

GALWAY - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Pollnahallia
Other names used for site	
IGH THEME	IGH7 Quaternary, IGH12 Mesozoic and Cenozoic
TOWNLAND(S)	Pollnahallia
NEAREST TOWN/VILLAGE	Headford
SIX INCH MAP NUMBER	42
ITM CO-ORDINATES	533670E 746830N (centre of pit)
1:50,000 O.S. SHEET No. 46	GS1 BEDROCK 1:100,000 SHEET NO. 11

Outline Site Description

This site comprises a deep, abandoned sand pit, on the southern footslopes of the hills west of Knockmaa Hill, about 6 kilometres east of Headford.

Geological System/Age and Primary Rock Type

The pit is set within an area of thick-bedded, pure Lower Carboniferous limestones of the Knockmaa Formation, but the sand within the feature which has been quarried out, was Pliocene in age (2.5-5.3 million years ago), from within the Cenozoic.

Main Geological or Geomorphological Interest

Pollnahallia is a townland east of Headford in County Galway, within an area of c. 200 km² of surface depressions, small scarps, bare limestone and superficial deposits, as well as many known turloughs. Many of the irregularities in the land surface are of karstic origin. This ancient karstic landscape is described in Knockmaa Hill and Knockmaa Quarries sites.

Extensive drilling and field investigations in the 1980's and 1990's in and around a sand pit in Pollnahallia revealed a network of gorges and caves in the limestone, over which are draped wind-blown sands, and later glacial sediments including till. Palynological results suggest that the organics (including lignites) infilling the base of the limestone gorge are probably Pliocene in age. An organic bed lying on the surface of the limestone shows alternation of organic-rich sediment and clays and silts with sand horizons at the base of the gorge. This suggests deposition in water of varying energy regimes. At least 9 m of windblown sands overlie these materials, with some partial glaciofluvial reworking. All of these materials were capped by a glacial lodgement till, which contained huge ice rafted blocks of limestone.

One striking element of the pollen recovered from sediments at Pollnahallia is the exotic nature of some of the flora. Many of the taxa recorded are no longer native to Europe, with many only occurring in North America and Asia today. The important biostratigraphical elements of the pollen diagram include the presence of typical late Cenozoic taxa: e.g. Sequoia, Swamp Cypress, Sourgum, Sweetgum, Sweet chestnut, Hop-hornbeam, Walnut, Japanese umbrella, Hickory and Wingnut. Such taxa are frequently found in Pliocene deposits in the Netherlands, and this correlation with the Netherlands taxa, the absence of pre-Pliocene marker taxa and the apparent climatic deterioration recorded in the upper part of the sequence, allows a probable correlation to be made to the Reuverian of the Netherlands, possibly Reuverian C (late Pliocene, 2.5-5.3 million years ago).

Site Importance – County Geological Site; recommended for Geological NHA

The Late Pliocene date of the organic-rich, lignite silt/clay means that the limestone surface underlying the deposits is at least of this age. Thus, karstification of the limestone of the area must have taken place before the late Tertiary. This site gives us an unprecedented view into an era of Ireland's past, known only from here and its deposits are unique and of international importance. Although within the area of the Knockmaa site, the level of investigation and information about Pollnahallia justifies it being documented as a single site.

Management/promotion issues

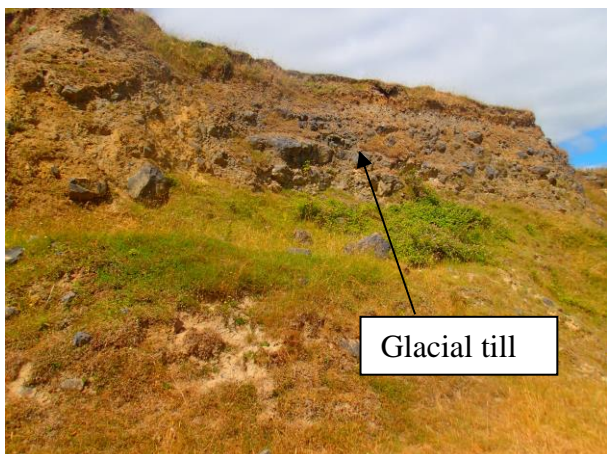
The pit is in private ownership and permission should be sought before entering. Any infilling or dumping within the pit, as well as, potentially further excavation, will seriously alter the site.



Overview of the sand pit at Pollnahallia, November 2000.



An overview of the pit from the east, July 2018.



Glacial till above sand in the northern face of the Pollnahallia pit.



White, windblown sand from Pollnahallia.

