

The Natural History of Horses

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The Family Equidae has evolved over 60 million years time and naturally populated North America, Eurasia, Africa and South America. Studies of horse evolution extend back to the middle of the 19th century. Recognition that the Equidae had a long, paleontologically well documented fossil record was first recognized by O.C. Marsh (Yale University) and T.H. Huxley in 1876 with their joint study of the Eocene “dawn horse” *Eohippus*. Early studies of equid evolution were undertaken by a number of paleontologists including Gaudry, Marsh, Osborn, Matthew and Stirton (amongst others) whose views were formulated from study of the splendid fossil equid record preserved in Western North American geological rock sequences. By 1940, the consensus view was that the Equidae evolved gradually and progressively from brachydont browsing forms to hypsodont grazing forms. In 1951 George Gaylord Simpson published the single most cited volume on horse evolution to date whereby he identified the major, genus-level lineages recognized at that time, their geographic extensions and paleodietary preferences. MacFadden (1995) later added his own perspective on equid evolution and in 2005 reframed Simpson’s phylogeny of the Equidae with address to the contemporary understanding of the major North American lineages, their geographic extensions and paleodietary preferences. The last 30 years research on equid evolution have investigated the pattern and processes of equid evolution and, with the extant genus *Equus*, have enjoyed opportunities to seek congruence between traditional morphologic and molecular evidence for the phylogenetic relationships of the group. Current scientific work on African horses is helping to better resolve their evolutionary relationships with the added advantage of stimulating conservation efforts on their behalf. Genomic research on the Somali ass is important both for better resolving the evolutionary relationships of extant *Equus* and conservation of this rare, endangered species.