SHORT COMMUNICATION

A NEW GENUS FOR ONOHIFFIDIDUM GALUSHAI MACFADDEN AND SKINNER, 1979 (MAMMALIA, EQUIDAE), FROM THE LATE HEMPHILLIAN OF NORTH AMERICA

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The great diversification of horses began in the Neogene, probably as a positive selection for grazing, when grasslands spread in North America (Stromberg, 2006). Nevertheless, not all equids followed this evolutionary trend to occupy the grazing guild. The hippidiforms, an informal group of the tribe Equini that includes Hippidion and Onohippidium (Hoffstetter, 1950), were apparently much more selective and of browsing habits (Bernardes et al., 2013, and references therein). Both genera were already diversified in North America during the Neogene (MacFadden and Skinner, 1979) and participated in the Great American Biotic Interchange (GABI)—a biogeographic event that occurred from the Pliocene–Pleistocene onward (MacFadden, 1997). By the time their records begin in South America, both Hippidion and Onohippidium were extinct in North America (MacFadden, 1997).

The first described fossils of Onohippidium and Hippidion (during the 19th century) were from South America. Since then, the following discoveries brought several debates regarding their diversity, taxonomy, and phylogenetic relationships (for more detailed information, see Alberdi and Prado, 1993, 2004; MacFadden, 1997).

The main taxonomic disagreements began after the recognition and description of Hippidion and Onohippidium in North America (MacFadden and Skinner, 1979). Alberdi and Prado (1993) claimed that the taxa recognized by MacFadden and Skinner (1979) were not hippidiforms, because their postcranial remains do not show the characteristic robustness of the group and considered O. galushai more closely related to Pliohippus and Dinohippus. MacFadden (1997, 1998) noted that the DPOF is absent in Hippidion, which differentiates it from Onohippidium. However, Alberdi (1987) had previously recognized the DPOF as a variable feature and proposed Hippidion as the only South American hippidiform. Alberdi and Prado (1998) replied to MacFadden (1997) reinforcing the work of Alberdi (1987) and proposing that the DPOF in Hippidion varies due to dimorphism, such as in Old World Hippidion horses (Alberdi and Prado, 1998). Thereafter, MacFadden (1998) defended the importance of the DPOF in Equidae systematics and that the development of the DPOF is neither related to sex nor ontogenetic development.

More recently, the molecular studies of Weinstock et al. (2005) and Orlando et al. (2009) have made their contribution to the issue, revealing the South American hippidiforms as sister group of the stilt-legged horses and the caballine horses. Nonetheless, neither study included O. galushai in the analysis, so the issue remains open, and nothing new has been published since then. There is still a taxonomic instability concerning Onohippidium, and its occurrence in North America is still uncertain. Thus, in order to stabilize the taxonomy of the hippidiforms, we here review the taxonomy of Onohippidium and propose a new genus for O. galushai.

MATERIALS AND METHODS

Morphological comparisons were conducted for dental and cranial specimens housed at the institutions mentioned in the subsequent section. The analyzed hippidiforms include the taxa described in the literature: from North America—the holotype of Onohippidium galushai; and from South America—O. munizii Moreno, 1891, O. devillei Gervais, 1855, Hippidion principale Lund, 1846, and H. saldiasi Roth, 1899.


Anatomical Abbreviations—DPOF, dorsal preorbital fossa; LA, lacrimal; MX, maxilla; NS, nasals; PM, premaxilla; P1, first upper premolar; P2, second upper premolar; P3, third upper premolar; P4, fourth upper premolar; M1, first upper molar; M2, second upper molar; M3, third upper molar; ZY, zygomatic.

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