

## MAYO - COUNTY GEOLOGICAL SITE REPORT

<b>NAME OF SITE</b>	<b>Croagh Patrick Deer Park Complex (Serpentinite)</b>
Other names used for site	The Reek, Cruach Phadráig; Clew Bay Complex
<b>IGH THEME</b>	<b>IGH11 Igneous Intrusions, IGH6 Mineralogy, IGH4</b>
<b>Cambrian-Silurian</b>	
<b>TOWNLAND(S)</b>	<b>Lenaghcraigaboy, Bellataleen; Carrowmaccloughlin; Teevenacroaghy</b>
<b>NEAREST TOWN/VILLAGE</b>	<b>Westport</b>
<b>SIX INCH MAP NUMBER</b>	<b>87c</b>
<b>ITM CO-ORDINATES</b>	<b>490620E 780510N (centre of feature)</b>
<b>1:50,000 O.S. SHEET NOS. 30,31,37,38</b>	<b>GSI BEDROCK 1:100,000 SHEET NOS. 10, 11 GIS Code MO036</b>

### Outline Site Description

A well-worn and traditional pilgrim path leading from Murrisk up the northeastern slopes of Croagh Patrick (764m).

### Geological System/Age and Primary Rock Type

Serpentinite (Deer Park Complex) and *mélange* (Killadangan Formation) bedrock is exposed along the pilgrim path. The *mélange* comprises deformed quartz-rich sandstone, conglomerate and chert blocks enclosed in a black shale matrix. An accepted age for the Deer Park Complex remains undecided, though it is widely suggested to be Cambrian-Ordovician in age. A large boulder of conglomerate quartzite (Silurian Cregganbaun Formation, Croagh Patrick succession) is visible alongside the pilgrim path near the statue.

### Main Geological or Geomorphological Interest

The northern flanks of Croagh Patrick host some of the best exposures of serpentinite along the c. 20km east-west trending Deer Park Complex belt of rocks on the Mayo mainland (other exposures are found on Clare Island). Occurrences of asbestos and talc mineral deposits have also been identified in this belt of serpentinite-bearing rocks. Sheared serpentinite exposures are observed along lower sections of the pilgrim path, above the statue of St. Patrick, where green and yellow coloured, freshly worn (and slippery) serpentinite and talcs are exposed. *Mélange* rocks are also exposed in contact with the serpentinite. The rocks of the Deer Park Complex are interpreted as ophiolites (rocks of the Earth's oceanic crust and upper mantle that have been uplifted and emplaced onto continental crust rocks). Rare N-S trending sheeted metadolerite dykes also occur near the site. These features provide evidence of an ocean ridge that lay near the margin of the Laurentian ("North America") continent during the Lower Palaeozoic era. E-W trending *fuchs*ite-bearing shear zones occur in the Cregganbaun Formation in the locality. Bedrock on the upper mountain and summit comprises Cregganbaun Formation deformed quartzite and conglomerate.

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

This site is of national importance for its excellent serpentinite exposures and for providing evidence in the geological history of the Laurentian continent, as well as the extensive scree deposits and stream gullies. The site is not within a designated SAC or NHA, and requires certain designation as a geological NHA.

### Management/promotion issues

Serpentinites have an economic potential as decorative stone. However, with their occurrence at this site, along and proximal to the pilgrim route, extraction should be discouraged. As the overall Croagh Patrick site is a major visitor attraction, promotion of the geological heritage of the site, and the region (Clew Bay, South Mayo) should be encouraged at the visitor information facility.



View of serpentine and mélangé exposures on the path. St. Patrick statue (distant left). View NE over Clew Bay.



Smooth serpentine bedrock on the path, looking north.



Green and yellow coloured serpentine bedrock.



Deer Park Complex outcrops on the pilgrim path, looking south - 'up the path'.



Conglomerate boulder by pilgrim path.



