

LIMERICK - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Tory Hill
Other names used for site	Lough Nagirra (which is within the site)
IGH THEME	IGH7 Quaternary, IGH14 Fluvial and Lacustrine Geomorphology
TOWNLAND(S)	Garrane, Corrabul, Toryhill, Coologe, Killeenoghty, Drumloughan South, Ballycahane Upper
NEAREST TOWN/VILLAGE	Croom
SIX INCH MAP NUMBER	22
ITM CO-ORDINATES	553145E 642810N (Tory Hill summit)
1:50,000 O.S. SHEET NUMBER 65	GS1 BEDROCK 1:100,000 SHEET NO. 17
GIS CODE LK030	

Outline Site Description

The Tory Hill site includes a high, elongate, northeast to southeast oriented ridge, which is 2 km northeast of Croom. The site also contains a low basin to the northeast, hosting a lake.

Geological System/Age and Primary Rock Type

The ridge comprises ice-scoured bedrock, which itself is Mississippian (Lower Carboniferous) Waulsortian limestone. The ridge has been shaped and moulded during the Quaternary (Ice Age) by glacier ice abrading the ridge top and flanks. The lake is Holocene in age, but contains sediments that are much older at its base, stretching back into the Ice Age.

Main Geological or Geomorphological Interest

Tory Hill is an isolated limestone ridge that has been streamlined by ice moving northeast to southwest across the mid-Limerick landscape, during the last Ice Age. It was assumed previously that the hill was bounded by a moraine at its northern end, but these low mounds are bedrock-cored, and comprise glaciotectionised bedrock (*i.e.* rock pulverised by ice) and 'immature' till.

The site includes a low basin to the northeast of the bedrock crag, and this basin was ice-covered during glaciation and today supports fen and reedswamp vegetation around Lough Nagirra. The basin has yielded a section through postglacial sediments of exceptional thickness (over 10m), where Younger Dryas (late-glacial) sediments are 2.4m thick, underlying Allerød/Bølling interstadial (14,500 to 13,000 years BP) material which is 4m thick, and early postglacial silt/clay material at the top, 3.4 m thick.

Apart from its exceptional thickness, most of the sequence is marl-rich which has also afforded the opportunity of obtaining a stable-isotope ($\delta^{18}\text{O}$ and $\delta^{13}\text{O}$) record for the late-glacial and hence evidence for climate change that is independent of and complements that based on the plant fossil assemblages. The sequence is estimated to span the sequence from approximately 16,900 years BP to 10,000 years BP.

Site Importance – County Geological Site

As a site which has recorded an exceptionally thick and undisturbed sequence of late-glacial through postglacial sediments, this is a rare site in an Irish context. The site is already a pNHA and SAC (Site 000439) for the diversity of terrestrial and wetland habitats found within it, and particularly for the presence of good examples of three habitats that are listed on Annex I of the E.U. Habitats Directive. The record of late-glacial through postglacial sediments is also of national importance.

Management/promotion issues

Any drainage, infilling or alteration of the hydrology of this area will seriously alter its hydrogeology. Any potential, future quarrying should also be assessed in terms of potential impacts on geology and/or geomorphology.



Tory Hill, viewed from the west.



Lough Nagirra and its flanking swamp vegetation, photograph taken from the northeastern shoulder of Tory Hill.

