS
The hen harrier has experienced sharp decline in recent decades due to the loss of quality moorland habitat, due to agricultural changes, such as gorse burning by farmers and maturing forest plantations. It is estimated that there are only 108-157 in Ireland, according to a National Parks and Wildlife Service survey.

CORRECTIVE ACTION
Farmers are being encouraged to look at alternatives to gorse burning in an effort to protect the habitat of the hen harrier. New conservation trials are using horses and goats to keep gorse under control, in the hope that this will increase the population of the hen harrier.

BIBLIOGRAPHY
National Biodiversity Data Centre. Wikipedia, Birdwatch Ireland

LUTRA LUTRA
European Otter
Madra Uisce

INTRODUCTION
Otters are carnivorous mammals in the subfamily Lutrinae. The 13 extant otter species are all semiaquatic, aquatic or marine.

TAXONOMY
Order Carnivora, Family Mustelidae, Subfamily Lutrinae Bonaparte 1838 Genus Lutra Brunnich 1771.

DISTRIBUTION
Widespread in Ireland

MORPHOLOGY
The native Otter is a slender 'small-dog' sized mammal with long tail. Head and body together measure to 72cms, the tail to 42cms. Females are approximately 10% smaller than males. Fur mid- to dark brown above, paler below, those paler areas extending to below ears, often giving appearance of 'moustaches'.

NATURAL HISTORY
Habitats include lakes, rivers, sea inlets and bays. In Ireland breeding can occur in any season. Gestation is about 63 days Cubs born in a single litter annually, 2-3 per litter.

THREATS
Status Near threatened. Removal of habitats reduce suitability for otters.
Decline in eel numbers. Canalisation of rivers
Draining of wetlands
Traps set for invasive species
Dam construction

European Otter
© Mike Brown

Distribution map from National Biodiversity Data Centre.

CORRECTIVE ACTION
Protection of habitats. Restoring / improving water quality Road barriers and tunnels under roads are required to reduce the impact of road kills More monitoring is required

BIBLIOGRAPHY
National Biodiversity Data Centre 2009 Irish Red List of Terrestrial Mammals. Marnell, F. et al 2009.

EUPHYDRYAS AURINIA
Marsh Fritillary
Fritileán Réisc

INTRODUCTION
The marsh fritillary is a butterfly of the family Nymphalidae. Commonly distributed in the Palearctic region, the marsh fritillary's common name derives from one of its several habitats

TAXONOMY
Class; Insecta, Order Lepidoptera, Family Nymphalidae, Genus Euphydryas, Species *E. aurinia* Rottemburg 1775.

DISTRIBUTION
Distributed around the country. Specialist, the larvae primarily feed on Devil's-bit Scabious *(Succisa pratensis)*. Devi's-bit Scabious is widespread and abundant and occurs across a range of open habitats

MORPHOLOGY
Medium size, wingspan: 35 - 50mm
Orange and cream panelled pattern on upperside of wings. Prominent broad orange band at margin of upperside hindwing, black dots at the centre of each square patch. Jagged cream and orange bands on underside of hindwing

NATURAL HISTORY
Mating and egg laying take place soon after emergence of adults from mid-May. Eggs laid on Devil's-bit Scabious (Succisa pratensis). Eggs hatch after about 30 days, but may take less or quite a bit longer depending on weather. Larvae construct a fraternal web and move en masse between plants as they are consumed. After the third moult, as autumn approaches the larval web will hibernate. Larvae become active from February, and after another two moults begin to pupate from mid-April to early May. Pupation lasts 2-4 weeks before next generation of adults emerge. Flies from April to July. Broader habitat usage in Ireland compared to Britain, found on: wet grasslands, coastal grey dunes, machair and cutover bog. Roosting adults may sometimes be found on flower heads. They bask and feed on various flowers

Marsh Fritillary © Mike Brown

Distribution map from National Biodiversity Data Centre.

THREATS
Reduction of habitat and agricultural intensification.

CORRECTIVE ACTION
Continued legal protection of the species and its habitats inside and outside of Natura 2000. The effects of conservation actions should be monitored by a Butterfly Monitoring Scheme.

BIBLIOGRAPHY
National Biodiversity Data Centre 2009 Irish Red List. Van Swaay, C. et al 2010 © Matt Berry

DERMOCHELYS CORIACEA

Leatherback Turtle

Turtar ais-leathair

INTRODUCTION

There is currently great uncertainty as to the population ecology, range and habitat usage of *Dermochelys coriacea* in the east North Atlantic

TAXONOMY

Class: Reptillia, Order Testudines, Suborder: Cryptodira Family: Dermochelyidae, Genus Dermochelys Blainville 1816 Species: *D. coriacea*

DISTRIBUTION

Accuracy of world distribution is not clear and is constrained by, amongst other factors, data held but not shared by countries and organizations not participating in the GBIF.

Leatherback Turtle Distribution unknown in Ireland
© Karl Partridge

Distribution map from National Biodiversity Data Centre.

MORPHOLOGY

The Leatherback Sea Turtle is the largest of the extant sea turtles. Currently individuals are aged based on measurement of Curved Carapace Length (CCL) so that, on average, under 100cms CCL is classed as juvenile; however, this age class is rarely seen. Sub-adults have CCL >100cms <120cms and adult (females) 120-140cms with adult males assumed to have the same measurement. Total straight length can be to 2 metres or greater. Average weight for adults females in measured populations (West Atlantic) have been recorded as 327-392kg, but historic weight for a single captured male is as great as 916kg and there is great variation in recorded female weights between populations (250kgs-500kgs). Front flippers, to total body, are proportionally longer than in other sea Turtle species. The Leatherback Sea Turtle does not have the typical keratinous turtle shell but instead has a carapace composed of oily connective tissue covered by a cuticle of bony scales arranged in 7 longitudinal rows, with a ridge between each row. The overall colour of the adult animal is primarily black when seen from above, with intermittent white striping on the carapace ridges and white spotting all over the carapace, head and flippers.

NATURAL HISTORY

Habitats include but are not necessarily limited to; Open marine water. Very little is currently known about the greater. part of the life cycle of the Leatherback Sea Turtle.

THREATS

Fishing & Harvesting Aquatic Resources. Pollution and Pathogens: marine pollution and debris that affect marine turtles (i.e. through ingestion or entanglement) Climate change.

CORRECTIVE ACTION

Site/ area protection Site / area management Awareness and communication

BIBLIOGRAPHY

National Biodiversity Data Centre 2009 Irish Red List. Van Swaay, C. et al 2010 © Matt Berry

CREX CREX
Corncrake
Traonach

INTRODUCTION
A shy, secretive bird of hay meadows. The distinctive call of the male often being the only indication of their presence

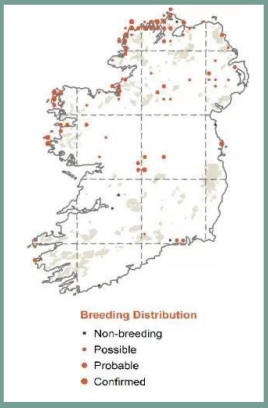
TAXONOMY
Class: Aves, Order: Gruiformes, Family: Rallidae, Genus Crex Bechstein 1803 Species: *C. crex* Linnaeus 1758.

DISTRIBUTION
Formely a common summer visitor from April to September. Corncrakes have suffered a massive decline now only present in small areas of Connaught.

MORPHOLOGY
Adults show a brown, streaked crown with blue-grey cheeks and chestnut eye-stripe. Breast buffish grey with chestnut smudges on breast sides. Flanks show chestnut, white and thick black barring, fading on under tail. Wings bright chestnut, striking in flight. Short bill and yellow-brown legs. Prefers to run through thick cover, dropping quickly back into cover when flushed. Flight is weak and floppy. Large bright chestnut patches on wings and dangling legs are distinctive in flight.

NATURAL HISTORY
Breeding is from mid May to early August. Nests on the ground in tall vegetation. Most nests are in hay fields. The greenish-grey mottled eggs hatch after seventeen days of incubation. For the first four days after hatching the chicks are fed by their mother. They then learn rapidly to feed themselves. Flight takes place in a little over thirty days. Females have two broods, the first hatching in mid June and the second one in late July to early August. There can be as little as two weeks between the chicks fledging from the first brood to laying a second clutch. Males give a very loud, distinctive kerrx-kerrx call during the breeding season, which is repeated during the day in fits and starts, reaches a peak about dusk and continuing through the night till dawn.

Corncrake © Mike Brown



Corncrake distribution map in Ireland
Birdwatch Ireland

THREATS
Habitat loss and intensive agricultural practices.

CORRECTIVE ACTIONS
Preserve habitat and increase possible habitats. Change to lower intensity farming.

BIBLIOGRAPHY
National Biodiversity Data Centre. Birdwatch Ireland 2009 Irish Species Red List

STERNA HIRUNDO
Common Tern
Geabhróg

INTRODUCTION
Usually seen over the sea or over large inland lakes.

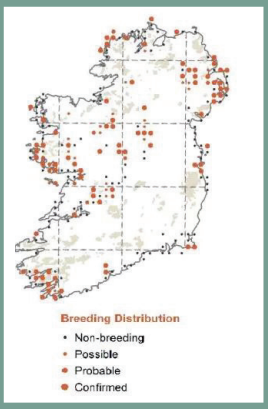
TAXONOMY
Class: Aves, Order Charadriformes, Family: Laridae, Genus: Sterna, Species *S. hirundo* Linnaeus 1758.

DISTRIBUTION
Winters in West and South Africa. Summer visitor to Ireland, Breeding on inshore islands and undisturbed beaches. Can be seen around coast

MORPHOLOGY
Slender seabird with narrow, pointed wings, long forked tail and long, pointed bill. Grey above and white below, dark cap to head. Flight light and buoyant, can hover briefly over the sea before diving in. Very similar to Artic Tern (with which it breeds) and told apart by plumage and structure. Common Tern has a longer head and bill and slightly broader wings, which look central on the body. Adults have a orangey red bill, usually with a small dark tip. Common tern shows a dark wedge in the primaries which develops over the summer and a defuse bar to the trailing edge of the primaries. Common terns have shorter tail steamers, not extending beyond the wing tips. Adult winter plumage, like all terns is different from breeding plumage and can develop in the summer months. Has a white forehead, all dark bill and dark carpel bar.

NATURAL HISTORY
A noisy bird when breeding, giving a rapid series of quarrelsome Calls Diet Chiefly fish Winters in Africa summers in Ireland and Europe. Breeding Nest colonially on the ground from April to October. Breeds on the coast, with larger colonies in Co. Dublin, Co. Wexford and Co. Galway. Also breeds inland on islets in freshwater lakes, notably in Co. Galway and in Co. Mayo.

Common Tern © Mike Brown



Tern Distribution Map
(Birdwatch Ireland)

THREATS
Loss of coastal habitats and breeding sites. Increased predation.

CORRECTIVE ACTION
Reduce loss of habitat, re-establish breeding sites such as Tern Rafts like in Lough Atalia.

BIBLIOGRAPHY
National Biodiversity Data Centre. Birdwatch Ireland 2009 Irish Species Red List

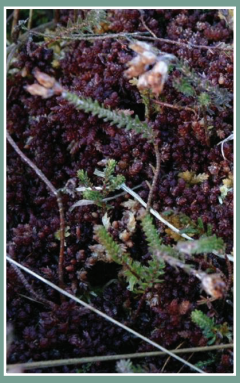
SPHAGNUM
Sphagnum
Sfagnam

INTRODUCTION
Sphagnum is a genus of approximately 380 accepted species of mosses, commonly known as “peat moss”

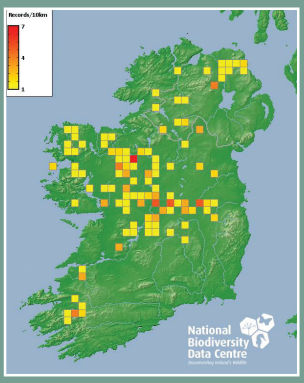
TAXONOMY
Class: Sphagnopsida, Order: Sphagnales, Family Sphagnaceae, Genus Sphagnum

DISTRIBUTION
Not many records from the south apart from the south west, otherwise widespread in the centre, west and north. Habitats may include but are not necessarily limited to; Raised bog Upland blanket bog - on deep, wet peat. Lowland blanket bog - on deep, wet peat. Poor fen and flush - on deep, wet peat.

MORPHOLOGY
All members of the Sphagnum genus are distinguished from other moss species by the combination of the following characteristics; The absence of rhizoids in the gametophyte, and the presence of groups of spreading and / or pendent branches (these groups referred to as fascicles) arranged at intervals along the main stem. As well as chlorophyllose cells (chlorocysts) Sphagnum leaves have adapted large dead cells, ‘hyaline’ cells, that allow Sphagnum species plants to retain water in relatively large amounts. In Sphagnum species the spore bearing capsule is borne on a pseudopodium. The top end of the plant, where new fascicles are formed, contain many young compact fascicles which give Sphagnum species a distinctive ‘mop-head’ look. This terminal head is termed a capitulum.



Sphagnum © Hans Boll



Sphagnum Distribution map from National Biodiversity Data Centre.

NATURAL HISTORY
Classic alternation of generations with diploid sporophyte and haploid gametophyte generations. In mosses the haploid gametophyte is the longer lived and obvious plant seen in the field. The sporophyte is the capsule which is borne on a pseudopodium produced from tissue of the gametophyte. Fertilization of female gametes by male gametes produces the diploid sporophyte. Meiosis of spore mother cells produce haploid spores, which are disseminated when the capsule opens. Spores germinate into a filamentous ‘protonema’ which will eventually produce the familiar moss gametophyte. Sources: Porley, R. Hodgetts N. 2005.
Sphagnum species can also spread vegetatively through the development of new stems from branches and may also spread via plant fragments.

THREATS
The poor conservation status of the peatland habitats.

CORRECTIVE ACTION
Reduce loss of habitat, re wet bog lands

BIBLIOGRAPHY
National Biodiversity Data Centre. Irish Species Red List. Sources: Porley, R. Hodgetts N. 2005.

COENAGRION LUNULATUM

Irish Damselfly

Goirmin Corranach

INTRODUCTION

Quite similar to the Azure damselfly, Variable damselfly and Common Blue damselfly.

TAXONOMY

Class: Insecta, Order: Odonata, Family Coenagrionidae, Genus: Coenagrion, Species: *C. lunulatum* Charpentier 1840.

DISTRIBUTION

First discovered in Co. Sligo in 1981, most common in Ulster and Connaught with few records in the midlands and in Clare. Absent from the south and east.

MORPHOLOGY

Length: 3.1cm Wingspan: 4cm

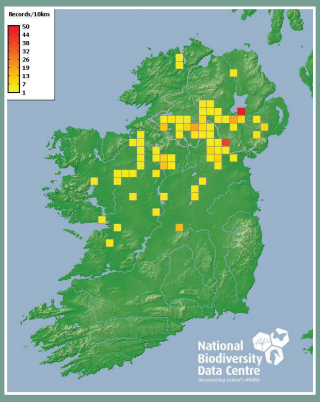
damselfly, Variable damselfly and Common Blue damselfly. Both sexes have green eyes and translucent wings with a black dot near the tip. Black "spur" on side of thorax. Males have a pair of blue dots on top of the eyes and females have yellow dots. On the male's abdomen, segment 3 to 7 are mostly black, segment 8 and 9 are entirely blue. Segment 2 (blue) has distinctive black markings of a crescent shape, two lines either side and marks at the top and bottom of the segment. The underside of the male, from the head to the halfway of the abdomen is green. The females have a bronze dorsal surface of the abdomen with a green underside and small blue markings on segment 8 and 9.

NATURAL HISTORY

Preferred breeding sites are in clean and shallow lakes and ponds with an abundance of floating aquatic vegetation, specifically, pond-weed and water lilies. Not much is known yet about their preferred habitats. Tend to breed at sites that are far from farming influences.

Flight Period May to July

Irish Damselfly © Will Woodrow / Monaghan Co. Co.



Irish Damselfly Distribution in Ireland. National Biodiversity Data Centre.

THREATS

Considered Vulnerable in Ireland. Could be connected to lack of Wildflower habitats.

CORRECTIVE ACTION

Reduce loss of habitat. Increase wildflower areas.

BIBLIOGRAPHY

National Biodiversity Data Centre. Irish Species Red List

FRANGULA ALNUS
Alder Buckthorn
Draighean Fearna

INTRODUCTION
Frangula alnus, commonly known as alder buckthorn, glossy buckthorn, or breaking buckthorn, is a tall deciduous shrub in the family Rhamnaceae

TAXONOMY
Class: Rosids, Order: Rosales, Family: hamnaceae, Genus: Frangula, Species *F. alnus* Mill

DISTRIBUTION
Very rare in Ireland found in Connaught and Northern Ireland.

MORPHOLOGY
Alder buckthorn is a non-spiny deciduous shrub, growing to 3–6m (10–20ft), occasionally to 7m (23ft) tall. It is usually multi stemmed, but rarely forms a small tree with a trunk diameter of up to 20cm (8in). The bark is dark blackish-brown, with bright lemon-yellow inner bark exposed if cut. The shoots are dark brown, the winter buds without bud scales, protected only by the densely hairy outer leaves. The flowers are small, 3–5mm in diameter, star-shaped with five greenish-white acute triangular petals, hermaphroditic, and insect-pollinated, flowering in May to June in clusters of two to ten in the leaf axils.

NATURAL HISTORY
Flowers: May – June; clusters of small greenish-white flowers
Fruits: Black berries when ripe
Twigs & bark: Twigs grey/brown, hairy; bark reddish/greenish brown with white dots (lenticels). Often growing horizontal.
Favoured food plant for Brimstone butterfly caterpillars; used in the past for charcoal-making

THREATS
Loss of habitat, intensive agriculture.

CORRECTIVE ACTION
Planting in suitable areas.

BIBLIOGRAPHY
National Biodiversity Data Centre. Irish Species Red List

Alde Bucktorn

Alder Buckthorn Distribution in Ireland. National Biodiversity Data Centre

MARGARITIFERA MARGARITIFERA

Freshwater Pearl Mussel

Diúilicín Péarla

INTRODUCTION

The freshwater pearl mussel is a large filter-feeding bivalve, which is found in near-pristine freshwater habitats.

TAXONOMY

Class Bivalvia, Order: Unionida, Family: Margaritiferidae Genus: Margaritifera, Species *M. margaritifera*

DISTRIBUTION

Found around in upland rivers and lowland rivers.

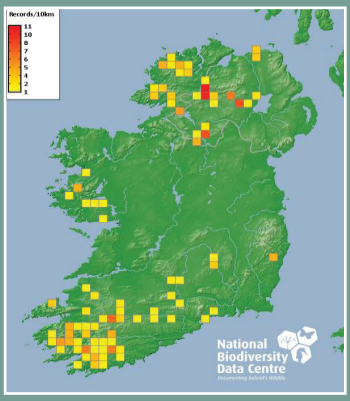
MORPHOLOGY

Freshwater pearl mussels are filter feeders, inhaling and expelling up to 50L of water per day through siphons, while keeping food particles. This filtering activity means that pearl mussels can help to support and improve water quality, where they are present in high numbers.

NATURAL HISTORY

These animals are extremely long lived and can survive for up to 140 years, making them Ireland's longest living animal. European freshwater pearl mussel populations have declined by 90% over the past century. In Ireland, 27 freshwater pearl mussel populations are protected within Special Areas of Conservation (SACs). Eight of these populations contain 80% of the total Irish freshwater pearl mussel population and are known as the 'Top 8 catchments'. While the 'Top 8 catchments' have some of the highest remaining numbers of freshwater pearl mussels in Ireland, these populations are also undergoing a slow decline, and face extinction unless action is taken

Pearl mussel



Pearl mussel Distribution in Ireland. National Biodiversity Data Centre

THREATS

Invasive species, climate change, pollution.

CORRECTIVE ACTION

legal measures to protect the species

legal measures to restore / improve water quality, administrative measures to produce single species or species group management measures administrative measures to manage urban and industrial waste.

BIBLIOGRAPHY

National Biodiversity Data Centre. Irish Species Red List

Wikipedia

ANGUILLA ANGUILLA

European Eel

Eascann Eorpach

INTRODUCTION

The European eel *(Anguilla anguilla)* is a species of eel, a snake-like, catadromous fish

TAXONOMY

Class Actinopterygii:, Order: Anguilliformes, Family: Anguillidae Genus: Anguilla, Species *Anguilla anguilla*

DISTRIBUTION

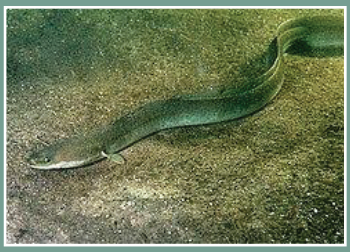
Found around the coast of Ireland and in many inland lakes.

MORPHOLOGY

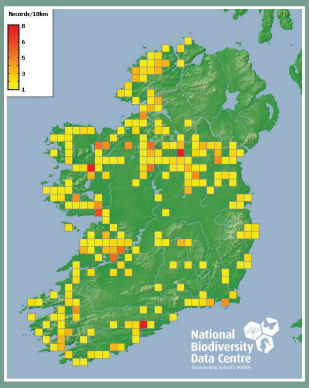
While the species' lifespan in the wild has not been determined, captive specimens have lived over 80 years. They are normally around 60–80cm (2.0–2.6ft) and rarely reach more than 1m (3ft 3in), but can reach a length of up to 1.5 m (4ft 11in) in exceptional cases.

NATURAL HISTORY

Eels begin their life cycle in the ocean and spend most of their lives in fresh inland water, or brackish coastal water, returning to the ocean to spawn and then die. In the early 1900s, Danish researcher Johannes Schmidt identified the Sargasso Sea as the most likely spawning grounds for European eels. The larvae (leptocephali) drift towards Europe in a 300-day migration. When approaching the European coast, the larvae metamorphose into a transparent larval stage called "glass eel", enter estuaries, and many start migrating upstream. After entering their continental habitat, the glass eels metamorphose into elvers, miniature versions of the adult eels. As the eel grows, it becomes known as a "yellow eel" due to the brownish-yellow color of their sides and belly. After 5–20 years in fresh or brackish water, the eels become sexually mature, their eyes grow larger, their flanks become silver, and their bellies white in color. In this stage, the eels are known as "silver eels", and they begin their migration back to the Sargasso Sea to spawn



European Eel



European Eel Distribution in Ireland. National Biodiversity Data Centre

THREATS

The European eel is a critically endangered species. Since the 1970s, the numbers of eels reaching Europe is thought to have declined by around 90% (possibly even 98%). Contributing factors include overfishing, parasites such as *Anguillicola crassus*, barriers to migration, changes in currents and pollution.

CORRECTIVE ACTION

Reduce fishing, remove barriers to migration and cease polluting.

BIBLIOGRAPHY

National Biodiversity Data Centre. Irish Species Red List. Wikipedia

HAMMARBYA PALUDOSA
Bog Orchid
Magairlín na móna

INTRODUCTION
The Bog Orchid is pollinated by tiny gnats and midges. This plant flowers from July to September but is difficult to spot, as it blends in to the pale yellow-green vegetation in the area. It is a native plant, and it belongs to the Orchidaceae family.

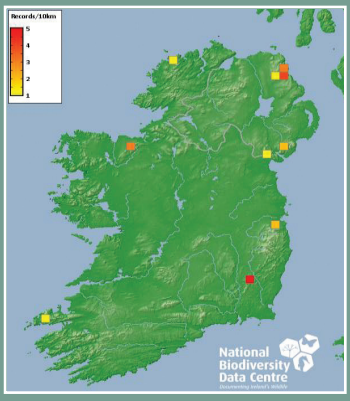
TAXONOMY
Class Monocots, Order: Asparagales, Family: Orchidaceae Genus: Orchis, Species *Hammarbya paludosa*

DISTRIBUTION
Found in isolated spots around the coastal Bogs.

MORPHOLOGY
The Bog Orchid is a tiny plant which grows in very wet, infertile peaty soils and is often grown with or on Sphagnum in boggy areas where there is a slow but continuous flow of water. Each flower has a pointed lip, two wings and two short 'arms'. The pale green, ovate basal leaves have miniscule green bulbs along their uppermost side. These bulbs provide the blueprint for propagation of the next generation.

NATURAL HISTORY
The Bog Orchid has occurred in northern and central Europe, extending from 69°N in Scandinavia, to the Italian Alps and Romania. There are also records from North America where it occurs from Alaska eastwards to Ontario and south to Minnesota, and in Asia where locations are scattered across southern Siberia to Japan. Its British range is generally northern and western, with notable exceptions including south Hampshire and Dorset, and in particular the New Forest. It is also very thinly scattered in the lowlands of eastern and south-east England. The Bog Orchid is relatively widespread in north-western Scotland, but is rare in Ireland, currently known from only six sites.

Bog Orchid © Zoë Devlin



Bog Orchid Distribution in Ireland. National Biodiversity Data Centre

THREATS
The main threats to the Bog Orchid are linked to habitat destruction or degradation through drainage, overgrazing in the uplands and under grazing in the lowlands. High grazing pressure can damage and compact soils, restrict flowering and seed production as well as dislodging plants that are only loosely attached to the substrate.

CORRECTIVE ACTION
Grazing is required to maintain open conditions and may also be needed to create suitable micro-habitat for the germination of propagules, but grazing pressure should not lead to the erosion or excessive poaching of vulnerable peat soils and vegetation.

BIBLIOGRAPHY
Wikipedia, National Biodiversity Data Centre. Irish Species Red List

BOMBUS (PSITHYRUS) BARBUTELLUS

Cuckoo Bee

Beach Cuach

INTRODUCTION

The Cuckoo bee is a type of bumblebee which is common but not Widespread. They are a specialized lineage which has lost the ability to collect pollen and to rear their brood.

TAXONOMY

Class Insecta, Order: Hymenoptera, Family: Apidae Genus: Bombus, Species *Bombus (Psithyrus) barbutellus*

DISTRIBUTION

Widespread but not common. Habitat associations unclear

MORPHOLOGY

Cuckoo bumblebee Two yellow White tail bands on thorax Males also have a yellow band at the top of the abdomen Can be confused with B. bohemicus, *B. sylvestris* and *B. vestalis*

NATURAL HISTORY

Flight period March-September
Nesting biology Breeds in nests of *Bombus hortorum*
Flowers visited Polylectic

They have lost the worker caste and produce only sexuals, male and female. They are inquilines in the colonies of other bumblebees. Before finding and invading a host colony, a *Psithyrus* female feeds directly from flowers. Once she has infiltrated a host colony, the *Psithyrus* female usurps the nest: she kills or subdues the queen of that colony and forcibly (using pheromones and/or physical attacks) "enslaves" the workers of that colony to feed her and her developing young. When the young emerge, they leave the colony to mate, and the females seek out other nests to attack. Female cuckoo bumblebees aggressively attack host colony members, and sting the host queen, but ignore other animals (including humans) unless disturbed.

THREATS

Endangered species due to lack of wildflowers and habitat. Pesticides

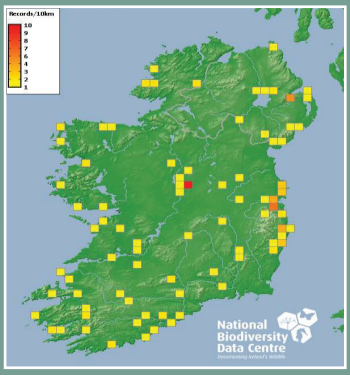
CORRECTIVE ACTION

Increased wildflower habitats and reduced use of pesticides

BIBLIOGRAPHY

Wikipedia
National Biodiversity Data Centre. Irish Species Red List

Cuckoo Bee @ Steven Faulk



Cuckoo Bee Distribution in Ireland. National Biodiversity Data Centre