



Cwm Idwal

National Nature Reserve

*Y mae hud yng Nghwm Idwal
A'i swynion dwfn sy'n ein dal*

IEUAN WYN





Location

The visitor centre is located on the A5, about 5 miles south of Bethesda and about 4 miles west of Capel Curig, on Llyn Ogwen's western end.

There is a pay and display car park outside the centre, which is suitable for cars and small buses. Large coaches are advised to park where it is legally allowed off-road, e.g. the car parks by Llyn Ogwen, around 1km from the Centre towards Capel Curig.

Facilities There are toilets and one shower on the site, which are open day and night, and there are seating areas both inside and outside the centre.

Refreshments Light refreshments are available at the kiosk selling hot and cold snacks in the visitor centre. This is usually open between 9am and 4pm, with the opening times extended during the Summer.

POST CODE
LL57 3LZ

GRID REFERENCE
SH 649 603

The National Trust has a cafe in Bwthyn Ogwen that is usually open at weekends and during school holidays.

Organising your visit

These are MountainSafe's key safety messages:

1. Prepare well

Make sure you have the right equipment with you for the best and worst-case scenario! You'll need a map and compass, torch, food and drink, whistle, first aid kit and a fully charged mobile phone. You may even need sunscreen and a sun hat on a sunny day!

2. Have the latest weather and ground information

Check the Met Office Mountain Weather forecast for Snowdonia before you set out and be prepared to turn back if the weather worsens – the mountains will still be here for you to enjoy the next time you visit.

3. Dress appropriately

The weather and temperature can change dramatically between the foot of the mountain and the summit. You'll need strong walking boots, several layers of clothing including warm ones, gloves, a hat and waterproof jacket and trousers.

4. Know where you're going

Plan your route before setting off and ask for local advice. Have a map and compass and know how to use them and choose a route which is suitable for you and your group's experience and fitness level. Find out how long it should take and when it gets dark.

5. Know your limits

Whilst being very enjoyable, getting out into the mountains can be hard work even in summer – challenge yourself, but be aware of the fitness levels, and experience of the group as a whole – not just your own.

In an emergency remember

... If it is necessary to call a Mountain Rescue team for assistance, you must dial **999** and ask for the Police, and then **Mountain Rescue Team**



An example of a suitable risk assessment for Cwm Idwal can be obtained by the Cwm Idwal Partnership Officer

Cwm Idwal National Nature Reserve

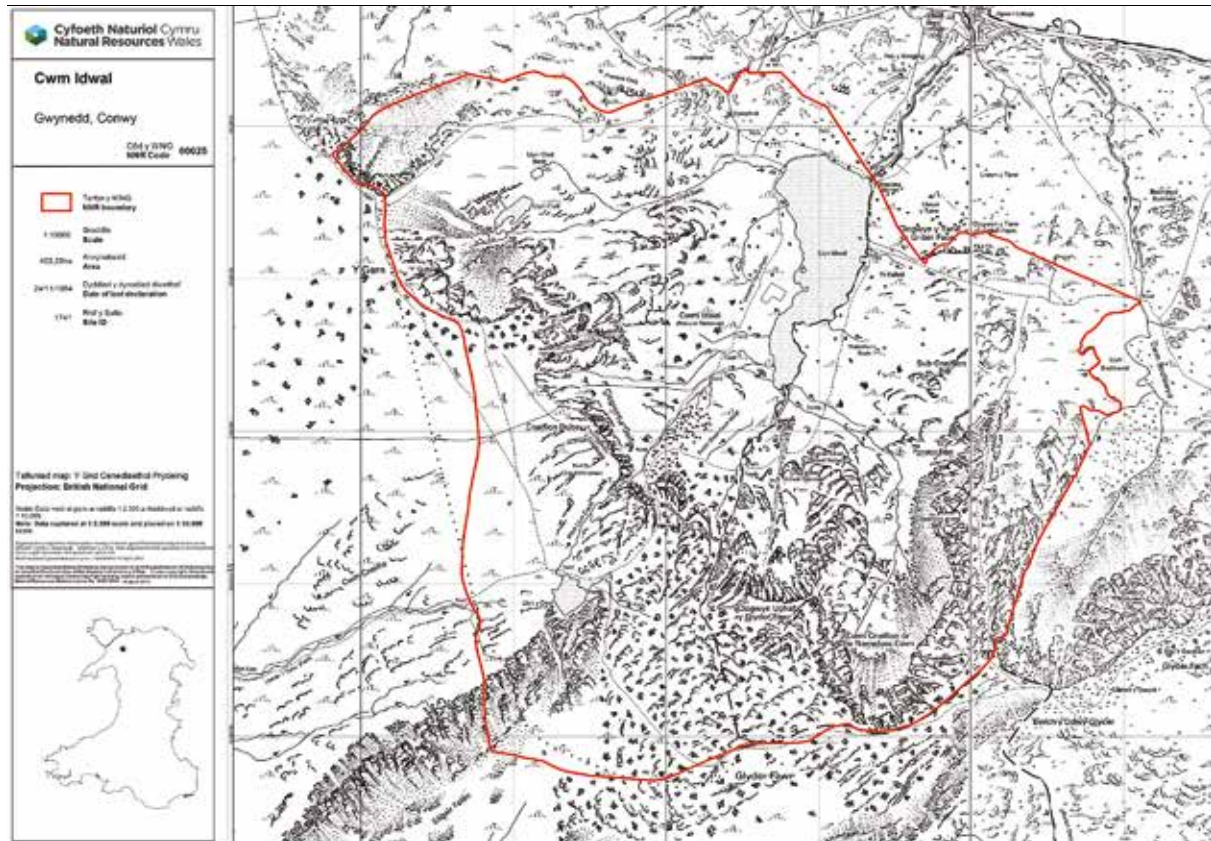
OVERVIEW / INTRODUCTION

In 1954, Cwm Idwal was designated as the first National Nature Reserve in Wales, and today it is a very popular attraction for a wide range of visitors.

The primary reason for designating Cwm Idwal as a National Nature Reserve was the unique geology found here. The second reason connects rare plants to the special geology. The National Trust, Snowdonia National Park Authority and Natural Resources Wales work in partnership to manage Cwm Idwal.

AREA
3.88km²
398 hectare

HEIGHT
373m
1001m



Temperature: www.thebmc.co.uk/idwal

Respect Protect Enjoy

Respect other people

Consider the local community and other people enjoying the outdoors

Leave gates and property as you find them and follow paths unless wider access is available

Protect the natural environment

Leave no trace of your visit and take your litter home

Keep dogs under effective control

Enjoy the outdoors and stay safe

Plan ahead and be prepared

Follow advice and local signs

The Countryside Code

When you're out enjoying the Snowdonia countryside, remember to do so responsibly so as to protect wildlife and local landowners' livelihoods.

Further information can be found by following the link below.



<https://naturalresources.wales/days-out/the-countryside-codes/?lang=en>



Access

Cwm Idwal is an open access area, however, there are a number of dedicated paths within the reserve for you to enjoy, which help to protect its rare habitats.



A full explanation of what 'access' land is can be found here:

<https://naturalresources.wales/days-out/recreation-and-access-policy-advice-and-guidance/managing-access/open-access-land/?lang=en>

Below are some circular walks that can be done in Cwm Idwal:

<http://www.snowdonia.gov.wales/visiting/walking/leisure-walks/cwm-idwal>

<https://www.nationaltrust.org.uk/carneddau-and-glyderau/trails/cwm-idwal-walk>

The North Wales White Guide is available here:

www.snowdonia-active.com/upload/documents/nwwgwelshA4lo-res.pdf

Lôn Las Ogwen runs from Bangor to the Visitor Centre. Further information can be found here:

www.sustrans.org.uk/ncn/map/route/lon-las-ogwen



There are a number of climbs to challenge you during summer and winter, and there are plenty of books available advising on climbing routes:

<http://www.snowdonia.gov.wales/shop/guides/climbing?name=>

<https://www.youtube.com/watch?v=FchMumzJzF4>

Geology

Cwm Idwal was designated as a National Nature Reserve in 1954, primarily because of the unique geology found here, and secondly on account of those rare plants that have colonised along the slopes.

In Cwm Idwal there are sedimentary, igneous and metamorphic rocks that were formed during the Ordovician era, around 450 million years ago.

These rocks were formed through sedimentation processes on the sea bed as well as volcanic processes that produced stratae of dust, ash and lava flows, followed by forces of compression and consolidation.

Later, around 40 million years ago, huge tectonic forces were folding and compressing these stratae further as tectonic plates collided creating the form of folded waves in the earth's crust.

The troughs of these folds are known as synclines, and the Idwal syncline can be seen running up Twll Du (Devil's Kitchen) and the head of Cwm Idwal. On both sides of Twll Du, we see where the sea bed was raised. It is possible to see evidence of this today in the form of brachiopod fossils, which were animals that lived on the sea bed around 400 million years ago. These fossils can be found around the summit of Y Garn (*SH632595*) and along Y Gribin (*SH651686*).





The image above illustrates the folding that was caused by colliding tectonic plates. This Picture can be seen at the National Trust's Bwthyn Ogwen Ranger base.

It would not be possible to see a cross-section of the Idwal syncline in Twll Du without the impact of the glaciers, during the Ice Age, between 10,000 and 13,000 year ago.

Charles Darwin

Cwm Idwal has attracted a great many people to study it over the years. One of those was the geologist and ecologist Charles Darwin. He visited Cwm Idwal when learning geological investigation techniques with his teacher Adam Sedgwick in 1831. It would be 11 years before Charles Darwin was to visit Cwm Idwal again, but during this period, he attended lectures on glacial theories, and travelled to South America to see glaciers in Tierra del Fuego.

In 1842 Charles Darwin returned to Cwm Idwal with new knowledge that confirmed a number of these glacial theories. You can read more of Charles Darwin's history in the following article by the Geological Society:

www.geolsoc.org.uk/Geoscientist/Archive/November-2008/Rocks-of-ages

Further reading:

<http://www.snowdonia.gov.wales/visiting/ogwen/darwins-snowdonia/geological-history?name=?name>

Geography

GLACIAL LANDFORMS

During the Ice Age, a thick layer of ice extended over a wide area of Snowdonia, and smaller glaciers formed when snow was compressed under its weight to form large bodies of moving ice that gravitated down the mountains.

These glaciers accumulated in valleys such as Cwm Idwal, Cwm Cneifion and Cwm Clyd and as they moved down the mountain slopes they scraped stones from the valley headwalls and abraded the valley floors to leave shallow hollows. As the glaciers withdrew, debris was deposited in piles that are known as moraines. There are moraines by Llyn Idwal that are known as 'Beddau Milwyr Ynys Prydain' (*'The Graves of Isle of Britain Soldiers'*), and there is one long moraine that runs along the eastern side of the lake that, along with the hard rock on the Cwm's northern end, forms the edges of the glacial lake - Llyn Idwal. These landforms are seen in Cwm Idwal today, and are a study subject for many students of all ages.

The bowl shape of Cwm Idwal is typical of a glacial cwm, with a steep rear and side walls, moraines and a lake.





Nant Ffrancon, to the north of Cwm Idwal is a 'U-shaped' valley or a classic glacial trough, having a valley with steep sides, a level floor and Afon Ogwen (a *misfit* river) running down the valley.



Warning signs as shown above can be seen on the A5 road warning about materials falling from the mountain.



Geographical processes continue to impact the landscape in Cwm Idwal and the surrounding area. The freeze-thaw processes continues to grind the rocks into smaller pieces every year, and landslips can occur on the steepest slopes.

Weathering

The rocks are exposed to the elements in several places, especially on the highest slopes and summits.

However, they are covered by rock strata, glacial deposits, soil and alluvium in most of the catchment area. Clear evidence of freeze-thaw can be seen – scree, piles of stones and tors (*pieces of more resilient rock that have not weathered to the same extent as the other*).

There are differences that reflect the nature of the rocks, e.g.

- a) Sandstone and igneous rocks are more resilient, with breaches further apart.
These break into larger pieces forming tors and piles of stones
- b) Where the faultlines are close together, e.g. between mudstones and siltstones, the rocks break into smaller pieces to form scree slopes, e.g. Cwm Perfedd, Cwm Ceunant, Cwm Bual.



There are more than 50 tors on Glyder Fawr, with an average height of 2-5 metres. On Glyder Fach they are even bigger, e.g. Castell y Gwynt, which is over 50 metres in height on one side. Biological weathering is taking place throughout the catchment area. The clearest examples come from the highest slopes, e.g. above Cwm Idwal, with individual trees and bushes growing from fissures in the remotest rocks.

Chemical weathering occurs here where the elements react with the rock making them less resistant to weathering. There is no limestone in the catchment area, therefore there is no carbonisation (*although this is seen across the Menai Strait, in the Penmon limestone*).

Ecosystems

An Ecosystem is a community of biological organisms (*animals, plants and other living creatures*) that live in the same environment.

Within any ecosystem there is movement of materials and energy between the organisms. There is a balance between the organisms and the elements and the climate has a direct influence on this relationship. Great changes within an ecosystem can lead to the deaths of many biological organisms.

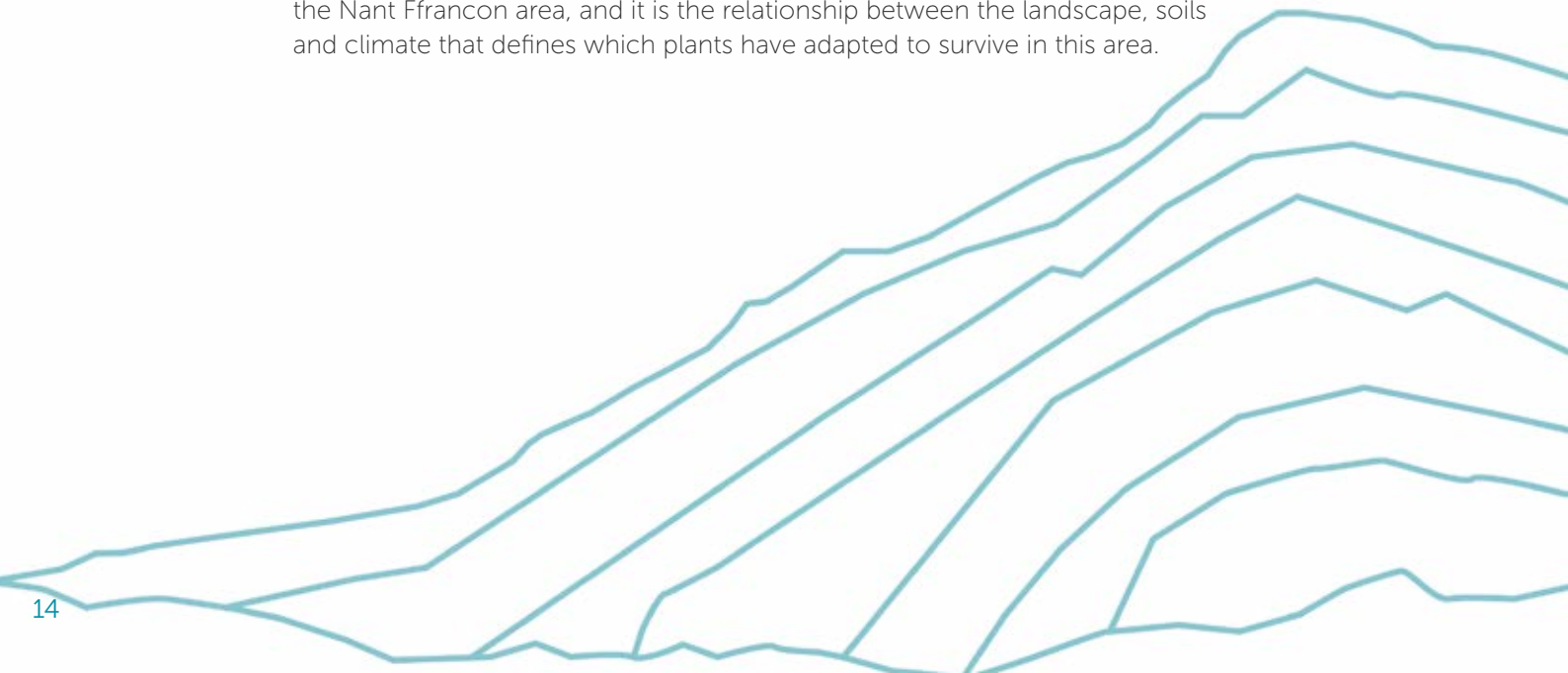
Soils

Soil is formed as organic matter decays, and digested by living organisms. The type of soil found in an ecosystem depends on a number of factors such as the organic matter available to form the soil, and the kind of climate. The climate also defines how quickly the soil is formed. In Cwm Idwal, the landscape has a significant impact on soil formation.

Landscape affects soils in several ways:

- a) **Drainage** - which is good on slopes but poor on high plateaus and at the foot of slopes.
- b) **Transportation of matter** - from the uppermost and middle parts of slopes towards the bottom (*impact of gravity and water – erosion and mass-movement*)
- c) **Leaching** - from the uppermost to the lowermost parts.

In addition to the landscape, the bedrock chemistry affects the soils of Cwm Idwal and the Nant Ffrancon area, and it is the relationship between the landscape, soils and climate that defines which plants have adapted to survive in this area.



Succession

Before an ecosystem is established, biological change occurs in stages in the environment. This process is called succession.

When rocks, or the bedrock, came to the surface following the last Ice Age, the first communities to colonise on the rocks were the lichens. Lichens are not plants but communities of algae or bacteria that co-habit symbiotically with fungi. Once lichens become established, the mosses come very soon afterwards and as they decay biomass is produced, namely soil. Once a density of biomass, or soil, is established, many more plants are able to colonise these rocks to form habitats.

Following the last ice age, Arctic-alpine plants established on the rough slopes and some of these are seen in the northern extremities of Snowdonia to this day – the Snowdon lily, purple saxifrage, starry saxifrage and moss campion are such examples. As the valleys and cwms warmed, oak, elm and birch arrived, trees that had spread gradually northwards from Europe and the Arctic-alpine plants migrated to the higher slopes. The forest ecosystem reached its climatic maximum around 5000 BC when it reached 600m in Snowdonia.

Since then, there has been a decrease because of climatic change and the introduction of grazing animals. The remains of trees and their history can be seen in the peaty bogs of Cwm Idwal, which reminds us that there were once plenty of trees here. The remains of the odd branch that can be seen, along with the pollen within peat are records of the change that took place here.

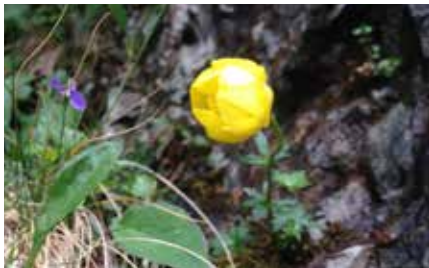


Rare plants

There are several remarkable plants in Cwm Idwal, and most of the rarest plants belong to the Arctic-alpine taxon.



Saxifraga stellaris



Trollius europaeus



Dryas octopetala and Silene acaulis



Racomitrium Moss

As is clear from the name 'Arctic-alpine', these plants have settled in very cold climates as found in the Arctic, the high mountains of the Alps, and Cwm Idwal.

Areas within Cwm Idwal are ideal habitats for some of these plants, that have adapted perfectly for living in such a place. Among the attributes of Arctic-alpine plants are that these flowering plants grow in low mats or 'cushions' and they have a short flowering season, which protects them from the extreme elements found in these areas. These plants are usually found growing on high, north east facing ledges, usually above 600m.

One of the first Arctic-alpine plants to flower in Cwm Idwal is the purple saxifrage, or the opposite-leaved saxifrage, or to give its Latin name, *Saxifraga oppositifolia*.

See picture opposite.

The Purple Saxifrage usually flowers from around mid-February through April, but the flowering season changes dependent on the winter weather we have in Cwm Idwal. There is rarely an opportunity to see the Purple Saxifrage flowering after Easter.





Is the name 'purple saxifrage' appropriate for this type of saxifrage we have in Cwm Idwal? There are also the white and pink flowers on the 'purple' Saxifrage in Cwm Idwal. A picture of the purple saxifrage with a white flower can be seen below.

In Norway the purple saxifrage is known as *rødsildre*, or the red saxifrage, as redder flowers are found there, but it is the same species of plant as we have in Cwm Idwal. The colour of the flowers is defined by the gene pool of the plants that grow in that habitat in each particular location. The white flower could be the result of a limitation in the genetic pool found in Cwm Idwal.

Opposite-leaved saxifrage is another name for this flower. An effective way of identifying it is by studying the leaf structure. The most apparent feature after the flowers is the 2-6mm leaves, which grow opposite each other in 4 rows, so the name opposite-leaved saxifrage is very appropriate. The tips of the leaves also have white spots, that are a concentration of calcium.

One of the most famous Arctic-Alpine plants that grows in Cwm Idwal is the Snowdon Lily, that grows on the higher cliffs.



Carnivorous plants

Cwm Idwal is an area where the annual rainfall is comparatively high.

When water flows constantly through the soil, it washes minerals such as nitrogen, from the acidic soil. Marshy soils are also more acidic, and this limits the number of species that can live here.

There are two particular plants in Cwm Idwal that have adapted for survival under such circumstances, which are butterwort (*Pinguicula vulgaris*), and the round-leaved or common sundew (*Drosera rotundifolia*).

These plants are different from other plants in Cwm Idwal as they trap and digest small insects. The plants have adapted to do this in order to acquire the necessary minerals for growth, flowering and seeding.



Round-leaved or common Sundew



Butterwort

In order to measure the succession rate , Natural Resources Wales monitors the composition of the vegetation every five years.

Other institutions also do occasional investigations, with organisations such as the BTO (*British Trust of Ornithology*), and the RSPB (*Royal Society for the Protection of Birds*) organising surveys, and universities use the reserve for teaching ecological and geographical techniques and countryside management to students.

Cwm Idwal wildlife

In Cwm Idwal a record is kept of invertebrates, amphibians, fish, small mammals and birds.

The habitats found at Cwm Idwal contain plants that attract specific insects, which in turn attract those animals that prey upon them. These habitats, that can be cliff faces, rivers or dry heath, also provide nesting, feeding and mating opportunities.

Surveys of Cwm Idwal record the animals living there. The surveys are overseen by the Cwm Idwal Partnership.

The public can get involved in wildlife recording by volunteering with conservation bodies, or by using applications such as 'Birdtrack', which is the public recording system provided by the BTO:

<https://www.bto.org/volunteer-surveys/birdtrack/about>

The public is welcome to share any records of plants or animals, by providing a picture, location and recording time with the officers based in the Visitor Centre or at Bwthyn Ogwen.



Falco Peregrinus



Rana Temporaria



Aglais Urticae



Pyrrhosoma Nymphula



Lasiocampa Quercus

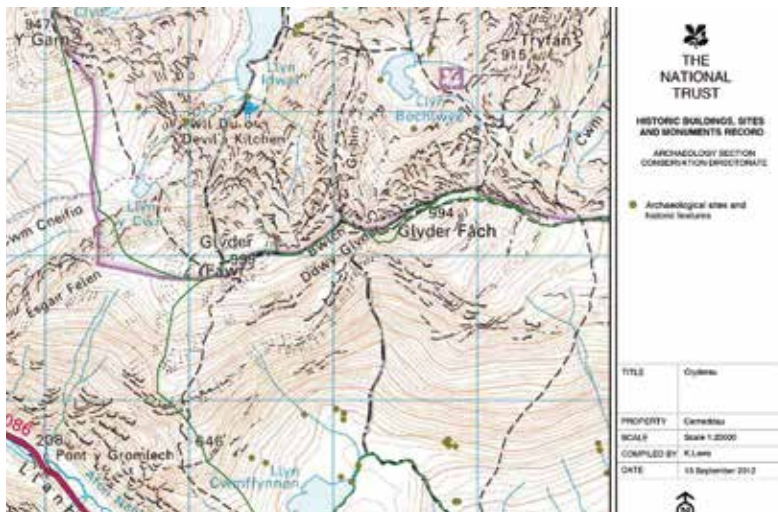


Coelotes Atropos

The people of Cwm Idwal: the hidden history

The impact that people have had on the landscape of Cwm Idwal and the surrounding area is quite clear but there is more to discover about our ancestors' history under the surface.

People have been living in the mountains of Snowdonia for thousands of years, and the map below shows the density / concentration of archaeological sites scattered across the Glyderau and Cwm Idwal.

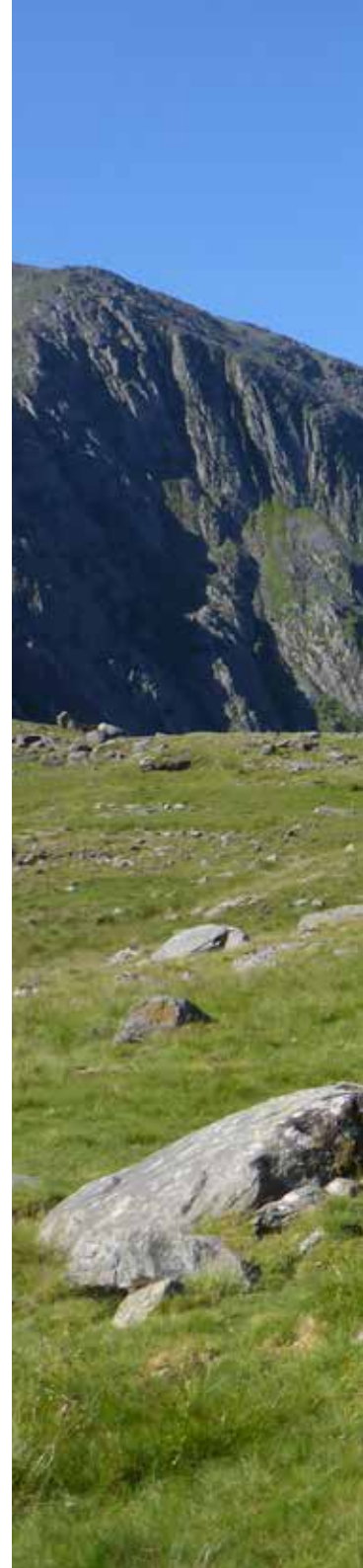


As the ice receded following the Ice Age, people moved into the area. It's likely that the first migrants to Snowdonia were nomadic tribes, moving from one area to the next to hunt. Following a recent study of Cwm Idwal, small pieces of quartz were found by a ruin of a Hafoty, near Clogwyn Y Tarw, and on the beach that lies on the northern shore of Llyn Idwal. By studying these pieces of quartz under a microscope lens, archaeologists could see that the pieces had been deliberately honed.

The remains of round huts are further evidence that people settled here in Cwm Idwal. Locations of many roundhouses can be seen on the previous map of archaeological sites.



An analysis of the pieces dates them back to the Late Mesolithic period (around 6000 – 9000 years ago)



This is an example of how a roundhouse site near Cwm Idwal looks today. We can also see how these roundhouses would have looked in the Bronze and Iron Ages thanks to the reconstruction work completed in Melin Llynnon, Anglesey, and Castell Henllys, Pembrokeshire.





During the Iron Age, there were great changes in agriculture. Instead of travelling around with their animals, people were enclosing plots of land and establishing simple fields for grazing. Any change in land use would affect the landscape including the distribution of plants and animals.



This picture makes it clear that deforestation in the area started a long time ago, and that agricultural practices since then have limited the opportunities for trees to dominate the landscape.

Trees such as rowan and holly grow in the remotest parts of Cwm Idwal, such as the steep cliffs of Y Tŵll Du (Devil's Kitchen) and if the experiment to shepherd grazing animals away from Cwm Idwal continues, perhaps we will see trees re-establishing here in the future.



The picture above shows how the area was farmed in the 1950s, and a much deeper insight can be found in Margaret Roberts' book – '**Oes o Fyw ar y Mynydd**' (*A life of living on the mountain*).

We can learn a lot about our ancestors' customs by studying the archaeological sites, but the place names we have in Cwm Idwal and Nant Ffrancon can also speak volumes about our history. One element that stands out in the landscape is the reference to keeping cattle, or oxen. In Cwm Idwal itself, there is Clogwyn y Tarw (*Bull's Cliff*), and further down Nant Ffrancon is Cwm Bual. The word 'Bual' contains the same element – 'Bu' – as in the word 'bugail' (*shepherd*). The word 'bugail' originally referred to handling cattle in Wales.

Timeline

Below is a timeline, of the events that have had an impact on the landscape of Cwm Idwal and the surrounding area.



Thomas Pennant's volume – 'A Tour in Wales' 1781, and a book by Hugh Derfel Hughes – *Hynafiaethau Llandygai a Llanllechid 1866* (*Llandygai and Llanllechid Antiquities 1866*) are publications that provide descriptions of many local features. The authors of these publications thoroughly researched the meanings of place names, local traditions, local history and plants as well as mapping some of the routes that are to be found the surrounding mountains.



Thomas Pennant



Hugh Derfel Hughes



O G Jones

One of the most famous characters in the climbing community, locally and nationally, at the end of the 19th Century was Owen Glynne Jones.

O.G. Jones was a renowned climber, and as well as having devised the contemporary method of grading climbs, he is also recognised as one of the first climbers to climb the most popular climbs on Craig Idwal and Tryfan using 'modern' rope techniques.



Further reading

You can learn more about mountaineering history in Ioan Bowen Rees' books.

Below is a list of names in the area together with an explanation provided by the Wales Place Names Society.

Afon Ogwen The river Ogwen rises on Carnedd Dafydd and flows to Llyn Ogwen, through the Ogwen valley and into the Menai Strait at Aberogwen. It belongs to a classification of rivers named after creatures. It is likely that the first element 'og' means 'rapid, acute' (*in contrast with its antonym 'diog' meaning lazy*). Another suggestion is the Irish óg meaning 'young'. The second element is 'banw', meaning a 'piglet, small pig', describing a river furrowing through the ground as a piglet would. It can be compared to Afon Hwch, meaning 'sow', in Llanberis, Afon Beinw (*plural form of 'banw'*) in Dolwyddelan, and Afon Twrch (*and old Welsh word for 'boar'*) on the Berwyn mountains.

Tryfan There are two elements to the name. 'Try' is an element that intensifies meaning, and 'ban' meaning 'summit, point, peak, horn' (*compare with the Welsh word for the Brecon Beacons, 'Bannau Brycheiniog', that contains the plural form 'bannau'*). Therefore 'tryfan' means a mountain with a clear summit or a sharp head. It is very different from Glyder Fawr which is an intidy heap besides it.

Glyder Fawr & Glyder Fach 'Cluder' or 'cludair' means 'a heap or pile of wood or stones amassed together'. It is possible that the names refer to the piles of loose stones on the summits of the two mountains, or possibly, to those rocks that are in the teeth of the wind on the western side of the Glyder Fach summit. *The same word is seen in 'Dôl-y-gludair' near Dolgellau.*

Cwm Clud A hanging valley below Y Garn. It is possible that the word 'clud' comes from the word 'cludo' meaning 'to carry' and that it refers to carried material that could be the loose stones on the slopes of Ro Wen above Llyn Clud. Another possibility is that the word here is 'clyd', meaning 'sheltered, cosy', describing the nature of the cwm. Nant Clud (*the Cwm Clud river*) flows from Llyn Clud to Llyn Idwal.

Y Garn	The meaning of 'carn' is 'a pile of stones'. It occurs frequently in names of hills and mountains, for example Garn Fadryn, Llŷn, and Garn Dolbenmaen.
Cwm Cneifion (or Cwm Cneifiau)	A hanging valley below Bwlch y Ddwy Glyder. 'Cneifiau/cneifion' (<i>the plural of the noun 'cnaif'</i>) means 'tufts of sheared wool'. It is possible that the name refers to the conspicuous white stones on the slopes, reminiscent of new tufts of sheared wool (<i>as farmers would be shearing outside on the mountain in the old days</i>).
Y Foel Goch	Y Foel Goch is located above Nant Ffrancon. The meaning of 'moel' as an adjective is 'naked'. As a noun, it is a word for a barren hill or mountain (<i>for example Moel Faban</i>). 'Coch' (<i>red</i>) refers to the rock colour.
Nant Ffrancon	Nant' can mean 'valley' or 'stream'. It is possible that 'ffranc' (<i>plural 'ffrancon'</i>) denotes a 'foreign mercenary' or that it derives from the Old English 'franca' meaning 'spear', and that it is a description of the stream's mighty flow, similar to the sharp weapon, or from the prickly rocks of Braich Tŷ Du.
Castell y Gwynt	Castell y Gwynt (<i>'the windy castle'</i>) on the western side of Glyder Fach, is in the teeth of the wind. Castle is an appropriate name for the rugged rocks on a mountain crest, like high defence towers. Castell y Geifr (<i>'castle of the goats'</i>) by the edge of Y Garn is another example.

Place names can also reveal more of our more recent history to us.

One of these examples is the influence of the Princes Llywelyn Fawr, and his son, Dafydd on local people. It is believed that Carnedd Dafydd and Carnedd Llywelyn mountains were first named in tribute poetry by one of the medieval poets of the nobility, Rhys Goch Eryri. The Princes must have been held in very high esteem to have kept their names on two of the highest mountains in the area.

Managing the Reserve

The Reserve is managed through a partnership that includes Natural Resources Wales, Snowdonia National Park Authority and the National Trust.

An officer is employed through the partnership. Several designations on the Cwm Idwal site influence the site's management.

These designations are listed below:

National Nature Reserve

<https://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/find-protected-areas-of-land-and-seas/national-nature-reserves/?lang=en>

Special Area of Conservation (SAC)

<http://jncc.defra.gov.uk/ProtectedSites/SACselection/sac.asp?EUCODE=UK0012946>

RAMSAR Site

<http://jncc.defra.gov.uk/pdf/RIS/UK14007.pdf>

Cwm Idwal was designated as a National Nature Reserve in 1954, but its management has changed a great deal since then, and as a result, the landscape has also changed significantly. Sheep and cattle grazing was abolished in Cwm Idwal around 1998, but during the 1960's - 70's, experimental plots were fenced out to prevent grazing. These were used to observe and measure the speed at which the natural habitat returned.

We can see from the pictures that the habitats have transformed from grassland to dry heathland as a result of changes in grazing, and in the biggest plot, and the northernmost plot in Cwm Idwal, trees such as holly and rowan have returned.



1968



1984



1988



1994



2001



2004



2018



Sheep and cattle grazing was abolished completely in 1998, and the whole reserve became an experiment to measure succession rate. As there are no boundaries around the reserve, shepherds are employed to keep the sheep on the agricultural lands that border Cwm Idwal.

As well as managing the shepherding, the impact of people on Cwm Idwal must also be controlled. A significant number of people visit Cwm Idwal every year and this can lead to path erosion, especially at the busiest times of the year.

Effective footpaths help to safeguard sites like Cwm Idwal in several ways. Paths with stone surfaces and good drainage are very attractive to the majority of walkers – families, education groups, and people who are beginning to get to know the mountains. Most visitors to Cwm Idwal tend to stay on the paths, although it is all open access.

Fideo

<https://www.youtube.com/watch?v=uTzkHkqGBTs>

Darllen pellach

<https://naturalresources.wales/days-out/recreation-and-access-policy-advice-and-guidance/managing-access/open-access-land/?lang=en>

What is path erosion?

Path erosion is a combination of the effects of the elements and the effects that people have on the ground.

Once the vegetation and soil structure has been weakened by people's feet, water and wind carry the soil away until the bedrock or a layer of stones and rocks in the soil is reached.

Areas that have been eroded like this appear like scars in the landscape, which can mar an areas beauty or threaten habitats as the erosion areas expand.

Snowdonia and Cwm Idwal have a high annual rainfall, and the comparatively low temperature in this mountainous area means that plant growth is comparatively slow. This can create very difficult conditions for plants to re-colonise areas of erosion. The rate of erosion in an area depends of the angle of the slope, the climate, and the type of vegetation covering the soil. Heavy showers can release and move soil on their own, and if the soil is saturated the water will move more quickly down the mountain. This can be seen happening in areas where soil that has been compacted by foot, because these soils hold less water than soils that have not been compacted. When the soil is saturated on a level part of a path, it forms a pool. More often than not, walkers try to avoid such pools and walk around them, increasing the area that is being eroded.

Different types of soil also contain varied levels of carbon, with peat containing the highest concentration. Erosion on peat results in the release of carbon dioxide, which is one of the gases that contributes to global warming.

In Cwm Idwal, tackling erosion is a challenge to the partnership, as the three organisations want to provide opportunities for the public to enjoy the National Nature Reserve, but attracting more people to the area leads to an increase in foot fall, and erosion as a result.



Monitoring the paths

PATH RESTORATION

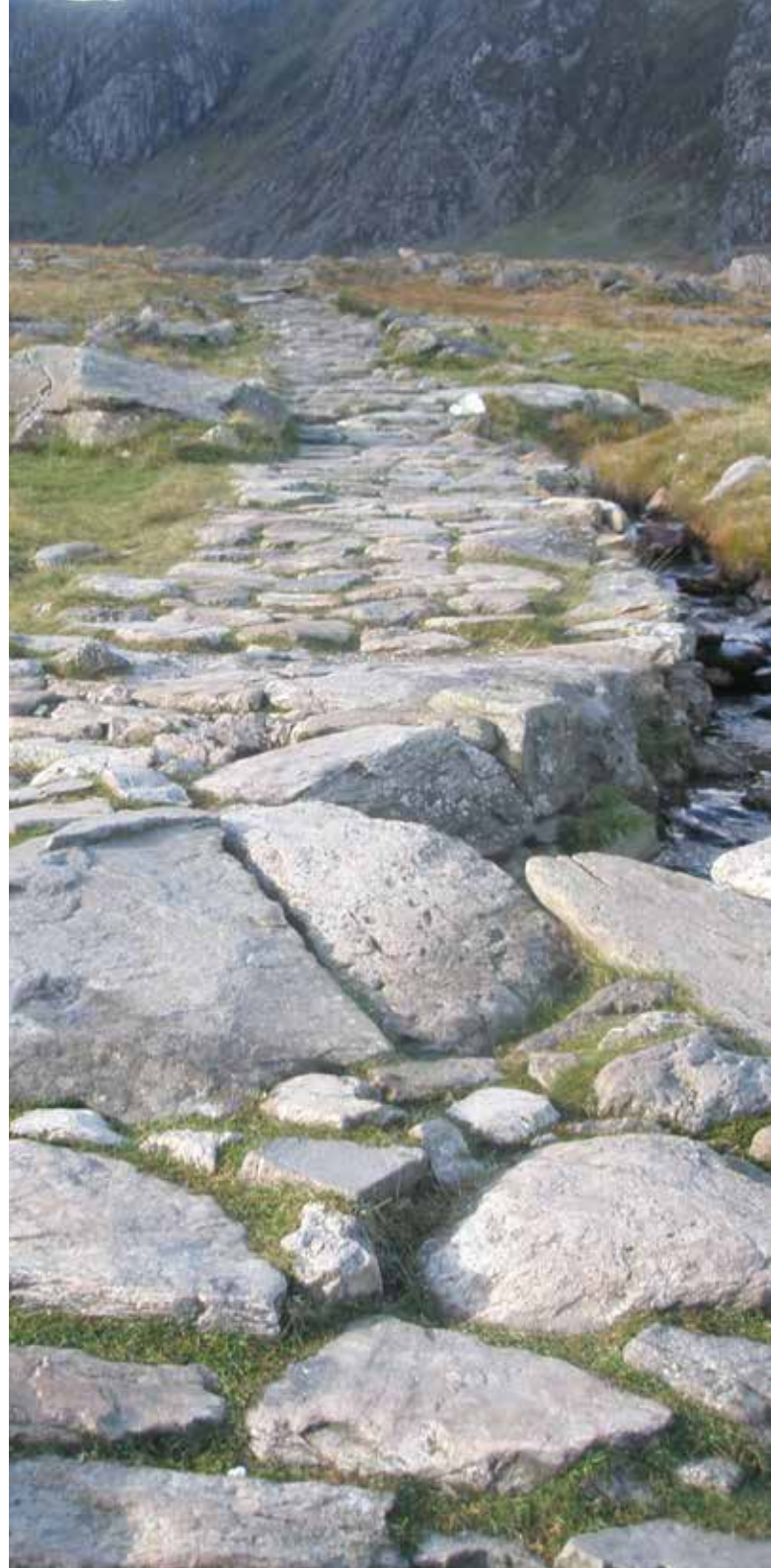
In Cwm Idwal, stones are used to surface the paths.

As the geological attributes of Cwm Idwal are of international significance, stones from the site are not used. Suitable stones are bought and carried to the part of path that needs repair. This is usually done by helicopter, which costs around £900 per hour.

Cwm Idwal National Nature Reserve has an annual budget for capital works, including path restoration. This budget can change annually, therefore path work must be prioritised. In order to find out where the erosion is at its worst, the paths must be monitored regularly, and by undertaking these surveys we can see which stretches of path require restoration.

When deciding which stretches of path are to be prioritised for restoration, the following must be considered:

- Annual footfall on the path / increased risk of erosion.
- The threat of erosion to species.
- The threat of erosion to habitats.
- Potential risk of pollution.
- Nature and location of path – a higher percentage of visitors use the lower paths in Cwm Idwal, therefore the footfall will be higher on those routes.
- Public safety – if something has happened that makes any footpath dangerous, this piece of path will be addressed first.



Inspiration:

Cwm Idwal in the arts

KYFFIN WILLIAMS

Kyffin Williams was born on Anglesey in 1918 and became one of Wales' most successful artists, famous for his paintings of the Welsh landscape and its people. Following schooling at Trearddur Bay and Shrewsbury, he qualified as a land agent at Pwllheli and later joined the Royal Welch Fusiliers, from which he was invalided out due to ill health.

It was suggested to him that he should become an artist, and in 1940 he duly enrolled at the Slade School of Art. While a student, Kyffin noted that his first ever oil painting was a 'view of Cwm Idwal painted from memory'. He had an intimate knowledge of Snowdonia's rugged landscape and its climate, his admiration for the working people of the land stayed with him throughout his life.

After leaving the Slade in 1944, Kyffin remained in London, securing a teaching post at Highgate School. Although physically removed from his native north Wales, his work continued to capture the spirit of the landscape and its people. He would often return home, filling sketchbooks with drawings that allowed him to create oil paintings in his London studio.

Retiring from teaching in 1973, Kyffin returned to Anglesey where he set up a studio at Pwllfanogl on the shore of the Menai Strait, overlooking his beloved Snowdonia. He worked tirelessly, receiving the OBE for his services to the arts in 1982 and was knighted in 1999. He passed away aged 88 in 2006.









Inspiration:

Cwm Idwal in the arts

ROB PIERCY

The artist from Porthmadog, Rob Piercy, gives his opinions on what makes Cwm Idwal special:

'My first acquaintance with Cwm Idwal must have been in the mid to late sixties, attracted there by tales of a five hundred foot slab of rock called the Idwal Slabs. In those days I had no interest whatsoever in painting, or anything else really, I was totally obsessed with rock climbing.

Many years later, and still to this day I am once again being drawn into Cwm Idwal but this time as a mountain painter, I was following in the footsteps of notable British landscape painters who had started visiting this impressive cwm from the middle of the 19th century onwards. They visited Cwm Idwal in search of Sublime scenery, which had become increasingly popular during the Romantic era of the 19th century.

Sublimity in art is the pursuit of nature as it really is, warts and all, words associated with the Sublime were horror, dark, gloomy, awful, threatening, vast and black. Elements which are plentiful at Cwm Idwal. My landscapes of the mountains of Wales do not necessarily adhere rigidly to these elements of painting, but to capture the true drama of these hills and mountains a certain degree of vastness and threat has to exist.

Landscape painters will talk at length about the importance of light, but without dark the light would be ineffective. Looking into Cwm Idwal you are in fact looking towards the south west which means that you are looking into the light, so as I make my way back to my car at the end of a long day I would take a last look back at the Twll Du and if I'm lucky I would experience the sun breaking through the lowering clouds and rays of light would illuminate the cliffs of Glyder Fawr or the lake below. Leaving the rest of the scene cloaked in darkness.



LISA JÊN – 9BACH

9bach captured the 'best album' accolade in the BBC Radio 2 Folk music awards in 2015. The result of 9bach's music is an atmospheric, evocative and emotional hybrid of the folk tradition and contemporary influences and working practices. Building on a deepened, almost ambient sound picture, the songs take you into the landscape and the emotion that it evokes. Lisa, the main songwriter and vocalist for 9bach, was raised in Gerlan, and explains below the effect that the surrounding landscape affects her:

'My creative brain and ideas swim in the small streams that run into the crystal clear lakes – Llyn Idwal, Llyn Ogwen, The Ogwen valley. I can't escape that, it's in you if you have been breathing this air since forever!'

'Llyn Du' by 9bach – Inspiration by Cwm Idwal and 'Un Nos O Leuad' (one moonlit night) novel by Caradog Pritchard.

www.youtube.com/watch?v=lajWevmXbLA



Y PRIFARDD IEUAN WYN

Cwm Idwal pulls me in, and that results from many experiences when I was a boy. Here are two memories that paint quite different pictures of the Cwm:

Standing at the mouth of the Cwm next to the Reverend Griffith Parry, our minister, on a quiet summer evening. He was fishing with three feathers and a ten foot 'greenheart' rod, and had a dozen fat trout in the basket. There was nothing to be heard in the twilight except the gentle lapping of the water, and the random clicking of the reel. As we were turning for home, the sound of a fox yelping from Clogwyn Y Tarw, with the shrill bark sounding clearly over the Cwm as if it was stating it's claim for it's kingdom.

Standing at the mouth of the Cwm in the middle of a storm – intentionally in order to experience the commotion – one of nature's dramas. The Cwm, like a cauldron, boiling wildly – full of low cloud and powerful winds spinning, sending the heavy rain in all directions. And under the cloud the surface of the lake was vicious, the wind whipping and throwing the tops of the waves. The Cwm was full of movement and sound. The Devil's Cauldron. It is no wonder that someone named the Twll Du 'Devil's Kitchen'.

IEUAN WYN

Photographs

Geraint Thomas - Panorama Cymru
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Alun Williams
Trevor & Dilys Pendleton
Awdurdod Parc Cenedlaethol Sir Benfro
Cyngor Sir Ynys Môn
Ymddiriedolaeth Treftadaeth Mynydd
Oriol Môn
Rob Piercy
Lisa Jên
Ieuan Wyn

Credits

Cymdeithas Enwau Lleoedd Cymru
Ieuan Wyn
Lisa Jên
Rob Piercy
Hywel Roberts
Elinor Gwynn
Gwyn Thomas
Hefin Hughes
Duncan Brown
Gwyndaf Rowlands
Creatives Meet
D13 Creative
Cread Cyf
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Awdurdod Parc Cenedlaethol Sir Benfro
Ymddiriedolaeth Genedlaethol
Cyfoeth Naturiol Cymru
Awdurdod Parc Cenedlaethol Eryri



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For further information, visit the website:
www.cwmidwal.cymru