

# Clachtoll

## Information Sheet



### Location: CLACHTOLL

**Conservation designations:** National Scenic Area

**Grid reference:** NC03952721

**Address:** 134 Clachtoll, Lochinver, IV27 4JD

**Parking available:** Yes, free parking at ranger hut, through campsite

**Personnel to be contacted prior to visit:** None

### Useful equipment:

- Camera
- Hand-lens or magnifying glass

### Relevance national curriculum:

Earth Resources units of Environmental Science at Nat 3, 4,5 & higher  
Rocks and Minerals units of geology at Int 1 (Nat 4), Int 2 (Nat 5) and higher  
National Curriculum Es and Os such as SCN 2-17a and SCN 3-17b

**Rock types and geological processes observed:** Gneiss, breccia, mudstones, sandstones and dolerite

**Geological structures:** Dykes, bedding, desiccation cracks, folds, high grade regional metamorphism

**Earth processes:** eg. Dyke intrusion, shearing, folding, weathering, erosion, deposition, wetting and drying (ancient), coastal processes (modern), fossilisation

**Geological periods present:** Precambrian (Archaean and Mesoproterzoic)

A remnant Lewisian landscape with an intricate 3D relationship with the overlying sediments is worth exploring. Cyanobacteria mats also exist in the early Stoer Group rocks.

### Site specific hazards and risks:

- Inclement weather (leading to hypothermia, sunburn etc.) and/or people being ill prepared for walk (leading to hypothermia, sprained ankles, lack of fitness for route etc.)
- Falling off slope or into water
- Tripping and slipping
- Trampling or kicks from livestock
- Ticks (Lyme's disease)
- Anaphylactic shock from insect or sea creature bites and stings.

### Mitigation measures:

- Watch weather forecast & cancel if necessary. Take appropriate weather protection e.g. sunscreen, hat, waterproofs.
- Hand out kit list in advance and check before setting off.
- Take first aid kit and emergency communication. First aider present.
- Keep everyone together, stay on paths where possible, warn of dangerous sections and assist as necessary. Keep away from cliff edges and livestock.
- Issue tick warning and advice. Include tick remover in first aid kit.
- Take insect repellent, avoid touching rock pools and stranded jelly fish etc.

**Did you know:** The rocks in the middle of Clachtoll beach are marked with cracks called 'desiccation cracks' but locally these are known as Frankenstein Stiches you can probably see why! These were formed as the red mud dried out in a temporary lake in a rift valley environment close to the southern edge of Laurentia.

**Topics to cover before visit:** Regional metamorphism, erosion, weathering, deposition, fossils

**Keywords:** Gneiss, sandstones, breccia, erosion, unconformity, cyanobacteria and stromatolites





Site 1: Split Rock (viewed from the North end of the beach).



Site 2: Mudstone at the centre of beach showing Frankenstein Stitches, desiccation cracks



Site 3: Unconformity - sandstone on top of Lewisian gneiss



Site 3: The bands in the Lewisian gneiss are vertical here and may have been formed that way or tipped into this position



Site 4: Ancient scree slope. These Lewisian gneiss pebbles were eroded 1.2 billion years ago forming a scree slope which then solidified into the Torridonian sandstone to form a Breccia.



Site 5: Bedding planes containing stromatolites near the split rock.

#### Geological history\*:

There are two types of rock at Clachtoll: metamorphic Lewisian Gneiss and sedimentary Torridonian Sandstone. The gneiss was formed by regional metamorphism at great depth, about 3 billion years ago and then eroded forming a land surface, followed by the deposition of the Torridonian on this irregular land surface. The Torridonian often consists of a scree deposit first followed by sands and muds. The join between the 2 sets of rock is referred to as an unconformity, see at site 3.. A fossil scree slope (Breccia) made up of Lewisian gneiss fragments is visible at site 4. Fossil cyanobacteria mats called stromatolites can be viewed in the bedding planes at site 5. The most obvious feature at Clachtoll is the split rock which may have broken away from the cliff face in recent times and slid downslope, along a bedding plane towards, the sea. The remnant mudstone at the centre of the beach is very fine grained indicating low energy deposition of the original fine muddy material, perhaps in a lake bed. The cracks in the mudstone are called desiccation cracks and formed as the wet sediment went through periods of wetting and drying out.