

New discoveries of Late Cretaceous floras from Northern Patagonia, Argentina

N. Rubén Cúneo¹, Camila Martínez², María A. Gandolfo³, Roberto Scasso⁴, Ignacio Escapa¹

¹ *MEF-CONICET. Trelew, Argentina, rcuneo@mef.org.ar*

² *Smithsonian Tropical Research Institute, Center for Tropical Paleocology and Archaeology, Panamá*

³ *Dept. of Plant Biology, Cornell University, Ithaca, USA*

⁴ *IGEBA-CONICET-UBA*

Southern Hemisphere Late Cretaceous floras are, in general, scarcely recorded and they are barely described for South America. However, in the last few years, new discoveries from Northern Patagonia, Argentina, have proved that Late Cretaceous floras are more abundant and diverse than previously expected. In particular, paleobotanical studies on two paleofloras, the La Colonia (Campanian–Maastrichtian) and Lefipán (Maastrichtian) have begun to transform our knowledge of an otherwise unknown fossil record for Patagonia. In this contribution we concentrate on the Lefipán Formation paleobotanical record that clearly reflects the presence of an extremely diverse macro and microflora. Geologically, the Lefipán Formation is represented by an upper part, which is a thick coastal deposit that shows marine influence and a lower part where terrestrial facies prevail. At the Cañadón del Loro locality (lower Lefipán Fm.), two plant assemblages were identified: one represented by aquatic angiosperms of the Nelumbonaceae, which occur in pure assemblages composed of leaves and possible seeds, and that represent the second record of this primitive eudicot family in the Southern Hemisphere. The remaining plant assemblage corresponds to conifers and terrestrial angiosperms, including cutinized branches and leafy twigs, seed cones and ovuliferous complexes, which preserve diagnostic characters that allow a preliminary interpretation for the presence of two araucarian lineages (or sections). Angiosperm remains are more diverse than expected, and several leaf morphotypes can be distinguished by their leaf architecture. Interestingly, one of these morphotypes has well-preserved cuticular characters and leaf architecture, indicative of lauracean affinities. In addition, this morphotype also shows insect damage. The presence of low-density venation values for the leaf morphotypes suggests possible rainforest conditions, a feature that is compatible with previous information obtained from other plant localities in the upper part of the Lefipán Fm. Finally, it must be emphasized that the lauracean and some other morphotypes have been also recorded in the younger early Danian Salamanca flora from the same region, suggesting that many angiosperm lineages survived the dramatic events at the K-T boundary.