

WICKLOW - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Ballydonnell
Other names used for site	Ballydonnell Brook
IGH THEME	IGH14 Fluvial and Lacustrine Geomorphology
TOWNLAND(S)	Ballynultagh, Ballydonnell South
NEAREST TOWN/VILLAGE	Blessington
SIX INCH MAP NUMBER	11
ITM CO-ORDINATES	706030E 710330N (Ballydonnell Brook and Luqaculleen Brook confluence)
1:50,000 O.S. SHEET NUMBER	56 GSI BEDROCK 1:100,000 SHEET NO. 16

Outline Site Description

The Ballydonnell floodplain occupies the floor of one of three sub-basins that make up the Upper Liffey catchment. Ballydonnell Brook and its tributaries drain a large valley and flow north to join the main course of the upper River Liffey in County Wicklow.

Geological System/Age and Primary Rock Type

During the past 8,000 years, the streams and rivers in the upper Liffey catchment have formed floodplains and terraces by the deposition of alluvial sediments. Three periods of erosion and river incision have also been recorded in the catchment: Mid-Holocene (8,000-3,000 BP), Late Holocene (2,000-500 BP) and modern (post-500 BP). Ballydonnell valley and floodplain are situated in mountainous terrain underlain by 405 million year old (Devonian) granite.

Main Geological or Geomorphological Interest

The 100km² River Liffey catchment is located on the west side of the Wicklow Mountains, and is the location of the source of the River Liffey. The upper River Liffey catchment comprises three sub basins that contain alluvial floodplains, of which Ballydonnell is one (the other two at Coronation Plantation and Athdown-Ballysmutton). A tributary of the upper River Liffey, Ballydonnell Brook flows north to join the River Liffey between Ballysmuttan Bridge and Ballylow Bridge. The Ballydonnell floodplain is at an elevation of 300m OD.

Ballydonnell Brook comprises a 2m-5m deep channel cut into the valley floor glacial tills and moraines (composed of granite boulders, gravel and sandy grus). This channel contains Holocene (post-glacial) alluvial sediments inherited from erosion of weathered granite and glaciofluvial deposits further upstream and on the mountain slopes. The stream bed comprises an assortment of granite boulders, cobble/gravel bars, and coarse/fine sand bars. The surrounding valley is underlain by granite bedrock, which in places has been deeply weathered into sandy grus (crumbled granite). Blanket peat (2m-4m thick) is extensive in the valley above 350 m OD, where large swathes have been planted with conifers.

Site Importance - County Geological Site

Ballydonnell is one of the best sites in Wicklow for looking into environmental changes since the end of the last ice (i.e. the last 15,000 years). This County Geological Site is important in assisting in the understanding of post-glacial environmental change, and river system development and change in the past 15,000 years. Most of the site is located in the Wicklow Mountains SAC (002122).

Management/promotion issues

This is an excellent site in terms of post-glacial fluvial geomorphology. The site is remote, but accessible via well-maintained forest tracks. It is important that future conifer plantations do not limit access to the site. The site is not suitable for public promotion.



Granite boulders and cobble gravel bars in Ballydonnell Brook, looking north, downstream.



Ballydonnell Brook (left) - Luqaculleen Brook (right) confluence - looking downstream along Ballydonnell Brook channel, northward to eroded moraine on east bank.



Ballydonnell Brook (right) - Luqaculleen Brook (left) confluence - looking upstream, south. Mullaghcleevaun in the left-background.



