

GALWAY - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	Gowlan East
Other names used for site	Gowlaun East, Gowlawn East, Gowlans East
IGH THEME	IGH12 Mesozoic and Cenozoic, IGH7 Quaternary
TOWNLAND(S)	An Gabhlán Thoir (Gowlan East)
NEAREST TOWN/VILLAGE	Roundstone
SIX INCH MAP NUMBER	51
ITM CO-ORDINATES	487100E 739632N (centre of western section)
1:50,000 O.S. SHEET No. 44	GSI BEDROCK 1:100,000 SHEET NO. 10

Outline Site Description

This site includes two low cliff sections in two separate disused quarries, each that extend for c. fifty metres, and are c. 6m-8m high over the majority of their extent.

Geological System/Age and Primary Rock Type

The quarry section at Gowlan East is comprised of Quaternary age glacial sediments, overlying palaeosols characteristic of Pliocene age, from the Cenozoic Era.

Main Geological or Geomorphological Interest

A small road (Bóthar na Scrathóg), running from Lehanagh South to Derryrush, cuts across a distinct break in slope at the foot of Cnoc Mordáin in Gowlan East townland. This break of slope appears to be the toe of the extensive debris mantle covering the north facing slope of the upland. Two small quarries excavated into a marked spur of rock have cut back into the debris mantle and exposed the bedrock and its immediate cover. At the western quarry, excavations in the debris have, after cleaning, provided excellent sections. At the eastern quarry, a large *in situ* granite tor can be seen lying surrounded by a cover of weathered granite and soliflucted debris. The tor has been buried by this material and has only been exposed by quarrying activity although the top of the tor had probably been partially exhumed naturally.

The quarry exposures show that the buried granite tors and corestones on the northern flanks of Cnoc Mordáin are surrounded by a weathered drape of granite debris. The debris contains occasional lenses and fills in cracks in the bedrock or between corestones of silty clays that probably represent partial sections of palaeosols. The Pliocene pollen assemblage from one of the silty clays from the quarries provides a minimum age for the mantling of the granite bedrock (and its associated tors). Certain of the taxa are known from the Late Tertiary of Europe but have disappeared by the Early Pleistocene. Included here would be *Symplocus* and *Corsiniipollenites*. The presence of *Quercoidites* (*Tricolpopollenites* cf. *T.microhenrici*) and *Betulaepollenites* type also suggests a pre-Pleistocene age for the unit. Other taxa recorded from the unit are known both from the Early Pleistocene and from the Late Tertiary but they are most common in the Pliocene. These include *Tsuga*, *Taxodium*, *Sequoia*, *Carya* and *Castanea*. The assemblage is characteristically Neogene and most likely Pliocene in age (the more exotic taxa of the Miocene being absent).

Site Importance – County Geological Site; may be recommended for Geological NHA

This site provides a rare insight into the geomorphology of the western Irish landscape at the close of the Tertiary. The palaeosol is important in that it separates two glacial deposits and suggests that this site records the first firm evidence of early (potentially Middle Pleistocene) glacial episodes in Ireland.

Management/promotion issues

The quarries are accessible as they are open pits at the roadside, but should only be visited with landowner permission. The importance of the sections could be highlighted in a signboard at the roadside, which could also show the visible planation surface in the nearby uplands.



The current section at Gowlan East, western quarry.



The Gowlan East (west) section in 2001.



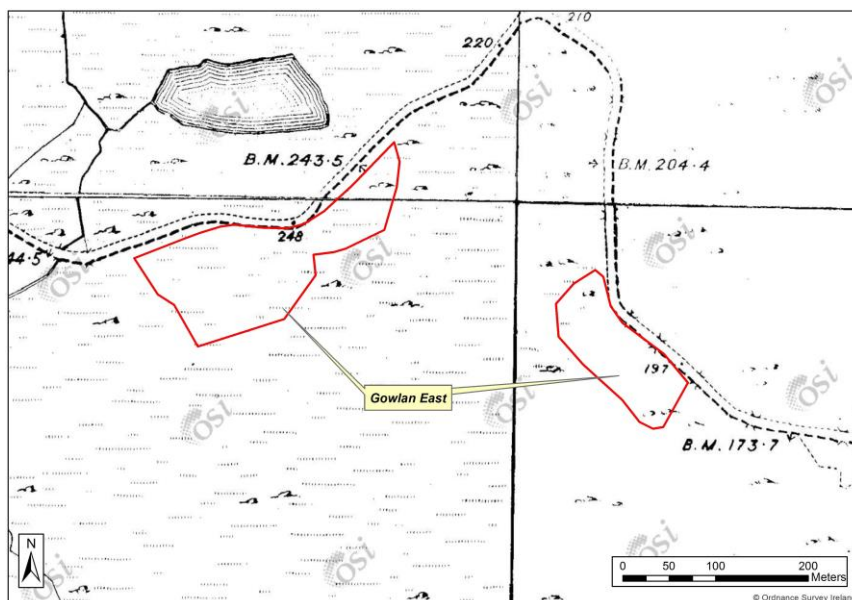
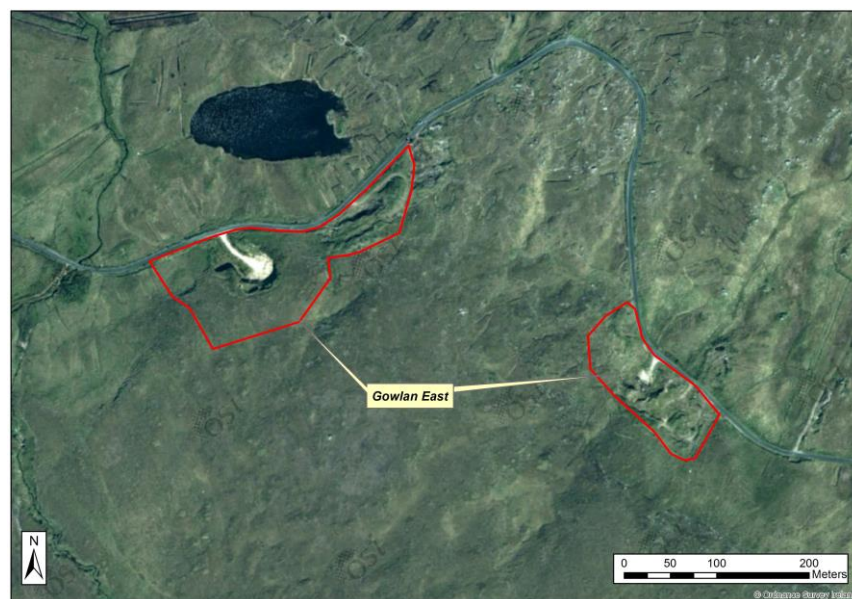
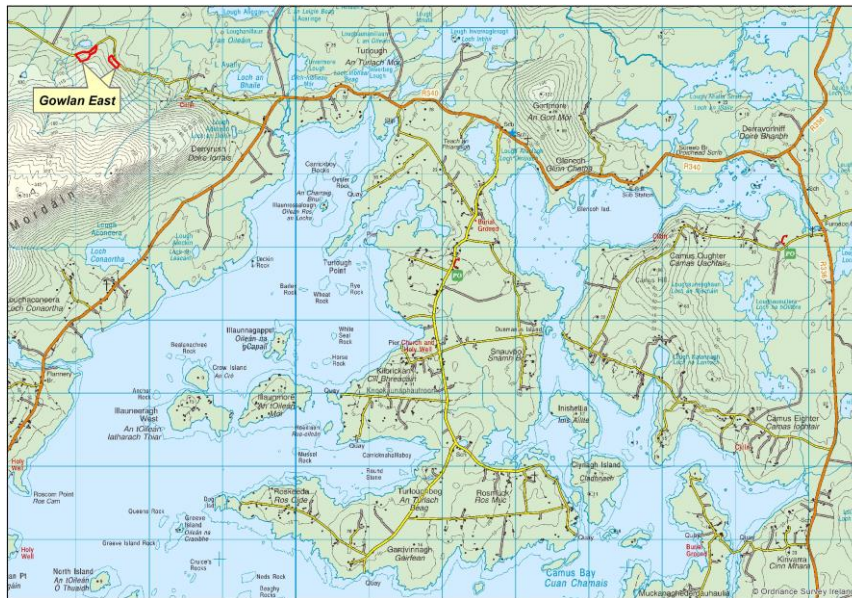
Palaeosol, Gowlan East (west) section, 2001.



Red palaeosol in west section in 2001.



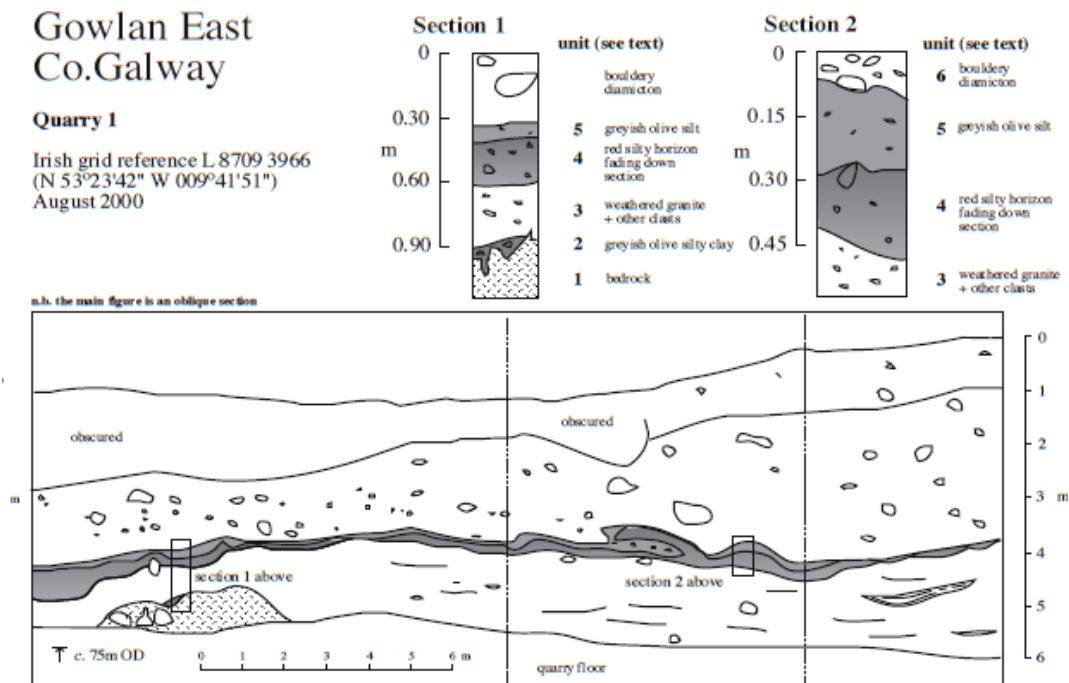
Weathered surface in eastern section, 2001.



Gowlan East Co. Galway

Quarry 1

Irish grid reference L 8709 3966
(N 53°23'42" W 009°41'51")
August 2000



Sketch from Pete Coxon's paper in 2001 on the deposits of Gowlan East.