

Am Muidhe

Information Sheet



Location: AM MUIDHE

Conservation designations: Geological Conservation Review Site

Grid reference: NM 8587 8143

Address: 5km west of Glenfinnan on A830

Parking available: Yes, free. Layby at NM 8604 8143

Personnel to be contacted prior to visit: None

Useful equipment:

- Camera
- High top waterproof boots (wellies) and waterproofs
- Walking pole
- Binoculars
- Drawing equipment

Relevance national curriculum:

Earth Resources units of Environmental Science at Nat 3, 4,5 & higher
National Curriculum Es and Os such as SCN 2-17a

Rock types and geological processes observed: High grade metamorphic Moine rocks

Geological structures: Tightly folded psammities cut by wide dykes of pegmatite with large crystals of mica. Glaciated slabs with *rôche moutonnée* shape

Earth processes: eq. Mountain building, folding, igneous intrusion, glacial erosion

Geological periods present: Precambrian, folded twice in Caledonian orogeny

Site specific hazards and risks:

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- Traffic on A830
- 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 to the west
- Tripping and slipping
- Ticks (Lymes disease)
- Allergic reactions from insect bites and stings

Mitigation measures:

- Park in layby and stay off the road
- Check weather forecast & take extra weather protection. Hand out kit list in advance
- Take first aid kit and emergency communication. First aider present.
- Keep everyone together, warn of dangerous
- drop offs to the west and set boundaries.
- Issue tick warning and advice. Include tick remover in first aid kit.
- Take insect repellent

Did you know: Am Muidhe is Scottish Gaelic for 'the churn'. Imagine the many stages of folding that the rocks have undergone and you can see why it is called this. The folding was mainly caused by the collision of North America, then Laurentia, (where Am Muidhe was located) with a subduction zone.

Topics to cover before visit: Rock classification, depositional environments, metamorphic structures and glaciation.

Keywords: Moine, metamorphic, quartzite, pegmatite, psammite, pelite, mica, slabs, *rôche moutonnée*, faults, folding, dyke, glaciated slabs and striae.



Grooves in a rock surface carved by boulders being carried by a moving glacier



Very complicated folded folds. The Moine rocks have experienced several stages of folding



A band of white pegmatite, made of very large crystals, formed from magma that cut through the Moine schists

A glaciated rock surface with striations and grooves produced by boulders trapped in moving ice which scored the ground. The exposure is a 'rôche moutonnée', sloping gently to the right (the east), but steeply to the left (west). This shows that the ice moved from east to west.

Intensely folded, medium grained metamorphic rocks. The original sedimentary rocks formed in a shallow sea during the Precambrian. The dark layers are 'pelitic' schists formed from muddy sediments and the light layers are 'psammitic' schists formed from sandy sediments.

Thick veins of white pegmatite, an exceptionally coarse type of igneous rock, in this case with the composition of granite, cutting through folded schists. Well-shaped crystals of feldspar, quartz and mica are many centimeters in length.

Geological history*:

The rocks at Am Muidhe formed as sand and mud in a shallow sea on the edge of a giant continent called Rodinia, a billion years ago, and are called the Moine schists. When Rodinia broke apart the Moine rocks were on the edge of a continent called Laurentia. 470 million years ago Laurentia collided with a subduction zone. All the rocks of the Scottish Highlands were piled up to produce a great mountain range, the Caledonian - Appalaichian mountains. In Scotland this time is called the Grampian orogeny. The Moine rocks were involved in a second orogeny called the Scandian, 430 million years ago, when a small continent called Avalonia collided with Laurentia. The bands in the Am Muidhe rocks are the original sedimentary layers which have been intensely folded, stretched, piled up and heated by being buried deep below the surface, a process called 'metamorphism'. Later the glen was sculpted by glaciers moving from east to west, evidence of which can be seen in the slabs, which have the typical profile of a rôche moutonnée with a scraped, smooth eastern flank and a steep western face.