

## MAYO - COUNTY GEOLOGICAL SITE REPORT

<b>NAME OF SITE</b>	<b>Bolinglanna Trace Fossils</b>
Other names used for site	Buaile an Ghleanna; Gubanalt
<b>IGH THEME</b>	<b>IGH3 Carboniferous to Pliocene Palaeontology</b>
<b>TOWNLAND(S)</b>	<b>Bolinaglanna</b>
<b>NEAREST TOWN/VILLAGE</b>	<b>Mulranny</b>
<b>SIX INCH MAP NUMBER</b>	<b>65, 66, 75</b>
<b>ITM CO-ORDINATES</b>	<b>475400E 792315N</b>
<b>1:50,000 O.S. SHEET NO. 30</b>	<b>GSI BEDROCK 1:100,000 SHEET NO. 6</b>
<b>GIS Code MO015</b>	

### Outline Site Description

Coastal exposures of red sandstones (red-beds) that slope (dip) south-eastwards into Clew Bay. Western end of the 4km section shows unusually large concentrations in some of the sandstone layers of the fossilised traces of burrows formed by (unidentified) non-marine organisms over 345 million years ago. The shoreline comprises extensive deposits of large, wave-rounded boulders (mainly sandstone), below cliffs (<56m) of unconsolidated glacial deposits that are subject to coastal erosion.

### Geological System/Age and Primary Rock Type

Lower Carboniferous (Late Tournaisian) sedimentary rocks (cross-bedded, coarse-grained sandstones and conglomerates, with finer grained mudstones in the upper part), collectively aged c. 359-345 Ma. The red-beds belong to the Maam Formation sequence, in which the trace fossils are found. These strata rest unconformably upon older Dalradian (or possibly Lower Palaeozoic) schist and quartzite rocks. These older strata dip to the northeast, which is in contrast to the southeast dipping red-beds.

### Main Geological or Geomorphological Interest

This site displays unusually high concentrations of trace fossils (*Taenidium barretti*, previously called *Beaconites barretti* or *Beaconites antarcticus*). These are large (several centimetres in width) straight, curved or sinuous burrows with a crescent-shaped (meniscus) pattern of infilling. The burrows show a strong facies association, meaning that they are mainly concentrated in the upper parts of sandstones that were deposited during floods in shallow, possibly transient/ephemeral stream channels. The trace fossils appear to be absent from the overlying non-red fluvial sandstones which show evidence for deeper, more sinuous and more permanent fluvial channels. It has been suggested (Graham and Pollard, 1982) that burrowing by the organism that created the traces was related to varying moisture content of the sediments. The burrows were probably formed by locomotory 'back-packing' of arthropods or vertebrates. However, the precise nature of the producer (organism) remains unknown.

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

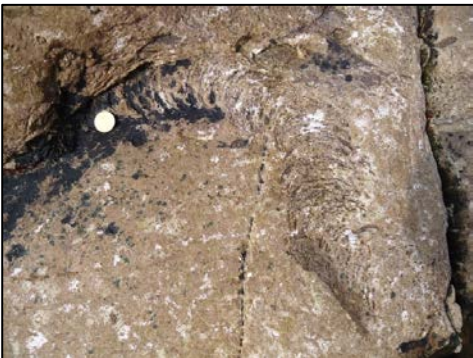
This site is of national importance as it is the only published description of Irish examples of the previously named *Beaconites* trace fossil, which is characteristic of inhospitable non-marine environments. The site is recommended for geological NHA designation. It is immediately west of the most westerly, coastal section of Corraun Plateau SAC (000485).

### Management/promotion issues

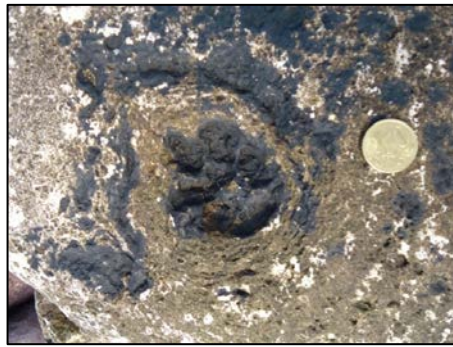
Sea erosion is the main threat to the integrity of this site. Access to the site is afforded, albeit with some difficulty, via a small breen leading down to a steep coastal section (comprising partially collapsed unconsolidated mud/gravel deposits), and then across a boulder beach of large, well-rounded boulders. Alternative access is through farmland, although fences must be crossed to gain access to the boulder beach. However, permission from the landowner should always be sought. Promotion of the site is not recommended owing to the immediate and precarious proximity of the features to the Atlantic waves.



View looking east over the trace-fossil bearing red-beds at Bolinglanna.



Trace fossils – horizontal, infill traces.



Trace fossils – vertical burrow mark.



Crescent-shaped infill pattern of trace fossils.



Looking east over the red-beds at Bolinglanna. Trace fossils found on outcrop jutting out seaward in centre of view.

