



MAYO

AREA OF COUNTY: 5,585 square kilometres or 2,156 square miles

COUNTY TOWN: Castlebar

OTHER TOWNS: Ballina, Newport, Westport

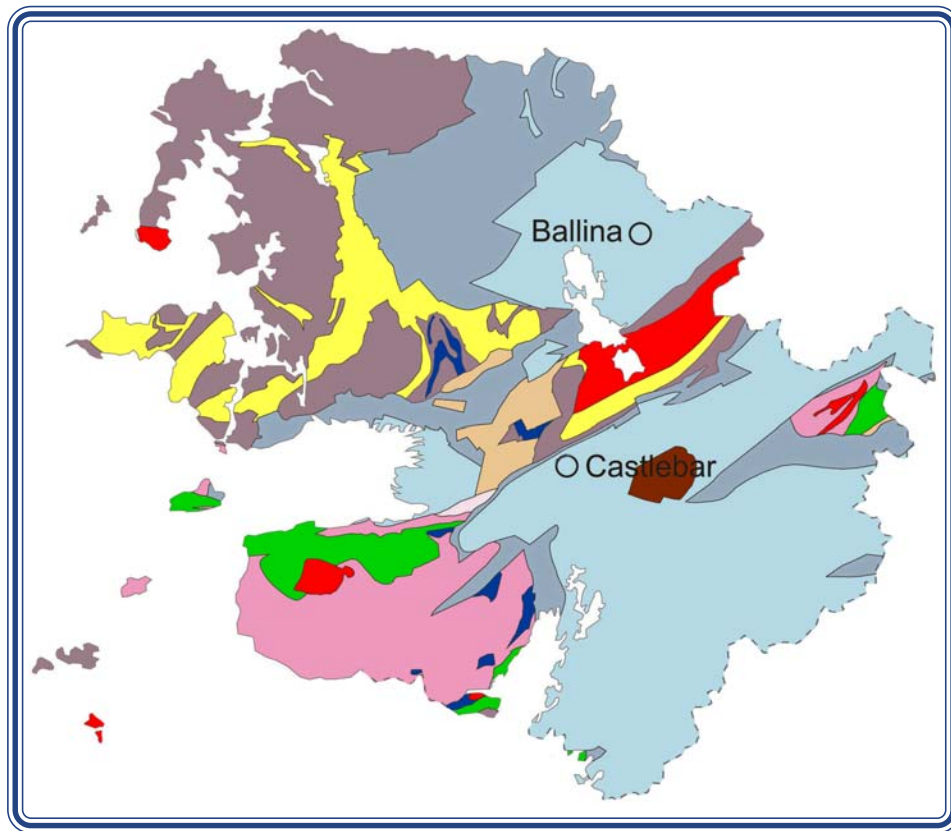
GEOLOGY HIGHLIGHTS: Silurian fossils, Ordovician conglomerates, Clew Bay drumlins, Lough Mask karst features

AGE OF ROCKS: Precambrian; Ordovician to Carboniferous



Croghaun, Achill Island

These are the highest cliffs in Ireland, at 2192 feet.



Geological Map of County Mayo

Pale purple: Precambrian Dalradian rocks; **Pale yellow:** Precambrian quartzites; **Dark blue:** Precambrian Gneiss and Schists; **Pink:** Ordovician; **Green:** Silurian; **Red:** Granite; **Beige:** Devonian sandstones and conglomerates; **Blue gray:** Lower Carboniferous sandstones; **Light blue:** Lower Carboniferous limestone; **Brown:** Upper Carboniferous shales.

Geological history

Mayo has a very long and complex geological history which geologists are still trying to understand. Many large areas are defined as terranes. These are sequences of rocks that were formed in one place and are now alongside other sequences that were originally formed a long way apart. Major faults in the Earth's crust (perhaps like the San Andreas Fault in California) have brought them together over millions of years.

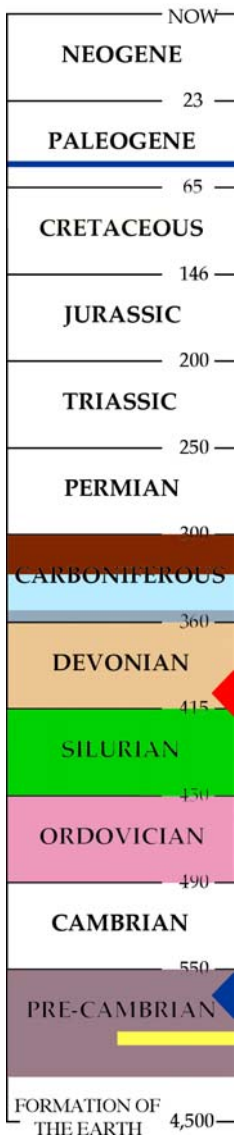
North Mayo has the oldest rocks in the county, and among the oldest in the country, with ancient metamorphic schists, gneisses and other rocks. On the Belmullet Peninsula the Annagh Gneiss is around 1750 million years old. Other metamorphic rocks are younger, with most of north Mayo composed of Dalradian metamorphic rocks, similar to those found in Connemara, Donegal and in the Highlands of Scotland.

South Mayo has sedimentary rocks, including some spectacular boulder conglomerates of Ordovician age preserved in an enormous fold called the South Mayo Trough. Terrane faults separate it from rocks either side. Silurian rocks are faulted alongside too, in three distinct sequences. Croagh Patrick is made of quartzite rock as one sequence. Louisburgh and Old Head have another different sequence and the southern rocks of Joyces Country are distinct again.

During the Carboniferous the sea lapped against the shores of mountains and hills from the lowlands to the east of the county. Around Lough Mask and in the Clew Bay area there are some sandstones and other rocks that were deposited on a land surface by rivers and then in a coastal plain. Above them limestone bedrock is found. Around Corraun to Newport, and on the north coast at Downpatrick Head are good places to see these rocks.

The youngest solid rocks in the county are around 60Ma (Paleogene) and are volcanic in origin (they are not shown on map). Stretching of the Earth's crust as the north Atlantic Ocean was opening allowed molten magma to move up through fractures in the rock. It cooled and solidified to form dykes of a dark crystalline rock called gabbro. A few of these have been found the Mayo hills but the largest by far, almost 400 metres wide, can be seen on the shore on the west side of Killala Bay.

The lakeshore of Lough Mask and Lough Carra have a range of superb karst features caused by slightly acid lake water dissolving the rock. One very strange feature is the cylindrical tubes which are dissolved *upwards* on the bottom of limestone



Drumlins in Clew Bay viewed from the summit of Croagh Patrick

Geological timescale showing age of rocks in Mayo.

beds and boulders. There are also massive sinks where the lake goes underground to reappear at Cong in Lough Corrib.

The Clew Bay drumlin field shows how powerful ice is in shaping the landscape. Drumlins (named from the Irish) are humps of debris left behind by ice sheets. In Clew bay the sea rose and drowned the low ground making a hundred or so islands.

Mayo fossils

There are Ordovician fossils in many of South Mayo's rocks but they are small and very hard to find. By the Silurian period, animal life had diversified such that South Mayo is a fine place to find fossils. In the Kilbride Peninsula, generations of geology students have mapped sedimentary sequences from terrestrial rocks with no fossils through to deep water rocks with only planktonic animal remains such as graptolites. In between a range of trace fossils, brachiopod shells (pictured right), trilobites, corals and other animals are preserved in their communities showing how the depth of water changed through time. In some places coral colonies can be seen that have been swamped and killed by a fall of volcanic ash.



**Carrownagower Bridge,
Cong Canal**

The Cong Canal

Understanding geology can be very important for engineers. In the 19th century they tried to make a canal between Lough Mask and Lough Corrib. The rock is so karstified (dissolved away) that all the water sinks away and it is dry most of the year!

Map adapted with permission from Geological Survey of Ireland 1:1,000,000 map 2003.
Image credits: Mike Simms 1, 4 (bottom); Matthew Parkes 3, 4 (top).