

The Famennian flora of Barraba, New South Wales, Australia

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Paleozoic floras of Gondwana, the largest paleocontinent of its time and cradle of terrestrial plants, are notoriously understudied. In Australia, a few studies have been published on plants of Late Devonian age, but they are old and need reinvestigation.

This presentation is an account of the Famennian flora found in the marine beds of the Mandowa Mudstone Formation at Barraba. Four localities have been investigated along the banks of the Manilla river. All yielded adpressions but only one, the historical locality discovered by Mr. John Irving, provided anatomically preserved specimens. Despite extensive search, no marine fossils were found that could provide stratigraphic information on the plant beds. The sediments do not contain palynomorphs either, except at one place where they are rare. Here they correspond to the LN palynozone, just below the Devonian-Carboniferous boundary.

Eleven anatomically preserved specimens are reported at Barraba, which are assigned to nine taxa. The lycopsids include a large cone assigned to the genus *Cymastrobis*, and a small fragment of axis recently recognized as a new genus, *Lycaugea*. Differences in their stelar architecture indicate that *Cymastrobis* and *Lycaugea* represent different plants, both interpreted as basal members of the Isoetales. The iridopteridalean axis *Keraphyton* is large and characterized by a highly divided actinostele. The Cladoxylopsida is the most diverse group, with axes referred to as *Polyxylon australe*, *Cladoxylon cf. taeniatum*, *Cladoxylon radiatum* and *Hierogramma sp.* The poorly preserved wood of a 10 cm wide log shows the groups of bordered pits characterizing the archeopteridalean genus *Callixylon*. Spermatophytes are represented by a single fragment of petiole assignable to *Kalymma grandis*.

The most abundant remains preserved as adpressions are referable to the cosmopolitan lycopsid genus *Leptophloeum*. Most other plant fossils are axes of uncertain affinities. Some, with regular ribs on the outer surface, may correspond to cladoxylopsids. Spermatophytes are represented by bifurcate fragments of fronds lacking pinnules, and a possible seed.

Spore-producing plants are the dominant components of this allochthonous flora which may correspond to plants living in coastal habitats or along river banks. Except for the three genera specific to Barraba, the generic composition of this Australian flora resembles that of late Famennian to early Tournaisian localities of the New Albany Shale in eastern USA, the Russchiefer of Thuringia (Germany) and the Lydiennes of Montagne Noire (southern France), suggesting free dispersal between these zones, and comparable environmental conditions.