

Reading: Horses - Ancient and Modern

Both the global climate and the local environments where horses are found have changed significantly in the 50 million years between the multi-toed ancient horses and the modern Przewalski's horse and Plains zebra that have only a single large toe or hoof. Over that time the Earth has become cooler, and drier. In addition, the type of environment that covers the land where horses are found has also changed. Fifty million years ago, much of the land where horses lived was similar to tropical rainforests - warm and damp with many plants and trees. Over time, as the Earth cooled and got drier, those rainforests disappeared, and more open forests took their place. Where horses were found to live, the forest eventually gave way to grasslands with some trees. In modern times, the environments where horses are found are wide open grasslands.

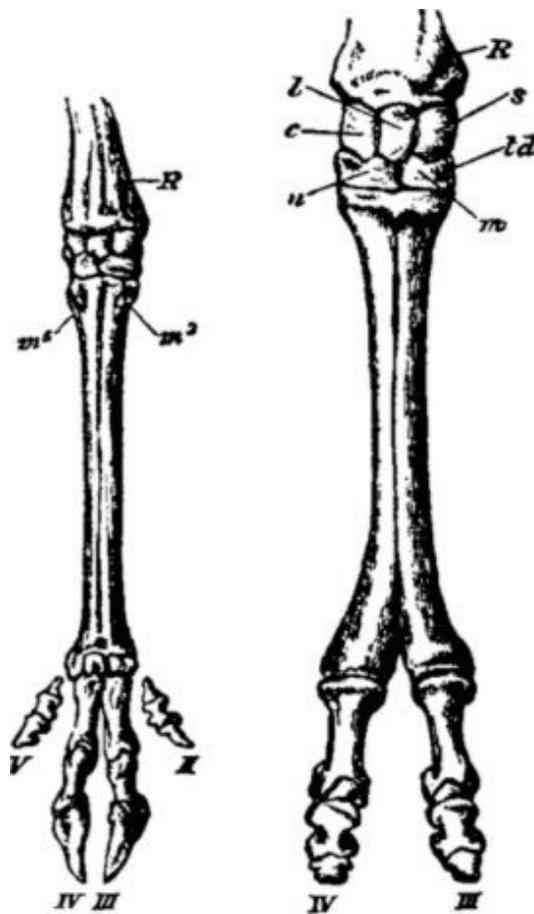


Those ancient tropical rainforests where the multi-toed horses lived were rich in resources. There were many different types of plants that could be used as food by the herbivorous animals, such as Hyracotherium, that lived there. The terrain was crowded with trees and vines growing in all directions. Numerous animals lived in burrows or other shelters that were scattered over the ground and in the trees. A lot of different kinds of animals lived in those rainforests. Some ate only plants. Some small predators thrived on insects. Larger predators were ambush hunters, lying in wait for smaller animals to come by and then pouncing on them.

In open grasslands where modern horses live, there are also rich resources. Grass grows in abundance and is the primary source of food for animals that live there. The terrain is mostly flat and firm and covered with grasses and a few other kinds of plants. The grass grows in wide open expanses that sometimes go on for miles with nothing to interrupt the view. The grasses provide food for many insects and other herbivores, including the horses. Small predators catch and eat insects and some small mammals, like mice. Larger predators in the grasslands, like lions and cheetahs, typically hide in the grass and stalk their prey, then chase them down in order to catch them.

Nothing is known from the fossil record about how long ancient horses lived or how often they reproduced. Modern horses live for about 30 years. They are first able to reproduce when they are about 3-5 years old. They generally give birth to one offspring (called a foal) every two years.

Just like you, many scientists are interested in the toes of horses. They want to know more about the multiple toes that ancient horses had. However, there are no ancient horses alive to be studied. So scientists study other ungulates, such as deer, goats, and camels, in order to understand how the multiple toes worked. These ungulates are animals that are similar to horses in many ways, but unlike horses that inherit a single toe or hoof, they inherit two toes or cloven hooves. They found that with two toes, the animals are able to spread their toes as they step forward, and then close their toes when they place them down. This allows them to grasp and hold onto rocks and uneven surfaces very well. Animals with single flattened hooves like zebras or Przewalski's horses, cannot grasp the ground their feet land on. However, they are able to lift and place their feet quickly which allows them to run very fast.



Forelegs of Deer (left) and camel (right).