

## CREAG NA H-INNSE RUAIDHE

OS Grid Reference: NC224140

### Description

A fine-grained, red 'grorudite' dyke, about 1 m thick, striking at outcrop NNE–SSW, cuts the Cambrian 'false-bedded quartzite' in a GCR site that is also notified for structural reasons, the Cam Loch Klippe (Figure 7.2, locality 2; and see the GCR volume *Lewisian, Torridonian and Moine Rocks of Scotland*). The Lewisian–Cambrian unconformity occurs about 200 m to the SE, and is in part inverted in the lower limb of a fold that is truncated below the 'grorudite' exposure by the Ben More thrust plane.

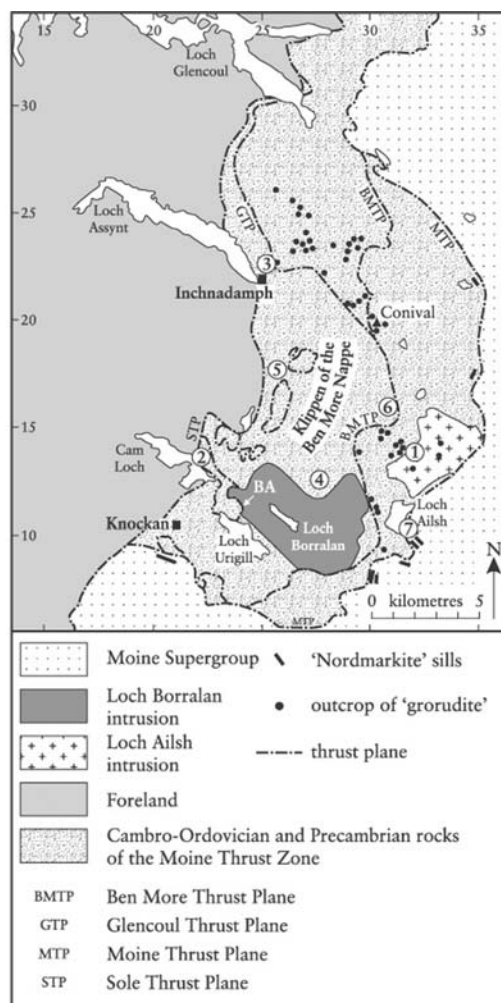


Figure 7.2: Map of the Assynt district showing the major thrusts, the two major alkaline intrusions, and the distribution of two of the six types of minor intrusive rocks. BA is the critical locality, at *Bad na h-Achlaise*, where nepheline-syenites and pyroxenites of the Loch Borralan intrusion are intruded into one of the klippen (the Cam Loch Klippe) of the Ben More Nappe. GCR sites in the thrust zone related to minor intrusive rocks are shown by circled numbers. 'Grorudite': 1, *Glen Oykel South*; 2, *Creag na h-Innse Ruaidhe*. 'Hornblende porphyrite': 3, *Cnoc an Droighinn*; 4, *Luban Croma*. 'Vogesite': 5, *Allt nan Uamh*; 6, *Glen Oykel North (diatreme)*. 'Nordmarkite': 7, *Allt na Cailliche*. (After Sabine, 1953 and Johnson and Parsons, 1979, fig. 3.)

### Interpretation

The interpretation of Peach *et al.* (1907) of the structure of the Moine thrust zone in Assynt is a classic of British, and indeed world, geology. They interpreted an area of Lewisian rocks overlain unconformably by Cambrian quartzites to the east of the Cam Loch as forming an

outlier, or klippe, of the Ben More thrust sheet (Figure 7.2). This interpretation has been supported by modern re-interpretations of the geology of the western part of the thrust belt in Assynt (Elliott and Johnson, 1980; Coward, 1985) although the latter author considers the eastern edge of the klippe to be a fault, not a thrust. As noted for the Glen Oykel South GCR site, 'grorudites' occur only in the rocks above the Ben More thrust plane, and the elegant and robust interpretation of Peach *et al.* (1907) is supported by the 'grorudite' at Creag na h-Innse Ruadh.

## Conclusions

The Creag na h-Innse Ruaidhe GCR site demonstrates the presence of 'grorudite' in one of the outlying thrust slices (klippen) of the Ben More Nappe, providing support for the internationally well-known and historically important structural interpretation.

## Reference list

- Coward, M. P. (1985) The thrust structures of southern Assynt, Moine thrust zone. *Geological Magazine*, **122**, 596–607.
- Elliott, D. and Johnson, M. R. W. (1980) Structural evolution in the northern part of the Moine thrust belt, NW Scotland. *Transactions of the Royal Society of Edinburgh: Earth Sciences* **71**, 69–96.
- Peach, B. N., Horne, J., Gunn, W., Clough, C. T., Hinxman, L. W. and Teall, J. J. H. (1907) The geological structure of the North-West Highlands of Scotland. *Memoir of the Geological Survey of the United Kingdom*.