

Garvagh Lough, Shannon Pot and Whitefathers Cave



Teacher's Sheet

Visit Time: 3 to 4 hours

The landscape of the western slopes of Cuilcagh Mountain is ideal for studying not only the geology but also the hydrogeology of the area. The predominant limestone bedrock on the middle slopes of the mountain provide the perfect location for investigating the complexities of groundwater and the association between geology and hydrology.



Teacher's Notes

SUGGESTED STOPS	POINTS TO NOTE
Intro	<p>Cuilcagh Mountain forms a distinctive ridge on the border between counties Cavan and Fermanagh and is a prominent backdrop to much of the area's lakeland scenery.</p> <p>The summit rises to 665 metres with the top of the mountain being capped with coarse-grained sandstone, locally known as gritstone. The middle slopes are comprised of sandstones and shales that are covered with a thick layer of peat. Below the sandstones and shales are limestones that form fine karst features.</p> <p>The lithology of the rocks has a fundamental influence on the character of the area; the contrast between the upper sandstone and shale formations and the lower limestone formations is reflected in the vegetation, geomorphology, hydrology and land use.</p> <p>All of the streams that have their origins on the northern slopes of Cuilcagh Mountain eventually sink and flow underground before emerging as springs. In the past it was assumed that streams flowing over the sandstone and shales would sink as soon as they crossed onto the limestone but this is not the case. Instead, some streams sink whilst still on sandstone whilst others flow for some distance above limestone bedrock, sometimes perched on low permeability drift and sometimes because there are few suitable dissolutionally enlarged fractures in the limestone.</p> <p>The hydrology of Cuilcagh Mountain has been studied for over 30 years, with many important water tracing experiments being conducted to determine the underground flow of water.</p>
1	<p>Garvagh Lough and its associated sites can be easily reached from the village of Blacklion. Drive through the village towards Sligo and take the road to Glangevlin (R206). After a few hundred metres, there is a sign to the left for the Burren. Follow this road and carry on uphill, past the entrance to the Burren Forest, until you reach Gowlan church at a set of cross roads. Park at the car park at Gowlan church and follow the brown finger posts to Garvagh Lough.</p> <p>Garvagh Lough is one of the few surface lakes found in this region, an unusual feature given that most of the immediate underlying geology is limestone. The likely interpretation for this is that there exists an impermeable layer between the lake and the underlying limestone; in this case it is likely to be glacial till.</p> <p>Lakes found in limestone regions can sometimes be classed as turloughs; those that have no apparent inflow or outflow, and are fed completely by underground streams. This is not the case at Garvagh Lough as there are several streams feeding the lake.</p> <p>Garvagh Lough is the site of one of the first water tracing experiments in Ireland, when chaff was thrown into the lake to see where it ended up. In the case of Garvagh Lough, the hay flowed down the small outflow stream at the eastern end of the lake, before sinking at the nearby Pollnaowen and flowing underground until it reached the Shannon Pot.</p> <p>As you return to the car park, take the small path signposted as Poll na habhan (Pollnaowen).</p> <p>Pollnaowen is the stream sink at the end of the small river that exits Garvagh Lough. Water sinks at this point and flows underground to the Shannon Pot. In high water it is possible to see domes of water where water has backed up along underground channels.</p>



From Gowlan church, turn right and then immediately left and continue on to the end of the road. Turn left on to the Blacklion / Glangevlin road (R206). The Shannon Pot is approximately 2km along this road and is clearly marked with a brown sign to the left.

The Shannon Pot is regarded as the source of the River Shannon, the longest river in Ireland and the UK, with a length of approximately 280km. The river flows from its source on Cuilcagh Mountain, to its estuary below Limerick, and together with its tributaries drains an area of some 15,500km², or about one-fifth of the island of Ireland.

The Shannon Pot's fame can be traced to the legendary Finn MacCool and the Fianna, the great warriors of Irish mythology. Legend has it that Síonnan, the daughter of Lodan (a son of Lír, the Celtic God of the Sea) came to the Shannon Pot in search of the great Salmon of Wisdom. The salmon was angered by the sight of Síonnan and caused the pool to overflow and drown the maiden. Thus the Shannon Pot was created.

2

As surface water flows down from Cuilcagh Mountain, it will eventually sink and flow as underground streams and rivers. Up until recently it was thought that the Shannon Pot was the ultimate source of the River Shannon, but water tracing experiments have revealed that the Shannon Pot is fed by a variety of streams that sink on Cuilcagh Mountain, the furthest of these being over 10km away in county Fermanagh.

In this region, whenever water sinks underground, it works its way downwards through pure limestone (Dartry Limestone Formation) until it reaches the impermeable muddy limestone (Glencar Limestone Formation) below, forcing it to travel along this boundary until it intersects the surface as a spring or resurgence. However, the Shannon Pot is unusual as the resurgence here is found within sandstone and shales, meaning that there is an additional influence on the underground hydrology, apart from the lithology. In this instance there are a number of faults that are most likely to have controlled the flow of groundwater, acting as conduits instead of the limestone itself.

Return to the main Blacklion / Glangevlin Road and head back towards Blacklion. At the end of the road, turn left and just before you reach the main Sligo Road (N16) take the minor road to the left. Pull in at the side of the road and make your way to the small gate on the right hand side and enter the Whitefathers Cave site.

The water seen here has made its way from Pollnagossan Cave (not far from Garvagh Lough), before flowing to the Barran Risings which form the headwaters of a stream that flows north, through Whitefathers cave and on to Lough MacNean before finally reaching Lough Erne.

Pollnagossan Cave marks the watershed between the Erne River Basin and the Shannon River Basin with water, from approximately 20m south of Pollnagossan Cave, sinking and flowing to the Shannon Pot before continuing on its journey above ground to Limerick and the Shannon Estuary.

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The river visible at this section of Whitefathers Cave would at one time have been concealed below ground, but the cave roof has since collapsed forming distinct 'windows' into the cave system, one of which can be seen here. The water seen here has flowed underground from Pollnagossan, to Barran Risings and is then briefly exposed at Whitefathers cave before flowing on into Lough MacNean.

Technically there are three caves at Whitefathers; one of which is visible to the left as you walk through the gate, the next is seen at the end of the path (which actually continues beneath the main N16 road) and the other is visible on the other side of the road. The view into the cave from the platform at the end of the path gives a good idea of what 'wild' caves look like.

