

Lough Navar Forest

Information Sheet



Location: LOUGH NAVAR FOREST

Conservation designations: N/A

Grid reference: H 07407 54667

Parking available: Yes

Personnel to be contacted prior to visit: None

Useful equipment:

- Camera
- Metre stick
- Hand lens

Relevance national curriculum:

Relevance to national curriculum:
Junior Cert Geography (The Earth's Surface)
GCSE Geography (The Restless Earth)
Leaving Cert Geography (Rock Cycle, Tectonic Cycle, Landform Development)
AS/A2 Geography (Plate Tectonics, Climate Change - Past and Present)

Rock types and geological processes observed: limestone, dolerite, sandstone

Geological structures: bedding, dyke, brecciation, nodules, contact metamorphism cross-bedding, faulting

Geomorphological features: glacial valley, drumlins, raised bog, tafoni

Site specific hazards and risks:

- Traffic on scenic drive
- Quarry faces
- Steep drops at viewpoint
- Deep water
- Forestry activities

Mitigation measures:

- Consult weather forecast
- Outdoor learning qualification
- First aid kit
- Appropriate teacher / student ratio
- Clear instructions to be given to students
- Ensure students have appropriate clothing / footwear

Did you know: The main rock types in this area are limestone and sandstone, all of which formed during the Carboniferous period. The limestone formed first and similar rocks are found in Stonehammer Geopark in Canada, as well as in Kenozero National Park in Russia. The sandstones formed slightly later and similar rocks are found in Ballycastle in Co. Antrim. The Blackslee Dyke that occurs at Aghameelan formed around 60 million years ago as the result of the opening of the North Atlantic Ocean. These Earth movements also led to the formation of the Giant's Causeway in Co. Antrim, the flood basalts on the Isle of Mull, the Ardnamurchan ring complex and the layered intrusion of the Isle of Rum, all of which are in Scotland.

Topics to cover before visit: sedimentary rocks and processes, glacial processes and products, igneous rocks and processes, plate tectonics

Keywords: dyke, igneous, dolerite, limestone, nodules, sea-level, Carboniferous, Palaeogene, quarry, glaciation, u-shaped valley, tafoni



Limestone



Sandstone



Dolerite

Description of limestone:

- Non-clastic rock
- Very fine-grained
- Medium grey
- Abundant fossils
- Reacts with HCl
- Layers (bedding)

Description of sandstone:

- Clastic rock
- Medium grained / fine grained
- Orange / pale brown
- No fossils, except for carbonized fragments
- No reaction with HCl
- Layers (bedding)

Description of dolerite:

- Medium-grained
- Interlocking crystals
- Dark grey / green (fresh surface)
- No fossils
- No reaction with HCl
- Dominated by plagioclase and pyroxene

Geological history*:

The story at Lough Navar begins with the deposition of lime-rich mud and the remains of sea creatures on a tropical sea floor approximately 330Ma, now seen as limestone. Although Ireland at that time was on or near to the equator, a glaciation in the southern hemisphere meant that global sea-level fell and as this occurred the environmental conditions changed gradually to a fluvial system or river. This is known from the abundant channel structures and cross-bedding seen at the Cliffs O'Braade. During the Palaeogene period, around 60Ma, crustal stretching and thinning as a result of the opening of the North Atlantic Ocean led to the intrusion of magma into a pre-existing weakness in the crust and formed the Blackslee Dyke, a vertical sheet of an igneous rock known as dolerite, that metamorphosed the rocks immediately adjacent to it. During Quaternary times, the entire area was ravaged by ice sheets sculpting the current landscapes, and scouring out the huge valley of Lower Lough Erne.