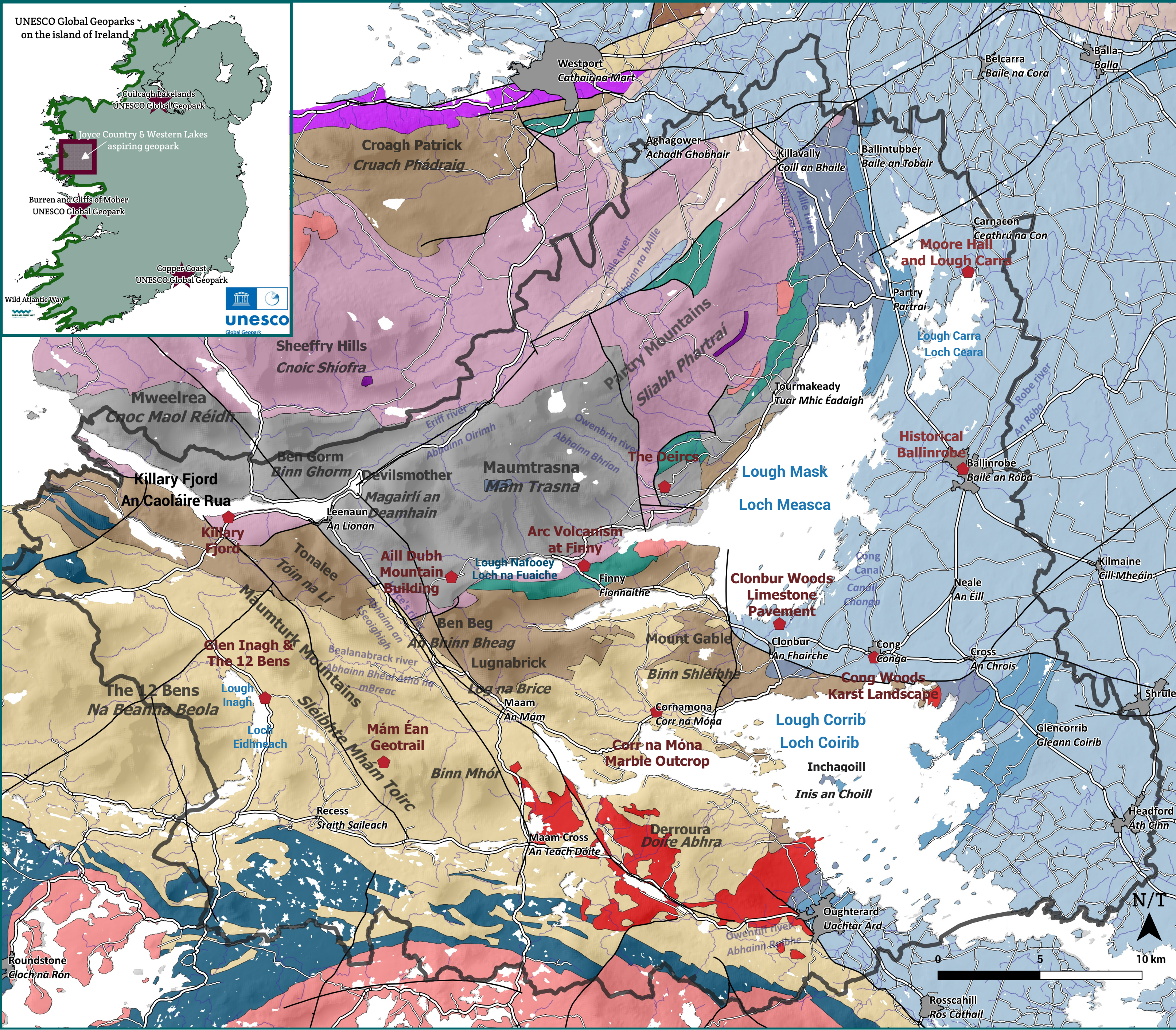
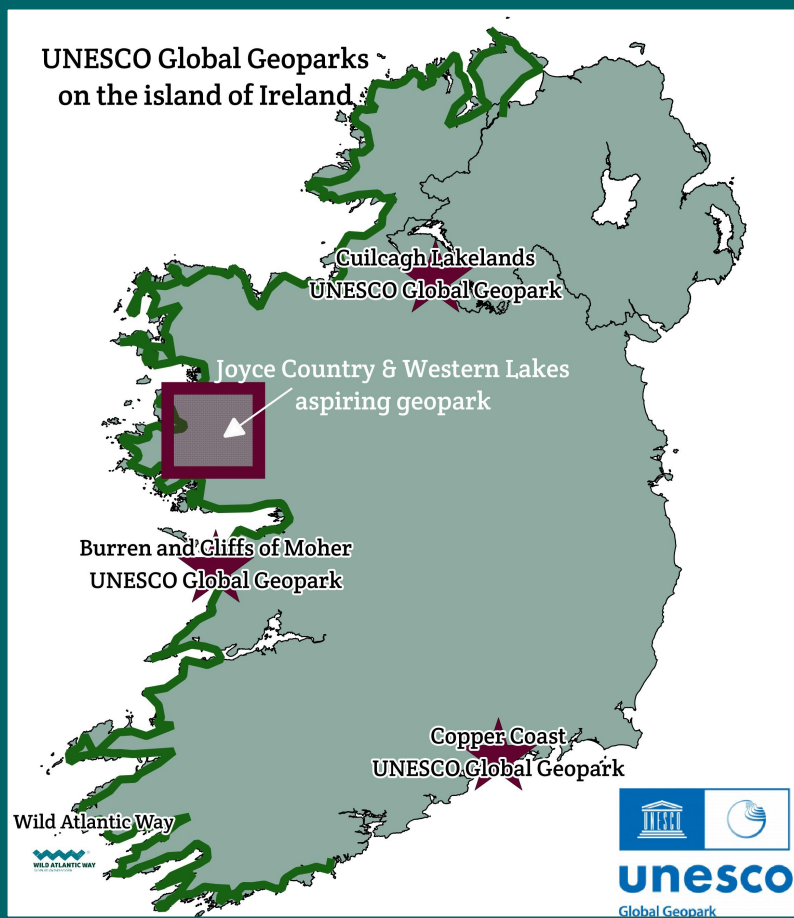


Geological Map of Joyce Country and Western Lakes aspiring geopark region
Mapa Geolaíochta den réigiún den gheopháirc (roimh aitheantas)
Dhúiche Sheoigheach agus Lochanna an Iarthair



Legend/Eochair Eolais

- Lower Carboniferous (Viséan) sandstone, mudstone & evaporite
Gaineamhchloch, láibchloch agus gailít ón Treimhse Charbónmhar íochtarach (Viséach)
- Lower Carboniferous (Viséan) limestone & calcareous mudstone
Aolchloch agus láibchloch chailcreach ón Treimhse Charbónmhar íochtarach (Viséach)
- Lower Carboniferous (Tournaisian) limestone
Aolchloch ón Treimhse Charbónmhar íochtarach (Thúrnaiseach)
- Lower Carboniferous (Tournaisian) sandstone, mudstone, limestone
Gaineamhchloch, láibchloch, aolchloch ón Treimhse Charbónmhar íochtarach (Thúrnaiseach)
- Silurian sandstone, siltstone, conglomerate
Gaineamhchloch, siltít, comhcheirtleán Siolúrach
- Middle to Upper Ordovician slate, sandstone, greywacke, conglomerate
Slinn, gaieamhchloch, gréabhaca, comhcheirtleán ón Treimhse Ordaiviseach Láir go hUachtarach
- Lower to Middle Ordovician slate, sandstone, greywacke, conglomerate
Slinn, gaieamhchloch, gréabhaca, comhcheirtleán ón Treimhse Ordaiviseach íochtarach go Láir
- Ordovician volcanic rocks
Carraigeacha bolcánacha Ordaiviseacha
- Precambrian metamorphic rocks - Dalradian quartzite, marble, schist
Carraigeacha meiteamorfach ón Réamhchaimbriach - Dáiriadach grianchloichít, marmar, siosta

Igneous Intrusions/Bruth-Ionsánna

- Palaeogene gabbro, dolerite
Gabró, dolairít Pailéigéineacha
- Siluro-Devonian granite
Eibhear Shiolúrach-Deavónach
- Lower Palaeozoic gabbro, diorite
Gabró, dióirít ón Tréimhse Phailéasóchlochtarach
- Ordovician granitic rocks
Carraigeacha eibhreacha Ordaiviseacha

Other/Eile

- Fault
Éasc
- Rivers
Abhainn
- Geosites
Geoshuíomhanna
- Geopark boundary
Fóir an Gheopháirc

Scale/Scála 1:135000
Projection/Teilgean: Irish Transverse Mercator

Geological data from Geological Survey Ireland
Sonraí geolaíochta as Suirbhéireacht Gheolaíochta Éireann

Project funded as part of Project Ireland 2040
Tionscadal maoinithe mar chuid de Thionscadal Éireann 2040



Geosites around the aspiring Joyce Country and Western Lakes geopark

What is a UNESCO Global Geopark?

A UNESCO Global Geopark is an area with sites and landscapes of international geological significance. Geoparks have a bottom-up approach and encourage local communities and authorities to come together for the sustainable development, protection and education within that area. This holistic concept has become increasingly popular around the world. UNESCO Global Geopark status adds no further planning regulations to those already in place by EU, national or local government. Currently, there are 3 UNESCO Global Geoparks in Ireland: Marble Arch Caves, in counties Fermanagh and Cavan, Burren and Cliffs of Moher, in County Clare, and Copper Coast, in County Waterford. The Joyce Country & Western Lakes geopark region is an aspiring geopark and is expected to apply for UNESCO Global Geopark status.



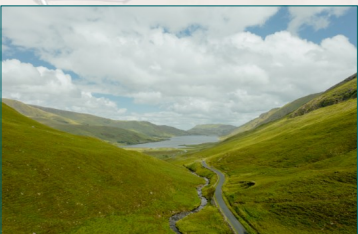
Corr na Móna Marble Outcrop

This marble outcrop formed when an ancient ocean began to close 480 million years ago. Extreme heat and pressure from the tectonic activity of the ocean closing, metamorphosed (transformed) the limestone into the marble we see today. It is one of the oldest rocks found within the aspiring geopark.



Glen Inagh & The Twelve Bens

Also known as The Twelve Pins or Beanna Beola, The Twelve Bens offer panoramic views of Connemara, right down to the coast. The peaks are made from quartzite, and the tallest, Benbaun, stands at 729m. The glaciers of the Quaternary Period shaped the peaks and valleys into what we see today. The Western Way long-distance walking trail passes close to the Maumturk Mountains.



Aill Dubh Mountain Building

The area around Aill Dubh is made up of sedimentary rocks, such as sandstones and conglomerates, that also formed when the ancient ocean was closing 480 million years ago. There is a superb outcrop of these sandstones and conglomerates along the road there, where you can also see red granite cobbles within the otherwise grey rock colour. There are also layers of volcanic ash that stand out as dark cliffs on the mountain slope.



Arc Volcanism at Finny

The arc volcanism at Finny is one of the few places in Ireland where pillow basalts are seen so clearly, as they can be seen in both 2D and 3D (left). They are the remains of underwater eruptions of lava on the sea floor. The small holes seen in the pillow basalt, called vesicles, were left behind by gasses escaping the magma.



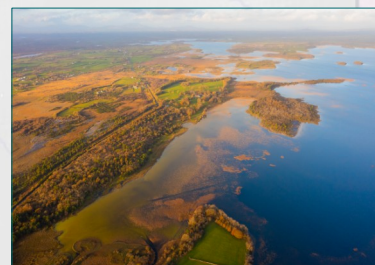
Clonbur Woods Limestone Pavement

This limestone formed during the Carboniferous Period when Ireland was at the equator, and warm, tropical water habitats dominated. Weathering of these rocks over the past 10,000 years has created a unique landscape. Some of these features, such as 'boulders in their sockets', are thought to be globally unique to the Lough Mask region. 'Eggbox pitting' is another common weathering texture seen in the region. The limestone pavement can be seen on the walking trail through Clonbur Woods.



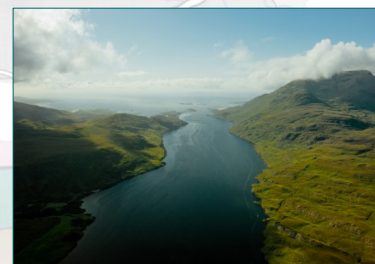
Cong Woods Karst Landscape

This limestone also formed during the Carboniferous Period, when warm, tropical water habitats dominated. Subsequent weathering formed the karst landscape we see today. Lough Mask flows into Lough Corrib (and then the sea) via underground rivers and springs. Pigeon Hole Cave (left), is one of these conduits that carries the water underground between the two loughs, and can be seen on the walking trail through Cong Woods. In terms of water flow, Cong Spring is 5th largest in the world. The dried-up Cong Canal, a man-made channel, is further evidence of the porous nature of the limestone here.



Moore Hall and Lough Carra

Originally called Fionn Loch Ceara, to describe the lough's white colour, we now know the colour is due to the presence of marl. Marl forms when water is supersaturated with calcite. It provides a unique habitat for the insects, flowers, birds and mammals living there. Moore Hall, an 18th Century mansion, was destroyed by anti-treaty forces during the Irish Civil War in 1923.



Killary Fjord

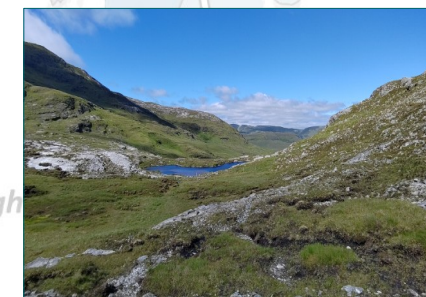
Ireland's only fjord. When the glacier that covered Ireland retreated at the end of the Quaternary, the sea came in and filled the resulting valley floor. This formed an inlet of water that is steep, narrow and deep. To be a true fjord, the water within needs to be deeper than the sea it drains in to. This is true for Killary Fjord where the water is -40m behind the terminal moraine of the fjord and -20m in Killary Bay, the sea in which it drains in to.

Why are these geosites?

The aspiring geopark is home to rocks of many ages and has examples of rocks from most of the geological periods, from the Precambrian to the Quaternary (700 millions years ago to the present day). The rocks and geological structures are what help us piece together Ireland's movement through geological time: from its origin in a new shallow ocean close to the South Pole, to when Ireland went from being two separate continents to colliding and becoming one, to being part of a long mountain belt, to moving northwards to the tropics and being covered by warm, clear seas where coral reefs grew, and finally to its current location. These sites of interest help tell this geological story that not only spans millions of years, but also many different latitudes, climates, temperatures and sea-levels. They also show times when Ireland experienced lots of volcanic activity, or when Ireland was under an ocean and covered by the sea. The landscape we see today ties all of this geological activity together, including how glaciers of the latest geological period, the Quaternary, has shaped the landscape. These sites either have geology of international significance – some of them are unique both in Ireland and worldwide – or are part of the rich cultural history of the area, which are the fundamentals of becoming a geopark.

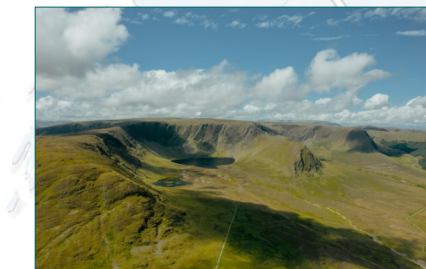
How do you read a geological map?

The different colours on a geological map represent the different rock types found within that area. In the aspiring Joyce Country & Western Lakes geopark, all three rock groups – igneous, sedimentary and metamorphic – are present: red represents granite (igneous), blue represents limestone (sedimentary), and beige represents quartzite, marble and schist (all metamorphic). Although the aspiring geopark is an area of complicated geology (this is what makes it internationally significant!), geologists can use clues such as igneous intrusions to help date rocks and get an idea of when they formed. For example, the rock the igneous intrusions are found within had to be there first so that they could intrude in to them. The other features seen on the map are faults, represented as black lines, which are fractures with significant displacement on either side of them, and the geosites, which are detailed here.



Mám Éan Geotrail

A section of the Western Way national trail crosses the Maumturk mountains at this pass allowing great views, close-ups of metamorphosed and folded quartzite and marble and an exploration of a revived ancient pilgrimage associated with St Patirck. The Geotrail has been the impetus for the trail to join the International Appalachian Trail (IAT).



The Deircs

Deirc, Irish for hollow, is used to describe the shallow lakes in the glacial corries of the Owenbrin Valley and around Maumtrasna. Corries are where glaciers are born: snow accumulates, turns to ice, flows downhill and erodes the mountain in a circular fashion. The view from The Deircs over Lough Mask highlights the contrast with the limestone lowlands.



Historical Ballinrobe

Ballinrobe was first established by the Norman Conquest in the 13th Century. Monuments and sites dating back to the Neolithic and Bronze Age have also been found, as have remains of churches and town houses from Early Christian and Medieval times.

