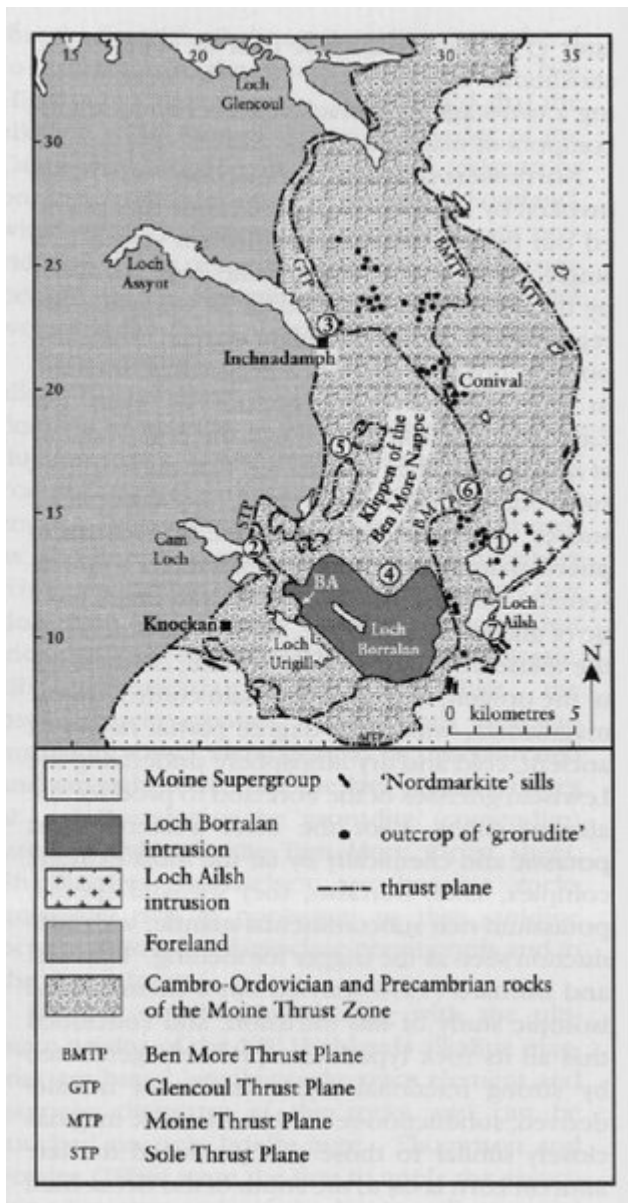

1. 'Grorudite' (peralkaline rhyolite, comendite)

Introduction

The 'grorudites' are fine-grained acid ($\text{SiO}_2 = 72\text{--}76\%$) peralkaline rocks for which aegirine rhyolite or comendite would be appropriate modern names. They are compositionally the equivalent of peralkaline granites and have no counterpart among the Caledonian plutonic rocks. They are therefore important in that they extend the compositional range of the Scottish Caledonian magmatism to include both strongly silica under- and oversaturated alkaline rocks, a dichotomy found in many much larger alkaline provinces. Thompson and Fowler (1986) pointed out the chemical similarity between an Assynt 'grorudite' and a comendite from the shoshonitic volcano of Lipari in the Aeolian Arc. The freshest examples may be pale-green in colour but in general they are pink or reddish-brown. The rocks are usually very fine grained and the matrix is aphanitic, although small pink alkali feldspar phenocrysts are sometimes visible. In section the rocks are characterized by phenocrysts of alkali feldspar and the sodium-iron pyroxene, aegirine, set in a quartz-feldspar matrix crowded with tiny aegirine needles. Various sub-varieties were recognized by Phemister (1926) and Sabine (1953). The reader is referred to these works for petrographical detail. 'Grorudites' are common in Assynt, particularly to the east and north of Inchnadamph (where they may be seen on the Cnoc an Droighinn GCR site [NC 263 226], and cutting and close to the Loch Ailsh syenite intrusion (Figure 7.2). They usually occur as thin dykes (up to 1 m) but also, although less commonly, as sills, often describing a rather sinuous path through the country rocks. The examples are chosen to demonstrate the structural implications of the 'grorudite' suite.

[References](#)



(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.)