

## Aquatic plant communities from the Upper Cretaceous La Colonia Formation, Patagonia, Argentina

María A. Gandolfo<sup>1</sup>, N. Ruben Cúneo<sup>2</sup>, Elizabeth J. Hermsen<sup>1,3</sup>, Julieta Gallego<sup>2</sup>

<sup>1</sup>L.H. Bailey Hortorium, Department of Plant Biology, Cornell University, Ithaca, NY, USA, [mag4@cornell.edu](mailto:mag4@cornell.edu)

<sup>2</sup>Department of Paleobotany, Museo Paleontológico Egidio Feruglio, Trelew, Chubut, Argentina

<sup>3</sup>Department of Environmental and Plant Biology, Ohio University, Athens, Ohio, USA

Upper Cretaceous sediments are widespread in northern Patagonia, with several geological units bearing diverse aquatic paleobiotas that accumulated as the result of complex and dynamic coastal sedimentary processes. One of these units is the La Colonia Formation. The entire sequence representing this formation is dominated primarily by fine-grained clay facies that are interpreted as having been deposited in coastal fresh water lakes or lagoons sporadically affected by brackish conditions. The La Colonia fauna includes terrestrial and aquatic reptiles, mammals, and fish; the flora is largely undescribed. In this report, we discuss the aquatic paleoflora of three La Colonia Formation localities: Cañadón de los Helechos, Cerro Bosta and Cañadón del Irupé. The flora of the first two localities consists entirely of the aquatic fern *Regnellidium* (Marsileaceae), suggesting a low-diversity, perhaps monospecific plant community. The last locality, in contrast, is dominated angiosperm taxa belonging to the families Nelumbonaceae and Araceae, and also includes the remains of ferns belonging to the families Marsileaceae and Salviniaceae. Modern species of these groups have a worldwide distribution and comparable extant taxa are found in freshwater lakes or lagoons, suggesting a similar environment for the fossils. Each of the localities is characterized by a relatively high accumulation of biomass, which, along with the excellent preservation of delicate plant organs, indicates that deposition was autochthonous. This corroborates the inference from taxonomic affinities that these plants inhabited low-energy aquatic environments. The presence of a diverse tetrapod fauna and palm remains in the surrounding landscape is a clear indication that climate conditions in Patagonia at the close of the Cretaceous were warm enough to sustain a diverse biota.

**Keywords:** Mesozoic, ecosystem, Nelumbonaceae, Araceae, Marsileaceae.