

NORTH DONEGAL - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Mullach Dearg
Other names used for site	Mullaghderg
IGH THEME	IGH11 Igneous Intrusions
TOWNLAND(S)	Mullaghderg
NEAREST TOWN/VILLAGE	Cionn Caslach (Kincaslough)
SIX INCH MAP NUMBER	41
ITM CO-ORDINATES	575408E 921006N
1:50,000 O.S. SHEET NUMBER 1	GSI 1:100,000 Bedrock Sheet No. 1
GIS Code ND030	

Outline Site Description

The site comprises several large outcrops and cliff-faces in small coves at the western end of Mullaghderg beach.

Geological System/Age and Primary Rock Type

The rock is a distinctive variety of granite, orbicular granite, hosted by the Thorr Pluton, the oldest constituent pluton of the c. 400 Ma Caledonian Donegal Granite.

Main Geological or Geomorphological Interest

Orbicular granite is an uncommon form of granite in which the granite minerals are arranged to form spheroids ("orbicules") or groups of spheroids. The orbicules are typically concentrically zoned. At Mullaghderg, the orbicules have light-coloured, quartzo-feldspathic cores and darker, biotite-rich rims. Orbicular granite is generally regarded as having formed within a particularly fluid fraction of magma with nucleation around a mineral grain. The orbicules at Mullaghderg can clearly be seen to "interfere" with each other, with the shape of one orbicule typically reflecting its contact with adjacent orbicules. The impression is of close packing of orbicules while still in a plastic state and deformation of the orbicules as they pressed against each other. In the main outcrop of orbicular granite, the orbicules appear to be enclosed within a sack-like sheath. Individual orbicules or small groups of orbicules also occur outside the main occurrence but orbicular granite has not been recorded elsewhere in the Donegal Granite.

The orbicular granite at Mullaghderg is an internationally famous location of an uncommon rock type. In addition to orbicular granite, porphyry dykes can be seen to cut the Thorr Granite at this locality.

Site Importance – County Geological Site; recommended for Geological NHA.

This is a unique site in Ireland and merits designation as a NHA. Orbicular granite is a relatively rare occurrence worldwide and typically of very limited extent, as is the case at Mullaghderg.

Management/promotion issues

The site is located in a relatively remote area, accessible via a long walk from the car park on the east side of the beach. Because of its uniqueness and very limited extent, promotion is not recommended, in order to minimize risk from collectors. Core drilling, presumably carried out by geoscience researchers has already caused significant damage to the main outcrop. Some information signs forbidding hammering, coring and any other activities likely to damage the outcrop should be considered.



Main outcrop of orbicular granite at Mullaghderg. Note damage cause by drill cores.



Orbicules at base of main outcrop, eastern side, euro coin for scale.



Holes in orbicules caused by core drilling, apparently for research purposes.

