

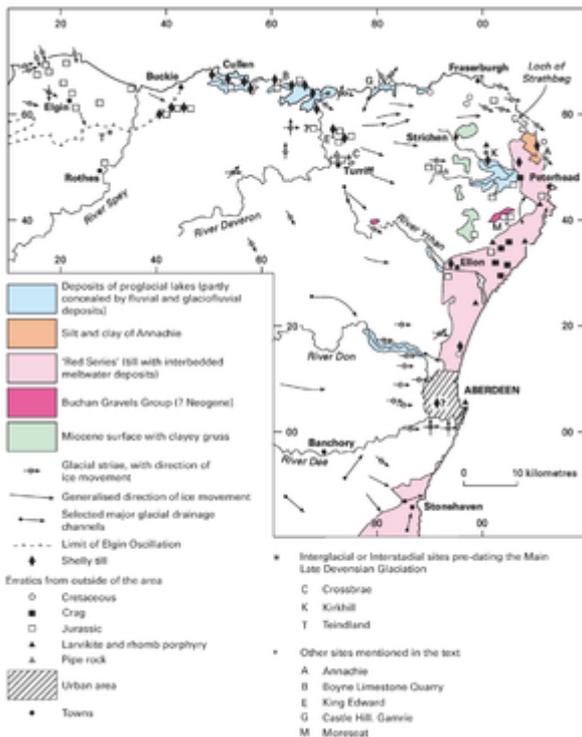
Neogene, Grampian Highlands

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

Neogene



Selected aspects of the Neogene and Quaternary geology of the North-east Highlands. P915447.

Following the Palaeogene volcanism in western Scotland the Neogene history of the Grampian Highlands was chiefly one of erosion. However, in the North-east Highlands there are deposits of flint and quartzite gravel of probable Neogene age classified as the *Buchan Gravels Group* (Hall, 1984). They occur in central Buchan as isolated spreads that underlie the highest ground in the area at elevations between 161 m and 120 m above OD, well above the present valleys of the rivers Ythan and Deveron. The Buchan Gravels are divided into the westerly quartzite-rich *Windyhills Formation* and the easterly flint-rich *Buchan Ridge Formation*. The type locality of the Windyhills Formation is Windyhills, 4 km north-east of Fyvie. The Buchan Ridge Formation principally underlies the watershed referred to in the literature as the 'Buchan Ridge', 11 km south-west of Peterhead ([P915447](#)). Both formations consist of bedded gravels with subsidiary sandy and silty units. Thicknesses of at least 14 m have been recorded for the Windyhills Formation and 25 m for the Buchan Ridge Formation. The deposits are deeply weathered and clasts other than flint or quartzite have been decomposed in whole or part to a kaolinitic clayey silt. The silty and sandy beds contain detrital quartz, flint, muscovite and kaolinite derived from a pre-existing deeply weathered land surface. Cross-bedding and imbrication of the gravel in the Windyhills Formation at Windyhills suggests transport and deposition by a NE-flowing river. The origin of the poorly exposed Buchan Ridge Formation is less clear and its genesis has been ascribed to fluvial, beach and even glacial

processes. Current opinion favours the first of these, though the top of the gravel is locally overlain by till and may be glacially disturbed. A maximum age for the gravels is provided by the occurrence of Cretaceous fossils in the flints. There is a close spatial relationship between the gravels and the remnant areas of clayey gress (intensely weathered rock) ([P915447](#)) which may have developed under a subtropical climate, probably during Miocene times. Parts of the North-east Highlands may thus have remained close to the base-level of erosion in the area since the late Cretaceous marine transgression (Hall, 1991).

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