

# SLIGO

**AREA OF COUNTY:** 1,836 square kilometres or 708 square miles

**COUNTY TOWN:** Sligo

**OTHER TOWNS:** Strandhill, Tobercurry, Ballymote

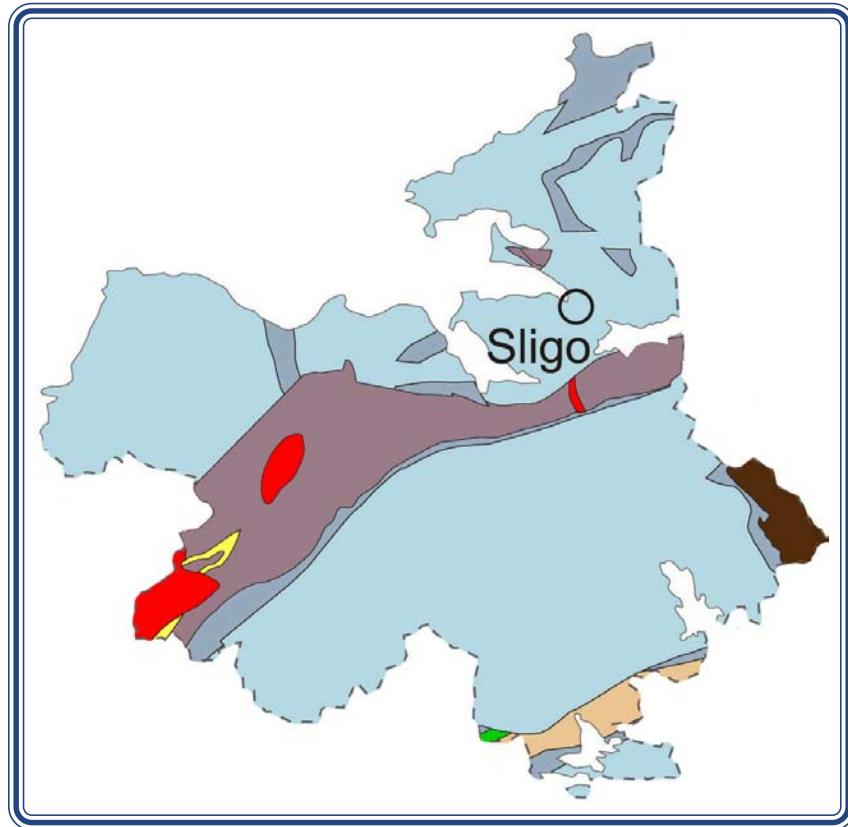
**GEOLOGY HIGHLIGHTS:** Ben Bulben and Truskmore Plateau, caves and karst, vanishing lake, Carboniferous sea-floor fossils, Ice Age landforms.

**AGE OF ROCKS:** Precambrian; Devonian to Carboniferous, Paleogene



**Streedagh Point and Ben Bulben**

Lower Carboniferous limestones with the isolated mountain of Ben Bulben in the distance. This was carved by ice sheets as they moved past during the last Ice Age.



**Geological Map of County Sligo**

Pale Purple: Precambrian Dalradian rocks; Pale yellow: Precambrian Quartzite;  
 Green: Silurian sediments; Red: Granite; Beige: Devonian sandstones;  
 Blue gray: Lower Carboniferous sandstones; Light blue: Lower Carboniferous  
 limestone; Brown: Upper Carboniferous shales.

### Geological history

The oldest rocks in the county form a strip of low hills extending along the south side of Lough Gill westwards past Collooney towards the Ox Mountains, with a small patch on Rosses Point north-west of Sligo town. They are schists and gneisses, metamorphosed from 1550 million year old [Ma] sedimentary rocks by the heat and pressure of two episodes of mountain building around 605 Ma and 460 Ma. Somewhat younger rocks, around 600 Ma, form the main massif of the Ox Mountains in the west of the county. They include schists and quartzites, once sedimentary rocks that have been less severely metamorphosed than the older rocks further east. In the far south of the county, around Lough Gara and the Curlew Mountains, are found a great thickness of conglomerates (pebble beds) and sandstones, with some layers rich in volcanic ash and fragments of lava. All of these rocks were deposited on a thinly vegetated flood plain during the Devonian, around 415 to 360 Ma. Devonian rocks of a very different type are found in several places in the Ox



### *Siphonophyllia* coral in Lower Carboniferous limestones at Streedagh Point

Mountains. These are granites, intruded into the Earth's crust as molten magma around 400 Ma and then cooling slowly to form a coarse crystalline rock.

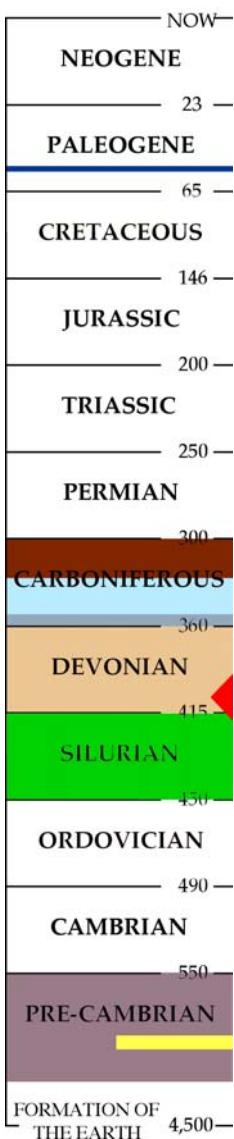
The dominant rock types in Sligo belong to the Carboniferous System (355 - 310 Ma). At that

time it was covered by a shallow tropical sea (Ireland was just south of the Equator then). The sea teemed with life, with animal communities changing as sea levels changed. At times a delta built out from the north, leaving sandstone rocks like at Mullaghmore Head. Carboniferous limestones are often easily dissolved by surface water or groundwater. This has resulted in the development of many cave systems and karst features in the Sligo area (Geevagh, Bricklieves, Keshcorran and Gleniff). Lough Nasool has even been known to drain away completely several times!

For much of the 300 Ma following the Carboniferous, Ireland was mostly land, dominated by erosion rather than sedimentation. This geologically quiet period was interrupted approximately 60 million years ago as Europe and North America split apart producing the North Atlantic Ocean. Hot magma rose up along fractures and cracks that formed in the limestone, cooling to form dykes like those seen at Inishcrone.

For the last 1.6 Ma Ireland's climate has oscillated between arctic and temperate conditions. A large sheet of ice deposited glacial sediments in Sligo during the last Glaciation (the Midlandian), which ended 10,000 years ago. Loose debris was incorporated into the ice, helping it erode underneath itself. This resulted in an ice-sculpted mountain landscape. Erratic boulders from the Ox Mountains were strewn across the lowlands, carried by ice. Large valleys were further sculpted by the ice producing classic U-shaped valleys such as Glencar. Later, melt-water from large lakes cut flat-floored valleys

**Geological timescale showing age of rocks in Sligo.**



like that northwest of Lough Talt. As the ice melted, the valley walls, no longer supported by ice, collapsed in large-scale landslips like the Swiss Valley in Glencar. Periglacial features on Truskmore and near Lough Easky record the intense freeze-thaw conditions that shattered and moved the local bedrock after glaciation.

### **Sligo fossils**

The Carboniferous rocks of Sligo are from tropical marine environments which were mostly teeming with life. Hence fossils are widespread in the limestones and mudstones of the county. However the coast is often the best place to see them, as more beds of rock can be seen exposed in one place. Walking along the rocky shore at Ballyconnell or at Streedagh Point, you can see whole ancient seafloors with large colonial coral mounds and the thick 'stalks' of solitary corals as well as other shells. Many of these sites are protected and any collecting of fossils should only be of loose material that is being washed around by the sea.

### **Mining & Building Stones**

Many Sligo rocks would have been useful as building stones for local use, although the beds of Carboniferous limestone are often preferred as they naturally occur in workable sized blocks. The Ben Bulben plateau had the Glencarbury barite mine across from Glencar to Gleniff. Although it had already been mined in the past, it was at its peak in the 1970s. It was very important as a source of mineral for drilling muds used in North Sea oil and gas exploration. Barite is a very dense mineral and helped prevent blowouts if the drill hit a gas pocket. At Abbeytown Mine, near Ballysadare, lead and zinc was mined as part of the late 1960s revival of Irish mining.

### **Suggested reading**

- *Landscapes, Rocks and fossils: the geological heritage of County Sligo*. Sligo County Council and the Geological Survey of Ireland (2008)
- Dan Tietzsch-Tyler, 1996. *Geology and landscapes in Yeats country: ancient Earth's crust and tropical seas*. Pamphlet, Geological Survey of Ireland and Bord Failte.
- Michael Flowerdew & Patrick McKeever, 2000. *Walk: Sligo - Leitrim. Landscapes from Stone*, Geological Survey of Ireland.

Map adapted with permission from Geological Survey of Ireland 1:1,000,000 map 2003.

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