

Summarised description

Unit name

Eau Noire Member

Code

ENR

Status

Formal Member

Parent unit

Moulin de la Foulerie Formation

Child units

Sohier Limestone Beds

Characteristic description

Alternation of greyish and bluish calcareous shale and bioclastic nodular limestone beds.

Age

Late Emsian to early Eifelian

Thickness

40 to 120 metres

Area of occurrence

Southern limb of the Dinant Synclinorium up to Izier.

Type locality

Section along the west bank of the Eau Noire River, about 100 m north of the foot-bridge south of Couvin.

Alternative names

None

Authors

Tsien (1974)

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 Eau Noire Member, 23/09/2025. National Commission for Stratigraphy Belgium. <https://ncs.naturalsciences.be/lithostratigraphy/Eau-Noire-Member>

Full description

Unit name

Eau Noire Member

Code

ENR

Status

Formal Member

Parent unit

Moulin de la Foulerie Formation

Child units

Sohier Limestone Beds

Origin of the name

After the Moulin de la Foulerie on the west bank of the Eau Noire River, south of Couvin.

Alternative names

None

Authors

Tsien (1974, p. 6): *Eau Noire Member*

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 Eau Noire Member consists of greyish and bluish calcareous shale and bioclastic nodular limestone beds. The macrofauna is abundant and diverse (rugose and tabulate corals, brachiopods, trilobites, crinoids). The carbonate content increases upwards, announcing the calcareous Couvin Formation. East of Nismes, the Villers-la-Tour Member of the Eifelian Couvin Formation disappears but a 10–20 m thick basal carbonate unit remains between the Eau Noire Member and the overlying Vieux Moulin Member (see Denayer et al., 2024). This unit of argillaceous crinoidal limestone can be traced up to the Jemelle area. The term **Sohier Limestone** was proposed by Denayer (2019) for this unit corresponding to the lithological sub-unit i of Bultynck (1970).

Area of occurrence

Southern and south-eastern limbs of the Dinant Synclinorium up to the Ourthe River valley. East of the Lomme River valley, the carbonate character of the Eau Noire Member is less expressed. In the Ourthe River valley, shaly facies are dominant in both members (Lessuise et al., 1979) whereas in the Aisne River valley, sandy facies appear in the Eau Noire Member.

Type locality

Section along the west bank of the Eau Noire River, about 100 m north of the foot-bridge south of Couvin near the Moulin de la Foulerie (Bultynck, 1970; Marion & Barchy, 1999).

Age

The Emsian–Eifelian boundary based on the first entry of the conodont *Icriodus retrodepressus*, a characteristic species of the *partitus* conodont Zone, falls c. 5 m below the top of the Eau Noire Member in its (holo)stratotype (Bultynck et al., 2000). Consequently, the abundant fauna of the Member (e.g. Maillieux, 1938; Tsien, 1969; Godefroid, 1977; Denayer, 2025) is mostly late Emsian in age (*patulus* conodont Zone; Bultynck & Godefroid, 1974; Weddige et al., 1979).

Thickness

The Eau Noire Member is about 100 m thick between Couvin and Olloy-sur-Viroin (Marion & Barchy, 1999); further to the east, its thickness increases to a maximum of 120 m in the Wellin–Halma area (Dumoulin & Blockmans, 2013), and east of this area, it decreases, reaching 40 m at Grupont (Blockmans et al., 2019), 25 m in Jemelle and Marche-en-Famenne, and only 10 m in the Aisne River valley (Lessuise et al., 1979).

Lower boundary

Last bed of calcareous sandstone of the underlying Saint-Joseph Member.

Upper boundary

Last thick bed of limestone of the Sohier Limestone Beds.

Regional correlations

In the Aisne River valley (Villers-Sainte-Gertrude), the sandy facies dominates and the Eau Noire Member cannot be distinguished anymore from the Saint-Joseph Member (Bultynck, 1991).

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