



Rhinoceroses characteristically have three toes on each foot and belong to the Order Perissodactyla, the odd-toed ungulates. Also in this order are horses and tapirs.

## ORDER PERISSODACTYLA

The Perissodactyla are the odd-toed ungulates, encompassing three distinct families: the Rhinocerotidae (rhinos), Tapiridae (tapirs) and Equidae (horses).

The rhinos and tapirs retain three toes on each limb, while among the horses only the central toe remains. In the past the order comprised many more species than exist today. Extinct members of the rhino family commonly attained giant sizes, and developed a variety of horn-like structures on the snout. Among them was *Baluchitherium* which stood 5.5 metres high at the shoulder and is the largest land mammal that ever lived. Today's rhinos belong to three distinct subfamilies, which are only distantly related.

The African rhinos are represented by two species, the Asian one-horned rhinos by two species, and the Asian two-horned rhinos by a single species. The extinct woolly rhino, which occurred in Europe and northern Asia during the ice ages, was a member of the latter.

The four species of tapir that exist today are medium-sized browsers, occurring in the forests of South America as well as in southeast Asia. The equids were the pioneer occupants of the open grasslands that developed during the late Miocene period, and evolved high-crowned molars to feed on certain grass leaves. The domestic horse

is of Eurasian origin; there is one African and one Asian species of wild ass while the three species of zebra are all African.

All of the Perissodactyla are herbivores that rely on hindgut fermentation to extract energy from the cellulose component of plant cell walls and do not chew the cud. Microbial fermentation begins in a blind sac called the caecum, situated at the junction between the small and large intestine, and continues in the greatly enlarged and sacculated large intestine. Digestion is less complete than in ruminants, but in compensation the animals eat more per day relative to their body mass, and are better able to tolerate highly fibrous material.

Although represented by far fewer species than are the artiodactyls, perissodactyls can form a sizeable fraction of the community biomass of large herbivores in African ecosystems. The white rhinoceros is abundantly represented in fossil deposits from the Pleistocene era, while zebras are common through a wide range of ecosystems across the continent. From this ecological perspective, these hindgut fermenters are no less successful than the more speciose ruminants. The recent demise of rhinoceroses is due to their inability to cope with human hunters, rather than to maladaptiveness to environments.

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