

Preface

Horses are extremely well represented in the fossil record with around 56 million years of evolutionary history, underlined by many episodes of extinction and dispersion. More frequently, horses' evolution was cited in textbooks and museum exhibits as important evidence in support of evolutionary theory. It is common to find this story presented in diagrams illustrating what are considered to be the major trends of horse evolution (increased body size, reduction in side toes, diversification in tooth morphology).

The Equidae family, therefore, is a great model to study adaptive processes, in particular the massive exchange of fauna between the two American continents that took place during the Great American Biotic Interchange (GABI) around 3 million years ago. This led to a radiation of endemic forms within South America, such as *Hippidion*, an equid with short and robust limbs and a particularly long nasal notch, which roamed the plains from Colombia to Argentina and the Andean mountains, from Peru to Chile.

The study of fossil horses in South America began in the mid-nineteenth century when Darwin found a molar of a fossil horse in Argentina (Owen 1840). Since this publication has important implication to increase our knowledge of fossil horses in South America with new ancient DNA methods, isotopes analysis, cladistics, and geochronology. This present contribution provides an up-to-date review of horses from South America and attempts to synthesize the thirty years of collaboration between authors. Given the wealth of paleontological and archaeological remains that documented the role of first human populations in the extinction of horses, the family Equidae has perhaps something even more important to offer, namely a multidisciplinary field of study, truly bridging geoscience, biosciences, and humanities.

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