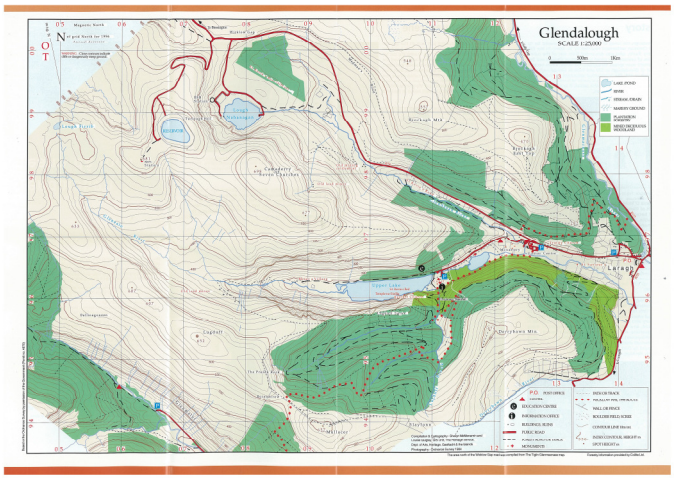
The Geography of Glendalough: Notes for Teachers

The following notes are designed to assist teachers and students who wish to engage in geography fieldwork in the Glendalough Valley. The information provided compliments the Junior Certificate Geography worksheet available on the website for download.

Useful Maps

Map of Glendalough

This A3 map of the valley has been used to devise the Map Work questions in the worksheet. It gives a good physical overview of the valley. The map can be downloaded from the Wicklow Mountains National Park website.



The Walking Trails of Glendalough

There are nine colour-coded way-marked walking trails around the valley. These may form a useful starting point when planning a route for your fieldtrip. They are referred to here when describing certain places to go. This map is available from the National Park Information Office beside the Upper Lake car-park, and also from the Visitor Centre beside the Monastic City (a charge of 50c applies). This map is also available to download on the Wicklow Mountains National Park website.

Other Maps

Other maps that may be useful are:

- Ordnance Survey Discovery Series Sheet 56
- Harvey Map of the Wicklow Mountains
- Lugnaquilla and Glendalough by East-West Mapping

Background Information

Glendalough (from Gleann dá Loch- the Valley of the Two Lakes) is located within Wicklow Mountains National Park. Wicklow Mountains National Park was established in 1991 and is approximately 20,000 hectares in size. Much of the land within the Park is designated as a Special Area of Conservation (SAC) under the European Habitats directive. The unique geology and landscape of Glendalough combined with human influence over the centuries, make it an ideal location in which to bring the Geography syllabus to life.

Two car parks service the area. The Visitor Centre car park is managed by OPW and is located at the eastern end of the valley, beside the Glenadalough Hotel and the Monastic City. This car park is free. Toilets are available in the Visitor Centre. The Upper Lake area is a 20 minute walk from here.

The Upper Lake car park is at the western end of the valley. It is managed by Wicklow County Council and has a €4 charge per vehicle. Toilets and a chip van are located in the car park, although their opening hours are flexible. This is the nearest car park to the features discussed in this document, and is also close to the National Park's Information Office and Education Centre.

Geology

The Wicklow Mountains were formed approximately 400 million years ago. Colliding plates allowed a large mass of magma to rise up in the earth's crust, cooling to form granite. The Wicklow Mountains are part of the larger Leinster Batholith which also incorporates the Dublin and Blackstairs Mountains.

In Glendalough, the solidifying magma also cooked the surrounding rock, transforming the shales and mudstones into mica-schist. In fact there is a clear geological divide evident in the valley, running north-south across the western edge of the Upper Lake. The bedrock to the west of this divide is granite, whilst that to the east is mica-schist. Impressive buckling in the metamorphic mica-schist can be seen in the cliffs on the southern slopes of Camaderry.

The boundary between the two rock types contains many seams of lead, iron and zinc. Lead was mined in Glendalough and also the neighbouring valleys of Glendasan and Glenmalure. The shafts themselves have been closed up but spoil heaps, a tailings pond and old buildings and machinery are still evident at the Miners' Village at the western side of the Upper Lake.
For more information see: http://www.glendaloughmines.com/

Glaciation

The dramatic landscape of Glendalough owes much to the action of ice during the last Ice-Age which ended 10,000 years ago. Standing at the eastern edge of the Upper Lake, it is possible to observe the steep-sided, broad floored U-shaped Valley. The cliffs of the Spinc on the south side of the lake consist of a series of truncated spurs. In the distance, the western end of the valley is a trough end, a feature that is perhaps more noticeable on a map. The shape of the trough end is changing as the Glenealo river carves out a distinctive V-shape before it enters the Upper Lake.

Large granite erratics may be found all over the valley floor, dumped there by the mass of moving ice. Poulanass waterfall is a hanging valley. For an overview of the valley's glacial features you can take a hike up to a high point, for example up 600 steps onto the Spinc boardwalk (White, Blue & Red Routes) or up to a viewpoint (a bench) on the side of Derrybawn (Orange Route).

More distant glacial features can be seen on your map. Lough Nahanagan is a corrie lake, now utilised by the Turlough Hill power station.

Rivers: The Lugduff Brook

Following the course of Lugduff Brook from its mouth at the Upper Lake, back towards the Poulanass Waterfall offers useful insights into the changing courses of a river. The different processes at work in each stage are also evident in the river landforms that can be seen.

In summer, when water levels are low, the mouth of the river forms a lacustrine delta. Moving back upstream, through a short lower course, meanders are present, including undercutting (river cliffs), deposition (point bars) and grading of sediment across the bend. River braiding too is obvious here. A wide flood plain can be seen in front of the information office and on closer inspection, some small levees.

Once one passes the two parallel bridges the river starts to show the features of the upper course. Follow the path up the steps beside Poulanass Waterfall. Here the river occupies a hanging valley. The waterfall has cut backwards (head-ward erosion) since the end of the last ice-age, carving out a gorge and a series of plunge-pools. The vertical erosion is most obvious in the shape of the valley-steep-sided and narrow floored. Interlocking spurs are also visible.

Weathering & Mass Movement

Weathering and mass movement too have influenced the shape and appearance of the landscape in Glendalough. Soil creep is evidenced by terracettes and bent tree trunks in the slopes alongside Lugduff Brook. More dramatic landslide scars are obvious on the Miners' Road that runs past the Education Centre on the north side of the Upper Lake. Soil Erosion is obvious at the edges of almost all major routes in Glendalough, but especially at the edges of paths on the higher slopes where the bog underfoot is especially vulnerable. Scree slopes can be seen at the western side of the Upper Lake, above the Miners' Village.

Man-made monuments and grave-stones in particular show the effects of chemical weathering (Reefert Church provides some good examples). Biotic weathering can also be seen along the Pink Route where tree roots have damaged the paths and lichen is observable on many of the larger rocks in the valley.

Soil

The soils in Glendalough are a mixture of peaty podzol soils and brown earths. On the upper, wetter mountain slopes, blanket bogs are found. As you walk along the Orange route or alongside Lugduff Brook it is possible to view some soil profiles (due to path-works). Typically brown earths are found under the deciduous woodlands while more acidic podzols are common in areas of coniferous forestry.

Settlement & Function

Glendalough has a long history of settlement. An early monastic settlement was established by St Kevin in the 6th century. The 'Monastic City' represents the remains of this early Christian settlement. The remains of a very early church at Temple na Skellig can be viewed from the St Kevin's Bed viewpoint on the Miners' Road. Other later monastic buildings include Reefert Church and St Saviour's Church.

During the Middle Ages, Glendalough (and the Wicklow Mountains) were hotbeds of resistance to English settlers. The dominance of the O'Toole and O'Bryne clans continued until the 16th century. Mining began in the area in 1809. It continued until 1965. At the height of the industry, over 2,000 people were employed in Glendalough and Glendasan.

Today, Glendalough is primarily a tourist destination. It is estimated that over 1 million tourists visit Glendalough each year. As an area of outstanding natural beauty and heritage within 50 minutes drive of Dublin, it has a clear advantage over other significant tourist areas. Additional information regarding settlement and the history of Glendalough is available on the National Park's website.