

GALWAY - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Loch na hUillean – Lochán an Bhurca
Other names used for site	
IGH THEME	IGH11 Igneous intrusions
TOWNLAND(S)	Na hUillíní, Cnoc an Phréacháin (Illeny, Knockaphreaghaun)
NEAREST TOWN/VILLAGE	Maam Cross
SIX INCH MAP NUMBER	53
ITM CO-ORDINATES	499510E 743400N
1:50,000 O.S. SHEET No. 45	GS1 BEDROCK 1:100,000 SHEET NO. 10

Outline Site Description

This site comprises bedrock outcrops on the edges of two lakes.

Geological System/Age and Primary Rock Type

Composite dyke of Devonian (Late Caledonian) age composed of dolerite and microgranite.

Main Geological or Geomorphological Interest

The dyke at Loch na hUillean – Lochán an Bhurca is part of the na hUillinní dyke system of eastern Connemara, one of several dyke systems that make up the Teach Dóite suite. The Teach Dóite suite represents the final phase of the magmatic activity that led to intrusion of the Galway Granite batholith. The na hUillinní dyke system runs generally NNE-SSW (north-northeast / south-southwest); dykes were emplaced along faults. The dykes were formed from mafic or basaltic magma that was emplaced around the solidifying Galway Granite batholith, causing partial melting and the generation of felsic or rhyolitic magmas. These magmas of contrasting composition combined to form composite dykes. In places, mixing between magmas led to the formation of magmas of hybrid composition.

On the northern shore of Loch na hUillean, the dyke cuts across a microgranite sill that forms the bedrock along the lake shore. The dolerite dyke is comprised of several dolerite sheets separated by microgranite. Narrow offshoots of dolerite penetrate the microgranite and vice versa, attesting to the coeval nature of the dolerite and granite magmas. Unlike other examples of composite dykes in the na hUillíní system, in the axial zones of the dolerite sheets there is no compositional variation to more felsic rock.

On the north shore of Lochán an Bhurca, c. 200 m north of Loch na hUillean, the composite dyke is over 3 m wide and symmetric, comprising metre-wide dolerite margins enclosing a 1.3 m-wide microgranite sheet. The dyke was here emplaced into Dalradian gneiss. Two phases of dolerite intrusion are apparent, the later inner one having a markedly different appearance owing to the presence of quartz-plagioclase spherules. The contact between the inner and outer dolerite phases is generally sharp, as is the contact between dolerite and wallrock.

Site Importance – County Geological Site

The site is within the Connemara Bog Complex SAC and proposed NHA (site code 002034) and contains excellent exposures of a composite dyke of the na hUillinní dyke system, part of the Teach Dóite magmatic suite of eastern Connemara. The two occurrences exhibit contrasting styles both in terms of overall dyke structure and internal compositional variation and thus reflect the along-strike variation in the dyke complex.

Management/promotion issues

The site is c. 2 km east of the R336 that runs south from Maam Cross and is separated from the road by an extensive tract of forestry. The site is likely to be mainly of interest to researchers and students of geology and does not require further promotion.



View eastwards along shoreline at Loch na hUilleann. In foreground is Na hUilleannach microgranite that forms bedrock along northern shore. The dolerite-microgranite dyke forms prominent spur that juts southward (to right) into lake in mid-distance.



View northwards from southern shore of Lochán an Bhurca to outcrops of dyke on northern shore.



View of dyke from north: dolerite sheet (1 m-wide) to west (right) and central 2 m-wide microgranite sheet with 0.3 m-wide axial tongue of dolerite.



Main outcrop of composite dyke on northern shore of Lochán an Bhurca. Central 1.3 m-wide microgranite (light colour) flanked by c. 1 m-wide dolerite margins.



Axial tongue of dolerite in central microgranite sheet showing sharp but curved contact with microgranite.



Sharp contact between dolerite (below hammer) and pelitic gneiss (to right) that forms wallrock to dyke at Lochán an Bhurca.

