



An overview of the origins of the upland environment of Northern Ireland

This short guide aims to help you understand more about Northern Ireland's uplands and the species that depend upon these areas for their existence. Upland is defined as land above the level of agricultural enclosure. The altitude at which this occurs varies but is typically above 150m in Northern Ireland (the word 'montane' is used to describe the highest fringes of the upland ecosystem >600m in NI).

The 180,000 hectares of upland habitats in Northern Ireland (13% of total NI area) derive their particular plant and animal communities as much from their position on the Atlantic fringe and moderate altitude, as from the rocks upon which they are founded. The prevailing southwesterly weather systems produce a mild wet oceanic climate whilst our latitude also brings a colder drier influence from the European mainland. Blanket bog prospered well under high annual rainfall (~2 metres on Cuilcagh in Fermanagh) and strong icy blasts kept the tree line low helping montane heath to develop on the summit of Slieve Commedagh (Mourne).

Climate generated the glaciations which carved our mountains and it is climatic factors which power their continued erosion. Wind, rain, ice and sun combine to create opportunities and define limits for all life forms in the uplands including ourselves. Thirty thousand years ago the entire island was covered in ice, glaciers froze and then grated into history all of Northern Ireland's plants and animals. Ten thousand years ago their retreat revealed bare rock surfaces and drift accumulations which became the substrate upon which a succession of plants and animals set up home.

Each parent rock that these drift accumulations came from weathers to produce a soil with a specific nutrient menu available for uptake by plants. In overview, quite acidic and nutrient poor soils form over Mourne granites, calcium carbonates in Fermanagh's limestone give rise to highly alkaline fertile soils with the dolerite of Fair Head and basalt of the Antrim Plateau somewhere in between. Add into this cake-mix the effects of spatial variations in shape, aspect and altitude and one can begin to appreciate how many distinct habitats have arisen.

On any given mountain trip we are likely to cross several of these, sometimes in great swathes of a single habitat such as blanket bog but more often as a complex mosaic that includes purple moor grass, upland heath and blanket bog.

Blanket bog as its name suggests develops in upland areas of high rainfall and nutrient poor acid soils. Made up of partially decomposed plants, it can cloak slopes up to 30° and be 3m deep. In common with nearly all of our upland habitats, blanket bog is an EU priority habitat. In recognition of their international importance Northern Ireland is obliged to develop and act on Habitat Action Plans for these areas (see www.doeni.gov.uk/niea/biodiversity).

The argument that Ireland's uplands should be considered more a cultural landscape than a natural or wild one should resonate well with all those who play or work here. Without clear-felling of the ancient forests, burning of scrub and grazing our uplands would be unrecognisable and most likely impenetrable. That is not to say that their integrity is undervalued. Upon leaving the tarmac road you will be on land that not only is owned and worked, but most likely carries legal protection from one or more designations, e.g. ASSI (Area of Special Scientific Interest), SAC (Special Area of Conservation) or NNR (National Nature Reserve), and these truly are special places. We all have a part to play in respecting and upholding the balance between feeding on the golden egg and looking after the goose that laid it.

Responsible recreation - can others enjoy tomorrow what we enjoyed today?

Why do we walkers and climbers seek refuge in the uplands of Northern Ireland? For most it will be a mixture of the physical challenge, the serenity and the beauty of these landscapes. It is not just the land though, it is the life underneath, on top and above that makes our uplands so special. Challenge yourself to think of a trip that was not enhanced by those that call our recreation space their home. The colour of mountain grasses, the flight of a peregrine, the smell of heather.

Spending our spare time in the uplands produces some of our most treasured and worthwhile experiences. The quality of the natural landscape contributes, but the really memorable moments come from our meetings with wildlife.

Our engagement and interaction with the living components of Northern Ireland's fragile upland ecosystems are unavoidable. We humans hold most of the cards that will determine their fate. For the upland environment to continue providing uplifting and enthralling experiences we believe everyone who goes there should become more aware of the impacts we are having on the places we cherish. And by raising our understanding of the flora and fauna we encounter we can make better choices to minimise the effect our recreation has on their existence.

Of course recreation is not the only activity carried out in the mountains. All 180,000 hectares are owned and managed, some by private trusts and individuals and some by public bodies, e.g. Northern Ireland Water and the Forest Service. As there is no legal right of entry to private land (other than a small number of public rights of way) recreational users depend on the goodwill and tolerance of landowners. We can all help maintain this goodwill by learning more about hill farming, forestry and other upland occupations and understanding how we as responsible visitors can minimise our impacts on their livelihoods.

Summary case study: Dogs in the Hills

When and where we take our dogs is an issue in many locations, but particularly so in the uplands, due to the sensitivity of the environment and the presence of grazing animals. Concerns include: disturbance to ground breeding animals; transmission of parasites to wildlife; nutrient enrichment from faeces; stress caused to sheep by chasing, and injury or death from biting. None of these are insignificant and all are impossible to reverse.

The failure of a minority of dog owners to keep their dogs on a lead or under effective control has exhausted the goodwill of landowners in many hill areas. In consideration of this Mountaineering Ireland has adopted a policy of 'no dogs on the hills other than with the landowner's permission'.

Mountaineering Ireland hopes that this guide adds to your engagement with the natural environment. Leave No Trace awareness courses cover practical skills to help us take better care of the places we use for our recreation activities.

Take your share of the responsibility for protecting these special places. Visit www.leaveonotraceireland.org to find out how you can reduce the impact of your recreational activity.

Signposts

The websites listed below will help you learn more about Northern Ireland's upland environment and the habitats and species we find there:

www.activelifestyles.org – help care for the Mournes as a conservation volunteer.

www.belfasthills.org – detailed biodiversity section; volunteering opportunities.

www.butterfly-conservation.org - identify butterflies and moths; species to look out for.

www.ccght.org – natural heritage of the Antrim, Binevenagh and Causeway Coast AONBs.

www.doeni.gov.uk/niea/biodiversity - how we're protecting Northern Ireland's habitats and species.

www.habitas.org.uk – a wealth of information on different aspects of the natural environment.

www.helpingthehills.ie – initiative promoting a quality approach to management of upland path erosion.

www.mournelive.com – information on landscape, biodiversity and heritage of the Mournes.

www.nmni.com/cedar - submit your flora and fauna sightings to CEDaR (see below).

www.rspb.org.uk – bird identification, distribution maps, videos and recordings of bird sounds.

www.ulsterwildlife.org – learn about and help protect the wildlife on your doorstep.

www.wildflowersofireland.net – photographs, descriptions and distribution maps for wildflowers.

See it! Record it! Your help is needed!

Hillwalkers and climbers visit inaccessible upland locations more often than most amateur naturalists. Consequently many upland species are seriously under-recorded. By submitting sightings to the Centre for Environmental Data and Recording (CEDaR) you could give a valuable insight into health of a species and its habitats; information that will inform decisions about future management of the uplands. Visit the CEDaR website and register as a recorder. Use your smartphone or camera to photograph the species, then upload to your recorder account.

Walk Safely

For tips and advice on how you can safely enjoy a walk in Northern Ireland's hills and countryside download Mountaineering Ireland's Walk Safely leaflet: www.mountaineering.ie/hillwalking/WalkSafely.

Walking WITH Wildlife

An Insight to Key Flora and Fauna of Northern Ireland's Uplands



Mountaineering Ireland

Mountaineering Ireland is the representative body working on behalf of all walkers and climbers on the island of Ireland. Membership is open to clubs and individuals. In addition to providing a comprehensive range of services to members, Mountaineering Ireland's work includes: protecting the mountain environment; improving and securing access; providing opportunities for young people to experience our sport and supporting skills development amongst all walkers and climbers. For more information on Mountaineering Ireland visit www.mountaineering.ie.

Mountaineering Ireland invites feedback on this leaflet to info@mountaineering.ie.

Follow us on Facebook @ www.facebook.com/mountaineeringireland

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Cover photograph: Annalong Valley, Mourne Mountains, courtesy of Derek Watters.



22 Raven
Corvus corax
60-68cm

The largest of the crow family, these resident birds are a common sight and sound of the mountains. Intelligent and sociable they communicate using up to 30 different calls; but it's the deep, croaking 'pruk, pruk' that draws attention. The raven's tumbling flight, diamond-shaped tail and long wings with 'fingers' at the end all aid identification. Ravens feed mostly on carrion but will eat berries and beetles. A strongly territorial bird, normally seen alone, the youngsters form social groups before settling down and mating for life.



23 Meadow pipit
Anthus pratensis
14-15cm

Our most numerous upland bird, whose call provides the ambient sound of the hills. Meadow pipits may be small and a bit ordinary to look at; but in spring the male's simultaneous parachuting and singing display is a remarkable performance.



24 Stonechat
Salixola torquatus
12-14cm

Resident and commonly found in the

uplands, the robin-sized stonechat is often seen perched on a fencepost or a gorse bush. Distinctive in appearance, yet easier to recognise by its call which sounds like two stones being banged together (hence 'stone-chat'). Cold wet seasons with reduced insect populations have a dire effect on their numbers. Most stonechats breeding in uplands move to lower altitudes in autumn.

25 Skylark
Alauda arvensis
17-19cm

Can be difficult to distinguish from the meadow pipit but their song is helpful. The male skylark defends his spring territory by ascending 50-100m where he hovers, warbling incessantly before plummeting to the ground. The skylark reaches greater heights, stays aloft longer and may chirrup for 15 minutes at a stretch. The meadow pipit's song is shorter, thinner in sound and he sings as



he flutters down. The skylark's distinctive head crest rises up when alarmed. In the uplands they feed mostly on seeds from grasses and sedges. Once a common farmland bird changes to cereal production and increased use of pesticides now mean the upland margins have become important for summer breeding.



26 Wheatear
Oenanthe oenanthe
14-16cm

A delightful sign of summer, wheatears are the earliest visitor to Ireland's mountains arriving from Africa in late March or early April. They time their arrival to coincide with the emergence of insects. The wheatear's white rump,

best seen as it flies low between rocky perches is the origin of its old English name 'white arse'. Often seen in pairs, the male is more striking with a wraparound eye band (shades). Relatively noisy birds, their 'chacks' (like the sound of two stones being knocked together) interspersed with 'wheats' will attract your attention.



27 Peregrine Falcon
Falco peregrinus
38-49cm

The fastest creature on the planet, the peregrine falcon streamlines itself to dive at speeds of over 320km/h to strike its prey with a single fatal blow. When not attacking, the peregrine flies with a series of short wing beats and alternating glides, tilting to show its pale under-feathers and broad pointed wings. Loud screeching calls near rocky ledges may declare the presence of a nest. Climber avoidance of nest sites from March to June is essential to help ensure peregrine numbers continue to increase away from near extinction in the 1960s.

28 Red Grouse
Lagopus lagopus
33-40cm

When disturbed red grouse explode into flight with rapid wing beats and a loud, 'quarrack-rack-rack'. Grouse are squat, plump, medium-sized game birds that are dependent on heather for food, shelter and nesting. The loss of heather moorland through wildfires, over-grazing and fragmentation from forestry plantations has had a disastrous effect on the grouse population. The highest densities remaining in Northern Ireland are in the Antrim Hills and the Sperrins.



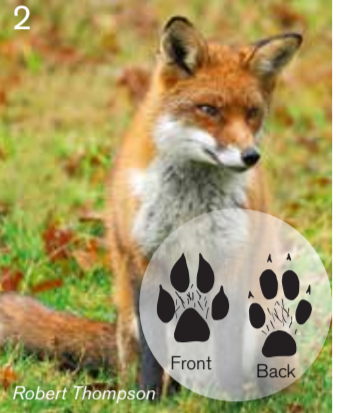
Beautiful mountains. Fragile environment. A special experience.



1 Irish Hare

Lepus timidus hibernicus
Length 50-60cm

Native and unique to Ireland, the Irish hare is a sub-species of the mountain hare found throughout northern Europe. Hare numbers have declined due to changes in farming practice at lower level, however they remain relatively common in the uplands. Neat, flattened vegetation amongst grassy tussocks is an indication of a hare's resting place called a form. Forms provide concealment, shelter and a view of the surrounding area. As the hare's eyes are set in the side of its head its field of vision is almost 360°. When disturbed, the hare dashes across hillsides at speed, possibly reaching up to 50km/h. During snowy winters white or partially white hares can occasionally be seen in Ireland.



2 Fox

Vulpes vulpes
Length (inc tail) 100-120cm

A member of the dog family, though some scientists now claim foxes share more characteristics with cats, the red fox has the largest natural distribution across the globe of any land mammal other than man. Foxes are extraordinarily opportunistic, omnivorous predators, feeding on carrion, small mammals (particularly rodents) and ground-nesting birds. Depending on habitat and season, invertebrate prey can contribute 30% or more of the diet. As food is scarcer in the uplands a fox's territory may range up to 1,000ha. Although the fox's night vision is five times better than humans they hunt more by sound than sight.



3 Badger

Meles meles
Length (inc tail) 90-95cm

A shy, nocturnal hunter, with an omnivorous diet similar to a fox, badgers are rarely seen on the hills in daylight. Evidence of their

4 Ground Beetles

Carabus Nitens
Length 13-18mm

This distinctive member of the *Carabidae* or ground beetle family may be found on upland blanket bog. Ireland has 211 species of ground beetles, or 'clocks' as they are often known. Northern Ireland holds important European populations of *C. nitens*, yet there are no recorded sightings south of Carlingford Lough. Many ground beetles vomit on their prey and then wait for the digestive enzymes to make their food more fluid and easier to eat.



presence could be the discovery of a sett (with signs of fresh digging or discarded bedding by the entrance), a distinctive 5-toed footprint, or tufts of stiff grey hair caught on a fence. The sett is a system of underground tunnels and chambers which may be occupied continuously for hundreds of years. Badgers typically live in social groups of two to six; in the uplands groups tend to be smaller and badgers can be solitary.



5 Common Heath Moth

Ematurga atomaria
Wingspan 22-34mm
Flight April - Aug
Look out for the delicate common heath moth flying above heather on warm days in late May and early June. Males are easily identified by their large combed antennae which they use to seek out females. Common heaths, and other moths, are an important food source for many upland animals. Only a tiny fraction of eggs laid by a female will successfully survive to adulthood, most being taken by birds during their larval or caterpillar stage to feed to hungry nestlings. The caterpillar of the common heath feeds off heather.



6 Emperor Moth

Saturnia pavonia
Wingspan 50-60mm (male)
60-80mm (female)

Flight April-May
The emperor, as its name suggests, is the largest moth in Ireland. In spring you may see a red blur as the males hurtle across the uplands at up to

25km/h seeking females and showing their red underwings. There is reason for their hurry; emperor moths have no mouths, they do not feed as adults and only live for a week or two. In summer you may happen across the impressive emperor caterpillars (up to 6cm long) basking in the sunshine. These form tough cocoons in which they spend the winter, emerging for their brief winged freedom next spring.



7 Frog

Rana temporaria
Hibernates Nov-Jan
Body Length 6-9cm
Frogs are surprisingly common in the uplands, where wet vegetation and open water provide safety to breed, hibernate and hunt. The skin colour is highly varied. They can change their skin tone to match their surroundings within a few hours. The females lay 1000-5000 eggs (spawn). Despite starting off with vast numbers frogs are in serious decline due to heavy predation, habitat loss and disease. The lucky ones might make it to be eight! All sightings should be recorded. In winter frogs hide in frost-free sites, such as under old heather stumps, grassy tussocks and deep inside stone walls.

8 Mosses

Sphagnum
Ireland has many types of mosses, including more than 20 *Sphagnum* species. *Sphagnum* mosses can be distinguished by their vivid green and red hues found in soft clumps on top of very wet, peaty soils. Each head looks like the bloom of edelweiss. Bright green *Sphagnum* serves as an indicator of very wet flushes. Without *Sphagnum* mosses there

9 Lizard

Zootoca vivipara
Hibernates: Oct-March.
Length (inc tail) 10-16cm
Ireland's only native reptile; commonly found near walls and rocky places. Shy and easily disturbed; it may be the sight or sound of one disappearing after basking in the sun which catches your attention. Lizards hibernate under thick grassy tussocks or deep inside



would be no bogs in Ireland. *Sphagnum* mosses make water acidic; this prevents the decay of dead vegetation which results in the build-up of peat and the formation of bogs. *Sphagnum* can hold up to 20 times its own weight of water, made possible by masses of miniature capillary-like tubes and spaces similar to a natural sponge. This capacity for absorption, and its acidity which inhibits the growth of bacteria and fungi, led to the harvesting of *Sphagnum* for use as a wound dressing, particularly during World War I.



10 Fir Clubmoss

Huperzia selago
The most common of Ireland's four species of clubmoss, fir clubmoss is a mountain specialist not often found below 300m. Fir clubmoss gets its name from its resemblance to a miniature fir tree. Clubmosses are amongst the oldest known plants. During the Carboniferous period (350 million years ago) clubmosses were the dominant plant life and are likely to have grown up to 30m tall. Today's clubmosses are much smaller (5-12cm) but their basic structure has altered little.



11 Bog Asphodel

Narthecium ossifragum
A delicate and beautiful flower that is at its best on boggy ground. The compact flower spike turns deep orange and remains distinctive long after flowering. The scientific name *ossifragum* means 'bone breaker' and refers to the old belief that after grazing on this plant the bones of sheep and cattle became brittle. In fact all the vegetation that shares the same habitat is calcium deficient; bog asphodel was not the sole culprit.



12 Heathers

All three heathers commonly found in Ireland provide vital food, offer stability to friable peaty soils and create habitats essential to the life cycle of animals, insects and birds. Each heather variety has a distinct soil preference and when all stages of growth from young shoots to aged woody plants are present, heather plays a central role in a healthy upland habitat. The loss of heather to wildfire or severe overgrazing has disastrous effects on the many animals, birds, frogs and insects that shelter beneath its evergreen canopy, feed on shoots or sip nectar from its flowers. Bees gather nectar from ling and bell heather, which in turn makes tasty and much sought-after honey, most notably the Mourne Heather Honey. You may notice tiny holes in bell heather flowers; these have been drilled by bees to extract the nectar.



12a: Ling or *Calluna vulgaris* is the most abundant of our heathers; it is tolerant of moist soils and found almost anywhere in the mountains. Note the very small, and very pretty flower heads. The leaves are overlapping and appear to cling to the stem.



12b: Cross-leaved heath or *Erica tetralix* is found in wetter places. Plump bell-shaped flowers hang in a bunch at the top of the stem. Note the blue tinge to the leaves that grow in a crossed formation.



12c: Bell heather or *Erica cinerea* is the classic mountain heather bringing great swathes of purple to drier hillsides. Vivid purple bell-shaped flowers grow in groups along the plant's wiry stems. The leaves grow in threes, with tufts of shorter leaves where the longer leaves join the stem.



13 Heath Spotted Orchid

Dactylorhiza maculata
Ireland's most common orchid, found in damp acid soils. Observed up close the exquisite beauty of orchids is revealed. Orchids grow slowly, taking several years to flower. Orchid seeds carry no food reserves, making them incredibly light for successful wind dispersal. Survival after germination is dependant upon infection with a mycorrhizal soil fungus. Dormant in winter, this orchid's distinctive spotted leaves are noticeable in spring.



14 Common Butterwort

Pinguicula vulgaris
Common on bogs and wet rocks, this pretty violet-like plant is a killing machine! It has evolved a way of supplementing a lack of nutrients from peaty soils by becoming carnivorous. The distinctive yellow-green leaves feature numerous glands that secrete a sticky fluid which traps and dissolves insects that come in contact with the leaf. There is little chance of escape as butterworts possess the strongest natural glues known.



15 Round-leaved Sundew

Drosera rotundifolia
Sunshine colours radiate from this tiny and beautiful plant. Found only in wet acid bogs, the sundew lures insects to its death, by catching them on long sticky hairs. The added food value from digesting insects helps the plant survive on impoverished peat soils. Historically used to cure all manner of ailments from warts to whooping cough, sundew displays a pretty little white flower atop a slender stalk.



16 Tormentil

Potentilla erecta
Tormentil is found in many habitats but its small, bright-yellow flowers are abundant in the mountain environment. Note the four heart-shaped petals set in front of the green square sepals. The use of tormentil root for tanning leather was recorded in 1727 at a time when Ireland was particularly lacking in trees. It still has uses in complementary medicine today.



18 Lichens

Cladonia floerkeana
Commonplace, yet bizarre, lichens grow only where the local environment is pollution free. Their pioneering ability to establish in locations too hostile for other plants (such as bare rock) is the result of a symbiotic partnership between a fungus and an alga. Lichens grow extremely slowly in a variety of shapes and colours, such as leaf shapes or colourful trumpet-like stalks. Careless footwork on rock or on peat could wipe out several decades of growth. More than 1,100 lichen species have been identified in Ireland. *Cladonia floerkeana* is a bog specialist and one of a number of red-tipped lichens commonly known as 'matchstick' lichens. The cup-shaped lichen to its right is another of Ireland's 48 *Cladonia* species, *C. chlorophaea*.



19 Sweet Vernal Grass

Anthoxanthum odoratum
One of the first spring grasses to re-grow on hillsides, it is an important early food source for grazing animals. Sweet scented; it tastes of vanilla when chewed and grows in tufts all across upland areas. The Latin *odoratum* means "smell as well" by rubbing the leaves between your hands the sweet vanilla hay smell is released. Surprisingly, dried sweet vernal grass has been used to cure hay fever.



20 Purple Moor-Grass

Molinia caerulea
A coarse perennial grass, characteristic of wet peaty slopes and valley bottoms. Purple moor-grass has narrow, purplish flower-heads in late summer. It brings delightful shades to the hills in autumn when it turns a rich, reddish brown, before dying off to a buff colour. Its characteristic tussock growth creates a mosaic of humps and hollows that add refuge value for wildlife but can make for difficult walking.



21 Bilberry/Blaeberry

Vaccinium myrtillus
Found growing on dry heaths, this dwarf shrub is deciduous. Leaves return in spring and pink ball-shaped flowers follow soon after. Harvesting the delicious black fruits in summer is a celebrated ancient folk ritual. The local community around Slieve Croob still gathers to pick bilberries on Blaeberry Sunday at the beginning of August. In many parts of Ireland the highly nutritious berries were picked for export to Britain, especially during the two great wars. Bilberries are closely related to the blueberries of North America.



17 Bog Cotton

Eriophorum angustifolium (common cottongrass)
Eriophorum vaginatum (hare's tail cottongrass)
The unmistakable white heads of bog cotton are common on blanket bog and wet heath. Common cottongrass has multiple heads and hare's tail a single head. Each cotton top is a mass of minute seeds with fine hairs, designed to disperse easily in the wind. A swathe of common cottongrass may warn of unsafe walking terrain as the plant is capable of thriving in standing

water, thanks to an ingenious snorkel technique where air is transported down through the plant to its roots in anaerobic peat up to 60cm below. Hare's tail cottongrass lacks this special feature and will be found growing in tussocks on drier ground. Unlike true cotton, the hairs of cottongrass lack tensile strength. Despite this up to about 100 years ago they were mixed with wool or cotton and used in the manufacture of cloth, carpets and roofing felt. It was also used to stuff pillows, make candle-wicks and as tinder to start fires.