Summarised description

Unit name

Fooz Formation

Code

FOO

Status

Formal Formation

Parent unit

none

Child units

Ombret Conglomerate Bed, Quareux Conglomerate Bed, Waismes Member, Marteau Member, Rheinhardstein Facies

Characteristic description

Conglomerate and coarse-grained sandstone, forming metre-thicks lenticular beds with erosive base, passing upwards to grey finer-grained sandstone then to reddish siltstone with carbonate nodules.

Age

Upper Pridoli to lowermost Lochkhovian

Thickness

160 to 200 metres

Area of occurrence

Margins of the Stavelot and Condroz Inliers

Type locality

The stratotype designated for the Fooz Formation is situated along the Chevreuils River in Dave (Dejonghe et al., 1994e).

Alternative names

Psammite de Fooz, Formation de Marteau

Authors

Gosselet (1873)

Modified after

Denayer, J. & Mottequin, B., 2024. Lower Devonian lithostratigraphy of Belgium. Geologica Belgica, 27/3-4, 115–154.

Date

23/09/2025

Cite as

Denayer, J. & Mottequin, B., 2025. The Fooz Formation, 23/09/2025. National Commission for Stratigraphy Belgium. https://ncs.naturalsciences.be/lithostratigraphy/Fooz-Formation

Full description

Unit name

Fooz Formation

Code

FOO

Status

Formal Formation

Parent unit

none

Child units

Ombret Conglomerate Bed, Quareux Conglomerate Bed, Waismes Member, Marteau Member, Rheinhardstein Facies

Origin of the name

Section located in the Potisseau River valley at Fooz, a hamlet of Wépion in the Meuse River valley.

Alternative names

Psammites de Fooz, Formation de Marteau

Authors

Gosselet (1873, p. 5): *Psammites et schistes compactes de Fooz*

Modified after

Denayer, J. & Mottequin, B., 2024. Lower Devonian lithostratigraphy of Belgium. Geologica Belgica, 27/3-4, 115–154.

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Characteristic description

The Formation rests unconformably on the lower Paleozoic basement and starts with a conglomerate named **Ombret Conglomerate** (*Poudingue d'Ombret* in Gosselet, 1873, p. 19; Mourlon, 1876, p. 327) in western areas and **Quareux Conglomerate** (*poudingue de Quarreux* in Gosselet, 1888, p. 253) in eastern areas. Both are characterised by pebble-supported conglomerate with centimetric to decimetric quartz and quartzite pebbles in a very hard greyish to greenish quartzitic matrix. Dark sandstone and tourmalinite pebbles also occur. The conglomerate tends to fade away in some places, passing to coarse-grained sandstone. On the contrary, it locally becomes very coarse-grained with poorly rounded sub-metric blocks (e.g. Ninglinspo River valley). The conglomerates deposited in fluviatile settings (Graulich, 1951; Neumann-Mahlkau, 1970). Note that the Ombret Formation was introduced by Martin et al. (1970) for an Ordovician unit of the Condroz Inlier (see Verniers et al., 2002).

Where developed, the conglomerate passes upwards to light-coloured, kaolinitic coarse-grained sandstone or micro-conglomerate known in the old literature as arkose: e.g. *Arcose von Weims* in

Kayser (1870, p. 850), *Arkose de Dave* in Gosselet (1873, p. 5), *arkose de Weismes* in Gosselet (1888, p. 253, 255), *grès et arkoses de Gdoumont* in Maillieux & Demanet (1929, p. 122, table 2), *arkoses et grès de Gdoumont* in Asselberghs (1943, p. 3). It should be noted that these lithologies are almost devoid of feldspars, but patches of whitish clayey material are mostly composed of weathered slate fragments and less than 5% of weathered feldspars (Michot, 1969). The **Waimes Member** is composed of kaolinitic coarse-grained sandstone with few micro-conglomeratic recurrences and siltstone intercalations. Centimetric pyrite cubes are frequent. The siltstone and fine-grained sandstone, beige in colour, have yielded a diverse fauna (brachiopods, corals, bivalves, trilobites) preserved as steinkerns. These facies display a clear marine influence. On the northern flank of the Dinant Synclinorium, they were named *Arkose de Dave* but as the lithologies are similar and the thickness rapidly decreasing westwards, it is preferable to give up this denomination. Note that the name *schistes de Dave* was proposed by Michot (1932, p. B136) for designating a Silurian formation in the Condroz Inlier (see Verniers et al., 2002).

In the northern parts of the Dinant Synclinorium as well as in the Vesdre and Theux areas, Hance et al. (1992) and Dejonghe et al. (1994e, 1994f) distinguished two formations at the base of the Devonian sequence: the Fooz Formation to the west and the Marteau Formation to the east. Both units display the same dominant siliciclastic facies but differ by their dominant colour. The Fooz Formation is supposed to be greenish whereas the Marteau Formation is supposed to be reddish. Geological mapping of these formations demonstrated that on the one hand red beds exist in the Fooz Formation and on the other hand green or variegated beds are developed within the Marteau Formation. The distinction between the two is therefore only geographical, with the inconvenient that both units were recognised in the Vesdre area (Goé Tectonic Unit, Goemaere et al., 1997). It is here proposed that only one unit should be preserved. *Psammites et schistes compactes de Fooz* is the older designation (Gosselet, 1873). The *Schistes bigarrés et psammites du Marteau* introduced later by Gosselet (1888, p. 258) is therefore a subsequent synonym. However, the *Psammites de Fooz* stricto sensu (i.e. the beds overlying the conglomerate and so-called arkose) form a unit rather well individualised and deserve a formal definition. The Marteau Member is here introduced to cover the fine-grained variegated sandstone unit forming the upper part of the Fooz Formation.

The upper part of the Fooz Formation is largely dominated by variegated fine-grained siliciclastics grouped in the **Marteau Member** corresponding to the *Psammites de Fooz* in the literature. Olive-green and variegated fine-grained sandstone, argillaceous or not, and siltstone alternate in the lower part of the Member. They are arranged in fining-upward sequences that begin with poorly sorted sandstone with shale clasts and small quartz pebbles, oblique stratifications and lenses, and that end with shale displaying desiccation cracks. The reddish colour progressively appears upwards. The upper part of the Member is richer in well-sorted sandstone beds that commonly display coarsening-upward trend and mega-ripples. The numerous horizons with dissolved carbonate nodules (centimetric to decimetric in size) give a cellular aspect to the Formation. These nodules are interpreted as concretions within calcrete and are therefore of paedogenetic origin (Stroink & Simons, 1995; Goemaere et al., 1997). Silcretes and ferricretes are also developed (Goemaere et al., 2012). The Member reflects the depositional environment of an alluvial plain with braided rivers evolving towards a coastal plain with wandering meanders (Goemaere et al., 1997).

Along the south-eastern edge of the Stavelot–Venn Inlier, the Marteau Member displays blueish to purple colour, due to slight metamorphism here named as the **Reinhardstein Facies**.

Area of occurrence

The Formation is present in the Vesdre area, around the Stavelot–Venn Inlier and the Theux Window. It also occurs along the northern limb of the Dinant Synclinorium between Wihéries and Engis, and along its north-eastern limb between Tancrémont and Dochamps. The Marteau Member is also recorded in the Bolland borehole (Graulich, 1975).

Type locality

The stratotype designated for the Fooz Formation is situated along the Chevreuils River in Dave (Dejonghe et al., 1994e) where both the lower and upper boundaries are exposed, as well as the Dave member introduced by Dejonghe et al. (1994e) that included the *Poudingue d'Ombret* and the *Arkose de Dave*. The basal beds are exposed in Ombret (Pierre Falhotte) and in the Amblève River valley in the Fond de Quareux. The type section of the Marteau Member is situated along the Helle River south of Eupen (Dejonghe et al., 1994e) because the historical section in Spa (Marteau locality) is too discontinuous and strongly tectonised. The Waimes quarry and nearby section along the former railway acts as a composite type section for the Waimes Member. The Reinhardstein Facies is exposed in the Warche River valley near the medieval Reinhardstein castle.

Age

The base of the Formation is diachronous, becoming younger from the south-east to the north-west. South-east of the Stavelot–Venn Inlier, the Waimes Member, overlying the basal conglomerate yielded brachiopods (e.g. *Quadrifarius dumontianus*, *Shaleria rigida*) indicative of the Pridoli (Boucot, 1960). In the Theux Window and Vesdre area, the miospores present in the lower fossiliferous horizon indicate the Lochkovian R to Mα zones. In the type section at Dave, the oldest beds indicate the Lochkovian Siα Zone, hence a slightly younger age. The age of the upper part varies also from the Lochkovian Siβ Zone in the west, to the G Zone in the east (Steemans, 1989a, b).

Thickness

The Quareux Conglomerate varies in thickness from 0 to c. 10 m in the Amblève River valley (Marion et al., in press), whereas the Ombret Conglomerate can attain several metres in thickness. The Waimes Member reaches 150 m in thickness in the type area (Lamberty et al., in press) and falls to c. 12 m in the Meuse River valley. The Marteau Member is c. 150 m thick in Eupen and Spa (Dejonghe et al., 1994e) and increases westwards to 170 m in Dave (Delcambre & Pingot, 2017).

Lower boundary

The base of the conglomerate resting unconformably upon the Cambrian-Ordovician rocks of the inliers

Upper boundary

First bed of light-coloured sandstone of the overlying Bois d'Ausse Formation.

Regional correlations

The lower part of the Fooz Formation passes, southwards, to the Fépin Formation. The Bois de Chaumont Formation is a lateral equivalent resting locally on the Condroz Inlier north of the Midi–Eifel Thrust Fault.

Dataset

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