

# PREHISTORIC TIMELINE

## DEVONIAN

419.2 million years ago

## CARBONIFEROUS

358.9 million years ago

## PERMIAN

298.9 million years ago

## JURASSIC

201.3 million years ago

## TRIASSIC

252.2 million years ago

The creatures on this timeline are not to scale.

## CRETACEOUS

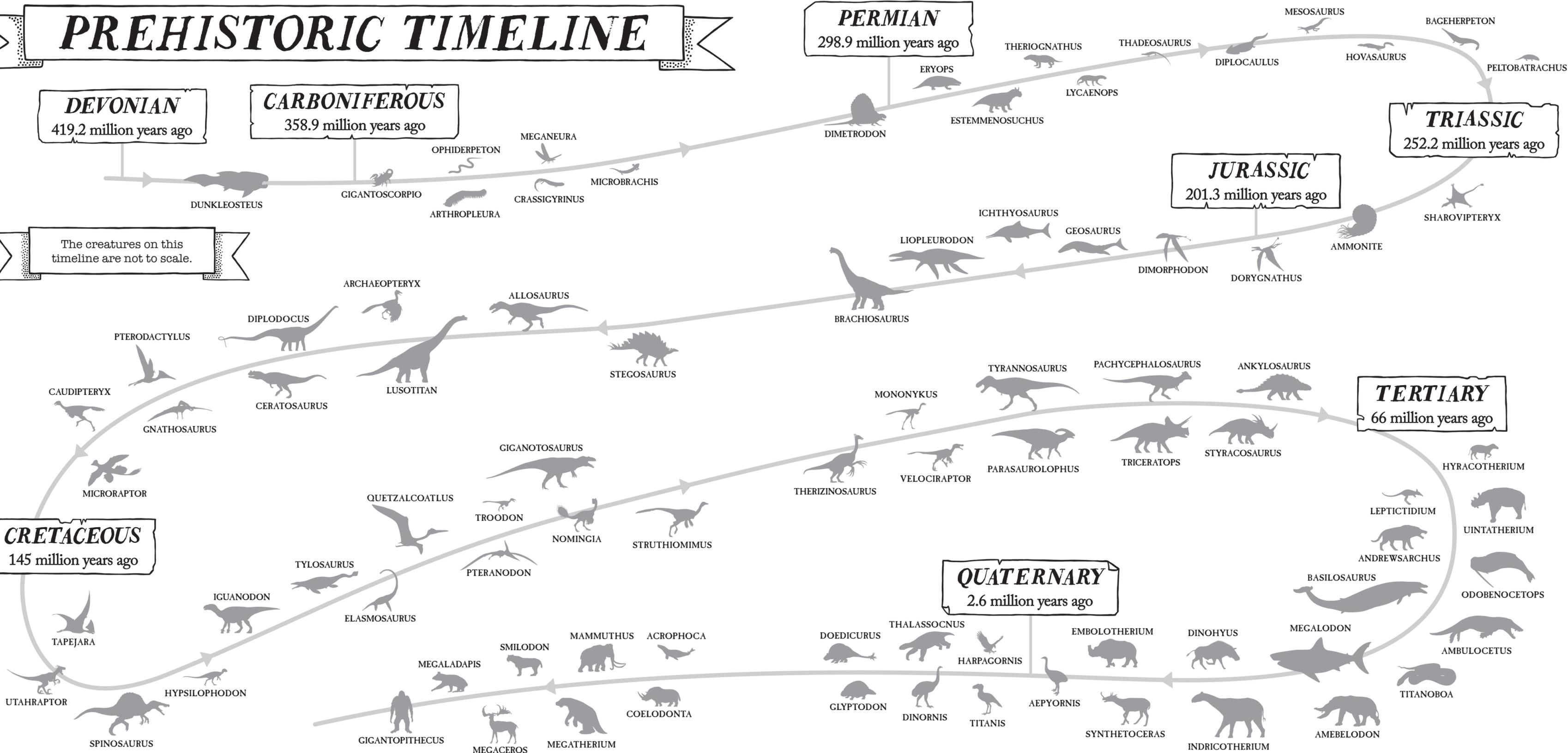
145 million years ago

## QUATERNARY

2.6 million years ago

## TERTIARY

66 million years ago



# DEVONIAN, CARBONIFEROUS & PERMIAN

419.2 million years ago – 358.9 million years ago – 298.9 million years ago – 252.2 million years ago

During the Devonian Period (sometimes known as the 'Age of Fishes'), a huge variety of creatures that lived in and beside water appeared. These included the first bony fish and shark-like creatures with skeletons made from a substance called cartilage. The first forests sprouted from the soil, and huge trees erupted into the air.

This spell of great growth and expansion continued into the Carboniferous Period. Oxygen levels in the atmosphere soared to the highest the planet has ever known, and forests and swamps dominated the landscape. It was at this time that the majority of the Earth's coal (fossilized carbon) began to form from all the lush vegetation.

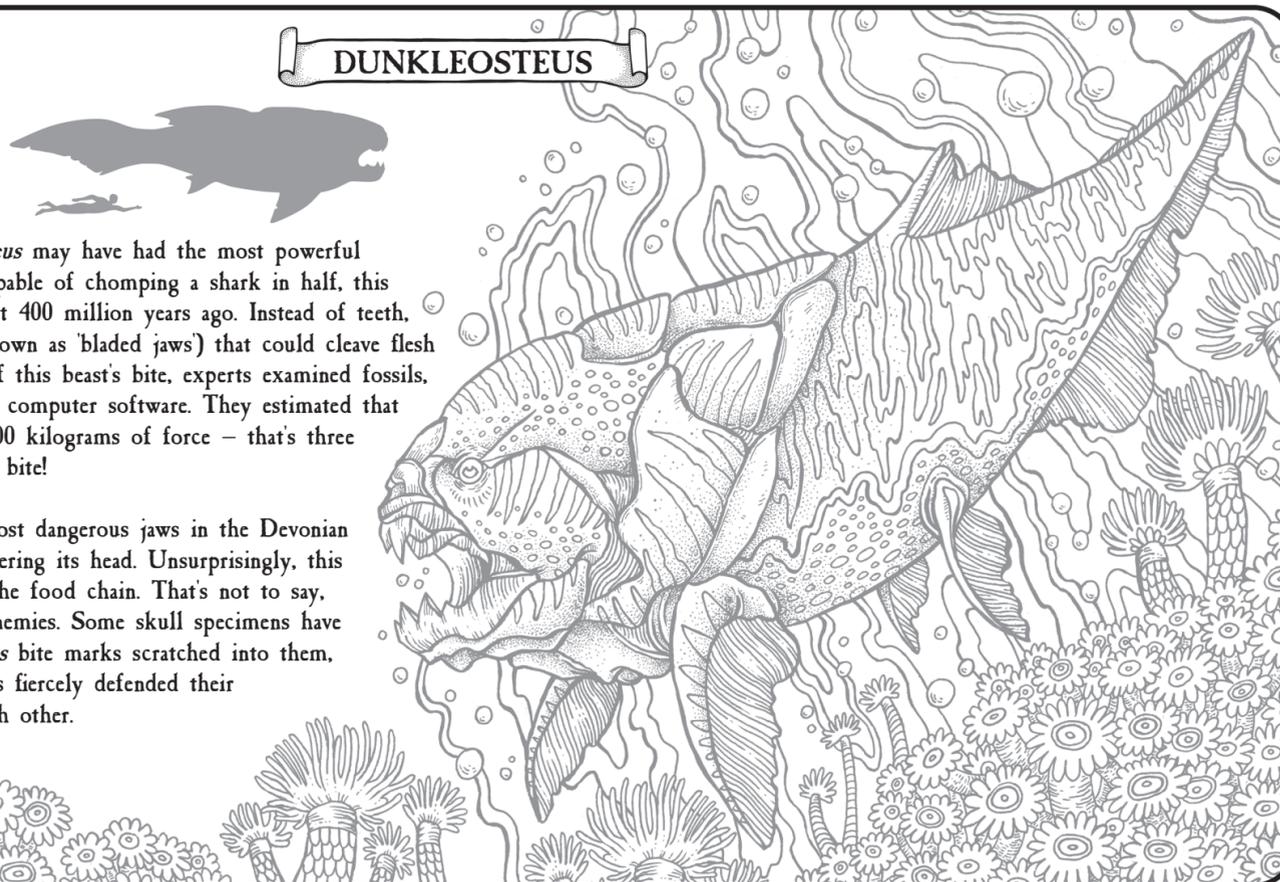
The Permian Period, however, was a tougher time. At the end of the Carboniferous Period, the planet became locked in an ice age, but temperatures soared during the Permian Period. Dense forests and fertile swamps became dry deserts and wastelands. Animals struggled to live in these harsh landscapes, and approximately 95% of all sea life and 70% of land species died out during this time. This marked the most devastating extinction planet Earth has ever known.

## DUNKLEOSTEUS

Name translation: Dunkle's bone  
Diet: Fish  
Size: 10 m

Scientists think that *Dunkleosteus* may have had the most powerful bite of all aquatic animals. Capable of chomping a shark in half, this fearsome fish ruled the seas almost 400 million years ago. Instead of teeth, *Dunkleosteus* had bony plates (known as 'bladed jaws') that could cleave flesh and bone. To predict the power of this beast's bite, experts examined fossils, made mechanical models and used computer software. They estimated that this fish could generate up to 2,000 kilograms of force – that's three times more powerful than a lion's bite!

*Dunkleosteus* not only had the most dangerous jaws in the Devonian seas, it also had thick armour covering its head. Unsurprisingly, this armoured fish was at the top of the food chain. That's not to say, however, that it didn't have any enemies. Some skull specimens have been discovered with *Dunkleosteus* bite marks scratched into them, which suggests that these creatures fiercely defended their territory, and perhaps even ate each other.



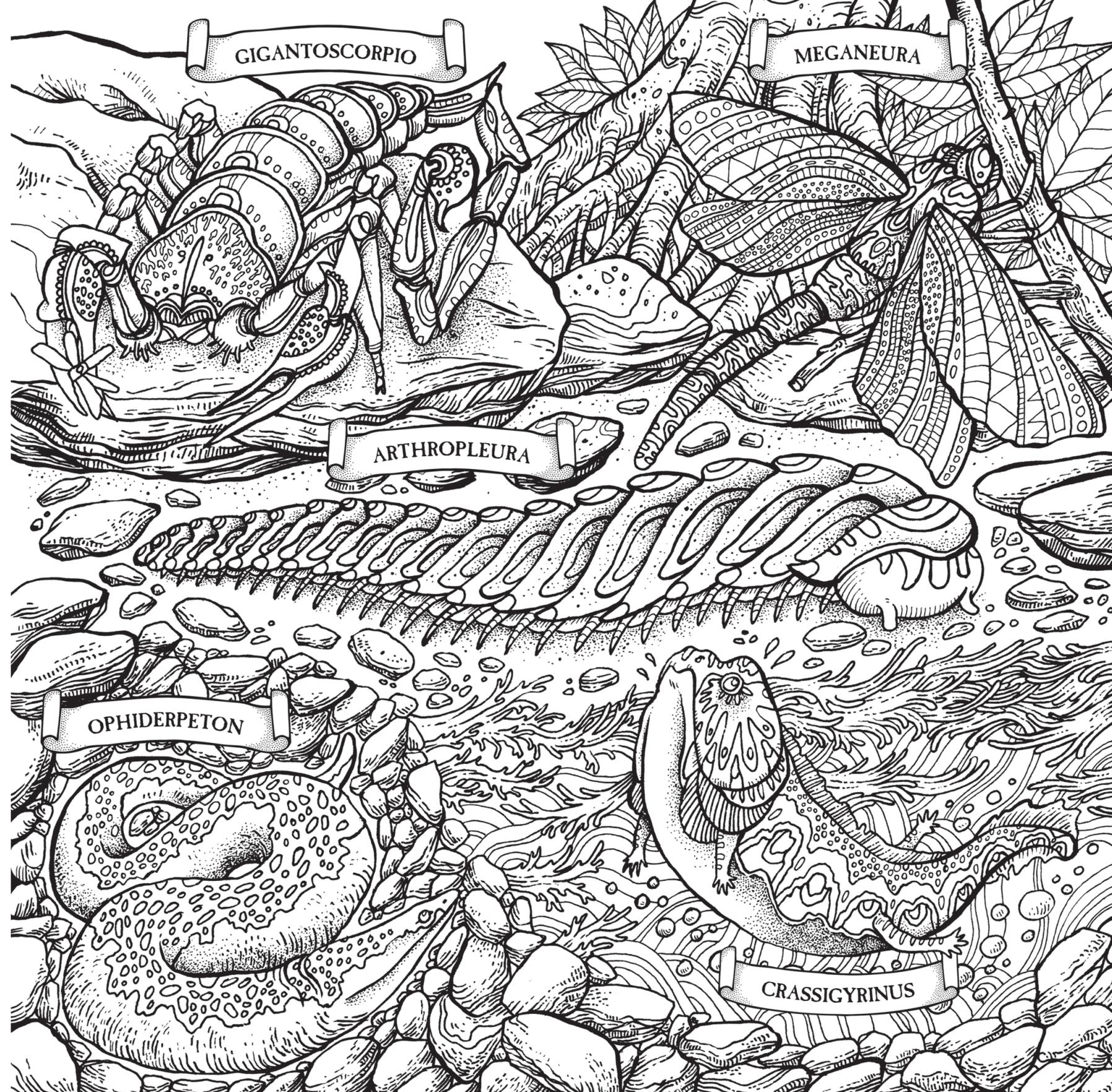
## GIGANTOSCORPIO

## MEGANEURA

## ARTHROPLEURA

## OPHIDERPETON

## CRASSIGYRINUS



# CRETACEOUS

145 million years ago – 66 million years ago

For many palaeontologists and scientists, the Cretaceous Period produced the most exciting and varied animals. Never before, or indeed since, have the planet's animals been, collectively, so colossal. Giant carnivores roamed the terrain, terrific pterosaurs soared in the skies, and gargantuan monsters skulked in the dark depths of the seas. This high point in the reign of dinosaurs also marked the moment in time where the first modern insect, mammal and bird groups, and the first flowering plants flourished, paving the way for new types of animals to thrive after the dinosaurs died out.

The Cretaceous Period was extremely warm. Temperatures soared and sea levels rose as the ice caps at the poles melted. Across the globe, volcanoes spewed lava and released toxic gases into the atmosphere. These gases caused temperatures to rise even higher, producing a greenhouse effect.

This era ended with the extinction of the dinosaurs. It is widely acknowledged that an enormous meteorite (measuring somewhere between 18 and 20 kilometres wide) struck the planet near the Yucatan Peninsula in Mexico. On impact, this meteorite created a crater more than 30 kilometres deep and 100 kilometres wide, kicking plumes of dust into the air and sending violent tremors across the Earth. The dust would have blotted out the sun, causing plants and animals to die in darkness. Though the meteorite was probably not the sole reason for such a mass extinction, it played a huge part in bringing the dinosaur dynasty to an abrupt end.

## SPINOSAURUS

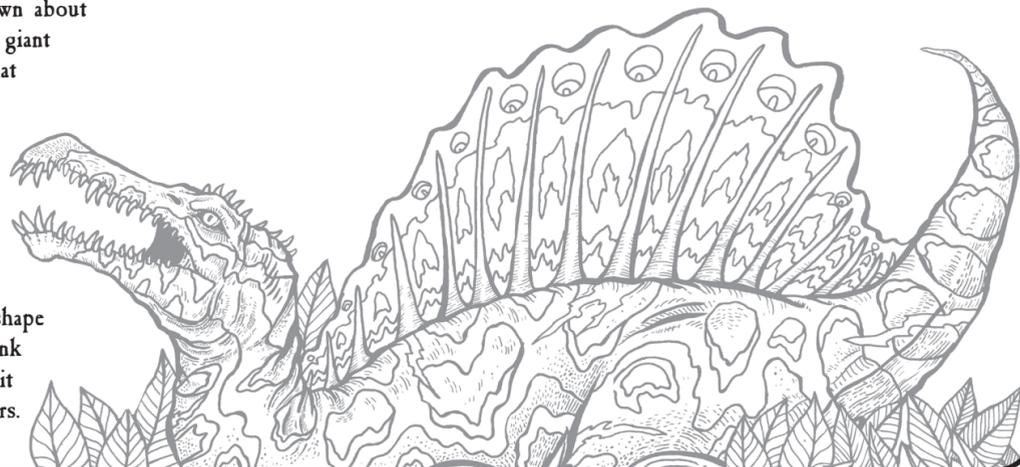
Name translation: Spined lizard  
Diet: Fish and river-dwelling creatures  
Size: 17 m



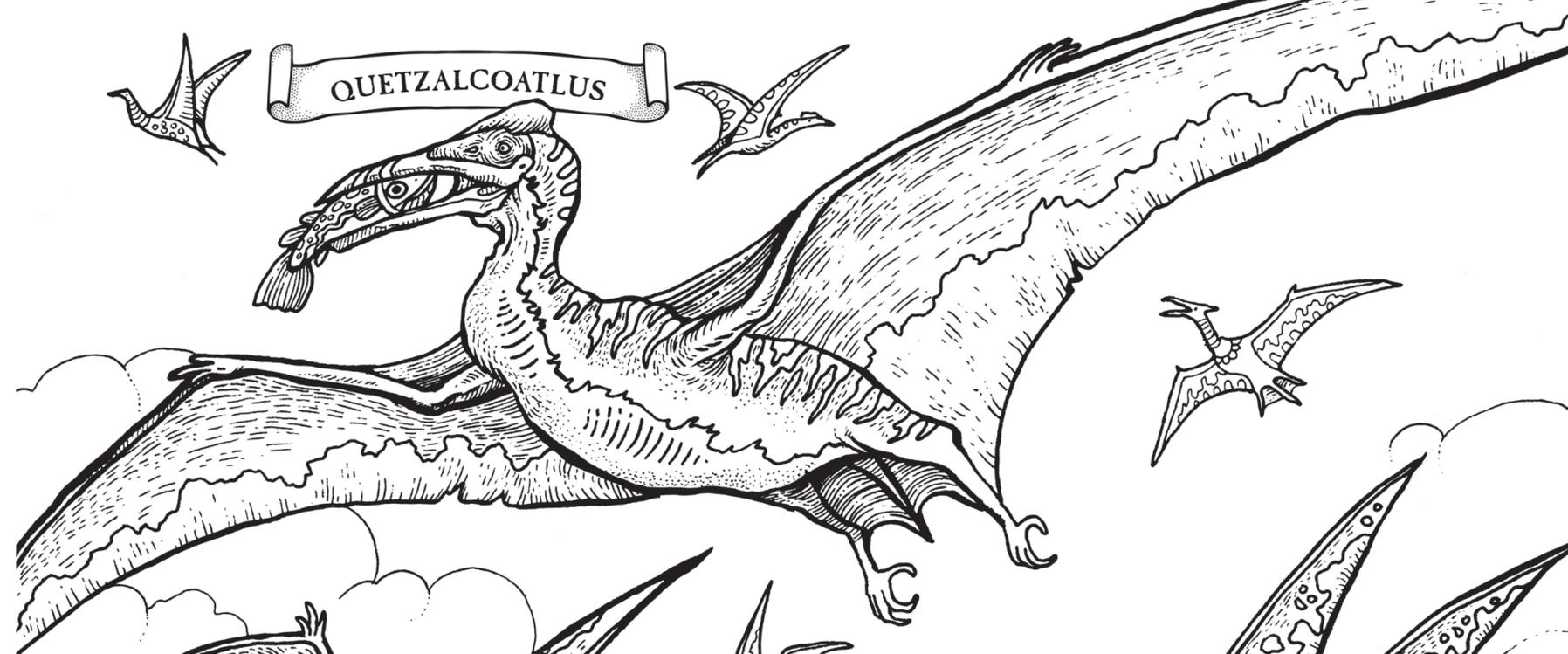
The sail on the beast's back is still a mystery. At a height of almost two metres, it formed a colossal wall that may have helped regulate the dinosaur's body temperature, though it may have also been used to attract a mate or to ward off any other predatory dinosaurs.

The first *Spinosaurus* remains ever discovered (in Egypt, in 1912) were destroyed by bombing raids during World War II. Since then, there have been few *Spinosaurus* fossils (other than tiny bone fragments) in circulation, and for more than a century very little was known about this dinosaur. In 2014, however, palaeontologists unearthed a giant specimen in the Sahara Desert, and the scientific findings that followed have been staggering.

*Spinosaurus* is the largest land carnivore ever discovered. It lived predominantly on a diet of fish and other marine creatures, and probably dwelt near rivers and other bodies of water. Its head was similar in shape to that of a crocodile, and its long cone-shaped teeth were perfect for snapping up aquatic animals. By looking closely at the shape of its wide feet and at its bone density, palaeontologists think *Spinosaurus* was a keen swimmer, too. Experts believe that it lived both on land and in water, like crocodiles and alligators.

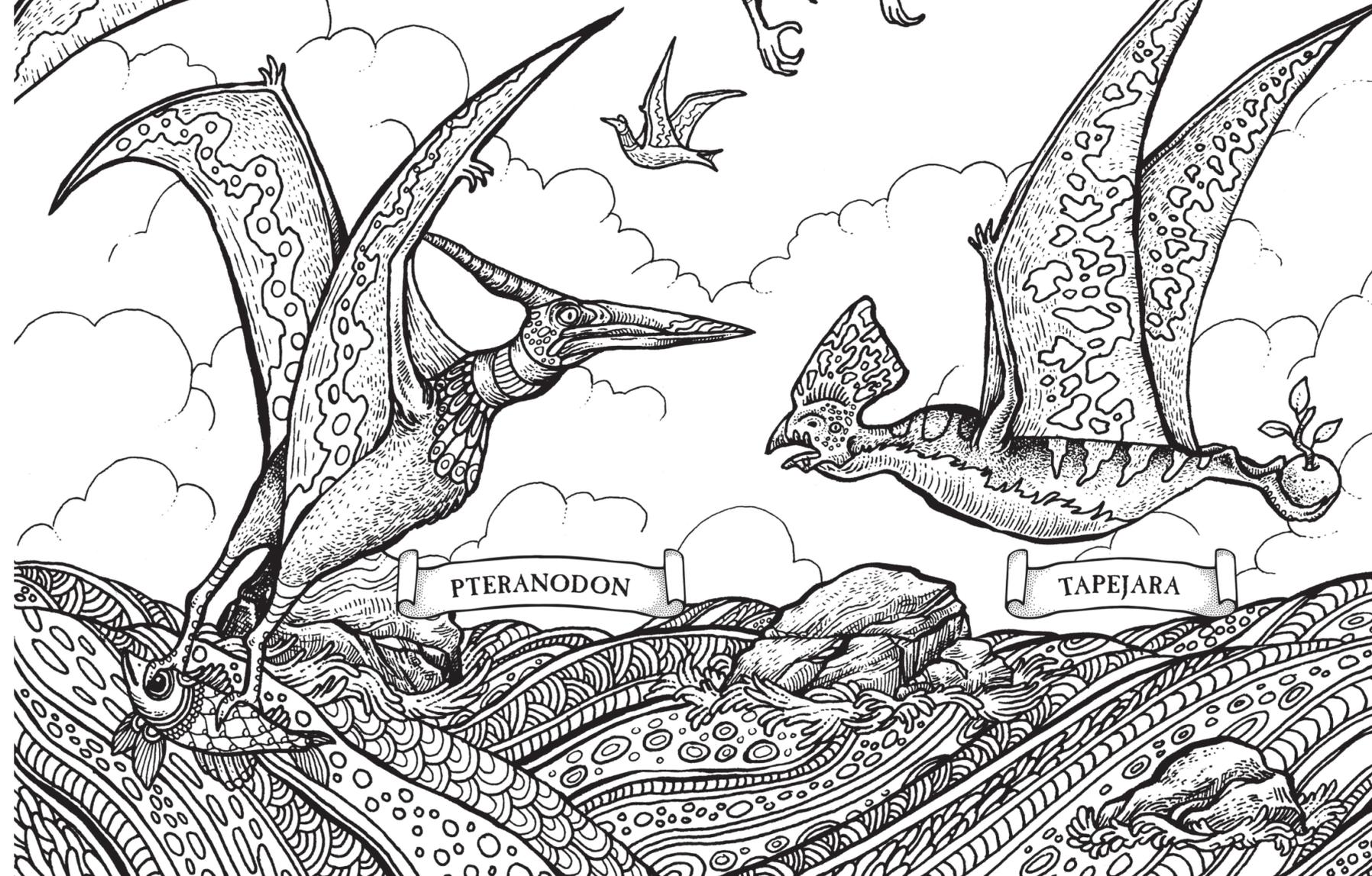


## QUETZALCOATLUS



## PTERANODON

## TAPEJARA



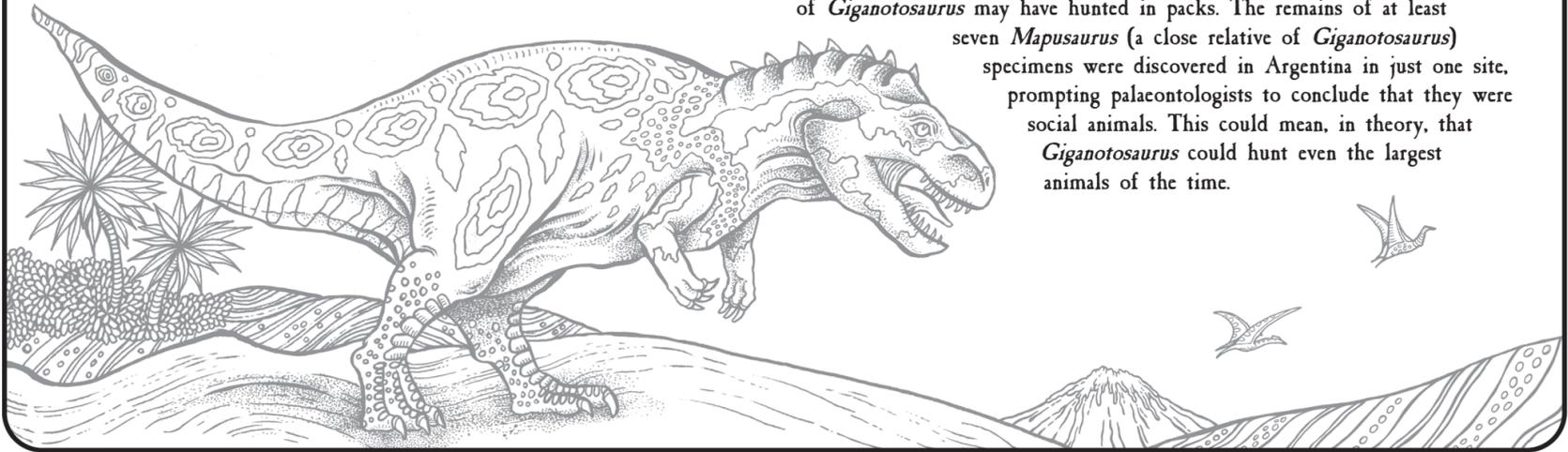
## GIGANOTOSAURUS

Name translation: Giant southern lizard  
Diet: Large plant-eating dinosaurs  
Size: 15 m



Discovered by amateur fossil-hunter Reuben Carolini in Patagonia (an area of Argentina) in 1993, *Giganotosaurus* could weigh up to 8,000 kilograms. Its head alone was larger than a full-grown human being, though its brain was probably no bigger than a banana.

Experts now believe, though the theory is still unproven, that some species of *Giganotosaurus* may have hunted in packs. The remains of at least seven *Mapusaurus* (a close relative of *Giganotosaurus*) specimens were discovered in Argentina in just one site, prompting palaeontologists to conclude that they were social animals. This could mean, in theory, that *Giganotosaurus* could hunt even the largest animals of the time.



## TYRANNOSAURUS

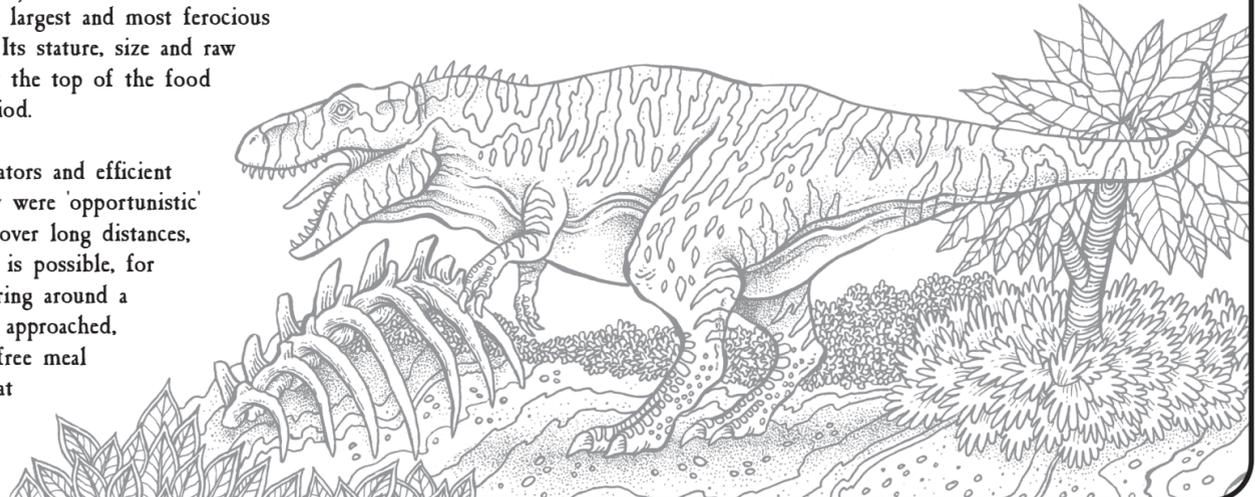
Name translation: Tyrant lizard  
Diet: Carrion and medium-sized dinosaurs  
Size: 12 m



*Tyrannosaurus* didn't actively hunt, too. A fossil of a hadrosaur was discovered in 2013 with the tooth of a *Tyrannosaurus* embedded in it. Some palaeontologists believe that this provides overwhelming evidence that tyrannosaurs weren't merely scavengers, and that they were prone to ambushing or attacking at close quarters, too.

Before the discovery of bigger beasts, such as *Giganotosaurus* and *Spinosaurus*, *Tyrannosaurus* (probably the most famous dinosaur of all time) was considered to be the largest and most ferocious land-dwelling carnivore ever to exist. Its stature, size and raw power ensured that it stood firmly at the top of the food chain during the Late Cretaceous Period.

Though tyrannosaurs were fierce predators and efficient killers, it is widely believed that they were 'opportunistic' hunters, unlikely to sprint after prey over long distances, and much more likely to scavenge. It is possible, for instance, that smaller carnivores gathering around a carcass would scatter if a tyrannosaur approached, leaving the larger dinosaur to eat its free meal in relative peace. That's not to say that



## THERIZINOSAURUS

