

Lesson 26: Mega Mammals

After the dinosaurs disappeared, mammals stepped into an open world and filled it with extraordinary variety. Over tens of millions of years, some lineages grew to sizes that rival or surpass the largest dinosaurs. For a long time, Earth was home to **megafauna**, truly enormous mammals. **Woolly mammoths** had tusks three meters long and thick shaggy fur roamed the frozen grasslands of the northern world. Giant ground sloths the size of elephants lumbered through South American forests. Cave bears stood over two meters at the shoulder. Saber-toothed cats stalked prey with canine teeth as long as daggers.

Why did some mammals grow so large during the **Ice Age**? In cold climates, large bodies conserve heat more efficiently than small ones, a pattern called **Bergmann's Rule**. A mammoth loses heat from its surface relative to its volume more slowly than a small mammal does, so large size was genuinely useful in an arctic world. Thick fur, dense fat, and enormous size together made these animals formidable survivors of extreme cold. The woolly mammoth was not just a novelty, it was a supremely well-adapted creature, perfectly suited to its world.

But that world did not last. As the Ice Ages came to an end and the climate warmed, something happened to the megafauna. Species after species disappeared: mammoths, giant sloths, cave bears, woolly rhinoceroses, mastodons. Scientists still debate the exact cause. Climate change disrupted the grassland ecosystems these animals depended on. And something else was happening at the same time: humans had arrived. Early human hunters were skilled and cooperative, and some researchers believe overhunting accelerated or caused the **extinction** of many megafauna species, especially in the Americas and Australia where animals had never seen human hunters before.

The great animals of the Ice Ages left their bones in tar pits in California, their frozen bodies in Siberian permafrost, and their images in the paintings of the humans who lived alongside them. They were real, they were spectacular, and their loss reshaped every ecosystem they had once inhabited. An **adaptation** that made an animal perfect for one world could do nothing to save it when the world changed.