

Lakes & Rivers



The wet climate of the Wicklow Mountains results in a network of streams, rivers and lakes. They are important habitats for fish, invertebrates, birds and mammals. The fast flowing mountain streams are the source of major lowland river systems. The lakes comprise remote small lakes at higher altitudes and larger lakes along the valley floors.

Lakes

There are a number of high altitude lakes within and bordering the Park including Upper Lough Bray, Lough Nahanagan, Lough Ouler, Lough Firrib and Arts Lough. Most of these lakes formed in hollows created by glaciers during the Ice Age. These glaciers also carved out the deep wide valleys in which the Glendalough Lakes and Lough Dan formed.

Formation of the Lakes

The formation of many of the higher lakes goes back to the last Ice Age when huge hollows were dug out of mountainsides by glaciers. When the Ice Age ended, the hollows filled with rainwater to become lakes.

The process started during a period of extreme cold, when ice would first form on the top of a mountain. The ice gradually built up and started to slide down the mountain slope. Any rocks covered in ice were plucked away. Eventually, the flowing ice would leave behind a deep hollow known as a corrie. The corrie would have steep cliffs both at the back and sides, and a raised lip at

the front. The corries usually formed on the north and east facing slopes of the summits, as these areas were protected from the sun and wind. Most of the Wicklow corries have small streams draining from their sides but some are dammed by accumulated piles of sand and gravel deposited by the glaciers known as moraines.

As the Ice Age progressed, the mountains were eventually covered over with a deep layer of ice. This ice-cap eroded away the tops of the mountains and the flowing ice of glaciers formed deep wide u-shaped valleys. In Glendalough and Clohoge Valleys a series of lakes formed at the bottom of the valleys after the ice had melted away. These lakes are known as ribbon lakes

Upper Lough Bray

The Upper and Lower Lough Brays are corrie lakes which are nestled into the east flank of Kippure Mountain. Only Upper Lough Bray is in the Park. It is located very close to the public road. A rough track will bring you to the lakeshore. These are two of the most impressive corries in Wicklow. The lakes in these corries are dammed by moraines. There is no obvious surface connection between them. The glacier that created the corries continued onwards forming the Glencree Valley. Like most of the corrie lakes in Wicklow, the water is deep and cold. The water also has a brown colour due to the surrounding peaty soil. The peaty soils also make the water acidic which results in an impoverished aquatic life. However, there are some rare aquatic plant species, including a rare form of Quillwort (*Isoetes lacustris* var. *morei*)

Lough Nahanagan

Lough Nahanagan is a corrie lake and is found at the head of Glendasan Valley, on the north face of Camaderry Mountain. The back wall of the corrie is 95 metres high and is a regular nesting spot for Peregrine Falcon. The lake is the least natural condition of the corries in the mountains because of a electricity substation on its shore. This forms part of the Turlough Hill hydroelectric scheme. Two and a half million tonnes of rock were removed from the summit of Turlough Hill above Lough Nahanagan to create a reservoir. At peak demand times for electricity, water is released from the upper reservoir to flow down through electricity generating turbines and on into Lough Nahanagan. At night when the demand for electricity is low, the water is pumped back up to the upper reservoir.

Lough Ouler

Lough Ouler is an attractive heart-shaped corrie lake located on the side of Tonelagee Mountain. The name Ouler derives from Iolar, which is the Irish for eagle, suggesting that in the past eagles were seen here. As the glacier scoured out this corrie, it left a steep 200m high cliff on the north east side. The lake is enclosed on the east side by a series of moraines which allow only a small stream to flow out of the lake to join the Glenmacnass River. There are many wet flushes on the hillside below the lake with mosses, Bog Cottons *Eriophorum* spp. and Soft Rush. The lakeshore is rocky and sparsely vegetated with Shoreweed and Quillwort.

Glendalough

The Upper and Lower Lakes of Glendalough are ribbon lakes but this is not due solely to the action of glaciers. The Irish name for Glendalough is Gleann dá Locha, which means the valley of the two lakes. The two lakes were originally one large single lake. Lugduff Brook flowed into the middle of the lake depositing sediments, possibly on top of an earlier glacial moraine. The sediments accumulated until the lake was divided in two. The carpark and lawns at the Upper Lake sit on top of

these deposits. The Upper Lake is the larger of the two lakes and is 30 metres deep at its deepest point.

The lakes in Glendalough are more diverse in character than the higher lakes. In the Upper Lake, you will find plants such as White Water-lily, Broad-leaved Pondweed and Bulbous Rush. At the upper end of the lake, near the mining village, the lake is shallower owing to large deposits of granite sand. A marsh has formed with plants like Horsetail, Common Reed and Bottle Sedge. This is also one of the best areas in the Park to see dragonflies.

The Lower Lake is fringed by a marsh and fen. Heath Orchid, Horsetail and Marsh Violet appear here annually. In the birch and willow woodlands at the Lower Lake, you can see Reed Bunting and Willow Warbler birds. At the edge of the lakes you are likely to see Grey Herons standing patiently at the edge of the lake waiting for an unsuspecting fish to pass by. Out on the lakes you may see Goosanders or Greylag Geese.

Lough Dan

Lough Dan is another spectacular ribbon lake, that is situated beneath Knocknacloghogue and Kanturk Mountains. Most of the area is privately owned, but the north western end of the lake is in the Park. The Cloghoge valley is a typical U-shaped valley. The Cloghoge River flows out of Lough Tay and into Lough Dan. The Inchavore River flows in another glacial valley from the west to enter Lough Dan. The scenery around here is spectacular. The valley floor at 230m is very fertile. The remains of lazy beds, which were ridges built for growing vegetables, cover the valley. They are evidence of higher population levels in the mountains in the past. Arctic Char *Salvelinus alpinus* was last recorded in the lake in 1988. This fish is the one of the oldest inhabitants of Ireland but a recent survey found no trace of them, indicating the species is now extinct in Co. Wicklow. There are Peregrine Falcon sites on the steep cliffs overlooking the lake on the eastern side, and some lovely broad-leaved woodland in the Inchavore Valley. The Cloghoge and Inchavore Rivers are rich in invertebrates and breeding Dippers and Grey Wagtails can be seen around the river. Herons and Cormorants roost near the mouth of the Cloghoge River.

Rivers

The Wicklow Mountains are the source of six major river systems, most of them rise or flow through the Park at some stage in their courses. The Liffey Head Bog complex includes the sources of the Liffey, Dargle and Cloghoge Rivers. The headwaters of the Liffey flow west, then curve north around to Dublin. On route to Dublin, the Liffey is dammed to form the reservoir at Pollaphuca (also known as the Blessington Lakes). The Dargle transforms into Ireland's highest waterfall in Powerscourt estate. The Dodder River rises near Kippure Mountain and flows a direct route into Dublin. Tributaries meeting with the Vartry River flow from the east side of the mountains. The Vartry is dammed to form the Vartry Reservoir near Roundwood. Both the Vartry and Dargle Rivers eventually become part of the Avonmore and Avoca Rivers.

The Glenmacnass River rises on the east side of Mullaghcleevaun to form a spectacular waterfall on the north east side of Tonelagee Mountain. Water from Lough Ouler flows into Glenmacnass also.

The rivers of Wicklow can be a small trickle one day, only to be transformed into a raging torrent within a few hours. When this happens, they are said to be in spate. The impermeable granite and schist bedrock and the thin peat of the Wicklow hills can not hold much water after heavy rain, so

the rivers fill up. At this time, the rivers can be very dangerous, and many people have been gotten into difficulties trying to cross back over them after heavy rain. The river valleys provide a much needed diversity within the mountains of the Park. The rivers erode deep valleys into the mountainside providing shelter from the wind, where you will find trees such as Rowan, stunted Holly, willow and birch trees.



Otters hunt in the rivers for fish. A single otter may control a territory of up to 20km of river which makes them difficult to spot.

Brown Trout *Salmo trutta* occur in the rivers. The rivers are perfect spawning grounds for trout, as they scoop out hollows in the riverbed, lay their eggs, then hatch in spring and continue downstream or often move into the lakes. Fish such as Minnow *Phoxinus phoxinus* and Stickleback *Gasterosteus aculeatus* are also found.

The most common birds seen along the rivers are Dipper and Grey Wagtail. Grey Wagtail can be recognised by its grey upperparts and yellow underparts and the obvious up and down wagging of its tail.

Wicklow waters are naturally acidic because of the underlying bedrock, granite and schist. It is thought that coniferous plantations increases water acidity levels, as the pine needles do not decompose so easily resulting in the ground beneath them becoming more acidic. The Lugduff Brook, which flows into the Upper Lake in Glendalough drains a large area of coniferous forest and as a result has a high acidity level. Invertebrate life is not so diverse in acidic waters. Only certain mayflies, stoneflies and midge larvae can tolerate acid conditions.

Conservation

The processes of glaciation originally carved out Wicklow's steep valleys and dramatic corries. The flow of water has taken over from ice as the main shaper of the landscape.

Water is a prominent feature of the landscape in the Park with wonderful views of ribbon lakes, corries and waterfalls. In the past, human activities such as mining, forestry and farming have polluted some of these water sources. Much of the water rising in the Wicklow Mountains is the main water supply for the city of Dublin, hence the Vartry and Pollaphuca Reservoirs. So, as well as the importance of these habitats within the Park, it is also important that these areas are protected as a valuable water supply for our future.

