MAYO - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	**Callow Lakes**
Other names used for site	Callow Shear Zone, Lismoran, Callow
IGH THEME	**IGH5 Precambrian**
TOWNLAND(S)	**Callow, Lismoran**
NEAREST TOWN/VILLAGE	**Foxford**
SIX INCH MAP NUMBER	**61**
ITM CO-ORDINATES	**531465E 802310N (centre of features)**
1:50,000 O.S. SHEET NOs. 31, 32	**GSI BEDROCK 1:100,000 SHEET NO. 6**
GIS Code MO022	

Outline Site Description
Hummocky topography, rock outcrops and poorly drained land to the southeast of the Callow Loughs.

Geological System/Age and Primary Rock Type
Two Dalradian metamorphic rock formations are separated by a major tectonic slide. The Cloonygowan Formation (Southern Highland Group, Upper Dalradian) comprises green/grey phyllites, psammites and coarse pebble beds. The Upper Lismoran Formation (Easdale, Middle Dalradian) comprises pale green/grey psammites and semipelites.

Main Geological or Geomorphological Interest
Owing to faulting and deformation associated with the Callow Shear Zone, rocks of the Cloonygowan Formation (~750 metres thick) are separated from other Dalradian rocks by a major NE-SW trending slide. This slide, or contact, has been described as a *tectonic slide* as it has formed parallel to the proximal lithological contacts. The entire shear zone is known as the Callow Shear Zone (a zone of strong deformation). The Callow Shear Zone displays abundant evidence of sinistral (left lateral movement) extensional crenulation cleavage (stress texture) development. The tectonic slide zone is understood to be up to 750 metres wide across strike. The Ox Mountains granodiorite to the northwest of the site was emplaced (c. 412 million years ago) into and during major sinistral strike-slip, mid-crustal transpression (crustal shortening) movements on the shear zone. The Lismoran Formation is separated into lower and upper units by the Callow Member; a unit of metamorphosed volcanic rocks (amphibolite). This volcanic horizon has been tentatively equated with volcanogenic units in southern Donegal. The Upper and Lower formations are lithologically very similar.

Site Importance – County Geological Site
The site is of regional importance and merits County Geological Site designation. The site is currently not located within a designated SAC or NHA.

Management/promotion issues
Outcrops of the Cloonygowan Formation are observable along the Foxford Way on the north side of the Foxford-Swinford N26 road at Cloonygowan, near the crossroads to Toormore. Upper Lismoran rocks are observable by the roadside just north of the by-road to Lismoran. Otherwise access to the site is difficult, as outcrops are on private land. The site is not suitable for general promotion but may be used for further scientific research, with landowner permission where required.

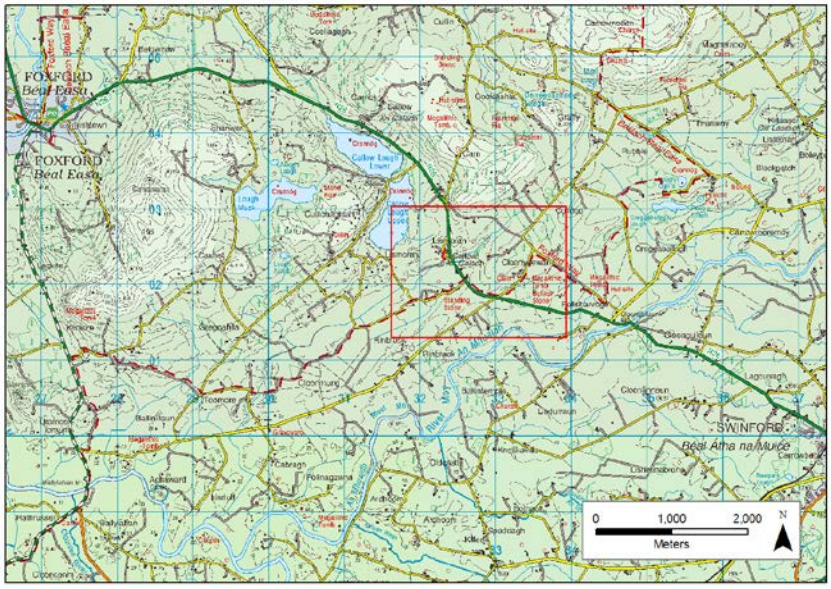
Looking NW from Cloonygowan townland to Lismoran townland, ~ 800m east of N26 road. A stream runs along the depression in the centre of photo from right (NE) to left (SW).

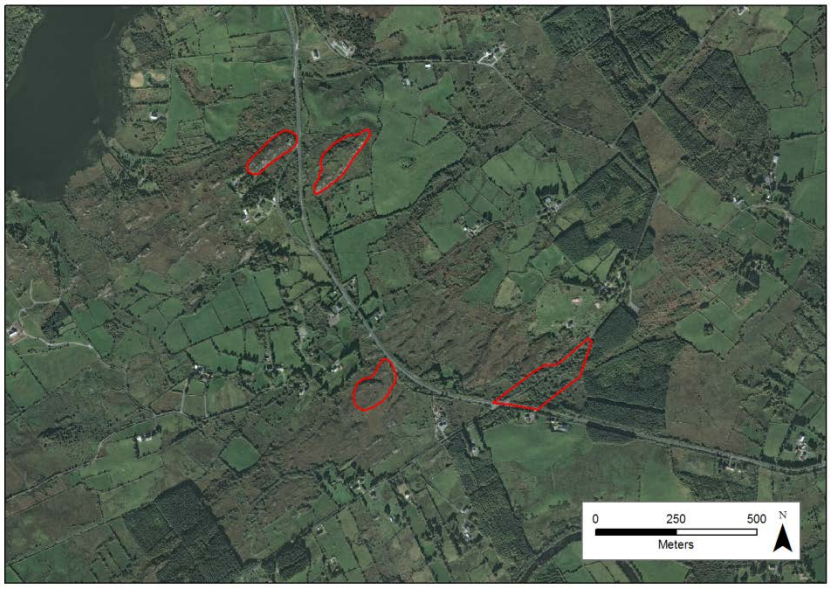
Green/grey psammites of the Cloonygowan Formation.

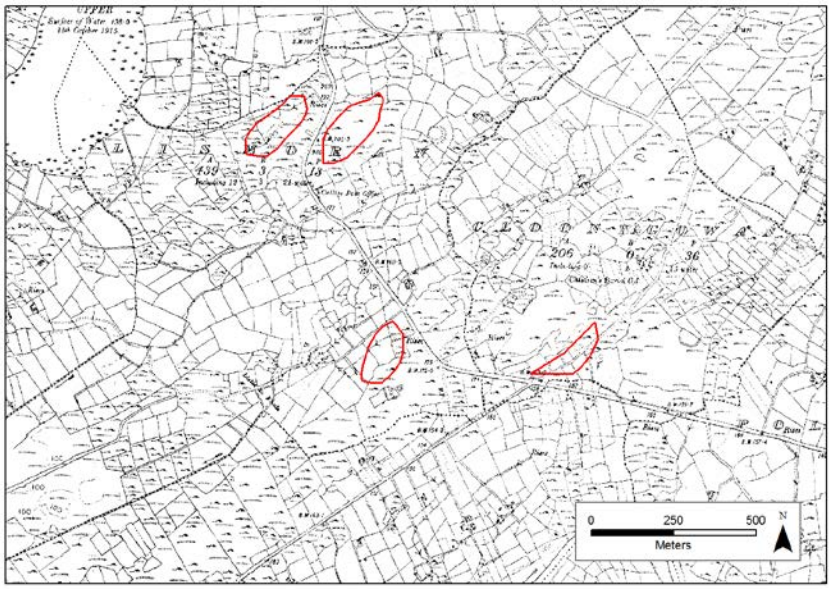
Quartz vein in the Lismoran Formation pelites.

SW-NE striking Lismoran Formation outcrop.

SW-NE striking Lismoran Formation outcrop, looking NE towards the N24 road.







Hennessy et al. 2014 (revised 2019). Geological Survey Ireland.