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Plant diversity after the Devonian-Carboniferous boundary: new data from the Tournaisian of Montagne Noire, France.

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The Devonian-Carboniferous boundary (359 Ma) is now recognized as a period of major environmental changes, affecting both marine and terrestrial ecosystems. However, the impact of this event on plants remains controversial, notably because of the scarcity of macrofloral data in the earliest Carboniferous. In this context, we are currently focusing on the diversity and biology of fossil plants from the Tournaisian Lydienne Formation in the Montagne Noire, Southern France (Galtier et al. 1988).

A first source of information is the (re)investigation of specimens kept in the Université de Montpellier collections. This allows us to better understand plant systematic and functional diversity, and to compare the assemblage to Late Devonian floras from around the world. We will present some recent work on two key anatomically preserved taxa: (1) *Cladoxylon*, the youngest representative of the cladoxyloids and the only one to date in which the production of periderm is documented (Decombeix & Galtier, 2021; Fig 1a), (2) large bisporangiate lycopsid cones originally described as *Lepidostrobus* (Zeiller, 1911; Böhm, 1935; Genson, 1941; Fig 1b)

In addition to collection material, new trenches cutting through the Lydienne Formation at the locality of La Serre (Fig 1c) have allowed us to collect new specimens, mostly preserved as adpressions. Although most of them are very fragmentary (1-2 cm), they are important as they provide crucial information on small structures that are less represented in the anatomically preserved material, such as seeds and foliage.

In the coming years, the combination of paleobotanical studies in the Montagne Noire with work conducted in parallel on the vertebrate fossil record is expected to provide a better insight on ecosystem recovery patterns following the D-C boundary.

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Figure 1.

