

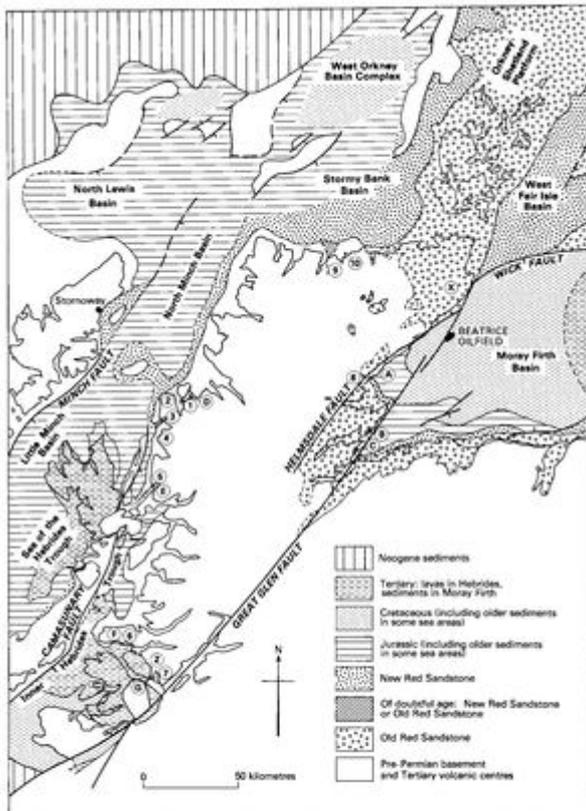
Cretaceous, Northern Highlands of Scotland

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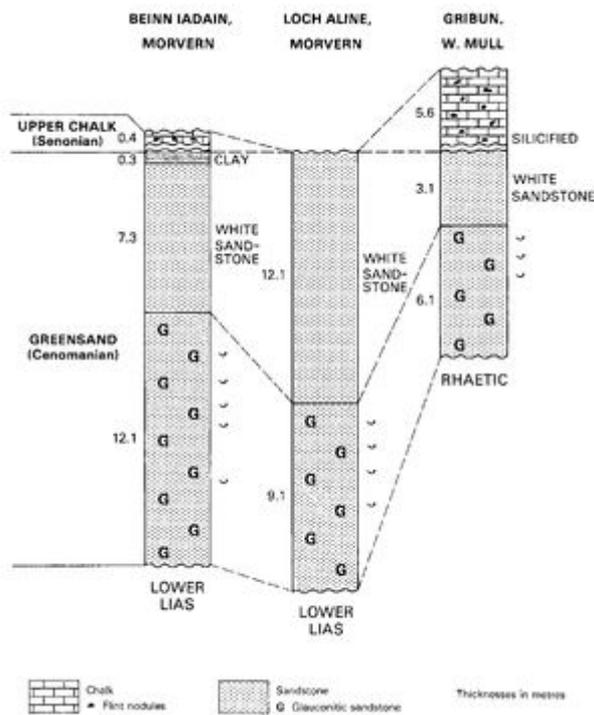
Johnstone, G S and Mykura, W. 1989. British regional geology: Northern Highlands of Scotland. Fourth edition. Keyworth, Nottingham: British Geological Survey.

Cretaceous



New Red Sandstone outliers: 1 Gruinard Bay-Isle of Ewe 2 Cama Mor, Rubha Reidh peninsula 3 Big Sand, Gairloch 4 Red Point 5 Applecross
 6 Ardnamurchan 7 Morvern 8 Dunrobin, Golspie 9 Outliers around Tongue
 10 Kirtomy Outliers
 Jurassic outliers: A Golspie-Helmsdale B Balintore C Ethie D Gruinard Bay
 E Applecross F Ardnamurchan G Morvern
 Cretaceous outliers: Z Loch Aline and Morvern Cretaceous erratic: X Lezard (Caidhness)

Old Red Sandstone of Easter Ross and Inverness-shire. P915496.



Cretaceous sediments of Morvern, compared with the Cretaceous sequence at Gribun, West Mull. P915503.

The only Cretaceous sediments found in situ in the Northern Highlands occur in Morven ([P915496](#)), where they have been protected from erosion by overlying Tertiary lavas. On the west side of Loch Aline the following succession underlies the Tertiary lavas ([P915503](#); Humphries, 1961):

		Thickness (m)
Tertiary	Lava	1.5
	Red Mudstone (Tertiary)	1.2
	White sandstone (locally discoloured)	1.2
Cenomanian White Sandstone	Rib of hard white sandstone	0.6
	Soft white, friable sandstone	6.0
	Rib of hard white sandstone	c.0.3
	Sandstone — generally slightly brown-stained	c.4
	Calcareous sandstone, with <i>Exogyra</i>	4.5
Greensand	Greensand with calcareous concretions full of <i>Exogyra</i> , <i>Pecten</i> , etc.	3.9
	Glaucconitic sandstone, unfossiliferous	2

The Greensand is partly calcareous and characterised by the abundance of *Amphidonte obliqua* (formerly *Exogyra comca*), though other bivalves such as *Neitheia quinquecostata* are also found. The overlying white sandstone, which has been extensively mined as a glass-sand, consists almost entirely of rounded, well sorted quartz grains ranging in diameter from 0.2 to 0.3 mm. Its silica content exceeds 99.7%, though a large suite of heavy minerals has been recognised. Only one fossil (a starfish) has so far been found in the sandstone.

Further north-west Cretaceous deposits form a number of outliers on hills which have a protective capping of Tertiary lava. On Beinn Iadain (10 km north of Loch Aline) the white sandstone is overlain by 0.3 m of clay, succeeded in turn by 0.4 m of silicified rubbly chalk which has yielded *Salenia*

geometrica, suggesting a late Senonian age ([P915503](#)).

Bailey (1924) has argued that many of the sand grains of the White Sandstone have been rounded and polished by wind action, suggesting that the land adjoining the Chalk sea had a desert climate. Humphries (1961) has, however, shown that this hypothesis is not supported by the petrological evidence.

The only other Cretaceous sediment on the Scottish mainland is a large glacial erratic (230 m x140 m) of sandstone at Leavad in Caithness ([P915496](#)). The sandstone has disintegrated into sand in which the hard concretions remain. It has yielded *Craspedites* and *Crioceras*. It is thought that this sandstone mass was carried inland by ice from an in-situ position in the North Sea near Lybster or Dunbeath.

[Selected bibliography](#)

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