

Syntectonic granitic intrusions, Caledonian magmatism, Grampian Highlands

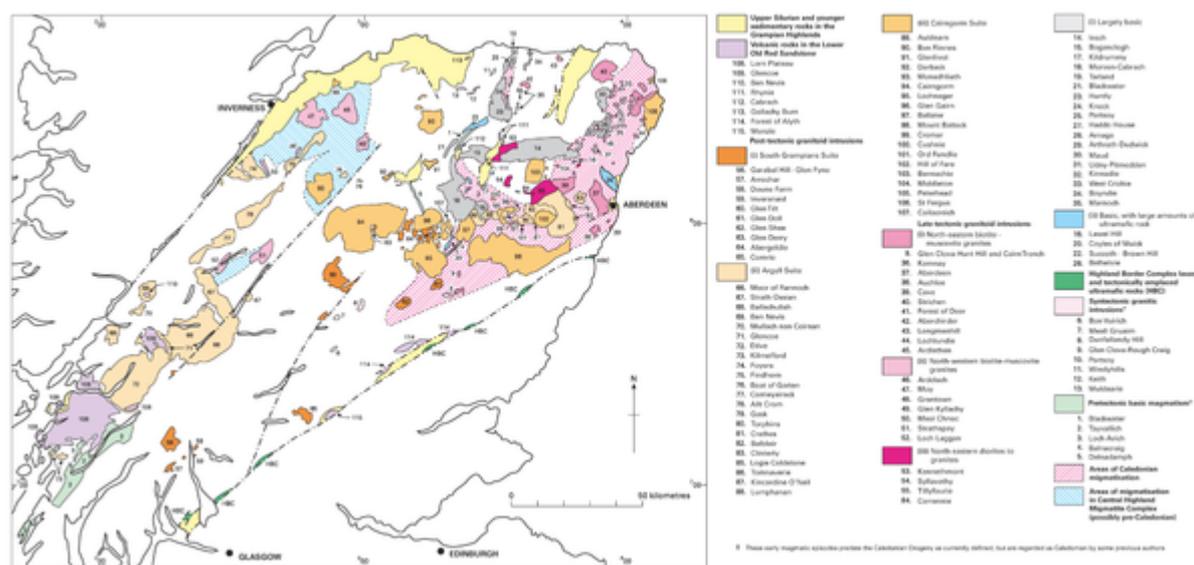
From Earthwise

[Jump to navigation](#) [Jump to search](#)

Stephenson, D, and Gould, D. 1995. British regional geology: the Grampian Highlands. Fourth edition. Reprint 2007. Keyworth, Nottingham: British Geological Survey.

Syntectonic granitic intrusions

Several discrete episodes of acid magmatism can be recognised in the Grampian Highlands ([P915434](#)). The earliest is represented by the **Ben Vuirich Granite** (6) which has yielded a U/Pb zircon age of 590 ± 2 Ma (Rogers et al., 1989). Bradbury et al. (1976) reported that the Ben Vuirich Granite was emplaced between the regional D₂ and D₃ events; current work casts doubt on this interpretation (Tanner and Leslie, 1994). South-east of the post-tectonic Glen Tilt Complex, a number of small granitic bodies, of which the **Meall Gruaim** intrusion (7) is the largest, show many similarities with the Ben Vuirich intrusion, and are probably of similar age.



Distribution of Caledonian igneous rocks in the Grampian Highlands. P915434.

The **Dunfallandy Hill Granite** (8; Bradbury et al., 1976) is a set of sheet-like bodies with a foliation parallel to the axial planes of F₃ folds; it is considered to be pre- to early-D₃ in age. The high initial Sr isotope ratios of the Ben Vuirich and Dunfallandy Hill granites suggest that they are both S-type granites.

The relationships of the granites in the vicinity of **Milton of Clova** (9; Harry, 1958) to the regional tectonic episodes are more complex. They are muscovite-biotite-granites which form sheet-like intrusions whose textures range from medium grained and homogeneous to strongly foliated and gneissose. Robertson (1991; 1994) has shown that the gneissose granites predate D₂, whereas other granites in the vicinity are late- to post-D₃ in age.

Small, elongate masses of granite are intruded into Appin Group and Argyll Group metasedimentary rocks at **Portsoy** (10), **Windyhills** (11), **Keith** (12) and **Muldearie** (13). They exhibit strong tectonic fabrics, although cleaved xenoliths in the Keith granite indicate some pre-intrusion deformation. The

granites consist of alkali-feldspar augen in a matrix of quartz, plagioclase, biotite and secondary muscovite.

Migmatitic rocks occur in the north-west and north-east Grampians (stippled ornament in [\(P915434\)](#)). Those in the north-west form the Central Highland Migmatite Complex, parts of which have suffered two separate periods of migmatisation. Migmatisation in the north-east Grampians coincided with the peak of the Grampian event: regional metamorphism, the D₃ deformation, and the intrusion of large volumes of basic magma (dated at around 489 ± 17 Ma by Pankhurst, 1970). In those areas subjected to middle amphibolite-facies metamorphism, migmatites were formed in rocks of susceptible compositions. Both groups of migmatites comprise lenticles and veinlets of coarse-grained quartzofeldspathic material (the neosome), frequently bordered by a biotite-rich selvage, set in a finer-grained host rock or palaeosome. The neosome forms bands and segregations, both parallel to and, more rarely, cross-cutting the layering of the host metasedimentary rocks. Some of the migmatites, particularly those adjacent to the basic plutons, may have formed by partial melting (anatexis) of the host rock but the majority of them are now believed to have formed by subsolidus segregation (Ashworth, 1985; Ashworth and McLellan, 1985).

Seven-fold division of the Caledonian Igneous Suite

[Pre-tectonic basic magmatism](#)

Syntectonic granitic intrusions

[Syn- to late-tectonic basic and ultramafic intrusions](#)

[Late-tectonic granitoid intrusions](#)

[Post-tectonic granitoid intrusions](#)

[Late- to post-tectonic minor intrusions](#)

[Lower Old Red Sandstone volcanism](#)

Full list of references

Retrieved from

'http://earthwise.bgs.ac.uk/index.php?title=Syntectonic_granitic_intrusions,_Caledonian_magmatism,_Grampian_Highlands&oldid=34547'

Category:

- [Grampian Highlands](#)

Navigation menu

Personal tools

- Not logged in
- [Talk](#)
- [Contributions](#)
- [Log in](#)
- [Request account](#)

Namespaces

- [Page](#)
- [Discussion](#)

Variants

Views

- [Read](#)
- [Edit](#)
- [View history](#)
- [PDF Export](#)

More

Search

Navigation

- [Main page](#)
- [Recent changes](#)
- [Random page](#)

- [Help about MediaWiki](#)

Tools

- [What links here](#)
- [Related changes](#)
- [Special pages](#)
- [Permanent link](#)
- [Page information](#)
- [Cite this page](#)
- [Browse properties](#)

• This page was last modified on 31 January 2018, at 15:48.

- [Privacy policy](#)
- [About Earthwise](#)
- [Disclaimers](#)

